RESEARCH DATA CENTRE (FDZ)
of the German Federal Employment Agency (BA)
at the Institute for Employment Research (IAB)

FDZ-DATENREPORT

Documentation of labour market data

01|2019 EN The FDZ Sample of the Administrative Wage and Labor Market Flow Panel 1976–2014

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The FDZ Sample of the Administrative Wage and Labor Market Flow Panel 1976–2014

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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 has two aims: first, users can ascertain whether the data are suitable for their research; second, the reports can be used to prepare analyses.

Contents

Acknowledgements

The basic data generation process of the AWFP is identical to the one of the Establishment History Panel (BHP) 1975–2014. Therefore, some sections of this data report (marked with an asterisk, *) are copied (and only slightly altered) from the data report of the BHP (Schmucker et al. 2016). We would like to thank Alexander Schmucker, Johannes Ludsteck, Johanna Eberle, and Andreas Ganzer for the permission to do so.

The authors gratefully acknowledge support from the German Research Foundation (DFG) under the priority program “The German Labor Market in a Globalized World” (SPP 1764).

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Zusammenfassung

Dieser Datenreport beschreibt das FDZ-AWFP, die FDZ-Version des „Administrative Wage and Labor Market Flow Panel“ (AWFP). Das AWFP ist ein Datensatz, der Bestands- und Stromgrößen für alle Betriebe in Deutschland in den Jahren 1975–2014 beinhaltet. Auf der Betriebsebene enthält es Informationen zu Schwund und Aufbau von Jobs, zu Arbeitnehmerflüssen und zu Löhnen. Viele der Informationen sind auch für Personen-Untergruppen und gegliedert nach Charakteristika der Beschäftigten verfügbar. Das FDZ-AWFP beinhaltet ausgewählte AWFP-Variablen für eine 50-%-Zufallsstichprobe aller Betriebe der Jahre 1976-2014. Das FDZ-AWFP wird auf Jahres- und Quartalsebene angeboten.

Abstract

This data report describes the FDZ-AWFP, the FDZ version of the Administrative Wage and Labor Market Flow Panel (AWFP). The AWFP is a dataset on labour market flows and stocks for the universe of German establishments covering the years 1975–2014. It contains, for each establishment, data on job flows, worker flows, and wages. In addition, the AWFP comprises this information for partitions of the labour force according to various employee characteristics and for some subgroups of employees. The FDZ-AWFP contains selected AWFP variables for a 50 % random sample of establishments for the years 1976–2014. The FDZ-AWFP data are available on an annual and on a quarterly basis.

Keywords: establishment data, job flows, worker flows, wages, German administrative data

1 Introduction and outline

1.1 Introduction

The Administrative Wage and Labor Market Flow Panel (AWFP, see Stüber and Seth 2017) was generated within the framework of the "Custom Shaped Administrative Data for the Analysis of Labour Market" (CADAL) project and the "Wages, Heterogeneities, and Labor Market Dynamics" project. Both projects are part of the priority program "The German Labor Market in a Globalized World" (SPP 1764), which is sponsored by the German Science Foundation (DFG).

The AWFP is a dataset on labour market flows and stocks for the universe of German establishments. It contains data on job flows (changes in the number of employees per establishment), worker flows (information about the hiring and firing activity), and wages for each establishment. In addition, the AWFP contains this information for partitions of the labour force according to various employee characteristics (such as sex, education, age, and tenure) and for some sub-groups of employees (e.g., newly hired workers). Currently the AWFP covers the time period 1975–2014. All data are available on an annual and a quarterly basis[1].

The main data source of the AWFP data is the Employment History (*Beschäftigten-Historik*, BeH) of the IAB. The BeH comprises all individuals who were at least once employed subject to social security in Germany since 1975.[2] Some data packages — concerning flows from or into unemployment — use additional data from the Benefit Recipient History (*Leistungsempfängerhistorik*, LeH). The LeH comprises, inter alia, all individuals who received benefits in accordance with Social Code Book III (recorded from 1975 onwards).

This data report describes the FDZ-AWFP, the FDZ sample of the AWFP. The FDZ-AWFP contains selected AWFP variables for a 50% random sample of establishments for the years 1976–2014. The FDZ-AWFP is available on an annual and quarterly basis. For a description of the AWFP, please refer to Stüber and Seth (2017).

Note that the IAB additionally provides public release datasets of the AWFP (see Stüber and Seth 2019). The aggregated public release data contain, among other things, information on job and worker flows for groups of firms and can thus be used to study the cyclical dynamics (of fractions) of the labour market in terms of turnover and churning. Thus far, seven aggregated public release data sets are available. The datasets and data reports can be downloaded from the IAB website (http://www.iab.de/en/daten/awfp.aspx).

[1] There is one exception: package 105_y is only available on a quarterly basis (see Section 6.8 in Stüber and Seth, 2017).
[2] The BeH also comprises marginal part-time workers employed since 1999.

1.2 Data access and use

1.2.1 Data access

The FDZ-AWFP may be analysed in the context of a research visit at the Research Data Centre (FDZ) of the German Federal Employment Agency (BA) at the Institute for Employment Research (IAB) and / or via remote data access. It is necessary to submit an application to the FDZ prior to being able to use the data.

Certain variables, which make it possible to identify individual establishments, are available in aggregated form only. These variables, which are particularly sensitive from the viewpoint of data protection legislation, are the location of the establishment and the establishment's industry classification. The location of the establishment is aggregated to the federal state (Bundesland) level. The imputed establishment's industry classification is aggregated to the subclass of economic activity (3-digit code).

1.2.2 Data use

The FDZ-AWFP is a 50% simple random sample of the AWFP. In order to minimise the memory requirements of the FDZ-AWFP, some variables are not explicitly included in the data if they can be calculated by the users themselves using the available. For example, outflows to non- and unemployment can be calculated as the number of outflows (out_eop) minus the number of outflows into employment (out_e).

1.3 Content characteristics

Categories	Descriptions
Topics	**Core dataset:** • Establishment characteristics (e.g. artificial establishment number, industry classification, federal state) • Structure of employees (e.g. mean wage and tenure) • Stock of workers (also by educational qualifications) • Mean (imputed) wages of full-time employees • In- / outflows of employees (also by educational qualifications) • Mean (imputed) daily wages of inflows, stayers, outflows (available only in the quarterly dataset) • In- / outflows from / to employment • Permanent / temporary outflows • New hires / re-hires
Research unit	Establishments in Germany with at least one full-time employee subject to social security.
Frequency of dataset	Annual and quarterly frequency
Number of cases	Annual dataset: 576,507 – 912,831 establishments Quarterly dataset: 568,633 – 930,769 establishments
Period covered	West Germany: 1976 – 2014 East Germany: 1993 – 2014
Time reference	Annual dataset: December 31 of each year Quarterly dataset: Last day of each quarter
Regional structure	Location of establishment: federal states (Bundesländer)
Data collection method	50 % random sample
Institutions involved	Social security agencies, Federal Employment Agency
File format	Stata
File size	Core dataset, annual frequency: approx. 2 GB Core dataset, quarterly frequency: approx. 10 GB
File architecture	Annual dataset: FDZ_AWFP_a_v1_00.dta Quarterly dataset: FDZ_AWFP_q_v1_00.dta
Data access	On-site use or remote data access
Anonymisation degree	Weakly anonymous
Sensitive variables	None
Citation of the dataset	'This study uses the FDZ Sample of the Administrative Wage and Labor Market Flow Panel 1976–2014. Data access was provided via on-site use at the Research Data Centre (FDZ) of the German Federal Employment Agency at the Institute for Employment Research and/or remote data access.' DOI: 10.5164/IAB.FDZ-AWFP7614.en.v1
Citation of the documentation	Heiko Stüber, Stefan Seth (2019): The FDZ Sample of the Administrative Wage and Labor Market Flow Panel 1976–2014. FDZ-Datenreport, 012019(en), Nürnberg. DOI: 10.5164/IAB.FDZD.1901.en.v1

Current data version	The FDZ Sample of the Administrative Wage and Labor Market Flow Panel 1976–2014 (FDZ-AWFP 7614), v1; DOI: 10.5164/IAB.FDZ-AWFP7614.en.v1

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

2 Data sources

2.1 Employee history (BeH)*

The data source regarding employment is the Employee History (*Beschäftigten-Historik*, BeH, V10.0.0) of the IAB. The data basis is the integrated notification procedure for health, pension and unemployment insurance, which came into effect as of January 1, 1973 and was extended to cover eastern Germany as of January 1, 1991 (for further details see Bender et al. 1996 and Wermter/Cramer 1988). Under the so-called DEÜV procedure (previously DEVO/DÜVO), employers are required to submit notifications to the responsible social security agencies concerning all their employees covered by social security. 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, the self-employed and regular students (see Cramer 1985) are not recorded in the BeH. Employees in marginal part-time employment and unpaid family workers have been contained in the data from April 1, 1999 onwards. Employers are obliged to report the exact start and ending dates of an employment relationship and to yearly confirm an existing one, so that it is possible to track workers' careers on a daily basis. The observation period of the BeH V10.0.0 extends from January 1, 1975 to December 31, 2014.

2.1.1 The establishment concept*

It is important to understand that the BeH uses a specific definition of 'establishment': An establishment is a "regionally and economically delimited unit in which employees work". It may consist of one or more branch offices or workplaces belonging to one company. The term 'company' combines all establishment premises and workplaces belonging to the same employer. An 'employer' is any natural person or legal entity that is the party liable for the overall social security contribution and employs at least one employee subject to social security contributions or in marginal part-time employment (see Bundesagentur für Arbeit 2007).

The following principle applies to the allocation of establishment numbers: branch offices of one company which belong to the same economic class and which are located in the same municipality are given one joint establishment number. It is not possible to distinguish between branch offices with a joint establishment number in the data. Furthermore, no information is available as to whether establishments belong to the same company. Once an establishment has been allocated an establishment number, it remains unchanged in principle (see Schmucker et al. 2016 for more detailed information and exceptions).

3 Data preparation – correction and validation procedures performed on the micro-level data

For compiling the AWFP, the employment notifications of the BeH (see Section 2.1) are aggregated at establishment level using the establishment ID (see Section 2.1.1). Before the aggregation, the data on individuals are subjected to a number of validation procedures.

3.1 Selection of the notifications in the BeH*

The data on individuals from the BeH are used as the basis for the AWFP, but not all the notifications are included:

- Only notifications with details about the following person groups are taken into account: 101, 102, 103, 105, 106, 109, 112, 118, 119, 120, 121, 122, 140, 141, 142, 143, 144, 149, 201, 203, 205, 209, 999, YYY (see Appendix 1).
- Notifications with a wage of zero are deleted. As these notifications concern de-registrations of individuals who were previously sick or on parental leave and received corresponding earnings replacement benefits, these individuals are not counted as employees.
- Notifications before 1992 reporting a place of work in an eastern German federal state (excluding Berlin) are deleted, as the social security notifications for eastern Germany can only be assumed to be complete from 1993 onwards (see Section 4.1).

3.2 Imputation of the education/training data*

The number of employment notifications with missing information on education and vocational training qualifications has grown substantially over time; this concerns people in marginal part-time employment to a disproportionately large extent. The switch to the Occupation Code 2010 in the notification procedure caused the rate of missing values to rise as high as 50 percent in 2011. Furthermore, from 2011 onwards, the employers no longer report qualifications in a combined variable, but split into school education (none, lower secondary, intermediate secondary, upper secondary) and vocational education and training (none, recognised vocational training, master craftsman, bachelor, diploma, doctorate). While this actually permits a more precise recording of education and training qualifications, no time-consistent information is available for the entire period. In order to achieve that, the methods of recording the data are being made compatible by assigning to every combination of values from the new code the most suitable details on education and training according to the old code. However, this has no effect on missing values. So, in addition, the evaluability of the education and training data is improved by means of an imputation procedure using a deterministic replacement rule that was suggested by Fitzenberger et al. (2005 and 2006) and enhanced by Kruppe et al. (2014). The result of this procedure is that there are now hardly any missing values, especially for employees who are not in marginally part-time employment. For more information on the imputation, please refer to Section 8.1 of Schmucker et al. (2016).

3.3 Imputation of the information on earnings

3.3.1 Addition of special payments*

As a rule, the employers include any special payments (such as holiday pay, 13th monthly salary etc.) in their regular annual notifications or de-registrations. In some cases, however, the special payment is reported separately (notification reason 54). These payments also have to be taken into account when calculating the earnings data of an establishment. For this, the earnings of the extra notification are added to the earnings of the regular notification in the same calendar year. If there are no such regular notifications, the special payment is disregarded when compiling the AWFP.

3.3.2 Completing missing information on earnings*

In the period 1992–1998 notifications without earnings details can be found in the mining sector. As the other variables in these notifications contain valid information, it can be assumed that the jobs did actually exist. Perhaps problems occurred when the earnings were reported. In order to fill in the missing earnings information, the following procedure has been implemented:

- Continuation: if the episode concerned is preceded by a period of employment in the same establishment with an annual notification (reason for notification = 50) and with the same person group, and there is no gap between these two episodes (i.e., a gap of 0 days), then the earnings from the preceding episode are carried forward. If there are several consecutive episodes without information on earnings and if the conditions described above are also met, the last available earnings are carried forward in each case. In this way, 95 percent of the missing values can be filled in.
- Writing back: for the episodes that still have missing information on earnings after the continuation procedure, the earnings from the following observation are carried back. The condition for this is that the episode concerned is followed by a period of employment in the same establishment with an annual notification (reason for notification = 50) and with the same person group, and that there is no gap between these two episodes (i.e., a gap of 0 days). In this way, the remaining 5 percent of the missing values can be filled in.

3.3.3 Imputation of data on earnings above the upper earnings limit*

In the social security notifications, earnings are only reported up to the upper earnings limit for statutory pension insurance contributions. This means that approximately 10 percent of the information on full-time employees' earnings is censored. This leads to biased estimation results as means of earnings are biased if the censored observations are not included in the calculation or if censored values are replaced by the censoring limit. No bias occurs for wage quantiles below the censoring limit. As the shares of censored wages can sometimes be very large (well over 50 percent) depending on the wage level in the establishment, in many analyses it would only be possible to use quantiles below the median. In order to mitigate these issues, the information on earnings (average daily wages) were imputed before the statistics (means and medians) were calculated. The procedure was implemented following Card et al. (2015) and is explained in more detail in Section 8.2 of Schmucker et al. (2016).

3.4 Imputation of the information on full-time and part-time employment*

For a transitional period after the introduction of the new occupation code in December 2011, it was permitted to leave out the information on the occupation and working time in the social security notifications. In a good 10 percent of the notifications submitted by the establishments between December 1, 2011 and May 31, 2012, the information regarding working hours is therefore missing. For this reason, a logit model has been developed at the IAB which can be used to impute the missing information (see Ludsteck and Thomsen 2016).

3.5 Strike corrections*

In the spring of 1984 there were strike-related lockouts in establishments in the "manufacture of motor vehicles, motor vehicle engines" (WZ73: 280) and "manufacture of parts and accessories for motor vehicles" (WZ73: 281) industries in Hesse and Baden-Wuerttemberg, which is reflected in the data on individuals in the form of gaps in employment. These gaps frequently include the reference date of June 30, 1984, which is relevant for the quarterly AWFP. Leaving these gaps in the data would result in considerable distortions in the AWFP for the industries in the federal states affected in 1984. These gaps have therefore been filled in accordance with the following heuristics:

To identify gaps resulting from lockouts the following definition was used. An account is regarded as locked out if:

- there was a notification in Baden-Wuerttemberg or Hesse on April 30, 1984 that was classified as belonging to the economic activity 280 or 281 (notification 1),
- there was a further notification from the same establishment in July 1984 (notification 2) and
- there was a gap in employment lasting more than five days in May or June 1984.

These gaps have been filled by transferring the start date in notification 1 to notification 2 and adding together the earnings details from the two notifications. Then notification 1 was deleted. If there were further notifications between the first and the second notifications, they were also deleted and the earnings details have been added accordingly.

4 Data quality

The data quality of the (FDZ-)AWFP depends on the data quality of the underlying BeH data, which we discuss below.

4.1 Eastern Germany*

The BeH data for eastern Germany can only be assumed to be sufficiently complete from 1993 onwards. Analyses of eastern German establishments should therefore not begin before 1993.

4.2 Under-recording of notifications in the latest available data*

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 15 (or by February 15 since the end of 2013) 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, 30, 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 percent degree of completeness by definition. To generate the AWFP data of 2012, a 30-month file was used, for 2013 an 18-month file and for 2014 (only) a 6-month file. It can be assumed that the number of establishments is slightly under-recorded for the years 2012 and 2013. It can also be assumed that there are larger gaps for 2014. Comparing the 6-, 12- and 18-month files for 2013 one can observe that the 12-month file contains 0.8 percent more employees than the 6-month file. At establishment level the notifications that were submitted late had a stronger effect: after 12 months an additional 2.6 percent of the establishments are recorded. What is noticeable here is that most of these establishments are very small establishments with up to ten employees. Although the number of employees increases again by 1.3 percent between the 12-month and the 18-month files, the increase in the number of establishments is only 0.5 percent. During this period, more establishments with more than 200 employees were added to the data.

4.3 Data on earnings*

In 1984 the employment notification procedure changed. From that time onwards, one-off payments were reported as part of the annual earnings, which has led to an increase in the average daily wage. In particular, the proportion of wages and salaries above the upper earnings limit increases considerably from that year onwards (cf. Bender et al. 1996).

4.4 Part-time employees*

Especially in 1999, a significant increase in notifications of part-time employment can be observed. This is caused both by the actually observed increase in part-time work as well as by the fact that since 1999 employment notifications have generally been filed more correctly.

4.5 Classification of economic activities

During the observation period of the AWFP, the classification of economic activities changed several times. This makes longitudinal analysis difficult. The FDZ developed a method to impute time-consistent industry codes (see Eberle et al. 2011). The FDZ-AWFP includes an imputed classification (w93_imp).

More information on the classifications is provided by the German Federal Statistical Office (https://www.destatis.de/DE/Methoden/Klassifikationen/Klassifikationen.html) and the German Federal Employment Agency (Bundesagentur für Arbeit 2010, Bundesanstalt für Arbeit 1973 and 1996).

5 Generating the FDZ sample of the Administrative Wage and Labor Market Flow Panel

5.1 Overview of the dataset

After the data on individuals have been preprocessed (see Section 3) the AWFP is generated as follows:

- Selection of all BeH observations that include the respective reference date.
- Deletion of multiple jobs held by one person in one and the same establishment. Here non-marginal jobs are given priority over marginal part-time jobs. If more than one non-marginal job is recorded for one person in the same establishment, the job with the higher daily wage is selected.
- Aggregation of all employment notifications as of the reference date to form selected statistics at establishment level.

The stocks and flows in the AWFP are generally calculated on a 'regular worker' basis. In the next section we will define the notion 'regular worker' and give our standard definition of how we calculate stocks and flows. Unless explicitly mentioned otherwise these standard definitions are used for the generation of the AWFP.

To generate the FDZ-AWFP, we draw a 50% random sample of establishments in the AWFP.

5.2 Definitions

The FDZ-AWFP is available on an annual (a) and a quarterly (q) basis. Hence, when we talk about a "period", we think of a year or a quarter.

5.2.1 Regular workers

We define a person as a 'regular worker' when he/she is full-time employed and belongs to person group 101 (employees s.t. social security without special features), 140 (seamen) or 143 (maritime pilots) in the BeH. Therefore all (marginal) part-time employees, employees in partial retirement, interns etc. are not accounted for as regular workers. See Appendix 1 for more details on the person group in the BeH. The stocks and flows in the (FDZ-)AWFP are generally calculated on a 'regular worker' basis.

5.2.2 All workers

Some variables in the (FDZ-)AWFP are not based on regular workers but 'all workers'. All workers include regular workers (as defined above), 'normal workers', and 'other workers' (as defined below).

5.2.3 Normal workers

Normal workers are defined like regular workers (see above) but they may work part-time. Therefore, each regular worker is also a normal worker but not vice versa.

5.2.4 Other workers

Other workers are neither normal workers, apprentices, workers in partial retirement nor workers in marginal part-time. This group consists mainly of interns (*Praktikanten/Werkstudenten*).

5.2.5 Stocks

The stock of employees of an establishment in some period *t* equals the number of employees on the last day of period *t*. Unless explicitly mentioned otherwise, we calculate stocks based on regular workers and using the 'end-of-period' definition.

5.2.6 Flows

Inflows of employees of an establishment for period *t* equals the number of employees who were regularly employed on the last day of period *t* but were not on the last day of the preceding period, *t*-1.

Outflows of employees of an establishment for period *t* equals the number of employees who were regularly employed on the last day of the preceding period (*t*-1) but were not on the last day of period *t*.

Unless explicitly mentioned otherwise, we calculate both inflows and outflows based on regular workers and using the 'end-of-period' definition.

Employees who join an establishment and leave it again between two reference dates are not recorded by this flow concept.

Note that a worker counted as an inflow is not necessarily a new hire. For instance, an apprentice who becomes a regular worker represents an inflow because an apprentice is not a regular worker. Analogously, a worker counted as an outflow might remain employed in the same establishment. A regular worker who, for instance, reduces hours and changes to a part-time job represents an outflow.

6 Description of the variables and characteristics

Remember, unless explicitly mentioned otherwise, all stock, inflows, and outflows are calculated based on regular workers and using the 'end-of-period' definition (see Section 5.2)!

6.1 Common identifiers

The FDZ-AWFP contains the establishment identifier and a time index (either year or quarter). Appendix 2 shows the end-of-period reference dates for all years (a) and quarters (q).

6.1.1 Establishment identifier

Variable name	betnr
Origin	Generated variable
Detailed description	Identifies the observation unit (plant/establishment) across time and packages.

6.1.2 Index of year

Variable name	a
Detailed description	Starts with 1, with year no 1 being the year 1975.

6.1.3 Index of quarter

Variable name	q
Detailed description	Starts with 1, with quarter no 1 being the first quarter of 1975.

6.2 Variables available on the annual and quarterly basis

6.2.1 Establishment location

Variable name	state
Detailed description	The federal state (*Bundesland*) the establishment is located.

6.2.2 Establishment's industry classification

Variable name	w93_imp
Detailed description	Imputed / transcoded establishment's industry classification according to the German Classification of Economic Activities WZ 93.

6.2.3 Mean age of workers

Variable name	mean_age
Detailed description	The mean age within the establishment of workers at the end of the period (in years).

6.2.4 Mean tenure of workers

Variable name	mean_tenure
Detailed description	The mean tenure within the establishment of workers at the end of the period (in quarters); possibly left-censored.

6.2.5 Mean imputed wage of workers

Variable name	dw_imp_mean
Detailed description	Mean daily nominal wage of workers at the end of the period.

6.2.6 Standard deviation of imputed wage

Variable name	dw_imp_sd
Detailed description	Standard deviation of daily nominal wages of workers at the end of the period.

6.2.7 Stock of workers

Variable name	st_eop
Detailed description	Number of workers as of the last day of the period (end-of-period employment).

6.2.8 Stock of low-skilled workers

Variable name	st_qual_1
Detailed description	Stock of workers without formal vocational training (according to the imputed education variable).

6.2.9 Stock of medium-skilled workers

Variable name	st_qual_2
Detailed description	Stock of workers with formal vocational training (according to the imputed education variable).

6.2.10 Stock of high-skilled workers

Variable name	st_qual_3
Detailed description	Stock of workers with a university degree (according to the imputed education variable).

6.2.11 Stock of all workers (not calculated on a regular worker basis!)

Variable name	st_all
Detailed description	Number of all workers as of the last day of the period (end-of-period employment).

6.2.12 Inflows using the standard end-of-period definition

Variable name	in_eop
Detailed description	Number of workers employed at the end of the current period but not employed as regular workers at the end of the preceding period in the same establishment.

6.2.13 Inflows of low-skilled workers

Variable name	in_qual_1
Detailed description	Number of inflows without formal vocational training (according to the imputed education variable).

6.2.14 Inflows of medium-skilled workers

Variable name	in_qual_2
Detailed description	Number of inflows with formal vocational training (according to the imputed education variable).

6.2.15 Inflows of high-skilled workers

Variable name	in_qual_3
Detailed description	Number of inflows with a university degree (according to the imputed education variable).

6.2.16 Inflows from employment

Variable name	in_e
Detailed description	Inflows who were employed at the end of the preceding period (i.e., who changed the employer/establishment).

6.2.17 New hires

Variable name	in_new
Detailed description	Number of workers not employed (any status!) by the same establishment at the four preceding reference dates.

6.2.18 Re-hires

Variable name	in_rehire
Detailed description	Number of workers not employed by same establishment at the preceding reference date but employed (any status!) at one of the three reference dates before.

6.2.19 Total inflows (not calculated on a regular worker basis!)

Variable name	in_all
Detailed description	Number of new workers in the establishment, i.e., workers who were not employed by this establishment in the preceding period.

6.2.20 Outflows using the standard end-of-period definition

Variable name	out_eop
Detailed description	Number of workers employed at the end of the preceding period but not employed as regular workers at the end of the current period in the same establishment.

6.2.21 Outflows of low-skilled workers

Variable name	out_qual_1
Detailed description	Number of outflows without formal vocational training (according to the imputed education variable).

6.2.22 Outflows of medium-skilled workers

Variable name	out_qual_2
Detailed description	Number of outflows with formal vocational training (according to the imputed education variable).

6.2.23 Outflows of high-skilled workers

Variable name	out_qual_3
Detailed description	Number of outflows with a university degree (*Universität* or *Fachhochschule*) (according to the imputed education variable).

6.2.24 Outflows to employment

Variable name	out_e
Detailed description	Outflows who keep being employed (i.e., who changed the employer/establishment).

6.2.25 Permanent outflows

Variable name	out_perm
Detailed description	Number of workers regularly employed in the preceding period but not employed (any status) in this establishment in the current or any of the 3 subsequent periods.

6.2.26 Temporary outflows

Variable name	out_temp
Detailed description	Number of workers regularly employed in the preceding period, not employed (in this establishment) in the current period, and again employed by the establishment in at least one of the three subsequent periods.

6.2.27 Total outflows (not calculated on a regular worker basis!)

Variable name	out_all
Detailed description	Total number of workers who left the establishment.

6.3 Variables available only on the quarterly basis

6.3.1 Mean wage of new regular workers (inflows)

Variable name	dw_imp_mean_in
Detailed description	Mean daily nominal wage of new workers at the end of the period.

6.3.2 Mean wage of incumbent workers (stayers)

Variable name	dw_imp_mean_st
Detailed description	Mean daily nominal wage of incumbent workers at the end of the period.

6.3.3 Mean wage of outgoing workers (outflows)

Variable name	dw_imp_mean_out
Detailed description	Mean daily nominal wage of outgoing workers at the end of the period. Wages of outflows are calculated with respect to the preceding period.

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[3] The DP was updated and renamed in December 2018. The original DP version [Seth, Stefan; Stüber, Heiko (2017): Administrative Wage and Labor Market Flow Panel (AWFP) 1975–2014 (v1.0)] is available upon request.

8 Appendix 1: person group codes in the BeH*

Code	Name
101	Employees subject to social security with no special features
102	Trainees / apprentices with no special features
103	Employees in partial retirement
104	Freelance home workers
105	Interns
106	Student trainees
108	Recipients of early retirement benefit
109	Marginal part-time employees
110	Short-term employees
112	Family workers in agriculture
116	Recipients of compensation according to the Act on Support in the Case of Termination of Farming Activities
118	Casual workers
119	Old-age pensioners exempt from insurance contributions and recipients of old-age pension benefits
120	Persons who are presumed to be in employment
121	Trainees / apprentices (earnings not above the low-wage threshold)
122	Trainees / apprentices (external institution)
123	Persons completing a year of voluntary social or environmental work or Federal Voluntary Service
124	Home workers
140	Seamen
141	Trainees/apprentices in seafaring occupations with no special features
142	Seamen in partial retirement
143	Maritime pilots
144	Trainees/apprentices in seafaring occupations (earnings not above the low-wage threshold)
149	Old-age pensioners exempt from insurance contributions and recipients of old-age pension benefits employed in seafaring occupations
190	Employees who are insured solely in the statutory accident insurance
201	Employees in private households (reported via the “household cheque procedure”)
202	Short-term employees
203	Artists and publicists subject to social security
205	Casual workers
207	Nurses in the sense of § 19 SGB XI/with no eligibility for financial assistance on the part of the person receiving nursing care
208	Nurses in the sense of § 19 SGB XI/with eligibility for financial assistance on the part of the person receiving nursing care
209	Marginal part-time employees in private households (reported via the “household cheque procedure”)
210	Short-term employees in private households (reported via the “household cheque procedure”)
301	Persons performing basic military service or voluntary military service
302	Persons performing reserve duty
303	Persons performing alternative civilian service
304	Persons completing a year of voluntary social or environmental work instead of alternative civilian service
305	Persons performing military service, special types
306	Special assignment abroad
599	Miscellaneous workers
999	No details available
XXX	No allocation possible
YYY	Error in original value
ZZZ	No details reported

9 Appendix 2: end of period reference dates

Reference date	Quarter (q)	Annual (a)	Reference date	Quarter (q)	Annual (a)
31-Mar-75	1		31-Mar-95	81	
30-Jun-75	2		30-Jun-95	82	
30-Sep-75	3		30-Sep-95	83	
31-Dec-75	4	1	31-Dec-95	84	21
31-Mar-76	5		31-Mar-96	85	
30-Jun-76	6		30-Jun-96	86	
30-Sep-76	7		30-Sep-96	87	
31-Dec-76	8	2	31-Dec-96	88	22
31-Mar-77	9		31-Mar-97	89	
30-Jun-77	10		30-Jun-97	90	
30-Sep-77	11		30-Sep-97	91	
31-Dec-77	12	3	31-Dec-97	92	23
31-Mar-78	13		31-Mar-98	93	
30-Jun-78	14		30-Jun-98	94	
30-Sep-78	15		30-Sep-98	95	
31-Dec-78	16	4	31-Dec-98	96	24
31-Mar-79	17		31-Mar-99	97	
30-Jun-79	18		30-Jun-99	98	
30-Sep-79	19		30-Sep-99	99	
31-Dec-79	20	5	31-Dec-99	100	25
31-Mar-80	21		31-Mar-00	101	
30-Jun-80	22		30-Jun-00	102	
30-Sep-80	23		30-Sep-00	103	
31-Dec-80	24	6	31-Dec-00	104	26
31-Mar-81	25		31-Mar-01	105	
30-Jun-81	26		30-Jun-01	106	
30-Sep-81	27		30-Sep-01	107	
31-Dec-81	28	7	31-Dec-01	108	27
31-Mar-82	29		31-Mar-02	109	
30-Jun-82	30		30-Jun-02	110	
30-Sep-82	31		30-Sep-02	111	
31-Dec-82	32	8	31-Dec-02	112	28
31-Mar-83	33		31-Mar-03	113	
30-Jun-83	34		30-Jun-03	114	
30-Sep-83	35		30-Sep-03	115	
31-Dec-83	36	9	31-Dec-03	116	29
31-Mar-84	37		31-Mar-04	117	
30-Jun-84	38		30-Jun-04	118	
30-Sep-84	39		30-Sep-04	119	
31-Dec-84	40	10	31-Dec-04	120	30

Reference date	Quarter (q)	Annual (a)	Reference date	Quarter (q)	Annual (a)
31-Mar-85	41		31-Mar-05	121	
30-Jun-85	42		30-Jun-05	122	
30-Sep-85	43		30-Sep-05	123	
31-Dec-85	44	11	31-Dec-05	124	31
31-Mar-86	45		31-Mar-06	125	
30-Jun-86	46		30-Jun-06	126	
30-Sep-86	47		30-Sep-06	127	
31-Dec-86	48	12	31-Dec-06	128	32
31-Mar-87	49		31-Mar-07	129	
30-Jun-87	50		30-Jun-07	130	
30-Sep-87	51		30-Sep-07	131	
31-Dec-87	52	13	31-Dec-07	132	33
31-Mar-88	53		31-Mar-08	133	
30-Jun-88	54		30-Jun-08	134	
30-Sep-88	55		30-Sep-08	135	
31-Dec-88	56	14	31-Dec-08	136	34
31-Mar-89	57		31-Mar-09	137	
30-Jun-89	58		30-Jun-09	138	
30-Sep-89	59		30-Sep-09	139	
31-Dec-89	60	15	31-Dec-09	140	35
31-Mar-90	61		31-Mar-10	141	
30-Jun-90	62		30-Jun-10	142	
30-Sep-90	63		30-Sep-10	143	
31-Dec-90	64	16	31-Dec-10	144	36
31-Mar-91	65		31-Mar-11	145	
30-Jun-91	66		30-Jun-11	146	
30-Sep-91	67		30-Sep-11	147	
31-Dec-91	68	17	31-Dec-11	148	37
31-Mar-92	69		31-Mar-12	149	
30-Jun-92	70		30-Jun-12	150	
30-Sep-92	71		30-Sep-12	151	
31-Dec-92	72	18	31-Dec-12	152	38
31-Mar-93	73		31-Mar-13	153	
30-Jun-93	74		30-Jun-13	154	
30-Sep-93	75		30-Sep-13	155	
31-Dec-93	76	19	31-Dec-13	156	39
31-Mar-94	77		31-Mar-14	157	
30-Jun-94	78		30-Jun-14	158	
30-Sep-94	79		30-Sep-14	159	
31-Dec-94	80	20	31-Dec-14	160	40

Imprint

FDZ-Datenreport 01|2019 EN

Date of publication
17 May 2019

Publisher
Research Data Centre (FDZ)
of the Federal Employment Agency (BA)
in the Institute for Employment Research (IAB)
Regensburger Str. 104
D-90478 Nuremberg

Download
http://doku.iab.de/fdz/reporte/2019/DR_01-19_EN.pdf

Documentation version
FDZ-AWFP7614_EN_v1_dok1, DOI: 10.5164/IAB.FDZD.1901.en.v1

Dataset version
FDZ-AWFP 7614 v1, DOI: 10.5164/IAB.FDZ-AWFP7614.de.en.v1

All publications in the series "FDZ-Datenreport" can be downloaded from
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