# FDZ-DATENREPORT

Documentation of labour market data

**01|2023 EN** IAB Job Vacancy Survey data linked to administrative data of the IAB (IABSE-ADIAB) 1975-2020

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# IAB Job Vacancy Survey data linked to administrative data of the IAB (IABSE-ADIAB) 1975-2020

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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 offered is suitable for their research task; on the other, the data can be used to prepare evaluations.

# Contents

# Abstract

This data report describes the data of the IAB-Job Vacancy Survey-ADIAB, the linkage between the most recent case of a hire from the IAB Job Vacancy Survey with administrative data of the hired person. The content and logic of the provided person-level data follow the "IAB Sample of Integrated Labour Market Biographies (SIAB)". The Job Vacancy Survey can be merged using a distinct identifier.

# Zusammenfassung

Dieser Datenreport beschreibt die Daten des IAB-Stellenerhebungs-ADIABs (IABSE-ADIAB), die Verknüpfung des Falls der letzten Einstellung aus der IAB-Stellenerhebung mit den administrativen Prozessdaten der eingestellten Personen. Die Personendaten folgen im Umfang und Logik der „IAB Stichprobe der Integrierten Arbeitsmarktbiografien (SIAB)". Die Befragungsdaten der Stellenerhebung können durch den Nutzer über einen eindeutigen Schlüssel, der in beiden Datensätzen vorhanden ist, zugespielt werden.

# Keywords

German administrative micro data, labour market data, data manual, IAB Job Vacancy Survey

# Acknowledgement

# Data availability

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

# 1    Introduction and outline

## 1.1    Introduction

This report describes the data of the IAB Vacancy Survey-ADIABs (IABSE-ADIAB), the linkage between the most recent case of a hire of the IAB Vacancy Survey (IAB-JVS) and the administrative, process-generated data of the hired person.

The identification of IAB-JVS hires stems from the matching algorithm developed by Lochner (2019). The method utilizes overlapping information which is present in both the IAB-JVS as well as in the administrative data. Important variables from both data sources such as the hiring date, the occupational code, and the hired person's age and gender are compared using a deterministic algorithm. Several plausibility checks are performed to improve the accuracy of the linkage.

Resulting from the IAB-JVS from 2010 to 2020[1], the provided data comprise the entire working history of person from the administrative data which are identified as IAB-JVS hires. The data content and logic are similar to the Sample of Integrated Employment Biographies (SIAB) and can be linked to the survey data using the provided unique key variable (see Box 1 for example code).

The administrative data originate from the Integrated Employment Biographies (IEB) of the IAB. The person-level spell data may have at least one of the following states 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) or at an institution responsible for implementing SGB II as a jobseeker (recorded from 1997 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:

While 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 or by municipal institutions responsible for implementing SGB II, while

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[1] As of September 2022, the data from the IEB-JVS were available to FDZ users only up to the third quarter of 2019. However, these are expanded every year.

participation in employment and training measures is recorded in the Participants-in-Measures History Files (Maßnahmeteilnahmehistoriken – MTH and XMTH).

This data report is structured as follows. Chapter 1 contains information on data access as well as an outline of the data, a list of variables and the volume structure. A description of the individual data sources can be found in Chapter 2. Data preparation and sampling are discussed in Chapter 3. Chapters 4 and 5 contain a description of data linkage and data quality, while the individual variables are described in Chapter 6.

## 1.2    Data use

### 1.2.1    Data access

The IABSE-ADIAB data are weakly anonymised and can only be evaluated during guest visits to one of the locations of the Research Data Centre of the Federal Employment Agency at the Institute for Employment Research (IAB-RDC) and subsequent remote data processing.

As a first step, an application has to be submitted to the IAB-RDC for data use. The IAB-RDC decides on the approval of the research project on behalf of and, if necessary, in consultation with the Federal Ministry of Labour and Social Affairs (BMAS). After approval, a contract will be concluded between the institution of the researcher and the IAB. Details on how to apply for the data set and the data processing options can be found on the website of the IAB-RDC. Access to the data thus only begins once the applicant has signed contracts with both research data centres.

### 1.2.2    Data management

The administrative data contain identifiers (system-free personal and company numbers), personal characteristics, information on employment, benefits, job search and participation in labour market measures, residence characteristics and technical characteristics. In addition, the data contain establishment information such as the establishment number, the year, information on the place of work and branches of the economy as well as further information on the establishment as at 30 June of each year. For eastern Germany, the establishment data are only available from 1992. Certain variables in the administrative data which make it possible to identify individuals or establishments are only disclosed in their original form if this is necessary for the analysis objective and is justified explicitly in the application for data access. The variables which are particularly sensitive from the viewpoint of data protection legislation are:

- nationality (nation)
- month of birth (gebmon)
- place of residence: employment agency (wo_aa)
- place of residence: district (Kreis) (wo_kreis)
- occupational sub-group (beruf2010_4)
- 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)

### 1.2.3    File names of the administrative data and the Linkage File

Individual File

IABSE_ADIAB_7520_v1.dta

IAB Vacancy Survey

iabse_09.dta bis iabse_19.dta (as of September 2022)

## 1.3    Profile

**Table 1 Profile of NEPS-SC3-ADIAB**

| Category | Description |
|---|---|
| Topics/ groups of variables | IAB Vacancy Survey<br>Employment, personnel requirements, activity impediments, stopped search effort, occupations with increasing demand and with expected bottlenecks in the next 3 years, marginal employment, part-time employment, labour market reform, employment opportunities of (long-term) unemployed persons, further education of workforce, One-Euro-Jobs, labour market participation of older employees, establishment-level integration of refugees, detailed information on the last hiring and to the most recent stopped search effort<br>Administrative personal data<br>*Employee History (Beschäftigtenhistorik - BeH):*<br>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.<br>*Benefit Recipient History (Leistungsempfängerhistorik - LeH):*<br>Information on benefit receipt in accordance with Social Code Book III (SGB III) for recipients of unemployment benefit, unemployment assistance and maintenance allowance.<br>*Unemployment Benefit II Recipient History (Leistungshistorik Grundsicherung - LHG):*<br>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)<br>*Jobseeker History (Arbeitssuchendenhistorik - ASU):*<br>Information on job search activities that are recorded in BA procedures<br>*Jobseeker History from XSozial-BA-SGB II (Arbeitsuchendenhistorik aus XSozial-BA-SGB II - XASU):*<br>Information on job search activity reported to the BA by authorised municipalities via the transmission standard XSozial-BA-SGB II |

| Category | Description |
|---|---|
| | *Participants-in-Measures History Files (Maßnahmeteilnahmehistorik - MTH):* <br><br> Information on participation in employment and training measures (not including measures of authorised municipalities) <br><br> *Participants-in-Measures History File from XSozial-BA-SGB II (Maßnahmeteilnahmehistorik aus XSozial-BA-SGB II - XMTH):* <br><br> Information on participation in employment and training measures reported to the BA by authorised municipalities via the transmission standard XSozial-BA-SGB II <br><br> <u>Administrative establishment data</u> <br> Establishment variables (e.g., artificial establishment ID, economic sector, federal state |
| Data units | <u>IAB Vacancy Survey</u> <br> Establishments <br> <u>Administrative personal data</u> <br> Employees covered by social security (including marginal part-time employees from 1999 onwards), benefit recipients, jobseekers, participants in measures, establishments |
| Number of cases | <u>IAB Vacancy Survey</u> <br> 57.582 cases of most recent hire <br> <u>Administrative personal data</u> <br> 57.582 individuals <br> 2.069.117 original observations <br> 4.476.181 non-overlapping observations (after episode splitting) |
| Period covered | <u>Survey data</u> <br><br> IV.2009-IV.2020 (as of December 2022 JVS data is available until IV.2019) <br> <u>Administrative data</u> <br> The period covered depends on the data source. <br> BeH:      01.01.1975 - 31.12.2020 <br>               (2016: 36-months-file <br>               2017 and 2018: 18-months-file, <br>               2019: 6- months-file) <br> LeH: 01.01.1975 - 31.12.2020 <br> ASU:      01.01.1997 - 31.12.2020 <br> LHG:      01.01.2005 - 31.12.2020 <br> XASU:      01.01.2005 - 31.12.2020 <br> MTH:      01.01.2000 - 31.12.2020 <br> XMTH:      01.01.2005 - 31.12.2020 |
| Time reference | <u>Survey data</u> <br> Main questionnaire which includes the most recent hire is in Q4 <br> Additional questionnaire each following quarter <br> <u>Administrative personal data</u> <br> Exact to the day <br> <u>Administrative establishment data</u> |

| Category | Description |
|---|---|
| | Reporting date is June 30 |
| Regional structure | Administrative data<br>German federal states (Bundesländer), districts (Kreise) |
| Date of territorial allocation | Administrative data<br>Territorial allocation updated as of 31.12.2020 |
| Survey design | Survey data<br>Representative sample of establishments, stratified by size, industry and West/East Germany<br>Administrative data<br>Identification of the respondents in the Integrated Employment Biographies of the IAB |
| Institutions involved | Survey data<br>Client: Research unit AMPI of the IAB<br>Implementation: Economix Research & Consulting, Munich<br>Administrative data<br>Social security agencies, Federal Employment Agency (Bundesagentur für Arbeit), municipal institutions |
| Frequency of data collection | Survey data<br>Quarterly, main questionnaire in Q4<br>Administrative data<br>Continuous |
| File format and size | Survey data<br>Stata; single data files between 14.4 and 23.8 MB<br>Administrative data<br>Stata; Personal data set: 521 MB |
| File organisation | Survey data<br>The data is stored in several separate files and must be merge by the user<br>Administrative data<br>The data are stored in two files. One contains individual-level information and the other establishment-related information. Further files with additional information on establishments can be provided following a justified application.<br>Linkage data<br>Both data files contain a unique, project-specific key variable which allows to merge the data; |
| Data access | On-site usage at the RDC of the BA at the IAB and subsequent remote data access |
| Degree of anonymisation | Survey data<br>Factually anonymised<br>Administrative data<br>Weakly anonymised |
| Sensitive variables | Survey data<br>Industry classifications: WZ73 3 digits (2000-2003), WZ03 3 digits (2004)/5 digits (2005-2009) WZ08 3/5 digits (since 2010), districts (since 2007), counties (since 2005)<br>Administrative data |

| Category | Description |
|---|---|
| | Month of birth (gebmon), Nationality (nation), occupational sub-group (beruf2010_4), place of residence: employment agency (wo_aa), place of residence: district (Kreis) (wo_kreis) 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); |
| Citation of the data and data documentation | Daten<br>Lochner, Benjamin; Graf, Tobias; Grießemer, Stephan; Köhler, Markus; Oertel, Martina; Schneider, Andreas (2023): „IAB Vacancy Survey linked to administrative data of the IAB (IABSE-ADIAB): – Version 7520 v1" Research Data Centre of the Federal Employment Agency (BA) at the Institute for Employment Research (IAB). DOI: 10.5164/IAB.IABSE-ADIAB7520.de.en.v1.<br>Datendokumentation<br>Lochner, Benjamin (2023): IAB Vacancy Survey linked to administrative data of the IAB (IABSE-ADIAB) 1975-2020. FDZ-Datenreport, 01/2023(en), Nürnberg. DOI: 10.5164/IAB.FDZD.2301en.v1 |
| Dataset version | IAB Vacancy Survey linked to administrative data of the IAB (IABSE-ADIAB 7520) DOI: 10.5164/IAB.IABSE-ADIAB7520.de.en.v1 |

## 1.4   List of variables of the administrative data

The overview of variables in Table 3 lists the variable names and the longer descriptions of variables of the administrative data. It also provides an overview of whether and how well variables are filled in the individual data sources. Table 2 illustrates the meaning of the shading respective the letter, which indicates the degree of completeness per variable and source in Table 3.

**Table 2  Degrees of completeness of variables**

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

Example: the variable "Daily wage/daily benefit" is only available for BeH and LeH observations; the observations of the other data sources contain the missing value ".n" for 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 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, for ASU and XASU observations the job search status and

for MTH and XMTH observations it is the measure category. These differences are not immediately obvious from the variable name for every variable.

**Table 3  List of variables of the administrative data with degree of completeness**

| List of variables | Page | BeH | LeH | LHG | ASU | XASU | MTH | XMTH | BHP |
|---|---|---|---|---|---|---|---|---|---|
| **Identifiers** | **34** | | | | | | | | |
| Individual ID (persnr) | 34 | h | h | h | h | h | h | h | l |
| Establishment ID (betnr_iabse) | 34 | h | l | l | l | l | l | l | h |
| **Generated technical variables** | **35** | | | | | | | | |
| Counter per person (spell) | 36 | h | h | h | h | h | h | h | l |
| Source of spell (quelle) | 36 | h | h | h | h | h | h | h | l |
| **Period of validity** | **36** | | | | | | | | |
| Original start date (begorig) | 36 | h | h | h | h | h | h | h | l |
| Original end date (endorig) | 37 | h | h | h | h | h | h | h | l |
| Episode start date (begepi) | 37 | h | h | h | h | h | h | h | l |
| Episode end date (endepi) | 38 | h | h | h | h | h | h | h | l |
| **Personal information** | **38** | | | | | | | | |
| Gender (frau) | 38 | h | h | h | h | h | h | h | l |
| Year of birth (gebjahr) | 38 | h | h | h | h | h | h | h | l |
| Month of birth (gebmon) | 38 | h | h | h | h | h | h | h | l |
| Nationality (nation) | 39 | h | h | h | h | h | h | h | l |
| Nationality, grouped (nation_gr) | 39 | h | h | h | h | h | h | h | l |
| Marital status (famst) | 39 | l | h | h | h | h | m | h | l |
| Number of children (kind) | 40 | l | h | h | m | m | m | m | l |
| Vocational training (ausbildung) | 41 | m | l | l | h | m | h | m | l |
| Vocational training (imputed) (ausbildung_imp) | 43 | h | l | l | l | l | l | l | l |
| School leaving qualification (schule) | 44 | m | l | l | h | m | h | m | l |
| **Information on employment, benefit receipt and job search** | **45** | | | | | | | | |
| Daily wage/daily benefit (tentgelt) | 45 | h | h | l | l | l | l | l | l |
| Occupation - current/most recent (KldB 1988) (beruf) | 46 | h | l | l | m | l | m | l | l |

| List of variables | Page | BeH | LeH | LHG | ASU | XASU | MTH | XMTH | BHP |
|---|---|---|---|---|---|---|---|---|---|
| Occupational group - current/most recent (KldB 2010), 3-digit (beruf2010_3) | 47 | h | m | l | m | m | m | l | l |
| Occupational sub-group - current/most recent (KldB 2010), 4-digit (beruf2010_4) | 48 | h | m | l | m | m | m | l | l |
| Level of requirement - current/most recent job (KldB 2010) (niveau) | 49 | h | m | l | m | m | m | l | l |
| Part-time (teilzeit) | 50 | h | l | l | l | l | l | l | l |
| Occupational status and working hours (stib) | 50 | h | l | l | l | l | l | l | l |
| Employment status (erwstat) | 51 | h | h | h | h | h | h | h | l |
| Transition zone (gleitz) | 53 | h | l | l | l | l | l | l | l |
| Temporary agency work (leih) | 54 | h | l | l | l | l | l | l | l |
| Fixed-term contract (befrist) | 54 | h | l | l | l | l | l | l | l |
| Reason of cancellation/notification/termination (grund) | 54 | h | h | m | h | m | l | l | l |
| Employment status prior to job search (estatvor) | 56 | l | l | l | h | m | l | l | l |
| Employment status after job search (estatnach) | 56 | l | l | l | m | l | l | l | L |
| Integration forecast (ipo) | 57 | l | l | l | m | l | m | l | l |
| Reason for end of previous employment (art_kuend) | 57 | l | l | l | m | l | m | l | l |
| Working hours of job application (arbzeit) | 57 | l | l | l | m | l | m | l | l |
| Residual claim/planned duration (restanspruch) | 58 | l | h | l | l | l | h | l | l |
| Type of provider (traeger) | 59 | l | l | h | h | h | h | h | l |
| Start date of unemployment (alo_beg) | 59 | m | m | m | m | m | m | m | l |
| Duration of unemployment (alo_dau) | 59 | h | h | h | h | h | h | h | l |
| **Location data** | **60** | | | | | | | | |
| Place of residence - district (Kreis) (wo_kreis) | 60 | h | h | h | h | h | h | h | l |

| List of variables | Page | BeH | LeH | LHG | ASU | XASU | MTH | XMTH | BHP |
|---|---|---|---|---|---|---|---|---|---|
| Place of residence - federal state (Bundesland) (wo_bula) | 61 | h | h | h | h | h | h | h | l |
| Place of residence - employment agency (Arbeitsagentur) (wo_aa) | 61 | h | h | h | h | h | h | h | l |
| Place of residence - regional directorate (Regionaldirektion) (wo_rd) | 62 | h | h | h | h | h | h | h | l |
| **Establishment variables** | **62** | | | | | | | | |
| Classification of economic activities 73 (w73_3) | 62 | l | l | l | l | l | l | l | h |
| Classification of economic activities 93, sub-classes (w93_5) | 63 | l | l | l | l | l | l | l | h |
| Classification of economic activities 93, groups (w93_3) | 63 | l | l | l | l | l | l | l | h |
| Classification of economic activities 03, sub-classes (w03_5) | 64 | l | l | l | l | l | l | l | h |
| Classification of economic activities 03, groups (w03_3) | 64 | l | l | l | l | l | l | l | h |
| Classification of economic activities 08, sub-classes (w08_5) | 64 | l | l | l | l | l | l | l | h |
| Classification of economic activities 08, groups (w08_3) | 65 | l | l | l | l | l | l | l | h |
| w73_3 completed by extrapolation/imputation (w73_3_gen) | 65 | l | l | l | l | l | l | l | h |
| Type of imputation w73_3 (group_w73_3) | 66 | l | l | l | l | l | l | l | h |
| w93_3 completed by extrapolation/imputation (w93_3_gen) | 66 | l | l | l | l | l | l | l | h |
| Type of imputation w93_3 (group_w93_3) | 66 | l | l | l | l | l | l | l | h |
| w08_3 completed by extrapolation/imputation (w08_3_gen) | 67 | l | l | l | l | l | l | l | h |
| Type of imputation w08_3 (group_w08_3) | 67 | l | l | l | l | l | l | l | h |
| Place of work - district (Kreis) (ao_kreis) | 67 | l | l | l | l | l | l | l | h |
| Place of work - federal state (Bundesland) (ao_bula) | 68 | l | l | l | l | l | l | l | h |

## 1.5   Volume structure

Table 4 shows the number of episodes by source and before and after episode splitting, which is discussed in more detail in Section 3.2.

**Table 4 Volume structure**

| No. of cases | before splitting | after splitting |
|---|---|---|
| BeH | 1,687,141 | 2,268,554 |
| LeH | 269,896 | 468,058 |
| LHG | 124,762 | 377,503 |
| ASU | 622,977 | 1,056,599 |
| XASU | 46,893 | 90,518 |
| MTH | 109,686 | 194,727 |
| XMTH | 8,662 | 20,222 |
| Total number of records | 2,869,117 | 4,476,181 |
| Individuals | | 57,384 |

# 2 Data sources

## 2.1 IAB Vacancy Survey[2]

The JVS collects data on an array of topics with regard to the hiring process of German establishments (see Bossler et al., 2021 for a detailed data description). For instance, it reports the number of vacancies on the German labour market, including those vacancies that are not reported to the Federal Employment Agency (FEA). The JVS is the official data source for the job vacancy statistics of Eurostat. The main questionnaire, which is conducted in every fourth quarter of a year, gleans information on the number and structure of vacancies, future labour demand, the current economic situation, and the expected economic development of participating establishments. A major part of the survey collects information on the most recent hire of an establishment. Specifically, establishments are asked whether or not they have filled a vacant position during the last 12 months. If they did, they are further asked about certain job characteristics such as the exact job requirements, the hiring channel, the search duration and the exact hiring date. The IAB Vacancy Survey is the official data provider for Eurostat's vacancy statistics.

## 2.2 Administrative Data of the Integrated Employment Biographies (IEB)

The administrative individual data were drawn from the Integrated Employment Biographies (IEB) of the IAB and were edited in terms of the selection and characteristics of variables along the same lines as the Sample of Integrated Labour Market Biographies (SIAB, see Frodermann et al., 2021). They unite data from 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.

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[2] This section follows the official data report, see Bossler et al. (2021).

### 2.2.1 Employee History (BeH)

The source of data regarding employment is the Employee History (Beschäftigtenhistorik - BeH) of the IAB. The data basis is the integrated notification procedure for health, pension and unemployment insurance, which came into effect as of 1 January 1973 (and was extended to cover East Germany as of 1 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 not recorded in the BeH in principle. Students can however appear in the BeH if they are marginally employed parallel to their studies, for example. Since the notification procedure was changed on 1 January 1999, employees in marginal part-time employment and unpaid family workers have also been recorded (not contained in the data until 1 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 employment episodes in the administrative individual data are supplemented by establishment data. They are taken from the Establishment History Panel (Betriebs-Historik-Panel - BHP), which is also based on the BeH. Unlike the data on individuals, the establishment variables from BHP are therefore not spell data but are only valid on 30 June precisely each year. An extreme example: an employment notification exists from 1 January 2006 to 30 May 2006; the establishment goes bankrupt in June 2006. In this case, there would be no information about this establishment in the BHP for 2006.

The establishment information, which are provided with the IABSE-ADIAB data, comprise only information on establishments from which at least one employee is included in the administrative personal data of the IABSE-ADIAB. Furthermore, the establishment data are limited to the years in which the employees appear in the administrative personal data.

The linkage of the IAB Vacancy Survey and the provided person data must done by the user. Explanatory code is provided in Box 1.

## 2.3 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 (sphere of Social Code Book III). The benefits comprise unemployment benefit, unemployment assistance, maintenance allowance, and contributions paid by the BA to private health or care insurance while benefits are being drawn. Benefits in the context of Social Code Book II (e.g., unemployment benefit II) are not included in the data. Since entitlement to benefits depends on meeting certain legal requirements, periods of unemployment in which the requirements are not met (e.g., no eligibility for unemployment assistance, or non-completion of the qualifying period for unemployment benefit) are not reported in the Benefit Recipient History. The earliest available data in the LeH are from 1 January 1975.

## 2.4 Unemployment Benefit II Recipient History (LHG)

The Unemployment Benefit II Recipient History (Leistungshistorik Grundsicherung - LHG) contains information about individuals who are eligible for benefits and capable of work, about the members of their benefit unit (Bedarfsgemeinschaft) in accordance with § 7 SGB II and about certain individuals associated with the benefit unit. In the SIAB, however, it is not possible to link individuals with benefit receipt in accordance with Social Code Book II (SGB II) within benefit units. 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 unit in the case of Unemployment Benefit II, it is difficult to assign an individual benefit rate. Therefore, the SIAB also does not contain information about SGB-II-benefit rates.

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,

- 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.

- separated responsibilities (getrennte Trägerschaft - gt) / municipalities exercising their duties separately (until 2011) – here the tasks are divided between the BA and the municipality. 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.

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. 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.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 once a month. 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 5.5).

## 2.5 Jobseeker Histories (ASU/XASU)

Data about jobseekers are stored in the Jobseeker Histories (Arbeitsuchendenhistoriken – 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-SGB II standard. The earliest available data in the ASU are from 1 January 1997 and in the XASU from 1 January 2005, respectively.

## 2.6 Participants-In-Measures History Files (MTH/XMTH)

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. Measures implemented by authorised municipalities or opting local authorities are recorded in the XMTH from 2005 onwards. The earliest available data in the MTH are from 1 January 2000, those in the XMTH are from 1 January 2005.

# 3 Data preparation

## 3.1 Corrections and validation procedures

### 3.1.1 Administrative data from the Integrated Employment Biographies (IEB)

Before the data from the sources specified in Chapter 2 are merged to form the IEB, they undergo source-specific correction procedures (see the following sections). 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.

- Records with no information on the date of birth or on gender after the correction procedure are deleted.

No further corrections (such as the addition of presumably missing notifications, strike corrections) are performed.

### 3.1.2 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. From the reporting year 2011 onwards, the BeH data originate from newly designed source data. As a result, a number of person groups have been introduced or reactivated as they are classified

by the BA statistics as being subject to social security contributions. The person groups 101 - 107, 111 - 114, 118, 119, 120, 140, 141, 142, 143, 149, 201 and 203 - 205 are therefore contained from that time onwards as well as the two groups 109 and 209, which indicate people in marginal part-time employment. Groups that are not included are, for example, people in short-term employment, i.e. person groups 110, 202 and 210.

- Person groups 123, 124 and 127 have been newly introduced in 2011.

- For data protection reasons, the person groups 107, 111, 113, 114, 127 and 204 are combined to form the person group "other workers" (599).

- From the reporting year 2012 onwards, apprentices were included as the new person groups 121 and 122.

- Observations 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 Data Warehouse (DWH) of the BA. 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 2020.

### 3.1.3    Benefit Recipient History (LeH)

- Observations without a valid start date are excluded.

- If the end date for the receipt of unemployment assistance precedes the start date by one day and the spell was not deleted, then the end date is increased by one year.

- Between 2004 and 2006 the notification procedure from which the data originate was changed. Overlaps occurring between the old and the new procedures were corrected.

- Observations with no end date or an invalid end date are excluded, since in these cases it cannot be assumed that a benefit payment was made at all.

- The territorial allocations are corrected in the same way as in the BeH.

### 3.1.4    Unemployment Benefit II Recipient History (LHG)

- Observations without a BA client number are deleted.

- Cancelled data records are not used.

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

- In each case, non-overlapping periods of benefit entitlement of a person in a certain benefit unit (BG) are created. New observations are begun for the following administrative reasons:
  - on certain birthdays of members of the BG that are stipulated by law and relevant for structural changes in the benefit unit (14, 15, 18 and 25) and the individual retirement age of members of the BG,
  - when the structure of the benefit unit changes (e.g. due to entries/exits),
  - when there are changes in a variable of the BG client and
  - at the beginning and the end of a case of benefit sanctions for observations from 1 April 2006 onwards. It must be considered, however, that it is not possible to identify the duration or type of sanction or the time when it was imposed or when it began on the basis

of the data. The reason for this is that there is no corresponding variable or value that indicates the start, type or duration of the sanction.

- For the reason mentioned above, all individual-related variables that are available for the LHG source are valid for the entire duration of the observation.

- Double notifications due to the territorial reforms in 2009/2011 and the reorganisation of the institutions in 2012 (see Section 5.5) were corrected as far as possible.

- The territorial allocations are corrected in the same way as in the BeH.

### 3.1.5    Jobseeker Histories (ASU/XASU)

- Observations with an end date before 1 January 1995 are not included.

- There is no consolidation of the ASU observations for 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 occurs (e.g., from seeking work to unemployed). This also applies if the type of institution (employment agency, cooperation of employment agency and municipality, joint facility, authorised municipalities, separated responsibilities) changes.

- 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:
  - change of job search status
  - change of availability
  - change of SGB II institution (due to notification procedure)
  - change of place of residence

- The territorial allocations are corrected in the same way as in the BeH.

### 3.1.6    Participants-In-Measures History File (MTH)

- 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.

- The territorial allocations are corrected in the same way as in the BeH.

### 3.1.7    Participants-In-Measures History File from XSozial-BA-SGB II (XMTH)

- For XMTH, the particular challenge is to identify and handle multiple notifications of participation that are caused by technical or organisational issues. The causes of these

duplicate notifications are, on the one hand, a missing identification number for participation in measures until April 2009 or improper handling of the subsequently introduced promotion ID and, on the other hand, a change of provider numbers in connection with mergers or other reorganisations of institutions responsible for implementing SGB II due to the reorganisation of the employment agencies in 2012/2013. In addition, provider-specific problems arose with version or product changes of the municipal software or with version changes of the XSozial standard. At times, this results in a considerable number of reports of participations in measures of the same type, which partly or completely overlap in time per participant. Real duplicates are identified and sorted out because they are highly likely to be technical duplicates. Hidden duplicates can also be identified and sorted out. In principle, the rule always applies that the most up-to-date information is retained.

- In addition, notifications with a starting date before 2005 are excluded.
- Overlapping and immediately adjacent notifications of the same type of measure (from XSozial) are combined to one observation. Measure-specific characteristics of the combined periods are set to system missings.
- Subsequently, the remaining characteristics are compiled and calculated. For this, consolidated individual data from XSozial-histories and LHG are used.
- Finally, the following measures are excluded:
  – one-off benefits (like UBV/Mobi-/Vermittlungsbudget /LES) and
  – specific rehabilitation measures
- The territorial allocations are corrected in the same way as in the BeH.

### 3.1.8   SGB II anonymisation

In order to reduce the risk of de-anonymisation, only the year of birth is available in the SIAB by default. The month of birth can only be requested as a sensitive variable if there is a justified need for it. However, in the LHG and (X)ASU there is the risk that the exact date of birth may still be obvious due to the chronological structure of the observations. Observations might end systematically on certain birthdays and/or the day before, or start again on the birthday.

In order to prevent an indirect determination of the exact date of birth, the following procedure is applied. Observations split on the 18th, 25th or 65th birthday are merged into a single observation. Apart from the exact date of birth, no other information is lost in this case. For observations beginning on the 15th birthday or on the first day of retirement (or ending on the first day of retirement), the start date (end date) of the observation is set to the beginning (the end) of the respective quarter. This correction results in a bias of the duration of the observation. Corrected observations are marked in the variable "Employment status".

## 3.2   Episode splitting

The administrative individual data are available with "split" episodes. If observations overlap within an account, these observations are replaced by artificial observations with new dates so that completely parallel periods and non-overlapping periods are created. This increases the number of observations (see Figure 1).

The original date variables for the beginning and the end of the original observation (begorig and endorig) are retained, the variables 'start date of the split episode' and 'end date of the split episode' (begepi and endepi) mark the beginning and the end of the split episodes. It is possible to establish whether observations have been split by comparing the original period (begorig and endorig) with the episode period (begepi and endepi).

To restore the original data without the split episodes or to delete the episodes that were created artificially by means of episode splitting it is necessary to select all observations for which the start of the original observation is the same as the start of the split episode (begepi == begorig).

**Figure 1  Episode splitting**



| persnr | begorig | endorig | level |
|--------|---------|---------|-------|
| 4711 | 01.01.98 | 31.12.98 | - |
| 4711 | 01.10.98 | 30.06.99 | - |
| 4711 | 01.01.99 | 31.12.99 | - |

**Episode splitting**
Splitting of the time intervals into
non-overlapping intervals

| persnr | begepi | endepi | level |
|--------|--------|--------|-------|
| 4711 | 01.01.98 | 30.09.98 | 0 |
| 4711 | 01.10.98 | 31.12.98 | 0 |
| 4711 | 01.10.98 | 31.12.98 | 1 |
| 4711 | 01.01.99 | 30.06.99 | 0 |
| 4711 | 01.01.99 | 30.06.99 | 1 |
| 4711 | 01.07.99 | 31.12.99 | 0 |
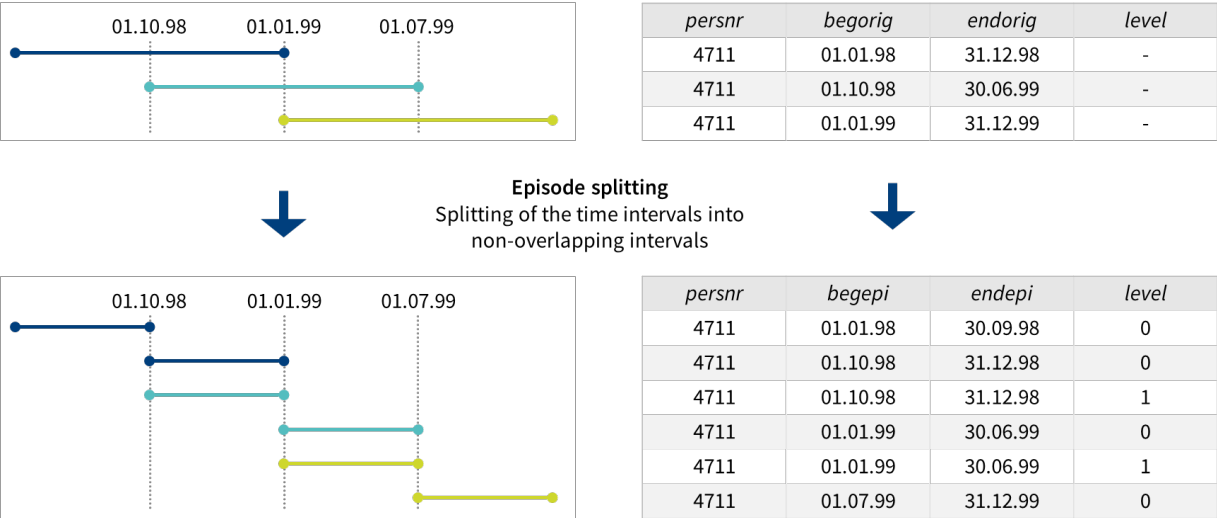
It is advisable to sort entirely parallel observations generated by the splitting procedure in a consistent manner. The variables 'observation counter per episode' (level2) and 'observation counter per episode and source' (level1) that were previously contained in the SIAB can be generated using the following Stata commands if required:

**Box 1  Example code to create additional observation counters in Stata 16**

```
bysort ID_t begepi quelle (spell): gen byte level1 = _n-1
bysort ID_t begepi (spell): gen byte level2 = _n-1
```

## 3.3   Missing values

In the data missing values are coded as follows (Table 5):

**Table 5  Coding of missing values**

| Term | Value | Description |
|------|-------|-------------|
| No (valid) details available | .z | Values of a variable that 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 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 Section 1.4) or is not available for a certain period. |

# 4 Data linkage

## 4.1 Identifying the most recent JVS hires in the administrative data

The procedure to identify the reported most recent hires from the JVS follows the approach proposed by Lochner (2019). This method is based on an algorithm that uses overlapping information, which is both present in the JVS and the administrative data. The aim of the used matching algorithm is to identify the most recent hire from the JVS in the admin data. Once the hiring spell was identified, the entire working history of the hired person is drawn from the IEB.

The identification has the following steps:

1) Collect all establishment IDs for all establishments that are surveyed in the JVS.

    Result: list of establishment IDs

2) Draw all the available person data for all of these establishments for the last 13 months after the survey.

    Result: person spells from persons who were employed in the last 13 months at JVS establishments.

3) Based on the overlapping information in the person spells and the JVS data, run algorithm proposed by Lochner (2019), which includes plausibility checks.

    Result: collection of JVS hiring spells in the admin data.

4) Draw all the person spells for all persons who had an identified hiring spell. Mark JVS hiring spells and add unique key variable which allows merging JVS data.

    Result: administrative person data with marked JVS hiring spells.

## 4.2 Linking characteristics

The linkage is based on the following variables which are either person or job specific:

- System-free, internal IAB establishment identifier
- Hiring date
- Gender of hired person
- Age of hired person
- Occupation of filled position

In addition, the approach uses the following data to perform a couple of plausibility checks: first letter of last name, contract hours, and the provided wage information.

The algorithm has six main steps. Each of these steps can have up to three sub-steps. The main steps differ in their tolerance to accept differences in the matching information between the two data sets. The aim of each step is to find combinations of the two data sets that match according to certain step-specific definitions. Each step ends whenever there are no more valid and unique matches to find. A match is valid and unique if and only if i) in a given time period, in a given

establishment, the step-specific conditions are met and importantly ii) there is no other hire in the administrative data that has the same attributes.

Step 1:
All of the four main variables (hiring date, gender, age, occupation code) must be equal without any deviations between the two data sets.

Step 2:
This step allows for deviations in the hiring date up to 31 days between the two data sets. All other attributes must match exactly.

Step 3:
This step allows for constellations where in either in the administrative data or in the survey data the occupation code is missing. All other attributes must match exactly.

Step 4:
This step allows for absolute deviations in age up to 2 years. All other attributes must match exactly.

Step 5: The fifth step combines Step 3 and 4 as it allows deviations in age of up to two years as well as missing occupational information. All other attributes must match exactly.

Step 6:
This step allows for implausible occupation code combinations as well as deviations in the hiring date up to again 31 days. All other attributes must match exactly.

More details on the linking procedure can be found in the corresponding method report (Lochner, 2019).

The IAB Vacancy Survey comes in separate yearly data files. The data is in wide format which means that variable names are time-specific. Each file contains the data from the main survey questionnaire from the fourth quarter. In addition, it contains data from the follow-up questionnaires from the first, second, and third quarter of the following year. For instance, the prefix q49_ means that this variable is from the fourth quarter in 2009. Accordingly, q110_ belongs to the first quarter of 2010. The person data is however in long format. Hence, user need to first tranfer the JVS data to long format in order to link both data sets. The code below shows how to do that using 2009 as an example year. Note that only the data from the main questionnaire in the fourth quarter is merged as only this quarter contains the information about the most recent hire. The code first only keeps the relevant information, then renames the relevant variables, and then merges both data sets.

**Box 1 Example code to merge the JVS to the person data using Stata 17.0**

```
*[you can add more years to this local]
local t 09
foreach i in `t'{
use "PFADNAME:\\iabse_`i'.dta", clear
*[you can add more years and add more variables to varlist]
if `i'==09{
drop q1* q2* q3*
foreach var of varlist q49_gkb2 q49_gkb6 q49_gkb7 q49_gksv6
q49_gksv7 q49_greggew q49_f6 q49_f6_04 q49_f5_04 q49_f109 q49_f108{
local newname = substr("`var'", 5, .)
rename `var' `newname'
}
drop if key==.
duplicates tag key, gen(tt)
assert tt==0
drop tt
save "PFADNAME:\\iabse_`i'_clean.dta", replace
}
use "PFADNAME:\\IABSE-ADIAB_7520_v1.dta" , clear
foreach i in `t'{
cap drop _merge
merge m:1 key using "PFADNAME:\\iabse_`i'_clean.dta
drop if _merge == 2
drop _merge
}
```

## 4.3 Result of the data linkage

If the variable "key" is filled in the person-level data, there is an identified new hire that was reported in the IAB Job Survey.

The procedure can identify 57,582 of the most recent JVS hires in the admin data, originating from 57,384 persons. Their complete working history amount to 2,069,117 IEB-spells (4,476,181 non-overlapping observations after episode splitting).

It is important to know that there are duplicates in the person-level data regarding the start date of an employment episode. These duplicates are transferred to the "key" variable resulting in duplicate values. Data users must decide for themselves what to do with these duplicates.
The following table shows which of the steps from the algorithm identifies how many most recent JVS hires.

Tabelle 1 Results of the matching procedure by algorithm step

| Step | N | percentage | cummulative |
|---|---|---|---|
| 1 | 14.285 | 24.81 | 24.81 |
| 2 | 2,876 | 4.99 | 29.80 |
| 3 | 19,715 | 34.24 | 64.04 |
| 4 | 6,045 | 10.50 | 74.54 |
| 5 | 10,672 | 18.53 | 93.07 |
| 6 | 3,989 | 6.93 | 100.00 |
| **Total** | 57,582 | 100.00 | |

# 5 Data quality and problems

## 5.1 IAB Vacancy Survey

A detailed description of the survey data, their structure and information on the sample and the survey in general can be found in the Data Manual of the IAB Vacancy Survey (Bossler et al., 2021), which also lists generated variables and details on weighting. More information can be found on the official survey website https://www.iab.de/en/befragungen/stellenangebot.aspx.

## 5.2 Integrated Employment Biographies (IEB)

The IEB contains employment histories. However, not every type of employment is included in the administrative data. Some individuals with certain life courses are not represented in the IEB at all.

For evaluation purposes, it is often relevant to know gaps in the included biographies (e.g. for creating control groups, analysing life courses, etc.). The gaps listed below are defined as periods of time after the end of school education for which no data are included in the IEB. These gaps can be divided into

- gaps with no information available at all, and

- gaps for which information may be available from the 'reason for notification / reason for end of benefit receipt / reason for discontinuation of SGB II / reason for deregistration' variable of the observation immediately preceding the gap (if a corresponding observation exists).

These gaps were identified using the variables "Reason of cancellation/notification/termination" and "Employment status" in the various sources (see Table 6). The list in Table 6 makes no claims to be exhaustive.

Table 6 Biographical gaps and possible ways of identifying them

| 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 |

| Biographical gap | Information on gap, identifiable using the details in the "grund" variable in the preceding observation of the source, if necessary |
|---|---|
| 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 3.1.5) | BeH, LeH, ASU |
| Persons receiving old-age pension without employment if not a member of a benefit unit | LeH, LHG, ASU |
| Individuals on maternity leave / parental leave | XASU |
| Recipients of early retirement benefits | LeH, ASU |
| Trade professionals working from home | |
| Employees working short-time | ASU |
| Persons in youth welfare facilities, in vocational training centres, approved workshops or similar facilities for people with disabilities | 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) | |
| SGB-II recipients whose providers have experienced delivery failures | |
| Recipients of compensation according to FELEG (Gesetz zur Förderung der Einstellung der landwirtschaftlichen Erwerbstätigkeit, Act on Support in Case of Termination of Farming Activities) | |

## 5.3   Employee History (BeH)

- 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 2.3) using a so-called occupation code. The new occupation code 2010 was adopted for notifications with an end

date later than 30 November 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 only enter the Employee History (BeH), the change of the occupation code only affects observations from this source. The measurement of the following characteristics previously reported using the occupation code 2003 is affected by this change: working hours, occupation, occupational 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 switch 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. Further details can be found in Paulus et al. (2013).

- The variable "Occupational status and working hours" (stib) is only filled for reports that were submitted before the introduction of the new occupation code. The RDC does not extrapolate or impute for later reports. The categories of the variable stib that can be consistently observed over the whole observation period (occupational status as a trainee, distinction between part-time and full-time) are to be reproduced in the variables erwstat and teilzeit.

- The introduction of the new occupation code in 2011 led to a number of problems. For example, during the transition period granted to employers in the social security notification procedure, there was a temporary increase in the number of missing details. The test programs used in the notification procedure permitted missing details in the occupation code 2010 until the end of May 2012. Analyses of the BA statistics (Bertat et al., 2013, p. 10) show that in 20 to 30 percent of cases no information was available in the new or converted variables "occupation/activity performed", "working time" and "vocational education and training" after the switch. This situation began to improve significantly in the first half of 2013. In order to improve the quality of the "working time" variable in the transition period, Ludsteck/Thomsen (2016) developed an imputation procedure to replace the missing values by imputed values. The imputed data are included in the SIAB 7519. No imputation is performed regarding the gaps in the other variables.

- 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 (until the annual notification 2012) or mid-February (from the annual notification 2013 onwards) 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 2013 can be created in July 2015 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 NEPS-SC3-ADIAB is partly based, the year 2016 is the last year with a degree of completeness of BeH observations of 100%. Due to a redesign of the data basis of the BeH, at the time of the preparation of the BeH as an exception only the 30-month files was available instead of the 36-month files. However, analyses with earlier data versions have shown that, as a rule, the 18-month file already has a degree of completeness of around 99%. For the years 2017 and 2018, the 18-month files were used, and the observations for 2019 originate from a 6-month file. It can therefore be assumed that employment notifications for 2017 and 2018 are slightly underreported in the SIAB, and that those for 2019 are underreported to a slightly higher degree. 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.

## 5.4 Benefit Recipient History (LeH)

- For the states of eastern Germany, the LeH observations were not fully recorded until 1992.

- The benefit receipt data used to be saved on magnetic tapes. Owing to a fault in one magnetic tape, the benefit receipt data up to and including 1980 are only partially contained. Thus, in the present data product, too, it can be assumed that information on benefit receipt in that period is not available in full.

## 5.5 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 and of 1 January 2013 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 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 cannot be identified in the SIAB.

- Due to the reporting logic, information from the XSozial transmission standard can only be updated monthly.

- In the official performance statistics of the BA, reporting gaps are supplemented by a statistical estimation procedure at an aggregated regional level. No supplementary data sets are provided in the LHG. A comparison of the IEB with the performance statistics is therefore only possible to a limited extent.

## 5.6   Jobseeker Histories (ASU/XASU)

### 5.6.1   ASU

- The registered periods of job search activity in the ASU source are regarded as complete from the year 1997 onwards. Therefore, the analysis potential of the ASU spells before 1997 is limited.

- With the introduction of SGB II on 1 January 2005, jobseekers are no longer fully covered by BA procedures. From this date, the ASU only covers persons who are supported by the BA in the sphere of the SGB III (employment promotion) or by ARGEn, gE or gT in the sphere of the SGB II (basic security).

- For the placement staff it is not always possible to record the allocation to the legal sphere immediately, since it is frequently only clear which institution is primarily responsible after a certain time due to a possible entitlement to SGB II benefits. Therefore, we recommend comparing the value of the variable "Type of provider" in the ASU with the value in the LHG and/or XLHG for 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 individuals for whom an authorised municipality has been responsible since 2005, parallel "artificial" ASU datasets were created by the Federal Employment Agency. 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 coArb or VerBIS. It can be assumed that integration agreements are under-recorded. Important limitations in the analysis potential are mentioned in the corresponding description of variables.

- The coArb procedure, which was used until June 2006, supported only the placement of unemployed persons and jobseekers. Some data were also collected about individuals who were only seeking advice, but these data are incomplete. The careers advice data were collected in a separate system. In VerBIS the attributes of the job-search status were extended to include 'seeking advice' and individuals 'without status'. The latter group includes individuals eligible for Unemployment Benefit II who are only available for job placement to a limited degree. The recording of this group in VerBIS is only regarded as largely complete since January 2008.

- A change of the institution responsible for implementing SGB II or a change of place of residence does not lead to a new ASU observation, the value of the variable at the start of an episode is continued. The longer the observation becomes, the greater the risk is that the institution responsible or the place of residence is no longer correct.

- The job search status is hardly corrected afterwards, which is why the case numbers largely coincide with the BA statistics until 2005. Since spring 2011, the jobseeker data from BA procedures and XSozial have been consolidated in the integrated unemployment statistics. This may lead to larger deviations. At the current margin, however, the stock data are identical.

## 5.6.2 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 authorised municipalities since 1 January 2005. Thus, data from the XASU source should only be analysed from 2007 onwards.

- From 2007 onwards, individual months are also repeatedly affected by delivery failures, analogous to the benefit receipt data (LHG).

- Over-reporting may also occur at certain points. A large number of technical problems can be responsible for this, including systematically missing deregistrations, incorrect reversals of cancellations and parallel job search notifications in several districts.

- 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', 'Reason of notification' as well as 'Employment status prior to job search'. Although the degree of completeness of these variables improves over time, some of them are still unsatisfactory. The 'Occupation - current/most recent' 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.

- Due to the reporting logic, information from the XSozial reporting procedure can only be updated monthly.

- Differences in consolidation rules, time references and regional assignments may result in differences to the published BA statistics.

## 5.7 Participants-In-Measures History Files (MTH/XMTH)

### 5.7.1 MTH

- The MTH is incomplete for measures with a start date before 1 January 2000.

- As of 1 January 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 2.4 and 2.6).

- The MTH only contains 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 by authorised municipalities via the XSozial standard are contained in the XMTH.

- Measures reported through the XSocial standard are not included in the MTH or NEPS-SC3-ADIAB.

- Because of the reorganisation of the institutions responsible for implementing SGB-II in 2011 to 2014, a split of the documentation of participations in measures in the MTH and in the XMTH may occur when there is a change in the reporting procedure. This might result in a split or a duplication of the spell of the measure.

- 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.

### 5.7.2 XMTH

- In the years 2005 to 2007 the notifications of participation in measures are incomplete. The degree of under-reporting is unclear due to a lack of or inaccurate comparative figures.

- Between 2005 and the beginning of 2017, about 13% of all institutions responsible for implementing SGB II report almost no municipal integration benefits (formerly accompanying benefits), which are included in the summarised category "other support". Many other job centers report only temporarily and/or only selected types. This leads to an under-recording of the "other support" category.

- Over-registration of participations: Total stocks are considered to be stable from the end of 2008. However, the majority of the providers still register notification profiles which are temporarily conspicuous and which raise doubts about the quality. Only the introduction of the XSozial promotion-ID in 2009 and the meanwhile several years of experience of all participants stabilise the reporting process and the subsequent data processing. Also the new zkT, introduced in2012, report inconspicuously for the most part, so that the scope and duration of presumed over-recording decrease noticeably.

- The reorganisation of SGB II providers in 2011-2014 lead to a split in the documentation of participation in measures in MTH and XMTH if the reporting procedure was changed. This could result in a split of the measure spell, but also in duplications (see Section 3.1.7).

- The figures or persons received in the XMTH from monthly key date counts differ in several respects from the published BA statistics.

# 6 Description of variables

Frequency counts and overviews of the individual values and labels of the variables in NEPS-SC3-ADIAB can be found in separate files under https://fdz.iab.de/en.aspx.

## 6.1 Identifiers

### 6.1.1 Individual ID (persnr)

| Category | Description |
|---|---|
| Variable label | Indivdual ID |
| Variable name | persnr |
| Category | identifiers |
| Origin | generated |
| Data type | numerical |
| Detailed description | The individual ID indicates which observations belong to the same person. This identification variable is system-independent, which is why it does not allow any conclusions to be drawn about the characteristics of the person or original identifiers. |

### 6.1.2 Establishment ID (betnr_iabse)

| Category | Description |
|---|---|
| Variable label | Establishment ID |
| Variable name | betnr_iabse |
| Category | identifiers |
| Origin | BeH |
| Data type | numerical |

| Category | Description |
|---|---|
| Detailed description | The establishment ID indicates which observations belong to the same establishment. It is an artificial number, i.e., it cannot be used to merge individual and establishment information. |
| | For the establishment number, the following should be observed in general: |
| | If the company has only one office, or if the company has only one office in one municipality, this office is the establishment and is given an establishment number. |
| | 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 belong to the same economic class. If they do **not** belong to the same economic class, each branch office is regarded as a separate establishment and is given its own establishment number. |
| | If the company has **several** branch offices in **several** municipalities, each of these branch offices is an establishment and is given its own establishment number. |
| | 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: |
| | An **establishment** is a regionally and economically delimited unit in which employees work and which is allocated an establishment number according to the above-mentioned principles. |
| | A **workplace** is a unit in which employees work and which is not allocated an establishment number according to the above-mentioned principles. |
| | A **company** as a term combines establishment premises and workplaces belonging to the same employer. |
| | An **employer** is any natural person or legal entity that employs at least one employee subject to social security contributions or in marginal part-time employment. |
| | Establishment and establishment premises are synonyms; branch office is a synonym for subsidiary, district office, out-sourced office, workplace etc. if it is not an establishment. |
| Notes on quality | The establishment ID is only missing in a very small 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 ID, they are missing in these observations. |

### 6.1.3   Key-variable (key)

| Category | Description |
|---|---|
| Variable label | Serial Number |
| Variable name | key |
| Category | identifiers |
| Origin | IAB Vacancy Survey |
| Data type | numerical |
| Detailed description | The key variable indicates which observations belong to the same JVS establishment. |

## 6.2 Generated technical variables

### 6.2.1 Counter per person (spell)

| Category | Description |
|---|---|
| Variable label | counter per person |
| Variable name | spell |
| Category | generated technical variables |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Detailed description | The observation counter per person counts a person's observations, beginning with 1. The variable is generated during the episode splitting procedure and refers to the split observations. Using the "observation counter per person" variable, it is easy to restore the original sorting order. The observations are sorted first by the start date of the split episode and then by the data source. Within employment notifications, persons subject to social insurance contributions are sorted before marginal employment notifications and higher daily wages before lower ones. One exception is one-time payments, which are sorted backwards. |

### 6.2.2 Source of spell (quelle)

| Category | Description |
|---|---|
| Variable label | source of spell |
| Variable name | quelle |
| Category | generated technical variables |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Detailed description | The variable indicates the data source (see Chapter 2). |

## 6.3 Period of validity

### 6.3.1 Original start date (begorig)

| Category | Description |
|---|---|
| Variable label | original start date |
| Variable name | begorig |
| Category | period of validity |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | date |
| Detailed description | The original start date of the observation corresponds to the original start date of the notification. This can differ from the start date of the episodes (begepi) (see also the comments on episode splitting in Section 3.2). Since the notification logic might under certain circumstances permit re-identification of the exact day of birth, the original information on the date was changed in these cases by applying the anonymisation procedure described in Section 3.1.8.<br>**1) BeH** |

| Category | Description |
|---|---|
| | Because of the rules of the notification procedure, in BeH observations the starting and ending year are always identical (obligation of the employer to submit annual employment notifications). A continuous employment relationship may therefore be distributed across several notifications. |
| | **2) LHG, ASU, XASU** |
| | Certain changes lead to the creation of a new observation (see Sections 2.4 and 2.5). begorig indicates the start date of the new period. |
| | **3) MTH, XMTH** |
| | In MTH and XMTH, new data records are created when a change of provider takes place during participation in a labour market policy measure. |

### 6.3.2 Original end date (endorig)

| Category | Description |
|---|---|
| Variable label | original end date |
| Variable name | endorig |
| Category | period of validity |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | date |
| Detailed description | The original end date of the observation corresponds to the original end date of the notification. This can differ from the end date of the relevant line of data, the so-called end date of the split episode (see also the comments on episode splitting in Section 3.2). Since the notification logic might under certain circumstances permit re-identification of the exact day of birth, the original information on the date was changed in these cases by applying the anonymisation procedure described in Section 3.1.8. |
| | **1) BeH** |
| | Because of the rules of the notification procedure, in BeH observations the starting and ending year are always identical (obligation of the employer to submit annual employment notifications). A continuous employment relationship may therefore be distributed across several notifications. |
| | **2) LHG, ASU, XASU** |
| | Certain changes lead to the creation of a new observation (see Sections 3.1.4 and 3.1.5). endorig indicates the end date of the new period. |
| | **3) MTH, XMTH** |
| | In MTH and XMTH, new data records are created when a change of provider takes place during participation in a labour market policy measure. |

### 6.3.3 Episode start date (begepi)

| Category | Description |
|---|---|
| Variable label | episode start date |
| Variable name | begepi |
| Category | generated period of validity |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | date |
| Detailed description | The start date of the split episode is always equal to or greater than the start date of the original observation (see also the comments on episode splitting in Section 3.2). |

### 6.3.4 Episode end date (endepi)

| Category | Description |
|---|---|
| Variable label | episode end date |
| Variable name | endepi |
| Category | generated period of validity |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | date |
| Detailed description | The end date of the split episode is always equal to or smaller than the end date of the original observation (see also the comments on episode splitting in Section 3.2.) |

## 6.4 Personal information

### 6.4.1 Gender (frau)

| Category | Description |
|---|---|
| Variable label | gender |
| Variable name | frau |
| Category | personal variable |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Detailed description | Gender dummy (0 - man, 1 - woman). The gender information is constant within one individual account. |

### 6.4.2 Year of birth (gebjahr)

| Category | Description |
|---|---|
| Variable label | year of birth |
| Variable name | gebjahr |
| Category | personal variables |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Detailed description | The year of birth is constant within one individual account. |
| Notes on quality | In the original data, it may happen that the date 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. |

### 6.4.3 Month of birth (gebmon)

| Category | Description |
|---|---|
| Variable label | month of birth |
| Variable name | gebmon |
| Category | personal variables |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Detailed description | The month of birth is constant within one individual account. |

| Category | Description |
|---|---|
| | One can use the variables Year of birth (gebjahr) and Month of birth (gebmon) to generate a variable in the date format JJJJmM (e.g., 1984m6) with the following syntax in Stata:<br>```<br>gen int gebdat = ym(gebjahr, gebmon)<br>format gebdat %tm<br>``` |
| Notes on quality | In the original data, it may happen that the date 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. |
| Anonymisation | Due to its particular sensitivity with regard to data privacy, this sensitive variable is only made available on application and only in well-founded cases. By default, only the coarsened variable (gebjahr) is provided. |

### 6.4.4    Nationality (nation)

| Category | Description |
|---|---|
| Variable label | nationality |
| Variable name | nation |
| Category | personal variables |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Detailed description | The variable contains the nation codes used by the Federal Statistical Office (Statistisches Bundesamt, 2021). |
| Notes on quality | The variable is not filled well in the LeH before 1983. |
| Anonymisation | Due to its particular sensitivity with regard to data privacy, this sensitive variable is only made available on application and only in well-founded cases. By default, only the coarsened variable (nation_gr) is provided. |

### 6.4.5    Nationality, grouped (nation_gr)

| Category | Description |
|---|---|
| Variable label | nationality, grouped |
| Variable name | nation_gr |
| Category | personal variables |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Detailed description | The variable contains a grouped version of the nation codes used by the Federal Statistical Office (Statistisches Bundesamt, 2021). |
| Notes on quality | The variable is not filled well in the LeH before 1983. |

### 6.4.6    Marital status (famst)

| Category | Description |
|---|---|
| Variable label | marital status |
| Variable name | famst |
| Category | personal variables |
| Origin | LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |

| Category | Description |
|---|---|
| Detailed description | This variable describes the marital status. This variable is not filled for employment reports!<br><br>**1) LeH**<br><br>In the LeH, the variable has only two values (0 - not married, 1 - married).<br><br>**2) LHG, ASU, XASU, MTH, XMTH**<br><br>In the sources LHG, ASU, XASU, MTH and XMTH, a distinction is made between six values (values 11-16).<br><br>The information from the different sources was not compared. |
| Notes on quality | **1) LeH**<br><br>The quality of the information originating from the LeH is classified as poor until<br><br>2005, as it is not quite clear how the marital status was maintained. The quality is also questionable since the beginning of 2014. Between 2013 and 2017, for example, the proportion of married people drops from 37% to 14%.<br><br>**2) LHG, XASU, XMTH**<br><br>Due to deviating reporting standards in XSozial, the information from the zkT has to be classified as less valid until December 2009. |

### 6.4.7 Number of children (kind)

| Category | Description |
|---|---|
| Variable label | number of children |
| Variable name | kind |
| Category | personal variables |
| Origin | LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Detailed description | This variable has a different meaning depending on the data source. This variable is not filled for employment reports!<br><br>**1) LeH**<br><br>In the LeH, the variable indicates the number of children aged under 16 living<br><br>in the household at the time when the application was made. It only distinguishes between whether the number of children is zero or at least one. The following values are therefore available:<br><br>0       no children<br><br>100     one or more children<br><br>**2) ASU, MTH**<br><br>In these sources, the value of the variable corresponds to the actual number of children under 15 living in the household.<br><br>**3) LHG, XASU, XMTH**<br><br>The variable reports the actual number of children aged under 15 in the benefit unit (Bedarfsgemeinschaft). In the LHG, the value is valid for the entire original period. |
| Notes on quality | **1) LeH**<br><br>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. This strongly restricts the quality of the data.<br><br>**2) ASU, MTH**<br><br>Until 30 June 2006, only up to nine children could be recorded. The value zero does not exist. For observations prior to 30 June 2006, the value zero was recoded to "missing", since it is not clear whether zero should be interpreted as "no children" |

| Category | Description |
|---|---|
| | or as "field not filled in". For observations after 30 June 2006, the variable is only recorded if children exist. |

## 6.4.8 Vocational training (ausbildung)

| Category | Description |
|---|---|
| Variable label | vocational training |
| Variable name | ausbildung |
| Category | personal variables |
| Origin | BeH, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Detailed description | The variable contains the vocational training qualification. A classification of the degrees in the International Standard Classification of Education (ISCED 2011) can be found in the key working tools of the RDC. It must be considered that this variable has a different meaning depending on the data source: |

**1) BeH**

For observations obtained from the BeH, the variable contains the vocational education reported by the employers as part of the employment notification procedure. The following values exist:

1        Without vocational training

2        In-company voc. training/traineeship/external voc. training

11       University of applied sciences without further specifications

12       University without further specifications

In notifications that rely on the new occupation code (see Section 5.3) 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.

**2) ASU, MTH**

For these observations the vocational education completed most recently is reported. The following values exist in spells with a start date until 30 June 2006:

1        Without vocational training

2        In-company voc. training/traineeship/external voc. training

3        Technical school (voc. training)

4        Technical school (advanced voc. training)

5        University of applied sciences (FH)

6        University

In 2006, the IT procedure from which the jobseeker data originate was switched from coArb to VerBIS. Many variables, such as training, were reported with different levels of differentiation in the two systems. This means that in spells from ASU and MTH which have a start date from 1 July 2006 onwards, the following differentiated categories are available:

7        Voc. training not accepted in Germany

8        University degree not accepted in Germany

9        In-company voc. training/traineeship/in-school voc. training

10       Other exams

11       University of applied sciences without further specifications

12       University without further specifications

| Category | Description |
|---|---|
| | 13     Doctorate |
| | 14     Bachelor (BA) |
| | 15     Bachelor (FH) |
| | 16     Bachelor (University) |
| | 17     Master (FH) |
| | 18     Master (University) |
| | 19     Diploma (BA) |
| | 20     Diploma (FH) |
| | 21     Diploma (University) |
| | 23     Undergraduate studies |
| | 24     Secondary/additional studies |
| | 25     Other (promotion-) advanced training for graduates |
| | 26     dual studies, integrated with apprenticeship |
| | 27     dual studies, practice-integrating |
| | **3) XASU, XMTH** |
| | For spells that originate from these sources, the vocational education completed most recently is reported. The following values exist: |
| | 1     Without vocational training |
| | 2     In-company voc. training/traineeship/external voc. training |
| | 3     Technical school (voc. training) |
| | 4     Technical school (advanced voc. training) |
| | 5     University of applied sciences (FH) |
| | 6     University |
| | 7     Voc. training not accepted in Germany |
| | 8     University degree not accepted in Germany |
| | For analyses that cover a longer period of time, the values can be aggregated as follows: |
| | 1, 22     to     1 |
| | 7     to     2 |
| | 8     to     3 |
| | 2, 3, 4, 9     to     4 |
| | 5,11, 14, 15, 17, 19, 20     to     5 |
| | 6, 10, 12, 13, 16, 18, 21, 26, 27     to     6 |
| | 23, 24, 25     to     7 |
| | The aggregated values have following value labels: |
| | 1     Without (recognised) formal vocational qualification |
| | 2     Vocational training not accepted in Germany |
| | 3     University degree noch accepted in Germany |
| | 4     In-company/school-based training |
| | 5     University of applied sciences |
| | 6     University |
| | 6     Other exams |
| | 7     Undergraduate studies |
| | 7     Secondary/additional studies |
| | 7     Other (promotion-) advanced training for graduates |
| Notes on quality | **1) BeH** |

| Category | Description |
|---|---|
| | "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 obtained 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 carried forward" (own translation of Meinken / Koch 2004, p. 63). |
| | The share of missing values increases almost continuously over time. Due to the introduction of the new occupation code in 2011, the share even temporarily strongly increased to around 51%. Since 2014, however, the proportion of missing values in the BeH has levelled off at around 40%. |
| | Missing values occur particularly frequently in the following groups: marginal part-time employees, part-time workers, foreign employees and workers from Eastern German. The reason for this is that the variable is not of particular importance as regards social security contributions (see Meinken/Koch, 2004, p. 63). |
| | The introduction of the new occupation code is associated with a break in the data that goes beyond the mere conversion of the key and can possibly be explained by updating effects during the changeover of the payroll accounting software at the reporting establishments. |
| | For the variable "Vocational training (imputed)" (ausbildung_imp, see Section 6.4.9), a method was applied to correct missing values or inconsistent changes of the training variable. However, this variable is only filled in the source BeH and has different categories than the variable ausbildung. |
| | **2) ASU, MTH** |
| | 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. In the source MTH, older categories partially still occur even after 1 July 2006. |
| | **3) XASU, XMTH** |
| | The degree of completeness in the XASU and the XMTH is generally low. |

### 6.4.9 Vocational training (imputed) (ausbildung_imp)

| Category | Description |
|---|---|
| Variable label | vocational training (imputed) |
| Variable name | ausbildung_imp |
| Category | personal variables |
| Origin | BeH |
| Data type | numerical |
| Detailed description | The variable Vocational training (imputed) is a supplement to the variable Vocational training (ausbildung) and contains additional and harmonized information on the vocational training of employees for BeH spells. The variable thus offers a solution to the problems concerning the variable Vocational training (ausbildung) described in Section 6.4.8. The imputation procedure is described in Thomsen et al. (2018), which is based on the work of Fitzenberger et al. (2016). |

| Category | Description |
|---|---|
| | As the variable only uses the training information from BeH notification and because the educational categories of the old and the new occupation codes had to be harmonized for the variable Vocational training (ausbildung), the variable ausbildung_imp has other categories than the variable ausbildung.<br>A classification of the degrees in the International Standard Classification of Education (ISCED 2011) can be found in the key working tools of the RDC. |
| Notes on quality | Despite the imputation procedure, the share of missing data increases over time, reaching about 9% in 2020. The introduction of the new occupation code is associated with a break in the data that goes beyond the mere conversion of the key and can possibly be explained by updating effects during the changeover of the payroll accounting software at the reporting establishments. |

## 6.4.10 School leaving qualification (schule)

| Category | Description |
|---|---|
| Variable label | school leaving qualification |
| Variable name | schule |
| Category | personal variables |
| Origin | BeH, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Detailed description | This variable contains the school leaving qualification. Different values are possible depending on the source. A classification of the degrees in the International Standard Classification of Education (ISCED 2011) can be found in the key working tools of the RDC.<br>**1) BeH**<br>With the switch to the new occupation code in 2011 (see Section 2.2.1) the possible values of the variable change. The values from the old occupation code are:<br>5　　Grade-/lower school certificate, intermediate school or equivalent qualification<br>8　　Completion of education at a specialised upper secondary school/completion of higher education at a specialised college or upper secondary school leaving certificate, A-level equivalent, qualification for university; 13 years of schooling<br>9　　Upper secondary school leaving certificate, A-level equivalent, qualification_for university; 13 years of schooling<br>With the new occupation code, the values are:<br>1　　No school leaving certificate<br>4　　Lower secondary school certificate/ grade school certificate<br>6　　Intermediate school leaving certificate<br>8　　Completion of education at a specialised upper secondary school/completion of higher education at a specialised college or upper secondary school leaving certificate, A-level equivalent, qualification for university; 13 years of schooling<br>The differentiation options in lower secondary education were thus expanded (1, 4, 6 instead of 5 previously), while those in upper secondary education were reduced (8 and 9 now combined under 8).<br>**2) ASU, XASU, MTH, XMTH**<br>The following values are possible for these data sources:<br>1　　No school leaving certificate<br>4　　Lower secondary school certificate/ grade school certificate |

| Category | Description |
|---|---|
| | 6        Intermediate school leaving certificate |
| | 7        Completion of education at a specialised upper secondary school/completion of higher education at a specialised college |
| | 9        Upper secondary school leaving certificate, A-level equivalent, qualification for university; 13 years of schooling |
| | 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. |
| Notes on quality | **1) BeH** |
| | The degree of completeness in the BeH has been decreasing continuously over time and seems to have levelled off at under 2/3 in recent years. The introduction of the new occupation code is associated with a break in the data that goes beyond the mere conversion of the key and can possibly be explained by updating effects during the changeover of the payroll accounting software at the reporting establishments. |
| | **2) ASU, XASU, MTH, XMTH** |
| | In the XASU and the XMTH the degree of completeness increases continuously and has levelled off at over 75% since 2018 (XASU) and 2015 (XMTH), respectively. In the ASU and the MTH the degree of completeness is generally high. |

## 6.5   Information on employment, benefit receipt and job search

### 6.5.1   Daily wage/daily benefit (tentgelt)

| Category | Description |
|---|---|
| Variable label | daily wage/daily benefit |
| Variable name | tentgelt |
| Category | information on employment, benefit receipt and job search |
| Origin | BeH, LeH |
| Data type | numerical |
| 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, it is not possible to differentiate between these two insurance providers in the data. |
| | Since the inclusion of marginal part-time employees in the employment notification procedure on 1 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 |

| Category | Description |
|---|---|
| | 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 in-formation, however, may be considered less error-prone due to its 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 https://fdz.iab.de.
A daily wage reported as 0 euros can be put down to "employment interruption notifications". During these periods, the employment relation-ship 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.
From 2013 onwards, the number of notifications with a reason for deregistration of 54 (notification of a one-off wage) increases sharply (see Section 6.5.12). It is likely that special payments which were reported with the annual declarations before 2013 are now reported separately. It is therefore advisable to add these variable one-time payments to the corresponding wages for simultaneous employment episodes within the same establishment when analysing wages over time.
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 end date prior to 1 January 1998 the daily benefit rate applies to working days (i.e., including Saturdays but excluding Sundays and public holidays), while for observations with an original end date from 1 January 1998 onwards it applies to calendar days.
Since 1 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. |

### 6.5.2   Occupation - current/most recent (KldB 1988) (beruf)

| Category | Description |
|---|---|
| Variable label | occupation – current/most recent (KldB 1988) |
| Variable name | beruf |
| Category | information on employment, benefit receipt and job search |
| Origin | BeH, ASU, XASU, MTH |
| Data type | numerical |
| 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 |

| Category | Description |
|---|---|
| | 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).<br><br>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.<br><br>Employment notifications with an end date later than 30 November 2011 are reported using the new occupation code 2010 (KldB2010) (see Section 5.3). These values are transcoded to the KldB1988 via a priority switch. This results in inaccuracies.<br><br>**2) ASU, XASU, MTH**<br>The variable contains the occupation of the last job. See 1) with regard to the occupation code. |
| Notes on quality | **1) BeH**<br>There is a considerable increase in the number of missing values in 2011 due to the change in the occupation code. A similar accumulation of missing values occurs in 1991 due to reunification.<br>The introduction of the new occupation code is associated with a break in the data that goes beyond the mere conversion of the key and can possibly be explained by updating effects during the changeover of the payroll accounting software at the reporting establishments.<br><br>**2) ASU, MTH**<br>The variable is only filled after 2011 if the last activity was still reported according to the old occupation code. The degree of completeness decreases continuously from year to year. After 2016, it is under 10%.<br><br>**3) XASU**<br>The occupation variable is not filled for almost the entire period available. |

### 6.5.3   Occupational group - current/most recent (KldB 2010), 3-digit (beruf2010_3)

| Category | Description |
|---|---|
| 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 |
| Detailed description | **1) BeH**<br>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).<br><br>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). |

| Category | Description |
|---|---|
| | Employment notifications with an end date earlier than 30 November 2011 are reported using the old occupation code 1988 (KldB 1988) (see Section 5.3). 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. |
| Notes on quality | **1) BeH** |
| | There is a considerable increase in the number of missing values in 2011 due to the change in the occupation code. A similar accumulation of missing values occurs in 1991 due to reunification. The introduction of the new occupation code is associated with a break in the data that goes beyond the mere conversion of the key and can possibly be explained by updating effects during the changeover of the payroll accounting software at the reporting establishments. |
| | **2) LeH** |
| | This variable was previously not filled in the LeH, since the occupational data in that source was of poor quality. By now, the occupation in the LeH is adopted from the job seeker history, leading to an increase in quality. |
| | **3) XASU** |
| | The variable is not filled for almost the entire period available. |

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

| Category | Description |
|---|---|
| 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 |
| 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 varia-ble 'level of requirement' (niveau). |
| | Employment notifications with an end date earlier than 30 November 2011 are reported using the old occupation code 1988 (KldB 1988) (see Section 5.3). 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 considered 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. |

| Category | Description |
|---|---|
| Notes on quality | **1) BeH**<br><br>There is a considerable increase in the number of missing values in 2011 due to the change in the occupation code. A similar accumulation of missing values occurs in 1991 due to the reunification. The introduction of the new occupation code is associated with a break in the data that goes beyond the mere conversion of the key and can possibly be explained by updating effects during the changeover of the payroll accounting software at the reporting establishments.<br><br>**2) LeH**<br><br>This variable was previously not filled in the LeH, since the occupational data in that source was of poor quality. By now, the occupation in the LeH is adopted from the job seeker history, leading to an increase in quality.<br><br>**3) XASU**<br><br>The variable is not filled for almost the entire period available. |
| Anonymisation | Due to its particular sensitivity with regard to data privacy, this sensitive variable is only made available on application and only in well-founded cases. By default, only the coarsened variable (beruf2010_3) is provided. |

### 6.5.5   Level of requirement - current/most recent job (KldB 2010) (niveau)

| Category | Description |
|---|---|
| Variable label | level of requirement - current/most recent (KldB 2010) |
| Variable name | niveau |
| Category | information on employment, benefit receipt and job search |
| Origin | BeH, LeH, ASU, XASU, MTH |
| Data type | numerical |
| Detailed description | **1) BeH**<br><br>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).<br><br>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).<br><br>Employment notifications with an end date earlier than 30 November 2011 are reported using the old occupation code 1988 (KldB 1988) (see Section 5.3). 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.<br><br>**2) LeH, ASU, XASU, MTH**<br><br>The variable contains the occupation of the last job. See 1) with regard to the occupation code. |
| Notes on quality | **1) BeH**<br><br>There is a considerable increase in the number of missing values in 2011 due to the change in the occupation code. A similar accumulation of missing values occurs in 1991 due to the reunification. The introduction of the new occupation |

| Category | Description |
|---|---|
| | code is associated with a break in the data that goes beyond the mere conversion of the key and can possibly be explained by updating effects during the changeover of the payroll accounting software at the reporting establishments. |
| | **2) LeH** |
| | This variable was previously not filled in the LeH, since the occupational data in that source was of poor quality. By now, the occupation in the LeH is adopted from the job seeker history, leading to an increase in quality. |
| | **3) XASU** |
| | The variable is not filled for almost the entire period available. |

## 6.5.6 Part-time (teilzeit)

| Category | Description |
|---|---|
| Variable label | part-time |
| Variable name | teilzeit |
| Category | information on employment, benefit receipt and job search |
| Origin | BeH |
| Data type | numerical |
| Detailed description | The variable "Part-time" (teilzeit) distinguishes between full-time and part-time employees. The decisive factor is the ratio between the contracted hours and the usual working hours in the establishment. |
| Notes 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). A similar accumulation of missing values occurs in 1991 due to the reunification. No imputation is performed here. |
| | The introduction of the new occupation code is associated with a break in the data that goes beyond the mere conversion of the key and can possibly be explained by updating effects during the changeover of the payroll accounting software at the reporting establishments. |
| | For a more detailed discussion of the problem and a possible corrective approach, see Fitzenberger/Seidlitz (2020). |

## 6.5.7 Occupational status and working hours (stib)

| Category | Description |
|---|---|
| Variable label | occupational status and working hours |
| Variable name | stib |
| Category | information on employment, benefit receipt and job search |
| Origin | BeH |
| Data type | numerical |
| Detailed description | The employee's occupational status during the notification period is reported by the employer as part of the "employment details". The variable "occupational status and working hours" distinguishes between full-time and part-time employees. The decisive factor for this differentiation is the ratio between the contracted hours and the usual working hours in the establishment. For part-time employees the variable only indicates whether their working hours exceed a certain threshold. Until 1978, this threshold was 20 hours of work per week, |

| Category | Description |
|---|---|
| | between 1979 and 1987 it was 15 hours per week and since 1988 it is 18 hours per week. |
| | The variable only provides information regarding the occupational status for full-time employees, distinguishing among other things between blue-collar and white-collar employees in full-time employment and apprentices. The distinction between (full-time) blue-collar and white-collar employees is solely based on the type of compulsory pension insurance (Federal Social Insurance Office for Salaried Employees – BfA – for white collar workers, and State Social Insurance Office – LVA – for blue-collar workers). Master craftsmen and foremen are only included in a separate category if they are compulsorily insured in the workers' pension insurance. The assignment of a master craftsman or foreman to the blue-collar or white-collar employees can only be made via the respective pension provider. The "employees in vocational training" category covers not only apprentices, volunteers and interns but also semi-skilled trainees, students at colleges for health occupations and participants in subsidised further vocational training, retraining and induction training. |
| | If more than one code is eligible for an employee, the employer is required to classify the job according to the activity which is predominantly performed. If this cannot be determined clearly, the code of the higher occupational status is to be entered (see BA 2005, p. VI). |
| | Owing to the introduction of the new occupation code (see Section 2.2.1), however, this distinction is no longer possible. The variable "stib" is therefore only filled for notifications which date back to before the introduction of the new occupation code. |
| Notes 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). An extended application of the correction approach is discussed and offered in Fitzenberger/Seidlitz (2020). A similar accumulation of missing values occurs in 1991 due to the reunification. No imputation is performed here. |

## 6.5.8   Employment status (erwstat)

| Category | Description |
|---|---|
| Variable label | employment status |
| Variable name | erwstat |
| Category | information on employment, benefit receipt and job search |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Detailed description | This variable takes on 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. |

| Category | Description |
|---|---|
| | 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. |

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. These remaining notifications were assigned to the group of persons "Employees subject to social security contributions without any distinctive characteristics" (101).

Since 1 April 1999, employees in marginal part-time employment have also been recorded in the DEÜV notification procedure. This person group 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. With the introduction of unemployment benefit II in 2005, unemployment assistance, maintenance allowance and the contributions to private long-term care insurance are omitted.

**3) LHG**

For LHG spells, the variable shows whether the person is underage and able to work, adult and able to work, or unable to work and beyond the retirement pension limit.

Since the reporting logic would make it possible to re-identify the exact date of birth in many cases, the original dates were changed by means of the anonymization procedure described in Section 3.1.8.

**4) ASU, XASU**

For ASU/XASU observations, the 'employment status' variable reports the job search status.

A distinction is made between those who are "unemployed and seeking work", "not unemployed and seeking work", "seeking advice" and "not seeking work". Applicants who only want advice from the BA are considered as "seeking advice". In addition, there are rehabilitants and, before 2008, persons aged 58 or older who are not fully available for placement. As of 1 August 2016, this may also include persons who no longer require support, but who are nevertheless still under the job center's care.

"Not seeking work" mainly subsumes persons of whom activation or placement cannot be reasonably expected according to § 10 SGB II. Similarly, persons with an incapacity to work of more than 42 days who continue to receive ALG II are listed in the system under this status.

Since the reporting logic would make it possible to re-identify the exact date of birth in many cases, the original dates were changed by the anonymization procedure described in Section 3.1.8.

**5) MTH, XMTH**

| Category | Description |
|---|---|
| | For observations in the MTH and the XMTH, 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. |
| Notes on quality | **1) LHG**<br><br>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 classified 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.<br><br>In some cases, there may be conflicting information on a person's ability to work if he or she is a member of different benefit units (BGs) at the same time. A possible reason for this is the determination of the ability to work by the job center specialist supervising the BG or by the respective responsible medical services. They can come to different results or document these at different times. A further reason may be different birthday records for simultaneous BG customers, which may affect the status of their ability to work.<br><br>**2) ASU, XASU**<br><br>The categories "seeking advice" and "not seeking work" have only existed since the introduction of VerBIS (see Section 5.6). Due to late notifications, however, entries before 2006 can also be found. The characteristic "not seeking work" is considered to be under-recorded before 2008. In the XASU, the quality of status determination is partly limited for some institutions, especially in the first years. |

## 6.5.9 Transition zone (gleitz)

| Category | Description |
|---|---|
| Variable label | transition zone |
| Variable name | gleitz |
| Category | information on employment, benefit receipt and job search |
| Origin | BeH |
| Data type | numerical |
| Detailed description | This variable is only 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 (in German "Gleitzone" since July 2020 "Uebergangsbereich"), (so-called midi jobs). Employees only have 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.<br><br>The transition zone is based on gross pay and changes over time:<br><br>01.04.2003 to 31.12.2012: € 400.01 to € 800.00<br><br>01.01.2013 to 30.06.2019: € 450.01 to € 850.00<br><br>From 01.07.2019: € 450.01 to €1,300.00<br><br>Different lower limits exist for trainees and employees in voluntary services. In the case of several employment relationships, assignment to the transition zone is based on the total gross pay.<br><br>The corresponding legislation has been in force since 1 April 2003. |

### 6.5.10  Temporary agency work (leih)

| Category | Description |
|---|---|
| Variable label | temporary agency work |
| Variable name | leih |
| Category | information on employment, benefit receipt and job search |
| Origin | BeH |
| Data type | numerical |
| Detailed description | The variable reports whether the person's employment is a temporary job via an employment agency. The employee is recorded with the establishment that provides the social security notifications and this is the establishment which leases out the employee (not the establishment that the employee physically works in). The variable is derived from the occupation code 2010 and is only available for notifications with an end date later than 30 November 2011. |
| Notes on quality | There is a considerable increase in the number of missing values in 2011 due to the change in the reporting procedure. By 2012, the share of missing values is down to about 3% and decreases below 1% until 2019. |

### 6.5.11  Fixed-term contract (befrist)

| Category | Description |
|---|---|
| Variable label | fixed-term contract |
| Variable name | befrist |
| Category | information on employment, benefit receipt and job search |
| Origin | BeH |
| Data type | numerical |
| 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. |
| Notes on quality | There is a considerable increase in the number of missing values in 2011 due to the change in the reporting procedure. By 2012, the share of missing values is down to about 3% and decreases below 1% until 2019. |

### 6.5.12  Reason of cancellation/notification/termination (grund)

| Category | Description |
|---|---|
| Variable label | reason of cancellation/notification/termination |
| Variable name | grund |
| Category | information on employment, benefit receipt and job search |
| Origin | BeH, LeH, LHG, ASU, XASU |
| Data type | numerical |
| Detailed description | **1) BeH**<br>In BeH observations, the 'Reason of cancellation/ notification/ termination' 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), while 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 |

| Category | Description |
|---|---|
| | 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 1 January 1999 (in accordance with DEÜV) with a leading "1". To obtain the original coding, the value "100" must be subtracted from the coding in the variable. |
| | **2) LeH** |
| | In the LeH, this variable specifies the reason for the end of the receipt of unemployment benefits, unemployment assistance, or maintenance allowance. There is no information in the LeH about the reasons for the start of the benefit receipt, since the LeH is filled with the notifications from the employment agencies to the health insurance about completed benefit receipt durations. The values of this variable are only filled for the validity period provided by the technical or legal regulations. If values occur outside their validity period, they are converted to substitute values {value range 1173-1181} because their meaning cannot then be clarified with certainty. |
| | **3) LHG** |
| | The LHG observations contain the 'reason for termination 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 unit. If the composition receipt of a different member of the benefit union changes the observations for all members of the benefit unit terminated and started again on this date. The reason for termination of Unemployment Benefit II is only filled for the individual for whom a reason for termination is available. The variable is missing (.z) for all other members of the benefit union. This variable is valid exactly at the end of the original observation. |
| | **4) ASU** |
| | In the case of ASU observations, the variable contains the deregistration or exit reason. In the case of a change of legal sphere, the observation is split artificially and 'generated by data splitting' is entered as the reason for deregistration. In order to depict the reasons for deregistration correctly it is also necessary to consider the variable 'status after job search'. |
| | The number of values of the variable was reduced from 26 April 2003 onwards. For analyses over long periods of time, the old values can be recoded to the currently valid ones using the rules below: <br> 229 to 260, 230 to 260, 231 to 261, 232 to 260, 233 to 260, 234 to 260,2 35 to 260, 236 to 261, 237 to 266, 238 to 266, 239 to 271, 240 to 269, 242 to 265, 243 to 270, 244 to 274, 245 to 277, 246 to 267, 247 to 267, 248 to 278, 249 to 269, 250 to 275, 251 to 274, 252 to 276, 253 to 268, 254 to 278 |
| | **5) XASU** |
| | In the case of XASU observations, the variable contains the deregistration or exit reason. In the case of a change of legal sphere, the observation is split artificially and 'generated by data splitting' is entered as the reason for deregistration. |
| Notes on quality | **1) BeH** |
| | From 2013 onwards, the number of notifications with a reason for deregistration of 54 (notification of a one-off payment) increases sharply. As long as an employment relationship exists, special payments that are paid out by March of the following year can be included into the usual notifications (mostly annual notifications) for the previous year. A separate notification with a reason for deregistration of 54 is then not required. Until 2012, the annual notifications could be submitted until mid-April; since 2013, they must now be submitted by mid-February at the latest. Special payments made in February and March must now be reported separately. |

| Category | Description |
|---|---|
| | **2) LHG**<br>The degree of completeness for the reason for notification in the LHG data sources is very small (< 20%) across all years. |

### 6.5.13  Employment status prior to job search (estatvor)

| Category | Description |
|---|---|
| Variable label | employment status prior to job search |
| Variable name | estatvor |
| Category | information on employment, benefit receipt and job search |
| Origin | ASU, XASU |
| Data type | numerical |
| Detailed description | For ASU and XASU observations, this variable shows the employment status prior to the job search activity. If an observation within the ASU/XASU is split artificially (for instance in the case of a change of legal sphere from SGB III to SGB II), the reason for registration is reported as 'generated by data splitting'. However, this does not apply for episode splitting within the SIAB. This information does not refer to the start date of the episode, but to the start of the original time period. |
| Notes on quality | **1) ASU**<br>According with the change from coArb to VerBIS in 2005/2006 (see chapter 5.6), there is a clear break in the values of this variable, as consistent mapping is not possible. |

### 6.5.14  Employment status after job search (estatnach)

| Category | Description |
|---|---|
| Variable label | employment status after job search |
| Variable name | estatnach |
| Category | information on employment, benefit receipt and job search |
| Origin | ASU |
| Data type | numerical |
| Detailed description | The variable contains the person's status after leaving unemployment. Longer periods of illness can be identified via this variable.<br>The values are classified as follows:<br>• 1000s: measure (assisted employment)<br>• 2000s: non-assisted employment<br>• 3000s: training etc.<br>• 4000s: self-employment<br>• 5000s: exclusion<br>• 6000s: other |
| Notes on quality | **1) ASU**<br>According with the change from coArb to VerBIS in 2005/2006 (see chapter 5.6), there is a clear break in the values of this variable, as consistent mapping is not possible. However, the relative frequencies also vary over time depending on the values of the variable. Particular caution is therefore required in analyses. |

## 6.5.15  Integration forecast (ipo)

| Category | Description |
|---|---|
| Variable label | Integration forecast |
| Variable name | ipo |
| Category | information on employment, benefit receipt and job search |
| Origin | ASU, MTH |
| Data type | numerical |
| Detailed description | The variable reports the integration forecasts assessed by the placement, counseling and integration specialist (or the pilot in SGB III) during the initial contact. The integration forecast is the result of the assessment of the client's proximity to the market. "Close to market" applies if integration is expected within six months, "not close to market" if integration is only expected to succeed after more than six months. Identifiable needs for action that can be remedied within six months do not rule out market proximity.<br><br>The integration prognosis "integrated, but in need" is only valid for applicants from the SGB II.<br><br>If there is only a desire for placement in training, no integration forecast is to be determined.<br><br>This variable will be available from the end of 2016 and is the successor to the client profile (profil) variable. For the period before that, the information from the client profile is recoded into the integration forecast as follows:<br><br>The old values 2 (market profile), 3 (empowerment profile) and 4 (incentive profile) become the new value 1 (Close to market), the old values 5 development profile), 6 (stability profile) and 7 (benefit profile) become the new value 2 (Not close to market), the old value 8 (assignment unnecessary) becomes 3 (Assignment unnecessary) and 9 (integrated, but in need) becomes 4 (Integrated, but in need) and 1 (still undetermined) becomes .z (No entry). |
| Notes on quality | The variable was introduced in 2016 but was mapped back to 2006 using other variables. The quality has been assessed as reliable by the BA statistics department since 2010. |

## 6.5.16  Reason for end of previous employment (art_kuend)

| Category | Description |
|---|---|
| Variable label | reason for end of previous employment |
| Variable name | art_kuend |
| Category | information on employment, benefit receipt and job search |
| Origin | ASU, MTH |
| Data type | numerical |
| Detailed description | This variable describes how the last employment or training relationship was terminated before a period of job search. It can therefore be used to identify job-to-job placements. |
| Notes on quality | The share of missing values is particularly high in this variable, averaging around 50%. |

## 6.5.17  Working hours of job application (arbzeit)

| Category | Description |
|---|---|
| Variable label | working hours of job application |
| Variable name | arbzeit |

| Category | Description |
|---|---|
| Category | information on employment, benefit receipt and job search |
| Origin | ASU, MTH |
| Data type | numerical |
| Detailed description | During the placement procedure, jobseekers indicate how many working hours the job they are seeking should have. |

### 6.5.18 Residual claim/planned duration (restanspruch)

| Category | Description |
|---|---|
| Variable label | residual claim/planned duration |
| Variable name | restanspruch |
| Category | information on employment, benefit receipt and job search |
| Origin | LeH, MTH |
| Data type | numerical |
| Detailed description | The variable has a different meaning depending on the data source.<br><br>**1) LeH**<br><br>The variable contains the residual entitlement to unemployment benefit that<br><br>remains after the end of the current benefit receipt period. If the period of benefit receipt ends before the maximum duration of entitlement has been reached (e.g., due to taking up employment again), a residual entitlement remains which is equivalent to the duration of benefit entitlement that was not used up. If new entitlement is acquired within five years, the duration of the residual entitlement is added to the new duration of entitlement. However, the maximum duration of entitlement for the client's age is the upper limit. If no new entitlement is acquired, the residual entitlement can be used for benefits within four years on application.<br><br>If the end date of the benefit receipt is before 1 January 1998, the remaining entitlement is reported in working days, after this date it is reported in calendar days.<br><br>This information does not refer to the start date of the episode, but to the start of the original time period.<br><br>**2) MTH**<br><br>The variable contains the planned duration of the measure. |
| Notes on quality | **1) LeH**<br><br>Over the course of a benefit receipt biography, a systematic development of the remaining entitlement is to be expected. This means that the remaining entitlement at the end of a benefit period minus the duration of the subsequent period should give the remaining entitlement after the subsequent period as long as no claims have arisen or expired in the meantime. However, there may be unexpected increases or decreases in the remaining entitlement.<br><br>These are presumably mainly caused by corrections during the processing of benefit cases. Such corrections occur, for example, if a claim was not correctly determined at the start of the benefit case due to incomplete information or if a remaining claim that has not yet expired was not taken into account. However, these corrections are usually only administered for the current record, i.e. there is no correction of the complete case. In addition, in individual cases the information on entitlement durations may exceed the individual upper limit according to the statutory requirements.<br><br>**2) MTH**<br><br>In very few cases, the planned duration of the measure contains negative values or values greater than 5 years. These cases are recoded to missing (.z). |

### 6.5.19   Type of provider (traeger)

| Category | Description |
|---|---|
| Variable label | type of provider |
| Variable name | traeger |
| Category | information on employment, benefit receipt and job search |
| Origin | LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Detailed description | The variable contains the type of institution responsible for implementing Unemployment Benefit II (LHG), the type of institution providing the measure (MTH/XMTH) or the institution responsible for managing the applicant profile (ASU/XASU). The variable contains not only the "Bundesagentur für Arbeit (BA)" as the type of institution responsible for implementing Social Code Book III (SGB III), but also three types of institution responsible for implementing Social Code Book II (SGB II). For further information see Section 2.4. The type of institutions responsible for implementing SGB II may change over time (e.g., from a cooperation of an employment agency and a municipality to a municipality exercising its duties separately, or from joint facilities to an authorised municipality). It must also be taken into account that the district territories covered by the institutions are not always distinct and thus may not necessarily correspond to the boundaries of the districts. The same applies for the employment agencies. |

### 6.5.20   Start date of unemployment (alo_beg)

| Category | Description |
|---|---|
| Variable label | start date of unemployment |
| Variable name | alo_beg |
| Category | information on employment, benefit receipt and job search |
| Origin | LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Detailed description | The variable reports the start date of an uninterrupted sequence of periods of unemployment and is valid at the beginning of the observation.<br>The following gaps do not result in an interruption of the period of unemployment:<br>• any gap lasting seven days or less<br>• periods of illness lasting up to 42 days |

### 6.5.21   Duration of unemployment (alo_dau)

| Category | Description |
|---|---|
| Variable label | duration of unemployment |
| Variable name | alo_dau |
| Category | information on employment, benefit receipt and job search |
| Origin | ASU, XASU |
| Data type | numerical |
| Detailed description | The variable is filled for all sources and considers unemployment episodes (ALO) from ASU- and XASU for the calculation. The variable reports the duration (in days) of an uninterrupted sequence of periods of unemployment and is valid at the beginning of the observation (begepi).<br>The following gaps do not result in an interruption of the period of unemployment: |

| Category | Description |
|---|---|
| | • any gap lasting seven days or less |
| | • periods of illness lasting up to 42 days |
| | However, when calculating the duration these gaps are not considered. Therefore, the duration in this variable may differ from the result of the duration calculation based on the "Start date of unemployment". |
| | Prior to 1997, the value "0" does not mean that the individual was not unemployed, as the ASU/XASU sources are not available here. |

## 6.6   Location data

### 6.6.1   Place of residence - district (Kreis) (wo_kreis)

| Category | Description |
|---|---|
| Variable label | place of residence - district (Kreis) |
| Variable name | wo_kreis |
| Category | location data |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| 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, NUTS 1), and positions 1-3 indicate the regional authority (Regierungsbezirk, NUTS 2). Federal states without a regional authority have a 0 in the third position. In the NUTS classification (Nomenclature des unités territoriales statistiques) of the European Union, districts correspond to the level NUTS 3. |
| | For the LHG and XASU sources, the place of residence applies to the whole period of the original observation. For the ASU, LeH, MTH and XMTH, the variable contains the place of residence at the beginning of the original period of time. This means that the longer the spell lasts, the higher the risk that the place of residence will become obsolete and that the information given for later dates will be incorrect. |
| | 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 2020 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 2020. 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. |
| Notes on quality | There are inaccuracies in the information provided in the BeH for some employees with regard to where they live. The reporting requirement does not clarify which residence - main or secondary residence with predominant residence - is to be reported by the employer. In the employment history, this can lead to the impression of "long-distance commuters" between the registered main residence and the place of work, even though the person is in fact employed at the secondary residence, i.e. does not actually commute. |
| | In the year 2015, the BeH data show a reduction in the change of residence of approx. 10-15% compared to the usual level of the surrounding years, with |

| Category | Description |
|---|---|
|  | regional differences occurring. It has not yet been possible to determine the exact reason for this deviation. |
| Anonymisation | Due to its particular sensitivity with regard to data privacy, this sensitive variable is only made available on application and only in well-founded cases. By default, only the coarsened variable (wo_bula) is provided. |

## 6.6.2    Place of residence - federal state (Bundesland) (wo_bula)

| Category | Description |
|---|---|
| Variable label | place of residence - federal state (Bundesland) |
| Variable name | wo_bula |
| Category | location data |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| 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 and LeH 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 Place of residence: district (Kreis) |

## 6.6.3.    Place of residence - employment agency (Arbeitsagentur) (wo_aa)

| Category | Description |
|---|---|
| Variable label | place of residence - employment agency (Arbeitsagentur) |
| Variable name | wo_aa |
| Category | location data |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Hierarchy | regional directorate | employment agency |
| Detailed description | From 1999 onwards, this variable contains the agency district of the employment agency that is responsible for the employee's / BA client's place of residence. This information is determined from the residence address. For the LHG and XASU data sources, the place of residence is valid for the period of the original observation. In the case of the BeH, LeH, ASU, MTH and XMTH, the variable contains the place of residence at the start of the period of unemployment or job search. Accordingly, the longer the spell lasts, the higher the risk that the place of residence will become obsolete and that the information given for later dates will be incorrect. For the BeH and LeH, it is available from 1999 onwards. |
|  | In order to guarantee consistent regional allocations across the entire observation period, the information on the agency district was recoded to the territorial allocation of 31 December 2020 for all data sources, i.e. in all calendar years, a place of residence is assigned to an agency district in accordance with the boundaries that the agency district had on 31 December 2020. As the boundaries of the agency district 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. Berlin should preferably be analysed as a |

| Category | Description |
|---|---|
| | unit and not separately for East and West, because since the territorial reform of the employment offices in Berlin on 1 July 1997 their clear allocation to East and West is no longer possible. The BA statistics uniformly assigns Berlin to the East. Prior to 1999 the variable contains the employment agency that last processed the case of benefit receipt. It is not determined from the residence address and is only available for the LeH data source. Moreover, it is not possible to update the territorial allocations. This must be taken into account when conducting calculations over time (e.g., regional unemployment figures). |
| Anonymisation | Owing to its particular sensitivity with regard to data privacy, 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. |

### 6.6.4  Place of residence - regional directorate (Regionaldirektion) (wo_rd)

| Category | Description |
|---|---|
| Variable label | place of residence - regional directorate (Regionaldirektion) |
| Variable name | wo_rd |
| Category | location data |
| Origin | BeH, LeH, LHG, ASU, XASU, MTH, XMTH |
| Data type | numerical |
| Hierarchy | regional directorate \| employment agency |
| Detailed description | This variable is an aggregation of the variable 'place of residence: employment agency' at the level of the regional directorates. Further information can be found there. |

## 6.7  Establishment variables

### 6.7.1  Classification of economic activities 73 (w73_3)

| Category | Description |
|---|---|
| Variable label | classification of economic activities 73 |
| Variable name | w73_3 |
| Category | establishment variables |
| Origin | BHP |
| 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.<br><br>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 Bundesagentur für Arbeit, 2009"). 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.<br><br>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. |

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

| Category | Description |
|---|---|
| Variable label | classification of economic activities 93, sub-classes |
| Variable name | w93_5 |
| Category | establishment variables |
| Origin | BHP |
| 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 1999 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"). <br><br> Each establishment is only assigned one code. If an establishment is active in different economic sectors, the main economic activity should be reflected. |
| Anonymisation | 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). |

## 6.7.3 Classification of economic activities 93, groups (w93_3)

| Category | Description |
|---|---|
| Variable label | classification of economic activities 93, groups |
| Variable name | w93_3 |
| Category | establishment variables |
| Origin | BHP |
| 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 1999 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"). <br><br> Each establishment is only assigned one code. If an establishment is active in different economic sectors, the main economic activity should be reflected. |

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

| Category | Description |
|---|---|
| Variable label | classification of economic activities 03, sub-classes |
| Variable name | w03_5 |
| Category | establishment variables |
| Origin | BHP |
| 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 classifications of the economic activity have been updated, but the structure of the WZ93 has been largely retained.<br><br>Each establishment is only assigned one code. If an establishment is active in different economic sectors, the main economic activity should be reflected. |
| Anonymisation | 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). |

### 6.7.5 Classification of economic activities 03, groups (w03_3)

| Category | Description |
|---|---|
| Variable label | classification of economic activities 03, groups |
| Variable name | w03_3 |
| Category | establishment variables |
| Origin | BHP |
| 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 classifications of the economic activity have been updated, but the structure of the WZ93 has been largely retained.<br><br>Each establishment is only assigned one code. If an establishment is active in different economic sectors, the main economic activity should be reflected. |

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

| Category | Description |
|---|---|
| Variable label | classification of economic activities 08, sub-classes |
| Variable name | w08_5 |

| Category | Description |
|---|---|
| Category | establishment variables |
| Origin | BHP |
| 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. |
| Anonymisation | 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). |

### 6.7.7 Classification of economic activities 08, groups (w08_3)

| Category | Description |
|---|---|
| Variable label | classification of economic activities 08, groups |
| Variable name | w08_3 |
| Category | establishment variables |
| Origin | BHP |
| 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. |

### 6.7.8 w73_3 completed by extrapolation/imputation (w73_3_gen)

| Category | Description |
|---|---|
| Variable label | w73_3 completed by extrapolation/imputation |
| Variable name | w73_3_gen |
| Category | establishment variables |
| Origin | BHP |
| 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 |

| Category | Description |
|---|---|
| | 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 variable w73_3. |

### 6.7.9 Type of imputation w73_3 (group_w73_3)

| Category | Description |
|---|---|
| Variable label | type of imputation w73_3 |
| Variable name | group_w73_3 |
| Category | establishment variables |
| Origin | BHP |
| Data type | numerical |
| Detailed description | This variable indicates the type of completion for the w73_3_gen variable. It reports whether the respective 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). |

### 6.7.10 w93_3 completed by extrapolation/imputation (w93_3_gen)

| Category | Description |
|---|---|
| Variable label | w93_3 completed by extrapolation/imputation |
| Variable name | w93_3_gen |
| Category | establishment variables |
| Origin | BHP |
| 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 WZ93. A detailed description can be found in Eberle et al. (2011). |
| | Further information on the WZ93 classification can be found in the description of variable w93_3. |

### 6.7.11 Type of imputation w93_3 (group_w93_3)

| Category | Description |
|---|---|
| Variable label | type of imputation w93_3 |
| Variable name | group_w93_3 |
| Category | establishment variables |
| Origin | BHP |
| Data type | numerical |

| Category | Description |
|---|---|
| Detailed description | This variable indicates the type of completion for the w93_3_gen variable. It reports whether the respective 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). |

### 6.7.12  w08_3 completed by extrapolation/imputation (w08_3_gen)

| Category | Description |
|---|---|
| Variable label | w08_3 completed by extrapolation/imputation |
| Variable name | w08_3_gen |
| Category | establishment variables |
| Origin | BHP |
| 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 from 2008 onwards. From 2008 up to and including 2017, the variable contains the original values from w08_3. Before 2008, the information is either written back 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 WZ08. A detailed description can be found in Eberle et al. (2011). |
| | Further information on the WZ08 classification can be found in the description of variable w08_3. |

### 6.7.13  Type of imputation w08_3 (group_w08_3)

| Category | Description |
|---|---|
| Variable label | type of imputation w08_3 |
| Variable name | group_w08_3 |
| Category | establishment variables |
| Origin | BHP |
| Data type | numerical |
| Detailed description | This variable indicates the type of completion for the w08_3_gen variable. It reports whether the respective value in w08_3_gen is consistent with the original value from w08_3, still missing / extrapolated or imputed based on recording tables. |
| | A detailed description of the procedure can be found in Eberle et al. (2011). |

### 6.7.14  Place of work - district (Kreis) (ao_kreis)

| Category | Description |
|---|---|
| Variable label | place of work - district (Kreis) |
| Variable name | ao_kreis |
| Category | location data |
| Origin | BHP |
| Data type | numerical |
| Hierarchy | federal state \| district |

| Category | Description |
|---|---|
| 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, NUTS 1), positions 1-3 indicate the regional authority (Regierungsbezirk, NUTS 2). Federal states without a regional authority have a 0 in the third position. In the NUTS classification (Nomenclature des unités territoriales statistiques) of the European Union, districts correspond to the level NUTS 3. |
| | 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 2020, 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 2020. 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. |
| Anonymisation | 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. |

### 6.7.15  Place of work - federal state (Bundesland) (ao_bula)

| Category | Description |
|---|---|
| Variable label | place of work - federal state (Bundesland) |
| Variable name | ao_bula |
| Category | location data |
| Origin | BHP |
| 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 code (ao_kreis). The first two positions of the district code indicate the federal state (NUTS 1). |

# 6.8  Linkage variables

### 6.8.1  Matching method (match_step)

| Category | Description |
|---|---|
| Variable label | matching step |
| Variable name | match_step |
| Category | Linkage-relevant variable |
| Origin | generated |
| Data type | numerical |
| Detailed description | This variable indicates which of the algorithm steps led to the identification of the most recent JVS hire. |

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# 8 Appendix

## 8.1 Frequency tables

Frequency tables and overviews of the individual values and labels of the variables can be found in separate files at https://doku.iab.de/fdz/reporte/2023/DR_01-23_frequencies_labels_en.zip.

## 8.2 List of abbreviations

| ALG II | Arbeitslosengeld II | unemployment benefit II |
| ARGE | Arbeitsgemeinschaft | cooperation of employment agencies and municipalities |

| ASU | Arbeitsuchende-Historik | Jobseeker History |
|---|---|---|
| A2LL | Arbeitslosengeld II – Leistungen zum Lebensunterhalt | unemployment benefit II - benefits to secure a livelihood |
| BA | Bundesagentur für Arbeit | Federal Employment Agency |
| BeH | Beschäftigten-Historik | Employee History |
| BfA | Bundesversicherungsanstalt für Angestellte | Federal Social Insurance Office for Salaried Employees |
| BG | Bedarfsgemeinschaft | Benefit unit |
| 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 – übermittlungsverordnung | 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 |
| DZHW | Deutsches Zentrum für Hochschul- und Wissenschaftsforschung | German Centre for Higher Education Research and Science Studies |
| FELEG | Gesetz zur Förderung der Einstellung der landwirtschaftlichen Erwerbstätigkeit | Act on the Support in Case of Termination of Farming Activities |
| gE | Gemeinsame Einrichtung | Joint facility |
| gT | Getrennte Trägerschaft | Separated responsibilities |
| IAB | Institut für Arbeitsmarkt- und Berufsforschung | Institute for Employment Research |
| IAB-RDC | Forschungsdatenzentrum der Bundesagentur für Arbeit am IAB | Research Data Centre of the Federal Employment Agency at the IAB |
| IAB-JVS | IAB-Stellenerhebung | IAB Job Vacancy Survey |
| IEB | Integrierte Erwerbsbiographien | Integrated Employment Biographies |
| infas | Institut für angewandte Sozialwissenschaften GmbH | Instiute for Applied Social Sciences GmbH |
| ISIC | International Standard Industrial Classification of All Economic Activities | International Standard Industrial Classification of All Economic Activities |
| LeH | Leistungsempfängerhistorik | Benefit Recipient History |
| LHG | Leistungshistorik Grundsicherung | Unemployment Benefit II Recipient History |
| LVA | Landesversicherungsanstalt | Land Social Insurance Office |
| 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 |
| NUTS | Nomenclature des unités territoriales statistiques | Nomenclature des unités territoriales statistiques |
| RDC | Forschungsdatenzentrum | Research Data Centre |
| SGB | Sozialgesetzbuch | German Social Code |
| SIAB | Stichprobe der Integrierten Arbeitsmarktbiographien | Sample of Integrated Labour Market Biographies |
| 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 |
| XMTH | Maßnahmeteilnahmehistorik aus XSozial-BA-SGB II | Participants-in-Measures History File from XSozial-BA-SGB II |
| zkT | Zugelassene kommunale Träger | Authorised municipalities |

# Imprint

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