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GAW survey data linked with administrative data of the IAB (GAW-ADIAB): A documentation and review of empirical evidence and research opportunities

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(GAW-ADIAB): A documentation and review of empirical evidence and
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by

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GAW survey data linked with administrative data of the IAB (GAW-ADIAB): A documentation and review of empirical evidence and research opportunities

Revised data report on the survey of founders of the SFB 580 B10 project "Start-ups and the labour market in East and West German growth regimes"¹

Michael Wyrwich*; Michael Fritsch**; Elisabeth Bublitz***; Alina Sorgner****²

Abstract

New business formation plays an important role for economic development. Therefore, policy makers put emphasis on fostering start-up activity. Aims and scope of entrepreneurs can be just as heterogeneous as the structure of new ventures. The project "New business formation and the labor market in East and West German growth regimes" within the Collaborative Research Center (SFB 580) "Social developments in post-socialistic societies: discontinuity, tradition, structural formation" at the Friedrich-Schiller University Jena investigated the development and structures of new firms. To this end, the project team conducted the GAW survey by means of computer-assisted telephone interviewing (CATI). In total, there have been 1,105 interviews with founders of firms. The data include personal information on the founder and his or her firm. This information can be merged with administrative data of the Establishment History Panel (BHP = Betriebs-Historik Panel) of the Research Data Centre of the German Institute for Employment Research (IAB). The BHP comprises detailed information on establishment characteristics. Therefore, the GAW survey data provide the unique opportunity to link characteristics of the entrepreneur with detailed information about the characteristics of his or her company and firm growth.

Keywords: Firm growth; Labour market; Growth; East and West Germany

¹ We would like to thank the head of the CATI laboratory of the Institute for Sociology at the Friedrich-Schiller University Jena, Mr. Thomas Ritter, for his support in preparing the survey and for the smooth technical execution of the computer-assisted telephone interviews. We would also like to thank the CATI interviewers involved in the survey and especially Annekatriin Müller, Johanna Neuke, René Fischer, Thomas Maruschke and Sara Hoyer for their technical and organizational support during the survey. This is an updated data report of an earlier version that was published in German in late 2015. The updated version includes a more detailed description of the empirical studies

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1 Introduction and short description

1.1 Aims and scope of the GAW survey

Business start-ups play an important role in economic development. For this reason in particular, political decision-makers attach great importance to the founding process. Motives and goals, but also the structures of foundations can be very different. In the project B10 "Founding Events and Labour Market in East and West German Growth Regimes" of the Collaborative Research Center SFB 580 "Social Developments after the System Change: Discontinuity, Tradition, Structure Formation" at the Friedrich-Schiller-University (FSU) Jena, the conditions for the development of foundations were investigated. For this purpose, company founders in selected East and West German regions were interviewed by telephone. This survey is hereinafter referred to as the GAW survey. The GAW survey data can be linked to administrative data of the IAB (GAW-ADIAB). The project was funded by the German Research Foundation (DFG).

An essential goal of our survey was to obtain an overview of the various characteristics of young companies and their founders. New insights should be gained into the relationship between the characteristics of the founders (e. g. training and motivation) and the development of the associated companies. In particular, the focus was on differences between different regions in the old and new federal states. We would like to express our sincere thanks for the voluntary participation of the founders³, whose information is the basis for our research.

Between October 2010 and February 2011, 1,000 enterprises were contacted in each of six research regions (UR) that are allocated to the manufacturing or knowledge-intensive services sector. The contact information of the founders was made available to the Chair for Corporate Development, Innovation and Economic Change of the FSU Jena, after approval by the Federal Ministry of Labour and Social Affairs (BMAS), by the Institute for Employment Market and Occupational Research (IAB). First, the founders were contacted by post and then by telephone. A total of 5,139 firms were accessible. It was possible to conduct 1,105 complete interviews with the founders of the companies. These are companies that were legally independent start-ups at the time of market entry.

The project takes into account the statistical deficit that personal data on founders are only available to a very limited extent in the official data sources on business start-up events and dynamics. The results of the survey allow a combination of operational data, stored in official data on the basis of the reporting requirement for employees subject to social security contributions, and personal data of employees on a large number of subjects. Such a dataset was unique in Germany at the time of the 2011

³ In the following, the term "founder" is used gender-neutral.

survey. The regional differentiation and consideration of both West German and East German regions allow for a multitude of further research perspectives.

This data report provides an overview of the structure and implementation of the study and is structured as follows: The first section contains information on data access, a short data description and a detailed list of characteristics. Section 2 first deals with the source of the survey data. Afterwards, a description of the administrative data with which the survey data can be linked is given in section 3. Data genesis and data linking are covered in the fourth section. Section 5 contains a review of the data quality and detailed information on plausibility testing. Finally, section 6 provides a detailed overview of the GAW survey data variables.

1.2 Use of data

GAW-ADIAB can only be evaluated within the framework of guest stays at the FDZ and subsequent remote data processing. To use the data, an application must first be submitted to the FDZ; the approval of the research project is decided by the Federal Ministry of Labour and Social Affairs (BMAS). Once approved, a license agreement is concluded with the researcher's institution. Details on the application for the data set and data processing options can be found on the FDZ homepage (<https://fdz.iab.de/en/data-archive/gaw-adiab.aspx>).

The GAW-ADIAB record is structured according to the origin of the data and stored in several files. The GAW survey data serve as a starting point. They contain the characteristics of the respondents surveyed in the interview as well as a company identifier. The administrative data in GAW-ADIAB consist on the one hand of the holdings of the BHP as at 30 June for the years 2002 to 2008, each of which is stored in one data record per year. On the other hand, the additional modules for employee flows and start-ups and closures are provided in separate files. All BHP datasets contain the same company identifier as the survey data so that all datasets can be linked.

1.3 Brief description

1.3.1 Content characteristics

Topics/Characteristics Groups	Survey data: Operational information: Characteristics of the sales force that cannot be determined from the company history panel (e. g. degree of innovation of the product range; R&D cooperation), development of the sales force (e. g. temporal development of the product range and market position, development of the number of employees).
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	<p>Founder-specific information: Sociodemographic characteristics of the founder such as age and gender, education and qualification level, professional biography, integration into networks (e. g. relationship to self-employed persons or self-employment). Founders in family and circle of friends, memberships and activities in associations and organisations), spatial mobility of the founders over time, cause and motivation of the foundation, attitudes (risk appetite, need for security, etc.), job and life satisfaction.</p> <p>Administrative operating data (BHP 7508): Company characteristics, total number of employees, number of full-time employees, number of persons employed according to the main employment concept, number of persons employed with zero pay, number of women, age structure of persons employed, structure of persons employed according to school and vocational training, structure of persons employed according to occupation, structure of persons employed according to occupation, structure of persons employed according to category code, structure of persons employed according to professional qualification, salary structure of full-time employees.</p> <p>Expansion module - employment flows: Total number of admissions and exits, total number of admissions and exits Women, number of admissions and exits Operator changers, age structure of admissions and exits, number of admissions and exits according to position in the call, number of exits according to length of service.</p>
examination unit	<p>company founder</p> <p>Approximately 31% of all start-ups in the survey regions between 2003 and 2008 (response rate).</p>
Case numbers	1,105 companies
Time span	<p>Survey data:</p> <p>Field phase 2010-2011</p>

	BHP 7508: 2002-2008
Regional classification	6 sample regions (SR): SR1: Upper Elbe Valley/Easter Ore Mountains (ROR, planning region number: 1401) SR2: Mittelthüringen + Ostthüringen (ROR: 1601+1603) SR3: West Mecklenburg + Middle Mecklenburg/ Rostock + Mecklenburg Lake District + Vorpommern (ROR: 1301+1302+1303+1304), SR4: Hanover (ROR: 307) SR5: Aachen (ROR: 501) SR6: Schleswig-Holstein North + Schleswig-Holstein East + Schleswig-Holstein Middle + Schleswig-Holstein South-West (ROR: 101+102+103+105)
Territorial status	Survey data: 30.06.2010 BHP 7508: 31.12.2008

1.3.2 Methodological characteristics

Survey design	Survey data: One-off survey by CATI survey method BHP 7508: Identification of the companies surveyed in the BHP
Institutions participating in the survey	Survey data: CATI laboratory of the Institute for Sociology at the FSU Jena BHP 7508: Social insurance agency, Federal Employment Agency
Frequency of data collection	Survey data: Completed/non-recurring BHP 7508: Ongoing
file organization	Survey data: gaw_survey_v1. dta BHP 7508: gaw_bhp7508_2002_v1. dta... gaw_bhp7508_2008_v1. dta gaw_bhp7508_a_v1; gaw_bhp7508_from_v1. dta; gaw_bhp7508_flow_v1. dta
File format/size	Survey data: 0.4 MB (Stata) BHP 7508: 1 MB (Stata)

1.3.3 Data access

Access routes	Guest stay, remote data processing (after previous guest stay)
Degree of anonymization	Weakly anonymized
Sensitive features	None / not applicable
additional features	None / not applicable
Specifications for quoting the Data and data documentation	<p>Data: The data basis of this article is the weakly anonymized GAW survey data linked to the administrative data of the IAB (GAW-ADIAB). The data was accessed via a guest stay at the Research Data Centre of the Federal Employment Agency in the Institute for Labour Market and Vocational Research (FDZ) and subsequently by means of controlled remote data processing at the FDZ ".</p> <p>Data documentation: Fritsch, Michael; Wyrwich, Michael; Bublitz, Elisabeth & Alina Sorgner (2018), „GAW survey data linked with administrative data of the IAB (GAW-ADIAB): A documentation and review of empirical evidence and research opportunities”, <i>Jena Economic Research Paper #2018-017</i>.</p>

1.4 Characteristics list

Table 1: Characteristics Survey data

variable name	variable label
id	company number
v00	Information for the place of business to which the contact details refer is possible
v03_2	First-time hiring of employees liable to German Social Insurance
v06_1	Employees as of 12/31/2009 (1/4 yearly employment statistics)
v06_2	Employees as of 12/31/2009 (founders' data)

v07	Start of business activity
v08	Takeover after foundation
v09	Change of the company's address details
v10a_1	Legal and organisational changes between 2002 and 2008
v10a_2	Legal/organizational changes between the year of first hiring of employees liable to German Social Insurance and 2008
v10b	Year of legal and organizational change
f01	Number of founders
f02	Legal form of the company
f04	Earnings situation of operations in the current financial year (2010)
f05_a	Sales 2009: Old West German states (excluding Berlin) in %
f05_b	Turnover 2009: New German states (including Berlin) in %
f05_c	Sales 2009: European Union (excluding Germany) in %
f05_d	Sales 2009: Other foreign countries in %
f06	Competitive assessment
f07	Importance of R&D for the company
f08_a	Number of employees: exclusively (100% working time) employed in R&D
f08_b	Number of employees: predominantly (>50% working time) employed in R&D
f08_c	Number of employees: sometimes (<50% working time) employed in R&D
f09	R&D demand from external suppliers
f10_a	R&D cooperation: External consultants
f10_b	R&D cooperation: Universities, research institutes
f10_c	R&D cooperation: Other companies
f10_d	R&D cooperation: None
f11	Technical status of the installations
f12	Introduction of a fundamentally new product (innovation)
f13	Highest school leaving certificate at the time of foundation
f14	Highest professional qualification at the time of foundation

f15	Number of professional tasks before the foundation (skill balance)
f16	Industry experience at the time of foundation
f17	Up-to-date industry experience at the time of foundation
f18	Work as an employee in years
f19	Number of employees (size category) of the last company before the foundation
f20	Senior executive experience
f21	Change in net income since inception
f24	Number of start-ups prior to the current formation
f25	Freelance work before the current foundation
f26a	Entrepreneurial independence before the current foundation in years (filter)
f26b	Entrepreneurial independence prior to the current formation (without freelance work)
f26c	Freelance work prior to the current company in years (filter)
f27	Position in the profession before foundation
f28	Disagreements with former employer
f29	Duration of unemployment before foundation
f30	Inspiration for self-employment through the most recently pursued profession
f31	Self-employment Parents
f32	Self-employment among friends and acquaintances
f33a_a	Membership: Singing club
f33a_b	Membership: Sports club
f33a_c	Membership: Other Hobby Association
f33a_d	Membership: Home and Citizens' Association
f33a_e	Membership: Association of displaced persons or refugees
f33a_f	Membership: Welfare or war victims' association
f33a_g	Membership: Ecclesiastical or religious association
f33a_h	Membership: Youth Organization/ Student Union
f33a_i	Membership: Political Party

f33a_j	Membership: Citizens' Initiative
f33a_k	Membership: Professional Association
f33b_a	Hours per week: Singing club
f33b_b	Hours per week: Sports club
f33b_c	Hours per week: Other hobby club
f33b_d	Hours per week: Home and Citizens' Association
f33b_e	Hours per week: IDP or refugee association
f33b_f	Hours per week: Welfare or war victims' association
f33b_g	Hours per week: Ecclesiastical or religious association
f33b_h	Hours per week: Youth Organization / Student Union
f33b_i	Hours per week: Political Party
f33b_j	Hours per week: Citizens' Initiative
f33b_k	Hours per week: Professional Association
f34	Religious affiliation
f36_ror	Location: main place of residence until the age of 15 years
f36_land	Country: main place of residence until the age of 15 years
f37_ror_1 – f37_ror_10	Place of living: main place of residence until the age of 15 years
f37_jahr_1 – f37_jahr_10	Places/Country: Duration at main place of residence until the age of 15 years
f37_land_1 - f37_land_10	Country: main place of residence until the age of 15 years
f38	Location: main place of residence immediately before the foundation
f39_a	Personality traits: Preference for new ideas and experiments
f39_b	Personality traits: Communicative person
f39_c	Personality traits: job satisfaction
f39_d	Personality traits: control conviction
f39_e	Personality traits: life satisfaction
f40	Personality traits: risk appetite
f41_a	Start-up motives: Independence
f41_b	Start-up motives: Creating something new

f41_c	Start-up motives: Earning money
f41_d	Start-up motives: using the market gap
f41_e	Start-up motives: the way out of unemployment
f41_f	Start-up motives Miscellaneous: Flexibility
f41_g	Start-up motives Other: Risk of becoming unemployed
f41_h	Start-up motives Other: Independence
f41_i	Start-up motives Miscellaneous: fun and/or calling
f41_j	Start-up motives Other: Family
f41_k	Start-up motives Other: Pension security
f41_l	Start-up motives Miscellaneous: Creativity
f41_m	Other start-up motives: Role model
f41_n	Start-up motives Miscellaneous: Situation-dependent opportunity
f41_o	Start-up motives Other: Need
f41_p	Start-up motives Other: Better remuneration
f42_a	Citizenship: Germany
f42_b	Citizenship: European abroad
f42_c	Citizenship: Outside Europe
f43	Location in 1989
f44	Family Status: Married
f45	birth year
f46	Family status: Children
f47	Gender
f48	Risk: Lottery win question
i_ort	Whereabouts of respondents
i_dauer	interview duration
i_datum_a	Interview Date – Day
i_datum_b	Interview Date – Month
i_datum_c	Interview Date – Year
interviewer	ID Interviewer

Characteristics of the BHP and add-on modules can be found in Schmucker et al. (2018). The BHP is available for the period 1975 to 2016. Since the original matching

was based on an earlier version of the BHP that was only available for the period 1975 to 2008, the description of the BHP data in this report follows the notation “7508.”

1.5 File sizes

record	Size (in Stata format)
survey data	
gaw_befragung_v1.dta	0,4 MB
BHP 7508	
gaw_bhp7508_2002_v1.dta	0,02 MB
gaw_bhp7508_2003_v1.dta	0,05 MB
gaw_bhp7508_2004_v1.dta	0,08 MB
gaw_bhp7508_2005_v1.dta	0,1 MB
gaw_bhp7508_2006_v1.dta	0,1 MB
gaw_bhp7508_2007_v1.dta	0,2 MB
gaw_bhp7508_2008_v1.dta	0,2 MB
gaw_bhp7508_ein_v1	0,01 MB
gaw_bhp7508_aus_v1	0,01 MB
gaw_bhp7508_flow_v1.dta	0,2 MB

2 Data source of the survey

2.1 Subject of the GAW survey data

Within the scope of the GAW survey, information should be collected on the person of the founder, in particular his or her personal background, motivation and professional biography as well as the development of these start-ups were investigated. The information to be collected related in particular to

- sociodemographic characteristics of the founder such as age and gender,
- education and qualification level,
- Professional biography,
- Network integration (e. g. relationship with self-employed persons or founders in family and circle of friends, memberships and activities in associations and organisations)
- Spatial mobility of the founders over time

- Occasion and motivation of the founder,
- Risk propensity,
- General satisfaction level,
- Characteristics of the company that cannot be recorded from the company history panel (e. g. legal and organisational interdependence, degree of innovation of the product range; R&D cooperation),
- Development of the company (e. g. temporal development of the product program and market position, development of the number of employees).

In order to take into account sectoral peculiarities, both founders in relatively young industries characterized by an entrepreneurial technological regime and founders in established industries were surveyed. The survey should cover founders of companies that are already established, which can usually be assumed after a period of three to seven years. However, in the interest of providing answers that are as valid as possible, the time of formation should not be too far in the past. For this reason, the founders of companies were questioned, in which the company was founded between three and seven years ago. The survey is a representative sample of the population concerned.

The study offers approaches to scientific analysis in many areas of start-up research. In this way, the data set can be evaluated with regard to questions in the field of regional differences in start-up activities, psychological and sociological aspects as well as from the perspective of transformation research.

2.2 Performance of data collection

2.2.1 The selection of sample regions

The project relied on the concept of regional planning regions (RORs) when selecting the sample regions. These are spatial-functional units, which consist of several administrative districts and typically have a larger central city. The aim was to select three eastern and three western German regions that are (roughly) comparable.

The main criterion for selection was the degree of spatial density. The aim was to select an agglomeration area, a densely populated region and a rural region in eastern and western Germany each. At the same time, regions should as far as possible not have common borders. The classification of the ROR according to spatial density was based on the classification of the Federal Office for Building and Regional Planning (BBR) from 2008.

Within the groups, entrepreneurial activities and the industrial structure were considered. The basic indicators were the start-up rate and the employment share of manufacturing in a region. The start-up rate was calculated by dividing the number of private-sector start-ups by the total number of persons employed and unemployed in

a region. This approach corresponds to the labour market approach of entrepreneurship research (Audretsch & Fritsch, 1994).

For some of the selected areas, neighbouring RORs are to be merged on the basis of expected lower case numbers. These aggregated regions are referred to here as sample regions (SR):

- SR1: ROR: Upper Elbe Valley/Eastern Ore Mountains
- SR2: ROR: Central Thuringia + Eastern Thuringia
- SR3: STATE: Mecklenburg-Western Pomerania
- SR4: ROR: Hannover
- SR5: ROR: Aachen
- SR6: STATE: Schleswig-Holstein (without the northern hinterland of Hamburg)

In terms of concentration, start-up activity and industrial structure, efforts were made to find "twin regions" in East and West Germany. The pairs SR1/SR5 are characterized by a relatively high spatial density; SR2/SR4 (medium densification/high spatial density) and SR3/SR6 (rural regions) represent approximately comparable region.

2.2.2 Sampling

A start-up is identified by the first appearance of an establishment number in the Establishment History Panel (BHP). Further details are taken from the quarterly employment statistics. The data refer to establishments not companies and it was necessary to do some filtering to keep only companies in the sample (see 2.2.6). The founders of the company are of central importance for our analyses and have been contacted during the survey. For this purpose, we needed to draw data from the latest available version of the quarterly employment statistics. The use of this current data source should ensure that establishments/companies that were identified by the BHP still existed.

For getting into contact, the address data of the establishments were required. Other necessary characteristics were the branch code number of the establishments according to the NACE2008 classification at the 4-digit level, the total number of employees, the number of full-time employees (excluding minor and dormant employment), the district in which the establishment/founder are located and the corresponding number of the regional planning region (as of 2008).

Only cases were selected whose establishment number appeared for the first time in the BHP between January 1, 2003 and December 31, 2008.⁴ The problem of

⁴ An exception is the SR1: Upper Elbe Valley/Eastern Ore Mountains (ROR: 1401), for which cases from 2002 had to be used due to low numbers of cases.

perforated establishment numbers was dealt with as well.⁵ An important selection criterion was that the establishments did not have more than 20 employees liable to German Social Insurances (number of employees ≤ 20) in the year of the first appearance of the establishment number in the BHP. The establishments should also not contain missing values for employment data. Another important criterion was that, according to the latest quarterly employment statistics available at the time the survey started (December 31, 2009), the establishments still existed, i. e. were still listed with an establishment number. This was to ensure that the start-ups from 2003 to 2008 were still active on the market. Where possible, only cases should be selected whose regional and sectoral classification at the time of establishment was consistent with the corresponding classifications according to the most recent quarterly employment statistics available.

2.2.3 Industry definition

The project only considered start-ups from manufacturing and knowledge-intensive business services (KIBS).⁶ KIBS are defined at the 3-digit level, while manufacturing was drawn at the 2-digit level (for details, see Table 4).

Table 2: Geographical and sectoral dimension of the survey

Sample regions	Degree of agglomeration
<i>New Laender/ East Germany</i>	
SR 1: Upper Elbe Valley/Eastern Ore Mountains (ROR: 1401)	agglomeration area
SR 2: Central Thuringia + Eastern Thuringia (ROR: 1601+1603)	Condensed/ Urban area
SR 3: West Mecklenburg + Middle Mecklenburg/Rostock + Mecklenburg Lake District + Western Pomerania (ROR: 1301+1302+1303+1304)	Rural area
<i>Old federal states</i>	
SR 4: Hanover (ROR: 307)	agglomeration area
SR 5: Aachen (ROR: 501)	agglomeration area

⁵ A perforated establishment number refers to those numbers which have not been assigned in a few years, since, for example, the establishment temporarily does not employ persons subject to social security contributions. There is a danger that the re-emergence of the number will be counted as a first appearance. There are different methods to rule out this issue (for more information see Fritsch and Brix, 2004).

⁶ KIBS stands for "knowledge intensive business services".

SR 6: Schleswig-Holstein North+ Schleswig-Holstein Centre + Schleswig-Holstein East + Schleswig-Hol- stein South-West (ROR: 101+102+103+105)	Rural area
industry classification	
<i>Manufacturing industry:</i> WZ 2008 Section C: WZ 2008 Code 10-33)	
<i>Knowledge-intensive business services (KIBS):</i> WZ 2008 3-digit: 581,582,591 without 5914,592,601,602,602,611- 613,620,631,691,692,701,702,711,712,721,721,722,731,732.	

2.2.4 Stratification of the sample

A total of 6,000 addresses were provided to the project team in accordance with the annual and sectoral boundaries, whereby 1,000 addresses from establishments that appeared for the first time in the BHP between 2003 and 2008 were drawn in each of the six SRs. The stratification criteria include the information as to whether an establishment is to be allocated to manufacturing or KIBS and in which regional planning region the start-up took place. Initially it was planned to draw start-ups from manufacturing and KIBS in approximately the same proportion (500:500). However, it turned out that the total population of all start-ups was much smaller than expected. Accordingly, all addresses of new establishments in manufacturing and the remaining addresses in KIBS were considered until reaching the value of 1000 addresses (see table 2). If one compares the ratio of the addresses made available and the new company numbers from the KIBS branch in the BHP between 2003 and 2008, the sampling rate is approx. 75-80%.

Table 3: Number of newly registered establishments by sector and sample region.

Sample region	KIBS	Manufacturing	Total
1	634	283	917
2	656	473	1,129
3	747	449	1,196
4	925	303	1,228
5	763	342	1,105
6	1,292	585	1,877
<i>total</i>	<i>5,017</i>	<i>2,435</i>	<i>7,452</i>

Note: 1000 addresses were drawn per region. This included all addresses assigned to the manufacturing sector. Due to the low number of cases in SR1 (Upper Elbe Valley/Eastern Ore Mountains (ROR: 1401)), start-ups as of 2002 had to be added as well.

2.2.5 Contact and survey method

Based on the addresses we wrote a letter to the selected establishments. In the course of preparing the letters, it became apparent "at first sight" that some of the addresses sent were apparently not new foundations (e. g. duplications, unambiguous reference to organisations with a public character, etc.). In addition, in some cases it was not possible to find contact data, so it had to be assumed that the factories were closed at the time of the survey.

The potential participants were informed in the information letter about the research project and the research question. Furthermore, the CATI laboratory (Computer Assisted Telephone Interviewing) of the Friedrich Schiller University Jena at the Institute for Sociology, which carried out the telephone contact on behalf of the project, was mentioned. The source of the address data was clearly highlighted. In addition, it was emphasised that a brief written reply was sufficient to deny telephone contact by the project. It was pointed out that in the event of a rejection, the address data provided by the IAB would be deleted immediately.

The contact persons were informed in the cover letter about the topics of the survey and the duration of the telephone interview. However, the questionnaire was never sent out to avoid biases in response behaviour. An obligation to treat the data collected in strict confidence was also included in the letter. In addition, the contact details of the research project were made available for queries. In order to create transparency, we offered respondents the opportunity to make our research results available to them free of charge.

A few establishments refused to participate. If the contact persons did not reject the contact, the contact data were fed into the system of the CATI laboratory at FSU Jena and the establishments were contacted. A total of 5,139 establishments/founders were contacted. The CATI method is an established form of data collection that is used particularly in opinion research. The interviews are conducted by telephone, whereby computer support is used by automating the sequence of questions and answer categories as well as the filter question management, so that direct individual influences of the interviewer on the survey data and thus on the survey quality are excluded (for more information on the investigation method CATI/CAPI, see Goetzelt, 2006).

The standardised survey was carried out exclusively by telephone by CATI laboratory staff members who were trained several times by the project team prior to the start of the survey with regard to the questionnaire and the various subject areas. In addition, a pretest was carried out in which a beta version of the questionnaire was

tested on a sample of 100 separately pulled firms. Based on the experience of this preliminary test, the questionnaire was optimized again for the final GAW survey (for the complete questionnaire used, see Appendix 7.1).

2.2.6 Definition of start-ups and companies

As already mentioned, a total of 5,139 of the 6,000 establishments whose address was provided were contacted by telephone. Additional preliminary inquiries at the beginning of the telephone interview reduced the sample to 3,572 cases. In the telephone preliminary inquiries, it was necessary to filter out establishments that were not real start-ups and companies. The preliminary inquiries were conducted with the (1) founder or (2) managing director of the establishments. It was not possible to find out in which two categories the contact person fell, until the preliminary inquiries took place.

In the first preliminary inquiry, it was asked directly whether the establishment was a new company. The interviewer pointed out what is meant by a new foundation, namely a new enterprise that forms a legally independent entity. The founders must have created their own entrepreneurial existence with setting up the respective company. If the interviewee had difficulties in understanding the inquiries, the interviewers asked the additional question whether more than half of the capacities had already existed before the start-up date. Capacities are e. g. office equipment, capital stock or practically everything that serves the fulfilment of the business purpose. If more than 50 % of the capacities already existed, the company was not considered to be newly founded and the interview ended.

In addition to the "newly created" option, the contact person was asked whether it was a branch office, a takeover, a franchise company or a single establishment. The "branch" included all establishments in which no new business had been set up, as well as those that were not independent. This covers all cases where the parent company has been in existence for a long time and where there is a central office or head office in another location. Companies with several branches can register their employees either via their parent company or individually via the respective branch offices. In the latter case, a new business number appears in the BHP when a new branch is set up, which could be mistakenly identified as a new business establishment (for further details, see Fritsch and Brixy, 2004).

The category "take-over" includes all companies that have existed for a long time and in which a change of ownership took place between 2003 and 2008. Mergers and joint ventures are also included. A change of ownership means that a new business number is assigned, e.g. when a real start-up is bought, but also when the owner of a family business hands over the business to the next generation (for more details, see Fritsch and Brixy, 2004).

Finally, the "franchise" category includes cases in which a franchisor provides a franchisee with the (regional) use of a business concept for a fee. In turn, a "single permanent establishment" is a part of a company that is not subordinated to a central office, but is an equal part of a new foundation. This concerns the special case that a

real start-up has set up two or even more business premises and the employees have been registered for social security through the respective business premises.

If the interviewer has specified a different category than "new startup", this did not automatically lead to the call being terminated. Rather, in a second step, it was examined whether units that identified themselves as branch offices or takeovers were founded as independent companies in the past and later became part of another company. If branches and takeovers were actually founded once as independent units, then these were taken into account in the sample. The background to this is that the interviewee could refer in the answer to the current state or also to the initial state. For example, he or she can indicate "branch", although this was a real new plant in the year 2003, for example, which was then purchased in 2009. However, such a case would in principle be suitable for the survey.⁷

After identifying the start-ups, we asked about the year in which the company began its business activities. This refers to the recording of initial sales. It may well be the case that a company, although it is a new company, is very old. This is due to data generation, as can be explained by an example. A company was founded in 1990, but for the first time hires an employee in 2004. Therefore, it is classified as a new company in 2004 according to the definition of the BHP. In order to rule out very old companies, the interview ended when the founder stated that the company was founded before 1990.⁸

2.2.7 Response rates

As already mentioned, 1,567 out of 5,139 addresses could not be used for the purpose of the survey due to the results of the preliminary inquiries. Conversely, this does not mean that the remaining 3,572 units are only genuine start-ups. One problem here is that the preliminary examinations could only be done for those companies that wished to take part in the survey. Companies that were not reachable or refused to participate after contacting by telephone were not asked for the test questions. Complete interviews were conducted with a total of 1,282 founders, whereby 1,105 agreed to a data link with the IAB processed data. For the remaining 2,290 cases, it was therefore not possible to obtain information on whether the companies were actually newly founded.⁹

⁷ The question of whether the company was formerly founded as an independent enterprise and later became part of another company was also raised with the companies classified as newly founded. Similarly, the interviewer can refer to the same permanent company as a new founding if it refers to the initial situation in 2003. Whether it is an independent start-up company or a newly founded company taken over after entering the market is a characteristic that has an influence on its structure and development. Thus, the company was surveyed.

⁸ Finally, in the event that the founder run more than one company, he was asked to disclose the company details in the interview only for the establishment to which the address information relates. In total, there were three foundations consisting of more than one permanent establishment, with two of the founders not being able to make any statements specific to the permanent establishment.

⁹ 177 founders did not agree that their data would be merged with the processed data in the BHP. The data of these founders have been deleted.

Assuming that all 2,467 establishments that rejected participation or rejected the data link would have been suitable for the sample, the response rate would have been approximately 31%. This is more than twice as high as the German version of the GEM adult population survey (GEM, 2013), a standard data set for the analysis of entrepreneurship. However, the actual response rate is likely to be significantly higher, since it can be assumed that not all establishments that refused to participate would have been suitable for the analysis. A much more realistic estimate of the actual response rate is 52%.¹⁰ The interviews lasted on average about 20 minutes. Table 4 and Table 5 provide a complete overview of the status of the contacted establishments/companies at the end of the survey wave.

Table 4: Status at the end of the survey by sector

Disposition	VG	KIBS
Complete interview	423	864
No data link*	57	125
interview abort	2	1
Dismissal	918	1,372
Founders eliminated	75	60
Operation not suitable	556	521
Operation does not exist	55	87
loss of contact	25	46
Not available	39	63
double case	14	18
<i>Total</i>	<i>2,107</i>	<i>3,032</i>
<i>Note: *5 of the 182 establishments that did not agree with the data link turned out to be unsuitable for the plausibility check, so that a total of 177 true founders did not agree with the data merge.</i>		

¹⁰ Explanation: There is no assessment of suitability for 2,467 establishments, as there was no willingness to participate in the survey. 2,672 establishments were ready to participate, although only 1,105 companies were suitable and a full interview was conducted with them. 1,567 establishments proved to be unsuitable. Assuming that the proportion of suitable establishments/companies among those who refuse to participate is the same as that of those who are willing to participate (approximately 41%), there should be 1,020 suitable companies among those who refuse to participate. Accordingly, the response rate would be about 52% (1,105/ (1,105+1,020)).

Table 5: Status at the end of the survey by sample region

Disposition	SR 1	SR 2	SR 3	SR 4	SR 5	SR 6	Total
Complete interview	222	295	214	198	176	182	1,287
No data connection* interview abort	31 0	40 0	33 0	30 2	23 1	25 0	182 3
dismissal	385	290	340	407	450	418	2,290
Founders different	15	19	22	26	27	26	135
Operation not suitable	187	207	186	172	167	158	1,077
Operation does not exist	21	14	30	33	20	24	142
loss of contact	10	15	11	10	13	12	71
Not available	15	17	17	18	15	20	102
Double case**	2	8	10	5	4	3	32
<i>Total</i>	<i>857</i>	<i>865</i>	<i>830</i>	<i>871</i>	<i>873</i>	<i>843</i>	<i>5,139</i>

*Note: *5 of the 182 establishments that did not agree with the data link turned out to be unsuitable for the plausibility check, so that a total of 177 true founders did not agree with the data merge. A double case is defined as those cases which are identical establishments that are listed under two different addresses in the administrative data.*

2.3 Publications based on the GAW survey data

The dataset provides manifold publication opportunities. On the basis of these data, three publications have so far been published in international peer-reviewed journals. The first article is “Entrepreneurship and the Intergenerational Transmission of values” which was published in *Small Business Economics* (Wyrwich, 2015). The second article is entitled “Balanced Skills and the City: An Analysis of the Relationship between Entrepreneurial Skill Balance, Thickness, and Innovation” and was published in *Economic Geography* (Fritsch et al., 2015). The third article is entitled “Entrepreneurship, Human Capital, and Labor Demand: A Story of Signaling and Matching” and was published in *Industrial and Corporate Change* (Bublitz et al., 2018).

The three papers cover very different topics which demonstrates the great research potential of the GAW survey data. Wyrwich (2015) uses the data for identifying the intergenerational transmission of entrepreneurial values. The starting point of the paper is the mounting empirical evidence that there is intergenerational transmission of parental preferences for entrepreneurship. However, much of the work on this topic is not explicit about the role of *values* in this transmission process. Furthermore, nearly

all studies neglect potential heterogeneity of values among entrepreneurial parents. The paper by Wyrwich (2015) that utilizes the GAW survey data contributes to the literature by making use of a natural experiment that allows (1) identifying a group of entrepreneurial parents who have a distinct priority of challenging existing conditions (“mastery”) and (2) detecting whether this value orientation is transmitted. Comparing entrepreneurs in the East and West German sample regions two decades after Reunification reveals that the children of self-employed parents who encountered a great deal of resistance in the socialist German Democratic Republic due to their self-employment are much more likely to give mastery as the reason for running their own venture compared to entrepreneurs whose parents did not have to overcome this sort of challenge.

The second paper by Fritsch et al. (2018) is an empirical test of a theoretical model developed by Helsley and Strange (2011) on the interplay between skill balance of entrepreneurs and the local environment. In a nutshell, entrepreneurs are assumed to be multiskilled, covering a number of skills and achieving in each skill a level as high as possible. Being such a jack-of-all-trades increases the probability of running an entrepreneurial venture successfully. An open question is what happens to the jack-of-few-trades who lacks sufficient skills. The article utilizes the GAW survey data to investigate a possible compensation mechanism between balanced skills and cities, and how this compensatory measure relates to performance. Specifically, the paper tests the idea put forward by Helsley and Strange that high market thickness, such as that found in cities, can compensate for a lack of entrepreneurial skill balance. The authors find support for this mechanism. More precisely, the results indicate that entrepreneurs with low skill balance benefit more from being located in cities than their counterparts with high skill balance. Innovative firms do not differ from other businesses in this respect.

In the third article by Bublitz et al. (2018), the GAW survey data are applied to investigate whether entrepreneurs’ own qualifications explain their hiring choices. The analysis is also carried out with Danish data to allow for a cross-country comparison between the two countries. The starting point of the paper is that in contrast to employee qualifications, there is no clear evidence that entrepreneurs’ qualifications positively affect their income. The authors propose that entrepreneurs can benefit from using their qualification as a signal during the process of recruiting employees which is assumed to follow a process of matching equals among equals. Bublitz et al. (2018) confirm a matching of qualification levels for highly skilled employees with Danish data, and an indication of this in Germany with the GAW survey data. They also find partial support for matching among medium-skilled employees in Germany but no consistent evidence of matching for low-skilled employees in neither country. This suggests that as skill levels of employees decrease, their probabilities of working for different founders converge. The qualifications of founders are the most reliable predictor of recruitment choices over time. The findings are robust to numerous control variables and across industries and firm age.

In contrast to the first two articles, Bublitz et al. (2018) make use of the GAW-ADIAB2, which consists of the GAW survey that is linked with the Establishment History Panel (BHP) at the Institute for Employment Research of the German Federal Employment Agency. The merged data set is suitable for addressing research questions regarding the labor demand of start-ups because it allows to observe the development of the employees by qualification category and relate it to the characteristics of the founder. In the baseline specification, the authors observe 1,033 establishments for at least 1 year in the GAW-ADIAB.

3 Data source administrative data: Establishment History Panel

The Establishment History Panel (BHP) is the weakly anonymised basic population of establishments (single or stratified by size classes) with at least one employee subject to social insurance contributions. The core data set contains:

- Operating characteristics (e. g. system-free plant number, branch of industry, state) Employment structure of employees (e. g. number of employees by gender, full-time equivalents)
- Age structure of employees
- Structure of employees according to school and vocational training
- Structure of employees by occupation (e. g. number of skilled workers, trainees)
- Structure of employees by person group key
- Salary structure of full-time employees

As a basis for data, reports on the employees from the Employee History Panel (BeH) of the IAB are used. The BHP data are compiled from the totality of the individual employee declarations in the BeH available to the IAB. The data are based on the integrated registration procedure for health, pension and unemployment insurance (DEÜV) introduced on 1 January 1973, for further details see Bender et al. 1996). It requires employers to notify the social security authorities of all employees in employment relationships subject to social security contributions. BeH records all employees and apprentices who are not exempted from social security contributions. This means that civil servants, self-employed persons and students are not included in BeH.¹¹

Each year in which an employment relationship exists for such a person is represented by at least one declaration. The data is collected by the Federal Employment Agency in a running file and then entered into the corresponding history file (BHP) by the IAB. The BHP data are obtained by aggregating the employment notifications in

¹¹ Since the 1999 revision of the notification procedure, it has also covered minor employees and assisting family members.

the BeH by means of the company number. This aggregation takes place as of June 30, 2010 (for details, see Schmucker et al., 2018).

4 Data Generation and Linkage

4.1 Linking the survey data

Until the time of the survey, there was no available database containing information on the characteristics of founders and information on the development of the companies founded. For example, characteristics of founders can be examined on the basis of the socio-economic panel (SOEP), but in SOEP hardly any information about the type and development of the establishment is available, so that the individual characteristics of the founder cannot be linked to the success or development of the founded entities. A similar problem is the analysis of the success of companies based on the Establishment History Panel (BHP) of the Institute for Employment Research (IAB), which does not contain any information about the founders of the company.

In order to analyse information about the characteristics of founders as well as their success, a survey of founders in the regions and industries we selected was necessary. In order to carry out the survey of founders whose founding date was between three and seven years ago, the address data of these founders or companies were required, as well as a few data to control the survey and stratification of the sample (see Section 2.2.2).

4.2 Consent to the linking of data

The starting point for linking the survey and process data is the consent of the participants in the GAW survey. During the interview, they were asked for permission to link their survey data for research purposes with the data available at the IAB. The wording of the question on informed consent was as follows:

“Before we end the conversation, we would like to give you some information about further data processing. Within the framework of statutory reporting obligations, data on operating characteristics are collected for every plant in Germany. This data is stored anonymously at the IAB. The aim of this study is, among other things, to merge the data collected in the survey with the IAB data. The Federal Ministry of Labour and Social Affairs has approved such a merger. The Ministry considers that there is a significant public interest in such a data set. However, we also need your consent for the data collection. Your data will of course be collected and analyzed under strictest secrecy. We would be grateful if you would give us your consent to this.”

A total of 1,105 people have agreed to the linking of data. 182 persons, however, did not consent to the aggregation of the data. We did not take these founders into

account in the empirical analyses carried out during the further course of the project, since any extended need for analysis was excluded from the outset by linking them to IAB process data.

4.2.1 Opportunities for linking the data

The GAW survey data can be linked to the BHP of the IAB in Nuremberg using an establishment number. With its wide range of information on operational characteristics, the link also allows companies to track their long-term development. The current version of the BHP covers the period from 1975 to 2016 (see Schmucker et al. 2018, for a record description). If a company from the survey sample should appear for the first time in the BHP in 2004, annual information on the company for the period 2004 to 2008 can be linked with the survey data, as long as the company still exists in 2008. It is also possible to create a variable to represent the sector coverage of the GAW survey data based on the BHP data. Thus, the number of cases in the survey data by sector and region can be compared with the respective total number of establishments that appeared for the first time in the BHP in the corresponding sample region between 2003 and 2008 (see Table 5, see also Chapter 5.3).

4.3 Missing values

The following codes for missing values apply to the GAW survey data:

Table 6: Missing values GAW survey data

value	Designation
-1	don't know
-2	no indication
-3	does not apply (filter)

The following coding of missing values applies to the BHP:

Table 7: Missing values BHP

Designation	value	description
keine (valide) Angabe	.z	Characteristic value that is not systematically missing Example: Missing information on the circle code number for an operation.
systematically unfilled	.n	A characteristic is not filled for a specific period or group of sites.

	<p>Examples: The information on the industry classification WZ03 is only available for the period 2003-2008. The corresponding variables are filled with . n in the remaining years.</p> <p>Enterprises without full-time employees with unknown educational qualifications have the entry . n in the variable for the gross daily wage of this group of employees.</p>
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5 Data quality and plausibility check

5.1 Comparison of survey data with process data from the BHP

As already mentioned, the CATI survey method ensures that specific influences of the interviewer on the survey data and thus on the quality of the survey responses play a marginal role (see 2.2.5 and Götzelt, 2006). After feeding the data into the CATI system, the variables collected were subjected to an intensive plausibility check. Some of the plausibility check was carried out automatically during the data collection. One particular difficulty was the identification of the start-up (year), which had to be clarified by means of preliminary inquiries, as already explained in section 2.2.6.

The determination of the actual date of start-up was also of central importance in order to guarantee the validity of the data. The first appearance of the company in the BHP between 2003 and 2008 was a central sampling criterion. However, the BHP only provides information on the year in which an employee liable to Social Insurance was hired for the first time. The actual start-up of the company may have taken place long before 2003. Therefore, we asked for the year in which sales were generated for the first time.

We also checked whether the information on the initial hiring of staff in accordance to the BHP was consistent with the founder's own information. In some cases there were deviations. In the event of discrepancies in the annual figures, we asked whether and when a significant legal and organisational change took place between 2003 and 2008 (e.g. change of name, change of legal form, etc.). This could have led to the reallocation of an establishment number, which explains why the company appears for the first time in the BHP during this period. In some cases, however, the deviation could not be attributed to a legal and organisational change. In the case of founders whose annual figures were subject to deviations and who stated that there were no legal/organizational changes, it was not possible to clarify the reasons for the deviations. The handling of deviations between BHP and the founder's own information with regard to the initial hiring of employees is to be determined by the data users

themselves. The BHP information, for example, has the advantage that it refers to the establishment/comp in its current form.¹²

In addition to the year in which employees were hired for the first time, we also asked for the number of employees as of December 31, 2009 in order to be able to compare the figures with the corresponding information from the quarterly employee statistics provided to us (see section 2.2.2 on sampling). Smaller deviations can probably be traced back to inaccuracies caused by the specific key date query. Significant deviations in the values indicate that the founder in the interview does not only refer to the business premises as defined in the BHP. Before linking the survey data with other BHP data, it is necessary to check for which survey units and on the basis of which tolerance limit this can be done sensibly due to the detectable deviations. Under no circumstances should those founders be linked to the BHP process data that stated directly in the interview that their details do not refer to the site alone.

5.2 Validation of survey data

In order to ensure the data quality, an intensive training of the interviewer and a check of the generated data was an important building block in the creation of the data set, in addition to the data comparison with the provided BHP process data.

In addition to the standard plausibility checks for the individual variables (e.g. sum control), selected variables had to be checked more elaborately. This included the plausibility check of the various points of life and the change of location of the founders before the foundation. The founders should name the place where they spent most of their childhood (up to the age of 15). In addition, all the places where the founder had lived for more than two years since the age of 15 should be listed in chronological order. It had to be ensured that the interviewer had to be sensitized for ambiguous place names (e. g. "Briesnitz" vs. "Prießnitz"). In addition, it was important to ensure that local names which appear several times (e.g. "Neustadt") were always accompanied by a regional suffix. The review of the data took a comparatively long time due to the diversity of information. Ultimately, the survey could be completed for all founders, although some inaccuracies have arisen if founders were only willing to name the region of their former areas of life. On the basis of the adjusted figures, the regional planning region belonging to the locations was assigned.¹³

Another special feature of the plausibility check of the data was the categorization of the reasons for the step into self-employment. It turned out that a particularly high number of the mentioned reasons could not be distributed to the given answer categories. For this reason, some of the reasons covered by the category "Other" were

¹² The use of the BHP data, for example, is also justified by the fact that two consistent employment figures are available, once for the first-time publication in the BHP and on December 31, 2009.

¹³ To ensure data protection, only the information is provided at the level of the regional planning regions.

manually assigned to the existing categories after the survey had expired. New categories have also been created to better reflect the different responses of the founders.

5.3 Ensuring representativeness

As already explained before, the drawing of addresses for establishing contact was carried out to ensure representativeness at the levels of sectors and regions. With regard to the representativeness of the survey data set, we have also placed the founders participating in the survey in relation to the general regional level of start-up activity. In this respect, we calculated a variable, which sets the number of founders per sample region in relation to the total number of sector-specific start-ups (manufacturing vs. KIBS) in the sample region, which appear as a new company in the BHP between 2003 and 2008. The resulting values represent the sample coverage by industrial region classes. The coverage reaches values of up to 86% (see Table 10). This calculation can be regarded as very conservative, since not all the new business numbers appearing in the BHP are actually real start-ups (see section 2.2.7, for details). The true reference value in the denominator of the variables used to represent the sample coverage is therefore smaller and the sample coverage is correspondingly larger. Each start-up is assigned a corresponding value indicating sample coverage.

Table 8: Sample coverage of the foundations in the survey data set

Variabel	mean core	median	standard deviation	minimum	maximum
<i>Sample coverage</i>	0.366	0.301	0.203	0.095	0.855

In addition to the specification of sample coverage, it is also possible to consider possible selection distortions in response behavior. A non-response rate can be calculated at the region-industry level on the basis of the information on complete interviews and the respondents who refused to participate, as presented in Table 4 and Table 5. This can be considered as a control variable in regressions to address distortions caused by sectoral differences in the willingness to participate.

6 Variable descriptions¹⁴

6.1 Characteristics list

Countings as well as overviews of the individual attributes and labels of the characteristics can be found in separate files at <http://fdz.iab.de/de/data-archive/gaw-ad-iab.aspx>

6.1.1 Examination of the survey data

variable label	Information for the place of business to which the contact details refer is possible
variable name	v00
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	This characteristic indicates whether the interviewed founder is able to provide the information requested during the survey only for the establishment to which the original contact details refer. The data link with the BHP data can only be linked to the correspondingly contacted site.

6.1.2 Establishment of a company

variable label	First-time hiring of employees liable to Social Insurance
variable name	v03_2
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None

¹⁴ Variable labels are translated to English in this documentation.

detailed description	This characteristic indicates the year in which the company first hired persons liable to social security contributions, according to the founder.
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6.1.3 Company size by employee

variable label	Employees as of 31th december 2009
variable name	v06_1
category	operational characteristics
data collection	Quarterly employment statistics
data type	Numeric
hierarchy	None
detailed description	This characteristic specifies the number of employees at the operating site as of December 31,2009 in accordance with the quarterly employment statistics.
variable label	Employees as of 31th December 2009
variable name	v06_2
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	This characteristic reflects the number of employees employed at the plant as of December 31,2009 in accordance with the information provided by the founder.

6.1.4 Start of business activities

variable label	commencement of business activities
variable name	v07
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	This characteristic indicates the year in which, according to the founder, sales were achieved for the first time.

6.1.5 Takeover after foundation

variable label	Takeover after foundation
variable name	v08
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	This characteristic specifies whether the contacted company was first established independently and then taken over by another company.

6.1.6 Change of address details

variable label	Change of the company's address details
variable name	v09
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	This characteristic specifies whether the address data of the contacted

	operation differs from the address data transmitted by the IAB.
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6.1.7 Legal and organisational changes

variable label	Legal and organisational changes between 2002 and 2008
variable name	V10a_1
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked whether there was a significant change in the legal and organisational structure between 2002 and 2008 (e.g. renaming, change of legal form, etc.).

variable label	Legal and organisational changes between the year of first hiring of employees liable to Social Insurance and 2008
variable name	v10a_2
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked whether there had been a significant change in the legal and organisational structure (e. g. name change, change of legal form, etc.) between the year in which SV-obligated employees were employed for the first time and 2008.
variable label	Year of legal and organizational change

variable label	Year of legal and organizational change
variable name	v10b
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked about the year in which the change named under v10a_1 or v10a_2 took place.

6.1.8 Company information

6.1.8.1 Team formation

variable label	Number of founders
variable name	f01
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	This characteristic provides information on the number of founders who participated in the establishment of the surveyed start-ups. The number also includes the interviewed founder.

6.1.8.2 Legal form

variable label	Legal form of the company
variable name	f02
category	operational characteristics
data collection	Survey

data type	Numeric
hierarchy	None
detailed description	This characteristic contains information about whether the company is a partnership or a corporation.

6.1.8.3 Earnings situation

variable label	Earnings situation of operations in the current financial year (2010)
variable name	f04
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked how they assess the earnings situation of their company in the current fiscal year (2010) compared to the industry average. The entirety of the competitors classified as relevant for the founder is considered to be the same as the industry.

6.1.8.4 Sales territory (sales 2009)

variable label	Sales 2009 Old West German states (excluding Berlin) in %)
variable name	f05_a
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked to give estimates of the percentage share of turnover.

variable label	Turnover 2009 New German states (including Berlin) in %)
variable name	f05_b
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked to provide estimates of the percentage share of turnover.

variable label	Turnover 2009 New German states (including Berlin) in %)
variable name	f05_c
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked to provide estimates of the percentage share of turnover.

variable label	Sales 2009 Other foreign countries in %
variable name	f05_d
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None

detailed description	The founders were asked to provide estimates of the percentage share of turnover.
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6.1.8.5 Competition assessment

variable label	competitive assessment
variable name	f06
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked to describe the competitive situation on the market at the time of foundation. Competition refers to the totality of competitors deemed relevant for the founder.

6.1.9 Innovationen

6.1.9.1 R&D

variable label	Importance of R&D for the company
variable name	f07
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked to indicate whether R&D plays a role in their company.

6.1.9.2 Employees R&D

variable label	Number of employees: exclusively (100% working time) employed in R&D
variable name	f08_a
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked about the number of employees involved in the research and development of products or production processes.

variable label	Number of employees: predominantly (>50% working time) employed in R&D
variable name	f08_b
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked about the number of employees involved in the research and development of products or production processes.

variable label	Number of employees: sometimes (<50% working time) employed in R&D
variable name	f08_c
category	operational characteristics
data collection	Survey

data type	Numeric
hierarchy	None
detailed description	The founders were asked about the number of employees involved in the research and development of products or production processes.

6.1.9.3 External R&D demand

variable label	R&D demand from external suppliers
variable name	f09
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked whether they were commissioned to carry out research and development.

6.1.9.4 R&D Kooperation

variable label	R&D cooperation: External consultants
variable name	f10_a
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked whether they collaborate in research and development with external consultants (e. g. management consultants, engineering firms).

variable label	R&D cooperation: university, re- search institutes
variable name	f10_b
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked if they would cooperate with universities and/or external institutions (e.g. Fraunhofer Institute) in research and development.

variable label	R&D-Cooperation: Other companies
variable name	f10_c
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked if they cooperate in research and development with other companies.

variable label	R&D cooperation: None
variable name	f10_d
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	This characteristic specifies whether the company is not involved in any R&D cooperation.

6.1.9.5 Technical status of the installations

variable label	Technical status of the installations
variable name	f11
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked how they generally assess the technical state of the company's equipment compared to other companies in the industry. Sector refers to the totality of competitors deemed relevant for the founder.

6.1.9.6 Innovation

variable label	Introduction of a fundamentally new product (innovation)
variable name	f12
category	operational characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked whether they had introduced a fundamentally new product to the market since their foundation. This also applies if the foundation was accompanied by the introduction of a fundamentally new product. A fundamentally new product means that it does not yet exist on the market.

6.1.10 Professional or employment biography

6.1.10.1 School and vocational qualifications

variable label	Highest school leaving certificate at the time of foundation
variable name	f13
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked for their highest general school leaving certificate available at the time of foundation. Foreign certificates have been assigned to the equivalent German degree.

variable label	Highest professional qualification at the time of foundation
variable name	f14
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked what the highest vocational training or university degree they had at the time of their foundation.

6.1.10.2 Skill Balance

variable label	Number of professional tasks before the foundation (skill balance)
variable name	f15
category	founding characteristics

data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked how many different professional tasks they were involved in before founding the company. It was explicitly stated that this does not refer to the number of jobs, but rather the number of professional fields of activity such as accounting, housekeeping and/or production.

6.1.10.3 Industry and professional experience

variable label	Industry experience at the time of foundation
variable name	f16
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked how many years they had already worked in the branch in which their company is active at the time of the foundation.

variable label	Up-to-date industry experience at the time of foundation
variable name	f17
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked about the topicality of their experience at the

	time of foundation. The selection categories "immediate" and "several years in the past" were specified. In this context, the immediate consequence was that the time between the foundation and the last experience in the sector was only the time needed to prepare for the foundation (should be less than 1 year).
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variable label	Work as an employee in the year under review
variable name	f18
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked how many years they worked as employees in one or more companies before starting their own venture.

variable label	Number of employees (size category) of the last company before the foundation
variable name	f19
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked how many employees the company had in which they last worked as employees, i. e. before their first own foundation. Specifications that lead to changes of the response categories

	(e.g. for 20 employees) have been explicitly made for accuracy.
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variable label	Senior executive experience
variable name	f20
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked if they had been employed as a managerial employee in another company (e. g. manager, managing director) before the foundation of their company.

6.1.10.4 Income

variable label	Change in net income since inception
variable name	f21
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked about the extent to which net income, which they earned before the time of foundation, changed in comparison to the survey date.

6.1.11 Occasion and background of the foundation

6.1.11.1 Founding experience

variable label	Number of start-ups prior to the current formation
variable name	f24
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked how many companies they founded before founding the company to which the survey refers. Freelance activities are not included.

variable label	Freelance work before the current foundation
variable name	f25
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked whether they were freelancers before founding the company to which the survey referred.

variable label	Entrepreneurial independence before the current foundation in years
variable name	f26a
category	founding characteristics
data collection	Survey
data type	Numeric

hierarchy	None
detailed description	Based on the answers to f24 and f25, the founders were asked how many years they had been self-employed before starting their current company.

variable label	Entrepreneurial self-employment (without freelance work) prior to the present foundation in years
variable name	f26b
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	Based on the answer to f24, the founders were asked how many years they had been self-employed before founding their current company. Any freelance activities are not taken into account.

variable label	Entrepreneurial self-employment (without freelance work) prior to the present foundation in years
variable name	f26c
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	Based on the response to f25, the founders were asked how many years they worked as freelancers before starting their current company.

6.1.11.2 Position in the profession before formation

variable label	Position in the profession before foundation (filter)
variable name	f27
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked about their immutable position in the profession before founding.

6.1.11.3 Disagreements with former employer

variable label	inconsistencies with previous employers
variable name	f28
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked if there were any inconsistencies with their former employer.

6.1.11.4 Incorporation from unemployment

variable label	Duration of unemployment before foundation
variable name	f29
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None

detailed description	The founders were asked about the duration of the unemployment immediately prior to the foundation, if they indicated under f27_1 that they were unemployed.
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6.1.11.5 Inspiration for the foundation

variable label	Inspiration for self-employment through the most recently pursued profession
variable name	f30
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked to what extent their professional independence was inspired by their most recent profession. The founders were informed that the question is whether the business idea was partly taken over by their previous profession.

6.1.12 Network integration/ social capital

6.1.12.1 Self-employment within the family and circle of acquaintances

variable label	Self-employment Parents
variable name	f31
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None

detailed description	The founders were asked whether at least one parent had been self-employed professionally when the founders were 15 years old.
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variable label	Self-employment among friends and acquaintances
variable name	f32
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	<p>The founders were asked if there were any close relatives or close friends.</p> <p>The question relates to the period between the age of 15 and the date of birth. Parents are also included if they founded after the 15th year of life of the interviewed founder.</p>

6.1.12.2 Memberships and activities of the Association

variable label	Membership: Gesangverein (Singing Club)
variable name	f33a_a
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked if they had been members of a choir at the time of their foundation.

variable label	Membership: Sports club
variable name	f33a_b
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked if they were members of a sports club at the time of their foundation.

variable label	Membership: Other clubs
variable name	f33a_c
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked if they had been members of another hobby club at the time of the foundation.

variable label	Membership: Home and Citizens' Association
variable name	f33a_d
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked if they had been members of a home and community association at the time of their foundation.

variable label	Membership: Association of displaced persons or refugees
variable name	f33a_e
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked whether they had been members of an IDP or refugee association at the time of their foundation.

variable label	Membership: Welfare or war victims' association
variable name	f33a_f
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked whether they were members of a welfare or war victims' association at the time of their foundation.

variable label	Membership: Ecclesiastical or religious association
variable name	f33a_g
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None

detailed description	The founders were asked if they had been members of a church or religious association at the time of their foundation.
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variable label	Membership: Youth Organization/ Student-association
variable name	f33a_h
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked if they were members of a youth organization and/or student association at the time of their foundation.

variable label	Membership: Political Party
variable name	f33a_i
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked whether they had been a member of a political party at the time of their foundation.

variable label	Membership: Citizens' Initiative
variable name	f33a_j
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked if they were members of a citizens' initiative at the time of their foundation.

variable label	Membership: Professional Association
variable name	f33a_k
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked if they had been a member of a professional association at the time of their foundation.

variable label	Lessons per week: singing club
variable name	f33b_a
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked how many hours per week they used for activities in the choir, if the respondents answered "yes" under f33a_a.

variable label	Lessons per week: Sports club
variable name	f33b_b
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked how many hours per week they used for sports club activities, if the respondents answered "yes" under f33a_b.

variable label	Lessons per week: Other hobby clubs
variable name	f33b_c
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked how many hours per week they used for activities in other hobby clubs, if the respondents answered "yes" under f33a_c.

variable label	Lessons per week: Home and Citizens' Association
variable name	f33b_d
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked how many hours per week they use for activities in home and community associations,

	provided that the respondents answered "yes" to f33a_d.
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variable label	Lessons per week: displaced persons or refugee association
variable name	f33b_e
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked how many hours per week they used for activities in displaced persons or refugee associations, if the respondents answered "yes" under f33a_e.

variable label	Lessons per week: Welfare or war victims' association
variable name	f33b_f
category	founding characteristics
data collection	Survey
data type	Numeric
hierarchy	None
detailed description	The founders were asked how many hours per week they used for activities in welfare or war victims' associations, if the respondents answered "yes" under f33a_f.

variable label	Lessons per week: Ecclesiastical or religious association
variable name	f33b_g
category	founding characteristics
data collection	survey

data type	numeric
hierarchy	none
detailed description	The founders were asked how many hours per week they used for activities in church and religious associations, if the respondents answered "yes" under f33a_g.

variable label	Lessons per week: Youth Organization / Student Union
variable name	f33b_h
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The founders were asked how many hours per week they used for activities in youth organizations and/or student associations, if the respondents answered "yes" to f33a_h.

variable label	Lessons per week: Political Party
variable name	f33b_i
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The founders were asked how many hours per week they used for activities in political parties if the respondents answered "yes" under f33a_i.

variable label	Lessons per week: Citizens' Initiative
variable name	f33b_j
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The founders were asked how many hours per week they used for activities in citizens' initiatives, provided that respondents answered "yes" to f33a_j.

variable label	Lessons per week: Professional Association
variable name	f33b_k
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The founders were asked how many hours per week they used for activities in professional associations if the respondents answered "yes" under f33a_k.

6.1.12.3 Religious affiliation

variable label	religious affiliation
variable name	f34
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The founders were asked about their religion.

6.1.12.4 Local network integration and mobility

variable label	Location: majority of life up to 15 years of age
variable name	f36_ror
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The founders were asked where they spent most of their life up to the age of 15.

variable label	Country: majority of life up to 15 years of age
variable name	f36_land
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The variable indicates whether the person interviewed has spent most of his or her life up to the age of 15 years abroad or in Germany.

variable label	Place: majority of life up to 15 years of age
variable name	f37_ror_1; f37_ror_2; f37_ror_3; f37_ror_4; f37_ror_5; f37_ror_6; f37_ror_7; f37_ror_8; f37_ror_9; f37_ror_10
category	founding characteristics
data collection	survey
data type	numeric

hierarchy	none
detailed description	The variable reflects the places of residence where the interviewed founders lived for more than two years between the age of 15 and the time of foundation. The places are listed in chronological order. The last food point is named at the end.

variable label	Country: majority of life (15th year of birth)
variable name	f37_land_1; f37_land_2; f37_land_3; f37_land_4; f37_land_5; f37_land_6; f37_land_7; f37_land_8; f37_land_9; f37_land_10
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	This variable specifies whether the places of residence specified under f37_ror_x are in Germany or abroad.

variable label	Places/Country: Duration at centre of life (15th year of birth)
variable name	f37_jahr_1; f37_jahr_2; f37_jahr_3; f37_jahr_4; f37_jahr_5; f37_jahr_6; f37_jahr_7; f37_jahr_8; f37_jahr_9; f37_jahr_10
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The variable indicates how many years the founder person lived in the places

	of residence named under f37_ror_x and f37_land_x.
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variable label	Location: centre of life immediately before the foundation
variable name	f38
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The variable indicates whether the place of residence of the founders immediately before the foundation corresponds to the latter place of residence from f37_ror_x.

6.1.13 Personality of the founder

6.1.13.1 „Big Five“ and risk appetite

variable label	Personality traits: Preference for new ideas and experiments
variable name	f39_a
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable indicates to what extent the following statement applies to the founders:</p> <p>"In my day-to-day actions, I tend to focus on new ideas and expressions rather than known procedures."</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands</p>

	for "does not apply at all", the value 7 stands for "fully applies".
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variable label	Personality traits: Communicative person
variable name	f39_b
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable indicates to what extent the following statement applies to the founders:</p> <p>"I'm someone communicative, that is, talkative."</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p>

variable label	Personality traits: job satisfaction
variable name	f39_c
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable indicates to what extent the following statement applies to the founders:</p> <p>"I'm very satisfied with my work."</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p>

variable label	Personality traits: Control conviction
variable name	f39_d
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable indicates to what extent the following statement applies to the founders:</p> <p>"How my life goes depends on myself."</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p>

variable label	Personality traits: peace of mind
variable name	f39_e
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable indicates to what extent the following statement applies to the founders:</p> <p>"I am very satisfied with my life as a whole."</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p>

variable label	Personality traits: Risk appetite
variable name	f40
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The founders were asked if they are generally willing to take risks or try to avoid them. The assessment should be made on a scale of 1 to 7. The value 1 stands for "not at all willing to take risks", the value 7 stands for "very willing to take risks".

6.1.13.2 Foundation motives

variable label	Foundation motives: Independence
variable name	F41_a
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable indicates to what extent the following statement applies to the founders:</p> <p>"I'm self-employed because I want to be independent."</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p>

variable label	Founding motives: Creating something new
variable name	f41_b
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable indicates to what extent the following statement applies to the founders:</p> <p>"I'm independent because I want to make a difference in our world, create something new."</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p>

variable label	Foundation motives: Earning money
variable name	f41_c
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable indicates to what extent the following statement applies to the founders:</p> <p>"I'm self-employed because I want to make money."</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p>

variable label	Founding motives: using the market gap
variable name	f41_d
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable indicates to what extent the following statement applies to the founders:</p> <p>"I'm self-employed because I want to take advantage of a gap in the market."</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not match at all", the value 7 stands for "fully applies".</p>

variable label	Founding motives: A way out of unemployment
variable name	f41_e
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable indicates to what extent the following statement applies to the founders:</p> <p>"I'm self-employed because independence was one of the ways out of unemployment."</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p>

variable label	Founding motives Miscellaneous: Flexibility
variable name	f41_f
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable specifies whether the person interviewed stated another reason for setting up a company, which was not specifically requested by f41_a - f41_e.</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p> <p>The other foundation motives have been categorized in the variables f41_f - f41_p. The variable f41_f refers to the motif Flexibility.</p>

variable label	Other: Risk of becoming unemployed
variable name	f41_g
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable specifies whether the interviewed founder stated another reason as motivation for setting up a business, which was not specifically queried by f41_a - f41_e.</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands</p>

	<p>for "does not apply at all", the value 7 stands for "fully applies".</p> <p>The other foundation motives have been categorized in the variables f41_f - f41_p. The variable f41_g refers to the motive "risk of becoming unemployed".</p>
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variable label	Founding motives Miscellaneous: Independence
variable name	f41_h
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable specifies whether the person interviewed stated another reason for setting up a company, which was not specifically requested by f41_a - f41_e.</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p> <p>The other foundation motives have been categorized in the variables f41_f - f41_p. The variable f41_g refers to the motive Independence.</p>

variable label	Founding motives Miscellaneous: fun and/or calling
variable name	f41_i
category	founding characteristics
data collection	survey
data type	numeric

hierarchy	none
detailed description	<p>The variable specifies whether the person interviewed stated another reason for setting up a company, which was not specifically requested by f41_a - f41_e.</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p> <p>The other foundation motives have been categorized in the variables f41_f - f41_p. The variable f41_i refers to the motif "fun and/or touch".</p>

variable label	Foundation motives Other: Family
variable name	f41_j
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable specifies whether the person interviewed stated another reason for setting up a company, which was not specifically requested by f41_a - f41_e.</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p> <p>The other foundation motives have been categorized in the variables f41_f - f41_p. The variable f41_j refers to the motif Family.</p>

variable label	Founding motives Miscellaneous: Pension security
variable name	f41_k
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable specifies whether the person interviewed stated another reason for setting up a company, which was not specifically requested by f41_a - f41_e.</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p> <p>The other foundation motives have been categorized in the variables f41_f - f41_p. The variable f41_k refers to the pension security motive.</p>

variable label	Founding motives Miscellaneous: Creativity
variable name	f41_l
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable specifies whether the person interviewed stated another reason for setting up a company, which was not specifically requested by f41_a - f41_e.</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands</p>

	<p>for "does not apply at all", the value 7 stands for "fully applies".</p> <p>The other foundation motives have been categorized in the variables f41_f - f41_p. The variable f41_l refers to the motive Creativity.</p>
--	---

variable label	Other founding motives: Role model
variable name	f41_m
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable specifies whether the person interviewed stated another reason for setting up a company, which was not specifically requested by f41_a - f41_e.</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p> <p>The other foundation motives have been categorized in the variables f41_f - f41_p. The variable f41_m refers to the motif Role model.</p>

variable label	Founding motives Miscellaneous: Situation-dependent opportunity
variable name	f41_n
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none

detailed description	<p>The variable specifies whether the person interviewed stated another reason for setting up a company, which was not specifically requested by f41_a - f41_e.</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p> <p>The other foundation motives have been categorized in the variables f41_f - f41_p. The variable f41_n refers to the motive Situational Opportunity.</p>
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variable label	Founding motives Other: Need
variable name	f41_o
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable specifies whether the interviewed founder stated another reason as motivation for setting up a business, which was not specifically queried by f41_a - f41_e.</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p> <p>The other foundation motives have been categorized in the variables f41_f - f41_p. The variable f41_o refers to the motif Not.</p>

variable label	Founding motives Other: Better remuneration
variable name	f41_p
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable specifies whether the person interviewed stated another reason for setting up a company, which was not specifically requested by f41_a - f41_e.</p> <p>The statement should be evaluated on a scale of 1 to 7. The value 1 stands for "does not apply at all", the value 7 stands for "fully applies".</p> <p>The other foundation motives have been categorized in the variables f41_f - f41_p. The variable f41_p refers to the ad spec "Better remuneration".</p>

6.1.14 Sociodemographic characteristics

6.1.14.1 Nationality

variable label	Citizenship: Germany
variable name	f42_a
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The variable indicates whether the interviewee is a German citizen or not. Note: The case of dual citizenship is possible.</p>

variable label	Citizenship: European abroad
variable name	f42_b
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The variable indicates whether the person interviewed is a citizen of another European country. Note: The case of dual citizenship is possible.

variable label	Citizenship: Outside Europe
variable name	f42_c
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The variable indicates whether the person interviewed has the citizenship of a non-European country. Note: The case of dual citizenship is possible.

6.1.14.2 Origin East/West

variable label	Location in 1989
variable name	f43
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The variable indicates whether the person interviewed lived in 1989 (before

	the fall of the Berlin Wall) in the GDR, Germany or abroad.
--	---

6.1.14.3 Family status

variable label	Family status: married
variable name	f44
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The variable indicates whether the person interviewed is married.

6.1.14.4 Year of birth

variable label	birth year
variable name	f45
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The variable indicates the year in which the surveyed founder was born.

6.1.14.5 Children

variable label	Family status: Children
variable name	f46
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none

detailed description	The variable indicates whether the founders have children.
----------------------	--

6.1.14.6 Genderht

variable label	data collection
variable name	f47
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	The variable represents the gender of the founders.

6.1.15 Final Question Lottery

variable label	Risk appetite Lottery win
variable name	f48
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	<p>The founders should put themselves in the following situation:</p> <p>Suppose you had won 100,000 euros in the lottery. The money is only available to you privately, which means, for example, that you are not allowed to invest in your own company.</p> <p>Shortly after your win you will receive an offer for the following lottery: There is a chance to double the money. However, there is also an equally high risk of losing half of the money invested.</p>

	<p>What part of the lottery prize would you use for the risky, win-win lottery?</p> <p>Your total winnings of 100,000 euros, 80,000 euros, 60,000 euros, 40,000 euros, 20,000 euros or nothing?</p> <p>The variable contains the information regarding the fictitious readiness of the interviewed founders.</p>
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6.1.16 Interview

variable label	Whereabouts of respondents
variable name	i_ort
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	This variable specifies where the respondent was at the time of the interview.

variable label	interview duration
variable name	i_dauer
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	This variable specifies the duration of the interview in minutes.

variable label	Interview Date - Day
variable name	i_datum_a
category	founding characteristics

data collection	survey
data type	numeric
hierarchy	none
detailed description	This variable specifies the day of the month on which the interview was carried out.

variable label	Interview Date - Month
variable name	i_datum_b
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	This variable specifies the month in which the interview was carried out.

variable label	Interview Date - Year
variable name	i_datum_c
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none
detailed description	This variable specifies the year in which the interview was conducted.

variable label	ID-Interviewer
variable name	interviewer
category	founding characteristics
data collection	survey
data type	numeric
hierarchy	none

detailed description	This variable assigns a unique identification number to each interviewer.
----------------------	---

6.2 Variables of the BHP

Detailed descriptions of the features of the BHP 7508 can be found in the FDZ data report by Schmucker et al. (2018) (see also https://fdz.iab.de/en/FDZ_Establishment_Data/Establishment_History_Panel.aspx).

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7 Appendix

7.1 Questionnaire¹⁵

SFB 580

Project B10 "Incorporation and labour market in East and West German growth regimes".

CATI SURVEY OF COMPANY FOUNDERS

¹⁵ On the basis of the results of the pre-test, a question on the voluntary commitment of the founders was not considered sensible for the main survey.

F O R W A R D

7.1.1.1 Akquise

launch

If possible, contact the founder!

Hello, my name is [INTERVIEWER NAME] from the University of Jena.

May I speak to the founder of your company, please? If no, could I speak to the manager, please?

When the secretary / contact person asks: What is it about?

On behalf of the research project "Start-ups and the labour market in East and West German growth regimes" we are conducting a telephone survey of company founders. The project investigates the characteristics of business start-ups and their companies in Germany. We have already sent you a cover letter for this, have you received it?

If "No" then ask whether the letter should be sent again by email (not by fax)?

If the secretary/contact person provides information indicating that the founder of the establishment does not work in the called premises (e. g. the establishment is a branch and the founder works in the head office), ask whether it is possible to talk to the manager of the establishment or to the person who is primarily responsible for the establishment.

As already mentioned in the cover letter, your data will be treated strictly confidential and evaluated exclusively in anonymous form. The interview will take about 20 minutes.

We can have the conversation right away or make an appointment.

I N T E R V I E W

7.1.1.2 Farm information

INTRO_start

Thank you very much for taking the time to complete the survey. Your participation makes a major contribution to the success of this study.

Of course, your information is subject to data protection. We guarantee you full anonymity. The results are evaluated purely statistically. At the beginning I will ask you some general questions about your company.

F. 01

Have you founded the company on your own or with other business partners?

Please always include the founder (e. g. founder + one business partner = "founded by 2 persons").

Founders are defined as those who have collaborated and co-founded.

Number of founders

F. 02

What is the legal form of the company today?

Partnership (OHG, KG, GbR, Sole proprietorship)

Corporation (AG, KGaA, GmbH)

Miscellaneous: ...

I don't know

Not specified

F. 03

How many employees subject to social security contributions were employed in their company on 31.12.2009? (also trainees)

don't know =8888

None =9999

quantity

In the following, we would like to ask you a few questions about our business development and the current situation.

F. 04

How do you assess the earnings situation of your company in the current fiscal year (2010) compared to the industry average?

Sector refers to the totality of competitors deemed relevant for the founder.

Read aloud:

better

Equal

Worse

I don't know

Not specified

F. 05

What percentage of your turnover in 2009 was attributable to the following four regions? Distribute your turnover to Germany, the European Union and the rest of the world. Let's start with....

Indicate that these are estimates.

If there are no regions, please enter "0".

Total amount must be 100% equal to

- Old Federal States (without Berlin)
- New federal states (including Berlin)
- European Union (excluding Germany)
- Other foreign countries

F. 06

How would you describe your competitors in the market at the time of foundation?
Was your competition compared to you back then....

Competition refers to the totality of the competitions deemed relevant for the founder.

- Rather weak
- Comparable
- Rather strong
- There was no competition.
- I don't know
- Not specified

Innovations play a role in many companies. That is why we would like to hear your assessment.

F. 07

Does R&D play a role in your company?

yes

nay

→ please continue with question F
12

F. 08

How many employees in your company work exclusively (100%), predominantly (more than 50%) or sometimes (less than 50%) in research and development of products or production processes?

R&D only

Mainly R&D

Sometimes R&D

I don't know

Not specified

F. 09

But is it perhaps the case that you commission research and development?

It is about outsourcing, for example.

yes

Nay

I don't know

Not specified

F. 10

Research and development is often carried out in cooperation with partners. What's your situation?

reading

We cooperate with external consultants (e. g. management consultants, engineering offices)

We cooperate with universities and/or external institutes (e. g. Fraunhofer Institute)

We cooperate with other companies

No R&D cooperations

I don't know

Not specified

F. 11

By and large, how do you rate the technical state of the art of your company in comparison to other companies in the industry?

Please select a number from 1 = long obsolete to 5 = latest version.

Sector refers to the totality of competitors considered relevant for the founder.

1

2

3

4

5

Technical equipment plays no role during operation.

I don't know

Not specified

F. 12

Have you introduced a fundamentally new product to the market since your foundation?

This also applies if the foundation was accompanied by the introduction of a fundamentally new product. A fundamentally new product means that it does not yet exist on the market.

yes

Nay

I don't know

Not specified

7.1.1.3 Founder-specific information

Let's go back to your biography. We would like to know a little more about your training and professional experience before starting your business.

Therefore, please provide all the following information for the time of the foundation and do not refer to what you may have learned since then.

F. 13

What is your highest general school leaving certificate?

Please assign foreign qualifications to the equivalent German qualification. Please do not read the answer categories.

Graduation after a maximum of 7 years of schooling

High school/primary school diploma

Graduation from the polytechnic secondary school of the former GDR

Secondary school diploma (intermediate school leaving certificate) or equivalent qualification

General or subject-specific higher education entrance qualification (Abitur)

school leaving without graduation

I don't know

Not specified

F. 14

What was your highest vocational training or university degree at the time of your foundation?

Only the highest degree is noted. Please do not read the answer categories.

Apprenticeship/professional internship/preparation year
completion of apprenticeship training

Vocational qualification at a vocational college/college school

Master craftsman/technician training or equivalent technical college degree
technical college degree

Graduation from an art college/university

doctorate

No degree

I don't know

Not specified

F. 15

How many different professional roles did you work in before founding the company?

We are not interested in the number of jobs, but rather the number of professional fields of activity such as accounting, home economics and/or production.

does not know =97, no specification =99

quantity

F. 16

How many years had you been working in the sector where your company operates at the time of its foundation?

If you are not already employed in the industry, please enter "0".

don't know =97

None =99

years

For 0 years → please continue with F 18

F 17

How up to date was this industry experience at the time of foundation?

Immediately means that there is only the time between the foundation and the last experience in the branch (should be less than 1 year).

Collected immediately before

Collected several years ago

I don't know

Not specified

F 18

How many years have you worked as an employee in one or more companies before starting your own business?

If you are not employed as an employee, please enter "0" in the field below

don't know =97

None =99

Number of years

For 0 years → please continue with F 21

F. 19

How many employees were employed by the company in which you last worked as an employee, i. e. before you started your own company?

Please pay attention to accuracy (e. g. in the case of 20 employees) for information that leads to a change of the response category.

Up to and including 19 employees

20-49 employees

50-199 employees

200 employees and more

I don't know

Not specified

F. 20

Before founding your company, were you a senior executive in another company (e. g. manager, managing director)?

yes

Nay

I don't know

Not specified

F. 21

Has your net income, which you earned before the time of foundation, increased in comparison to today...

Read aloud.

Decreased

Not materially changed

Improved

I don't know

Not specified

The following two blocks of questions deal with the circumstances that led to the foundation. Therefore, please recall the situation at that time.

F. 22 / (V03_2)

They said at the appointment that they started their business activities in the year[ANSWER TO Q. 43]. Now we would be interested...

In which year did you first employ employees subject to social security contributions?

year

At 0 → please continue with F 24

F. 23a_1 / (V10a_1)

Were there any major legal and organisational changes between 2002 and 2008 (e. g. change of name, change of legal form, etc.)?

Yes → please continue with F
23b

No → please continue with
F 24

Don't know? → please continue with
F 24

Not specified.... → please continue with
F 24

F. 23a_2/ (V10_a2)

Were there any significant legal and organisational changes between the years[ANSWER TO Q. 85] and 2008 (e. g. change of name, change of legal form, etc.)?

yes

nay

I don't know

Not specified

F. 23b (NOT IN THE DATA)

What was the change?

F. 23c/ /(V10_b)

In which year did this change take place?

year

F. 24

How many companies did you found before founding this company to which the survey relates (not including freelance work)?

If no company was founded please enter "0".

don't know =97

None =99

at 0 → please continue with F 26c

F. 25

Were you freelance before founding the company to which the survey relates?

Yes? Please continue with F 26b

No? please continue with F 27_1

Don't know → please continue with F 27_1

Not specified... → please continue with F
27_1

F. 26a

How many years were you then independent before founding your current company?

years

F. 26b

How many years were you then independent (freelance work not included) before you founded your current company?

don't know =97

None =99

years

At 0 → please continue with F 27

F. 26c

How many years were you self-employed before founding your current company?

years

F. 27_1

What was your position in the profession immediately before the foundation?

Read aloud (only examples from response categories)

Employee/official/employee/home worker

→ please continue with F 28

self-employed person

→ please continue with F 30

assisting family member	→ please continue with F 30
Unemployed registered	→ please continue with F 29
Apprentice	→ please continue with F 30
Student	→ please continue with F 30
Military / civil servant	→ please continue with F 30
Legal clerkship	→ please continue with F 30
Freelancer	→ please continue with F 30
Non-employed for other reasons (pupils, pensioners, no wish after gainful employment)	→ please continue with F 30
Don't know	→ please continue with F 30
No information	→ please continue with F 30

F. 28

Were there any inconsistencies with your former employer that led to the foundation?

Yes	→ please continue with F 30
No	→ please continue with F 30
<i>Don't know</i>	→ please continue with F 30
<i>No information</i>	→ please continue with F 30

F. 29

How long were you unemployed just before the foundation?

Up to and including 3 months

3-6 months

7-12 months

More than one year

I don't know

Not specified

F. 30

To what extent were you inspired to become self-employed by your last profession?

Please estimate this using the following scale: 1 stands for "not at all", 2 for "rather not", 3 for "draw", 4 for "strong", 5 for "very strong".

By this we mean whether the business idea was partly taken over by your previous profession.

Not at all

More likely not

tie

Strong

Very strong

I don't know

Not specified

Next, we would like to know whether your environment has been entrepreneurially active.

F. 31

When you were about 15 years old, was one parent entrepreneurially independent at the time?

yes

Nay

I don't know

Not specified

F. 32

Now we're referring to the time span until they started. Were there founders in your immediate family or close circle of friends? Please count your parents as such if you founded after the age of 15.

The question relates to the period between the age of 15 and the date of birth.

yes

Nay

I don't know

Not specified

F. 33a

Were you a member of an organization or association one year before the foundation of your (first) company?

These include, for example, sports clubs, religious associations, local and civic associations, or a political party. In the latter case, however, you are not interested in which party you belonged to.

	yes	nay	a.b.	a.b.b./ n. a.
choral society				
sports club				
Other Hobby Association				
Home and Citizens' Association (association of marksmen)				
Displaced persons or refugees association				
Welfare or war victims' associations				
Church/religious association/association *RELIGION*	<i>If yes → please continue with F 34</i>			
Youth Organization/ Student Union				
Political Party				
citizens' initiative				
Professional associations				

F. 33b

And how many hours per week did you spend at that time?

Scale: 0-2 hours per week, 3-4 hours, 5-6 hours, 7-8 hours or 9 and more hours.

	0-2h	3-4h	5-6h	7-8h	9 and more hours	a.b.	n.a.
choral society							
sports club							

Other Hobby Association							
Home and Citizens' Association (association of marksmen)							
Displaced persons or refugees association							
Welfare or war victims' associations							
Church/religious association/association *RELIGION*							
Youth Organization/ Student Union							
Political Party							
citizens' initiative							
Professional associations							

F. 34

Which religion do you belong to?

Protestant denomination

Catholic denomination

Islam

Buddhism

other

None

Not specified

F. 34s (NOT IN THE DATA)

Mention Miscellaneous

F. 35 (NOT IN THE DATA)

One year before the foundation date, were you involved in any other form of voluntary work?

yes

Nay

I don't know

Not specified

F. 36 (Indication of the regional planning region in the data)

At which place (city or village) did you live for the majority of your life up to the 15th year of life?

PLACE

F. 37 (Specify the regional planning region in the data)

In which places did you live between the age of 15 and the time of the plantation? Please name only places where you lived for more than 2 years. Please name the places in chronological order and how long you lived there.

In case of corrections, change the chronological order so that the last point of life until the foundation is at the end.

PLEASE NOTE: Location; number of years

z. B. Jena; 2; Berlin; 5;

Additional instruction: In case of obviously ambiguous names (e. g. Neustadt) please let name a regional suffix and write it in brackets.

Never use Ctrl + Enter for formatting!

F. 40

Are you generally a risk-taking person or do you try to avoid risks?

Please assess yourself personally on a scale of 1-7, where the value 1 means "not at all willing to take risks" and the value 7 means "very willing to take risks".

1	2	3	4	5	6	7	a.b.	n.a.

F. 41_1

There are various reasons for being independent. I will now read you some of them and ask you to rate them on a scale of 1 to 7 how important the reason is to you.

The value 1 stands for "does not apply at all", the value 7 stands for "fully applies". With the values in between you can graduate.

I am self-employed because....

Use others only if additional reason is given

	1	2	3	4	5	6	7	a.b.	k.A.	
I want to be independent										for 1, w. n. or n. a. → please continue with F 42
I want to make a difference in our world, create something new										for 1, w. n. or n. a. → please continue with F 42
I want to make money										for 1, w. n. or n. a. → please continue with F 42
I want to perceive a gap in the market or exploit the market situation										for 1, w. n. or n. a. → please continue with F 42
Independence for me was one of the ways out of unemployment										for 1, w. n. or n. a. → please continue with F 42
Other										for 1, w. n. or n. a. → please continue with F 42

F. 41s (NOT IN THE DATA)

Mention other

I would now like to ask you for some general demographic information about yourself.

F. 42

What is your nationality?

Double citizenship is possible!

	yes	no	n.a.
Germany			
European Foreign/European Union			
oddment			

F. 43

Where did you live in 1989?

Read aloud.

East (-Germany, GDR -)

West (- Germany) (including West Berlin)

Abroad

Not specified

F. 44

Are you married?

yes

Nay

Not specified

F. 45

What year were you born?

None =9999

year

F. 46

Do you have children?

yes

Nay

Not specified

F. 47

data collection

Male

Female

F I N A L

7.1.1.4 Adoption/Final question

Finally, I have a special question for which I need all your attention 😊.

F. 48

Suppose you had won 100,000 euros in the lottery. The money is only available to you privately, which means, for example, that you are not allowed to invest in your own company.

Shortly after your win you will receive an offer for the following lottery: There is a chance to double the money. But there is also an equally high risk of losing half the money invested. What part of the lottery prize would you use for the risky, yet promising lottery?

Your total winnings of 100,000 euros, 80,000 euros, 60,000 euros, 40,000 euros, 20,000 euros or nothing?

100.000 €

80.000 €

60.000 €

40.000 €

20.000 €

Nothing. I wouldn't accept the offer.

I don't know

Not specified

F. 49 (NOT IN THE DATA)

Before we end the conversation, we would like to give you some information about further data processing.

Within the framework of statutory reporting obligations, data on operating characteristics are collected for every plant in Germany. This data is stored anonymously at the IAB.

The aim of this study is, among other things, to merge the data collected in the survey with the IAB data.

The Federal Ministry of Labour and Social Affairs has approved such a merger. The Ministry considers that there is a significant public interest in such a data set. However, we also need your consent for the data collection. Your data will of course be collected and analyzed under strictest secrecy. We would be very grateful if you would give us your agreement on this.

yes

no

I don't know

Not specified