

European Data Watch

This section offers descriptions as well as discussions of data sources that are of interest to social scientists engaged in empirical research or teaching courses that include empirical investigations performed by students. The purpose is to describe the information in the data source, to give examples of questions tackled with the data and to tell how to access the data for research and teaching. We focus on data from German speaking countries that allow international comparative research. While most of the data are at the micro level (individuals, households, or firms), more aggregate data and meta data (for regions, industries, or nations) are included as well. Suggestions for data sources to be described in future columns (or comments on past columns) should be sent to: Joachim Wagner, Leuphana University of Lüneburg, Institute of Economics, Campus 4.210, 21332 Lüneburg, Germany, or e-mailed to wagner@leuphana.de. Past “European Data Watch” articles can be downloaded free of charge from the homepage of the German Council for Social and Economic Data (RatSWD) at: <http://www.ratswd.de>.

The KfW / ZEW Start-up Panel: Design and Research Potential

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1. Introduction

So far, there has been no data set which observes firm formations in Germany not only on a cross-sectional basis using one-time surveys, but continuously over a number of years. A couple of related data sets are targeted on examining entrepreneurship activities in Germany, but all hitherto existing data sets suffer from various shortcomings that prohibit sound analyses of new firms' development over time.

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Data from existing population surveys like the Global Entrepreneurship Monitor (GEM, Sternberg et al., 2007) or the KfW Start-up Monitor (*KfW-Gründungsmonitor*; Kohn/Spengler, 2009; Tchouvakhina/Hofmann 2003/04), which are prominent in the field of entrepreneurship research, do not follow a panel design in the narrow sense – that is, they do not track the same individuals over time but rather draw new random samples for each survey wave. Moreover, population surveys are designed to give a representative picture of start-up activities in the population. Therefore, the statistical units of these surveys are individual persons and not firms.

Existing firm-level panel data sets for Germany like the Mannheim Innovation Panel (*Mannheimer Innovationspanel*, Janz et al., 2001) of the Centre for European Economic Research (ZEW) or the KfW SME Panel (*KfW-Mittelstandspanel*, Lo/Reize, 2008) do not sufficiently cover start-ups since they focus on the stock of firms. The establishment panel of the German Federal Employment Agency (*IAB Betriebspanel*, Bellmann et al., 1991) is not optimal, since it does not observe firms before they employ their first employee who is subject to social insurance contributions. As most new firms do not have any employees subject to social insurance contributions during their start-up period, the large segment of very small firms is excluded from this data set. The Mannheim Enterprise Panel (*Mannheimer Unternehmenspanel*, Almus et al., 2000) built up by the ZEW is based on the database of Creditreform, Germany's largest credit rating agency. This process-generated data set comprises regularly updated information on start-ups located in Germany. However, the data neither include detailed information on the firms' founders nor on innovation activities or the firms' financial structure. Since the latter variables are regarded as decisive for the performance of young firms, the Mannheim Enterprise Panel can only give limited insight into the factors influencing firm growth and survival.

In order to close the aforementioned gaps in the availability of data on newly founded firms, the Centre for European Economic Research (ZEW), KfW Bankengruppe (KfW) and Creditreform are cooperating to form the KfW/ZEW Start-up Panel (*KfW/ZEW-Gründungspanel*) for Germany. Each of the yearly panel waves contains data on about 6,000 newly founded firms from almost all industries. The first panel wave was conducted in spring 2008. This paper describes the design and the research potential of the KfW/ZEW Start-up Panel.¹

¹ For an extended version of this paper see the working paper version (Fryges et al., 2009). Major results of the first survey wave are published in the 2008 start-up panel report (Gottschalk et al., 2008).

2. Survey Design

2.1 Creditreform Data as Population

The sample of the KfW / ZEW Start-up Panel is drawn from the database of Creditreform. Creditreform collects data in a decentralised way, currently by 130 offices from all over Germany but in accordance with a standard data collection procedure. The statistical units of the Creditreform database are the legally independent firms. The database includes, inter alia, the name and the address of the firm, legal form, industry classification, foundation date and information regarding insolvency procedures. The database is provided to the ZEW for research purposes (see Almus et al., 2000 for a detailed description of the Creditreform database).

In the literature on entrepreneurship research there are different concepts of what is regarded as a firm formation. The KfW / ZEW Start-up Panel follows a narrow definition. A firm is filed in the Creditreform database only if it actively participates in business life, e.g., by taking out a loan, employing workers or renting business rooms. Accordingly, the year of firm formation is defined as the year in which a firm starts its regular business activities. In other words, the KfW / ZEW Start-up Panel applies an economic definition of firm foundation, whereas official statistics based on business registrations (*Gewerbeanzeigenstatistik*) do not necessarily require any business activities of registered firms. Furthermore, the use of the Creditreform database as the parent population of the KfW / ZEW Start-up Panel implies that firms in the sample are run by at least one full-time entrepreneur.²

2.2 Stratification

Three stratification criteria are applied in order to construct the random sample of the KfW / ZEW Start-up Panel: year of firm formation, sector, and whether or not the firm has been promoted by KfW Bankengruppe, Germany's largest state-owned promotional bank. Each year, a random sample of firms is drawn which have been founded during the three years prior to the year of the survey. The choice of the three-year period is motivated by our aim to guarantee a sufficiently high number of start-ups from high-technology (manufacturing) industries in each cross-sectional wave of the panel. Since the annual number of high-tech manufacturing start-ups in Germany is rather small (cf. Metzger et al., 2008), we decided to include three foundation cohorts into the parent population of each year's random sample. On the other hand, older firms are excluded because we want to identify firm-specific characteristics at

² In fact, there are a high number of entrepreneurs in Germany who start a business as a sideline activity in addition to a job in dependent employment. Cf. Kohn / Spengler (2009) for distinctions between part-time and full-time entrepreneurs.

the time of firm formation. The larger the time lag between the year of firm formation and the first survey interview, the less precise is the information about the crucial start-up period.

The second stratification criterion is the industry sector the firm is operating in. The start-up panel covers almost all industry sectors.³ The sample is stratified by ten industrial sectors. Table 1 shows the industry composition using NACE (revision 1) code. Four out of ten sectors encompass high-technology industries whereas non-technical industries are assigned to the remaining six sectors. Start-ups from high-technology industries are expected to play a particularly important role with respect to innovation, structural change and job creation (see, e.g., Birch, 1989; Audretsch/Fritsch, 2003). Therefore, one half of the firms included in both the gross sample and the net sample operate in a high-technology industry.

The third stratification criterion of the start-up panel is the dummy variable whether or not a firm has been promoted by KfW Bankengruppe. Names and addresses of firms supported by KfW are matched with the Creditreform database applying a self-developed heuristic search engine. In this way, firms that have received financial support from KfW are identified in the Creditreform database. Firms with financial support from KfW are also overrepresented in the start-up panel's sample. In each stratification cell defined by the year of firm formation and the industrial sector a maximum of 50% of the firms in both the gross and the net sample have been financially supported by KfW. The large number of financially supported firms in the sample of the start-up panel enables researchers from KfW to suggest on how to improve the bank's support programmes and to better adapt them to the needs of young firms.

2.3 Gross and Net Sample

The target size of each year's net sample, i.e., the number of realised full interviews, totals to an average of 6,000 firms. During the initial years of the start-up panel we plan to realise a slightly smaller number of interviews. For instance, 5,500 firms were interviewed in the year 2008. The target size of the net sample will gradually increase over time because firms which have been interviewed in previous years remain in the gross sample. This means that older firms are added to the random sample of start-ups from the three foundation cohorts prior to the year of the survey, leading to an increase in the number of interviews over the next six years. From 2014 onwards, there will be no further increase in the sample size because the first foundation cohort, i.e., firms founded in 2005, will drop out of the sample.

³ The only sectors excluded are agriculture, mining and quarrying, electricity, gas and water supply, health care, and the public sector.

Table 1

Composition of Industry Sectors Covered by the KfW / ZEW Start-up Panel

	Sector	NACE Rev. 1
high technology industries		
1	cutting-edge technology manufacturing	23.30, 24.20, 24.41, 24.61, 29.11, 29.60, 30.02, 31.62, 32.10, 32.20, 33.20, 33.30, 35.30
2	high-technology manufacturing	22.33, 24.11, 24.12 – 4, 24.17, 24.30, 24.42, 24.62 – 4, 24.66, 29.12 – 4, 29.31 – 2, 29.40, 29.52 – 6, 30.01, 31.10, 31.40, 31.50, 32.30, 33.10, 33.40, 34.10, 34.30, 35.20
3	technology-intensive services	64.2, 72 (without 72.2), 73.1, 74.2, 74.3
4	software supply and consultancy	72.2
non-high-tech industries		
5	non-high-tech manufacturing	15 – 37 (without those selected for sectors 1 + 2)
6	skill-intensive services (non-technical consulting services)	73.2, 74.11 – 4, 74.4
7	other business-oriented services	71.1, 71.2, 71.3, 74.5 – 74.8 (without 74.84.7), 90, 64.1, 61, 62, 60.3, 63.1, 63.2, 63.4
8	consumer-oriented services	55, 70, 71.4, 92, 93, 80.4, 65 – 67, 60.1, 60.2, 63.3
9	construction	45
10	wholesale and retail trade (without trade agents)	50 – 52 (without 51.1)

Cutting-edge manufacturing technology: manufacturing industries with average R&D expenditure > 8.5% of total sales. High-technology manufacturing: manufacturing industries with average R&D expenditure 3.5 – 8.5% of total sales.

Source: Grupp / Legler (2000), own classification.

The gross sample (i.e., the number of firms drawn from the Creditreform database) of the start-up panel's first wave was about five times as high as the planned sample size of the net sample. Table 2 shows the composition of the gross sample drawn for the survey conducted in 2008, differentiated by the stratification criteria industrial sector and year of firm formation. 25,551 firms were drawn from the Creditreform database, 21,587 of which were eventually contacted. As mentioned above, the number of firms from high-technology manufacturing industries is relatively small in the Creditreform database. This mirrors the fact that there are only a small number of newly-founded technology-based manufacturing firms in Germany. Therefore, we decided to include all of these firms that have been recorded by Creditreform in the start-up panel's gross sample. Coverage rates in the other sectors are necessarily smaller. Nevertheless, we collect data on a considerable number of start-ups in these sectors.

2.4 Interviews and Questionnaires

The interviews of the start-up panel are currently conducted by the Zentrum für Evaluation und Methoden (ZEM) of the University of Bonn. Each interview is introduced by a screening procedure in order to determine whether or not the contacted firm is eligible for inclusion in the start-up panel. Firms that are contacted for the first time are excluded from the survey if the interviewee indicates that her firm was not founded in the three-year period prior to the year of the survey or if the firm was founded as a de-merger or a subsidiary of another firm. The latter criterion is applied because we are only interested in the development of economically independent firms. The interview is also abandoned if it is impossible to talk to an interviewee who is engaged in the management of the contacted firm. Firms that participated in at least one survey in the past will no longer be interviewed if the firm has been taken over by another company and thus the firm no longer being economically independent. The surveys of the start-up panel are carried out using computer-aided telephone interviews (CATI). The average length of an interview amounts to 25 minutes.

In the course of the 2008 survey, 5,508 full interviews were realised, which corresponds to a response rate – the share of interviewed firms in all contacted firms – of just below 26%. The composition of the net sample, differentiated by industry sector and year of firm formation, is also depicted in Table 2.⁴

The KfW / ZEW Start-up Panel intends to track the development of newly founded firms over the first eight years after firm formation. Firms that have already participated in the survey will be contacted in subsequent years as long as they are eight years of age or younger. Older firms will no longer be contacted. The eight-year horizon comprehensively covers the crucial first years of a firm's life cycle (cf. van Praag, 2003; Brüderl et al., 2007; Agarwal / Audretsch, 2001; Prantl, 2001).

In order to fully exploit the potential of the longitudinal nature of the KfW / ZEW Start-up Panel, two different questionnaires are applied in each year's survey. One questionnaire is addressed to firms which participate in the survey for the first time. It collects detailed information on structural characteristics of firms at the time of their start-up. The second questionnaire is targeted to firms which have already participated in previous waves. This follow-up questionnaire has a particular focus on changes within the participating firms over time. There is a significant overlap of the two questionnaires, guaranteeing that we can compare the characteristics of new participants and those firms that have already participated in at least one survey wave in the past. Basic aspects such as sales and employment numbers, and investment and financing behaviour are collected in each year's questionnaires. Along with these stan-

⁴ The discussion paper version of this paper additionally reports detailed response codes for all firms contacted in 2008 (Fryges et al., 2009).

dard questions that remain the same every year, additional main focus themes are included each year into the questionnaires. The 2008 survey, for instance, had a main focus on firms' strategies for market entry.

Table 2
Composition of Gross and Net Sample 2008

Year of Start-up	2005		2006		2007		total	
Sector	Gross	Net	Gross	Net	Gross	Net	Gross	Net
cutting-edge technology manufacturing	370	71	346	77	202	55	918	203
high-technology manufacturing	707	138	780	177	541	120	2,028	435
technology-intensive services	2,134	398	2,102	438	2,045	472	6,281	1,308
software	1,549	283	1,265	303	696	221	3,510	807
non-high-tech manufacturing	900	170	787	177	496	155	2,183	502
skill-intensive services	421	86	375	99	297	87	1,093	272
other business-oriented services	460	93	427	96	304	92	1,191	281
consumer-oriented services	1,100	173	1,100	187	764	176	2,964	536
construction	900	184	864	188	619	168	2,383	540
wholesale and retail trade	1,100	202	1,100	225	800	197	3,000	624
total	9,641	1,798	9,146	1,967	6,764	1,743	25,551	5,508

Number of firms in sector-by-year cells.

Source: KfW / ZEW Start-up Panel, first wave 2008 (Gottschalk et al., 2008).

2.5 Non-Response and Panel Attrition

The construction of a panel data set like the KfW / ZEW Start-up Panel requires that firms repeatedly participate in the annual surveys. However, some firms who have participated in former waves will refuse to attend future waves (non-response). If a firm denies an interview in two subsequent years, it will be excluded from the start-up panel's gross sample and will not be contacted again.

In addition to simple non-response, participants of former surveys sometimes cannot be contacted in the course of a future survey. It is a common problem of all firm surveys that very little is known about the fortune of firms that drop out from the survey (panel attrition). Some of these firms might have exited from the market. However, firms might also have changed their name,

their legal form or their telephone number, they might have been taken over by another firm or they might have moved to another location. Therefore, if a firm cannot be contacted it will be generally difficult to distinguish firm death and other events that prevent repeated contact.

In some cases, non-surviving firms can be detected by an identifier in the underlying Creditreform database. Yet this measure may be available with a large time lag only. In some other cases, information on liquidated firms may be obtained from participating entrepreneurs if the telephone number is still in order after firm closure. Regarding the majority of opaque non-survivors, though, Creditreform will directly investigate all firms which no longer respond to the telephone survey and for which there is no indication of closure in the Creditreform database. Due to the decentralised organisational structure of Creditreform, staff members in each of the 130 offices have a profound knowledge of their local market, which facilitates the determination of the actual survival status of the firms in question.

3. Research Potential

The sampling strategy and the survey design of the KfW / ZEW Start-up Panel offer three unique assets for research. First, the large cross-sectional dimension opens up the possibility of sound investigations of the characteristics of start-ups at an early stage. What is more, the oversampling of start-ups in high-tech sectors of the economy allows for detailed analyses of these firms and comparisons of start-ups from different sectors. Second, the longitudinal dimension of the panel enables researchers to analyse start-up success in the crucial first years of firms' existence. Start-up success comprises firm survival as well as, e.g., sales and employment growth. As a third asset, the extensive questionnaire combines information on the firms and personal information about the founders themselves (resp., the team of founders). The set-up thus takes account of the particular importance of the entrepreneur in start-ups and young firms (Kohn / Spengler, 2008b). The following paragraphs illustrate the cross-sectional potential and long-run prospects of the KfW / ZEW Start-up Panel, drawing on the questionnaire and exemplary results from the first panel wave on innovation, investment and financing behaviour of new firms (Gottschalk et al., 2008).

3.1 Innovation, Research and Development in Young Firms

Innovative start-ups are often considered most beneficial to the process of creative destruction and thus to the dynamics of economic development. However, little is known as to the nature of innovations in start-up firms. On the one hand, all start-ups meet the conventional minimum requirement of innovativeness – all processes and products of a newly founded firm are, by defi-

nitition, new to the firm. On the other hand, only a minority of entrepreneurial projects are innovative in a narrower sense (Kohn / Spengler, 2009). Following the recommendations of the Oslo manual (OECD, 2005), participants in the KfW / ZEW Start-up Panel were asked whether they introduced products which were new to the world market, new in Germany, or new in the region the start-up is located in.

Column (1) of Table 3 shows that on average one out of five start-ups (18%) introduced products new to the market at all. Only a small share of 3% introduced world novelties. Yet there is a considerable heterogeneity across sectors: Start-ups in cutting-edge technology and high-technology manufacturing but also firms from the software industry are disproportionately innovative. Innovativeness is intrinsically linked to research and development (R&D). As can be inferred from column (2) of Table 3, firms from high-tech industries carry out R&D activities more often, and more often in a continuous way.

Table 3

Products new to the Market and Research and Development Activities, by Industry

	(1) Introduction of products new to the market				(2) Own research and development activities		
	world market	Ger- many	region	no	conti- nuous	occa- sional	no
cutting-edge technology manufacturing	16	12	3	69	33	17	50
high-technology manufacturing	11	13	8	68	23	19	58
technology-intensive services	6	10	7	77	16	15	69
software	9	12	7	72	30	16	54
non-high-tech manufacturing	6	8	10	76	13	15	72
skill-intensive services	2	12	10	76	16	9	75
other business-oriented services	4	6	12	78	6	10	84
consumer-oriented services	0	5	10	85	10	8	82
construction	1	2	5	92	2	5	93
wholesale and retail trade	5	5	8	82	7	7	86
total	3	6	9	82	9	9	82

Shares in percent of start-ups.

Source: KfW / ZEW Start-up Panel, first wave 2008 (Gottschalk et al., 2008).

The descriptive picture calls for a sophisticated analysis of the impact of R&D on young firms' innovativeness. How about possible endogeneity of R&D? And how about the role of product versus process innovations? Ultimately, one should study the impact of innovativeness on start-up success.

3.2 Investment and Financing Strategies

Start-up firms invest into machinery, real estate, inventory, etc. In addition, they have to cover operating costs such as rent and leasing rates or labour costs. In order to comprehend the involved financing decisions, the questionnaire follows a nested approach (see also Kohn/Spengler, 2008a). At a first stage, it discriminates the use of financial means and tangible assets such as an owner's car or an own computer. 95% of all start-ups in the KfW/ZEW Start-up Panel finance investments during their first year, and 56% additionally use tangible assets (Gottschalk et al., 2008).⁵

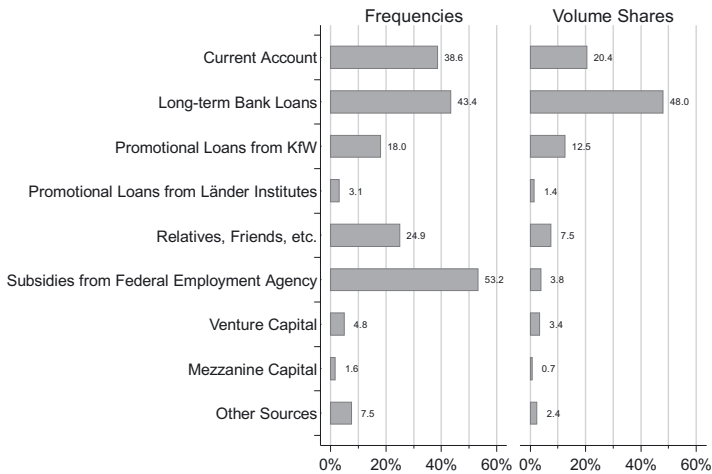
At a second stage, three types of financial resources are distinguished: revenue generated from sales, founders' own means (such as personal savings used for firm start-up), and capital from external third-party providers. 68% of all firms founded in the year 2007 generated already sales revenue within the same calendar year. 62% of all start-ups stood to the benefit from founders' own resources and only about one third (35%) of all start-ups relied on external providers.

At the third stage, the questionnaire differentiates sources of external financing (Figure 1). Bank loans – current account facilities as well as more long-term-oriented loans – and subsidies from the Federal Employment Agency are used most often. However, the latter are relatively small and only make up for a small volume share (about 4% of the total volume of external financing). Traditional bank loans account for the lion's share of external financing (volume share of 48% in total).

The detailed questions on start-up financing in combination with the broad set of firm specifics – such as sales and profits generated in each year after firm foundation – render the KfW/ZEW Start-up Panel a promising tool for addressing a number of prevailing research questions. For instance, what are the determinants of financing strategies? Do start-ups follow a pecking order regarding their financing behaviour (Myers/Majluf, 1984)? And in turn, what is the impact of financing strategies on the development of firms? The sam-

⁵ Note that these numbers – and the entire financing behaviour of the more substantial start-up firms covered by the KfW/ZEW Start-up Panel – differ from the more small-scaled financing behaviour of business starters covered by the population-representative KfW Start-up Monitor. In the latter case, for example, only two thirds (62%) of all starters in the year 2007 used financial means for their start-up project, while another quarter relied on existing tangible assets only (Kohn/Spengler, 2008b).

pling strategy of the KfW / ZEW Start-up Panel allows scrutinising different financial conditions in different industries.



Left column: use of different financing sources during start-up year (shares in percent of start-ups, multiple answers); frequencies conditional on the use of external financing. Right column: volume shares in percent of external financing. Start-ups in 2007.

Source: KfW / ZEW Start-up Panel, first wave 2008 (Gottschalk et al., 2008).

Figure 1: Frequencies and Volume Shares of External Financing Sources

3.3 Survival of Young Firms

A very important research topic that has been examined only insufficiently in the existing literature is the analysis of start-up survival, which is often considered a minimum criterion of start-up success (Brüderl et al., 1992, 2007).⁶ The survival status of firms in the KfW / ZEW Start-up Panel which do no longer respond to the telephone survey will be investigated by members of Creditreform as explained in section 2.5 above. On the one hand, this provision will allow us to tell apart simple non-response by existing firms and firm mortality. On the other hand, forced liquidations (bankruptcies), voluntary liquidations and take-overs by other companies will be distinguished among abandoned firms.

This additional asset of the KfW / ZEW Start-up Panel will enable researchers, first, to take account of a survival bias when carrying out econometric analyses with data of existing firms. Second, it will be possible to track firms

⁶ See van Praag (2003) for a detailed overview of historical lines of argument and recent empirical findings on firm survival.

in the years before market exit and to identify determinants of firm mortality by means of survival analysis. Competing risk models can be reasonably employed in order to scrutinise the different types of start-up mortality.

4. Provision of Data

4.1 Data Protection

Particular attention is given to data protection issues in order to fulfil statutory requirements and to ensure data quality. Confidentiality of revealed individual information is an essential prerequisite for firms to repeatedly take part in the survey, and prevents high numbers of unit and item non-response or inexact answers. The ZEW, which is responsible for the realisation of the questionnaire, and ZEM – the institute carrying out the telephone interviews – solely know the addresses of the firms and names of the interviewed persons. The name and the contact information of an interviewee are registered only if the person explicitly agrees to this. Contact data are only used for re-establishing contact in the following panel waves and for delivering reports with research results stemming from the survey. The two remaining co-operation partners, KfW and Creditreform, receive the survey data from the ZEW without firms' names and addresses and without names and email addresses of the contact persons. This means, the survey data are formally anonymised.

The utilisation of all firm records is restricted to scientific purposes and is only allowed to those employees of KfW, Creditreform and ZEW who are involved in associated research projects of the KfW/ZEW Start-up Panel. Neither Creditreform nor KfW nor ZEW are allowed to publish any individual data. Firm characteristics are published only in aggregated form, ensuring that firms cannot be re-identified by a third party.

The rules of data protection also guarantee that Creditreform will not match the survey data with their own business or process data, as this would presume a re-identification of firms and imply a non-scientific exploitation of the data. Employees of Creditreform will not use the survey data for credit ratings of the participating firms. KfW will not use the survey data for credit negotiations. That is, data protection is fulfilled also within the cooperating institutes. Scientific and data protection standards are in all probability complied.

4.2 Data Access

Creditreform, KfW and ZEW utilise the survey data for own research projects, partly in co-operation with each other. These research projects cover basic scientific analyses as well as commercial studies ordered by third parties (government departments, EU institutions, private enterprises etc.). In addi-

tion, the data of the KfW / ZEW Start-up Panel will be made available for interested researchers outside the co-operating institutes. Scientific-use-files of the yearly surveyed cross-sections of the KfW / ZEW Start-up Panel will be provided to external scientists. These data will be allowed to be used for non-commercial basic research only. Teaching purposes will also be excluded. Individual information about the founders of the firms will not be part of the scientific-use-files. Researchers will have to apply for external use of the scientific-use-files and all project partners (KfW, Creditreform and ZEW) will have to approve it. A contract specifying the intended research project and involved researchers will be signed in each case.

Separate scientific-use-files will be generated for each cross-section of the survey with a delay of three years, respectively. The time lag between realisation of the survey and dissemination to external scientists is another attribute to data protection. The re-identification risk decreases when only former information about firms is available for external users. Since the KfW / ZEW Start-up Panel covers very young firms – in contrast to, e.g., the older firms covered by the Mannheim Innovation Panel – some alterations of known anonymisation measures will be necessary for this project. Developing appropriate methods for mastering this challenge will be the subject of next years' investigations.

5. Conclusion

Since the year 2008, the Centre for European Economic Research (ZEW), KfW Bankengruppe (KfW) and Creditreform are cooperating to set up the KfW / ZEW Start-up Panel, a unique panel data set of newly founded firms in Germany. The panel builds on yearly telephone interviews with approximately 6,000 start-ups. The most important distinction of the KfW / ZEW Start-up Panel from other data sets is that it will track young firms over an eight-year period, allowing researchers to analyse changes within firms during this decisive period of a firm's life. Another asset originates from the fact that the survival status of all firms that have ever participated in the panel will be identified reliably. This will allow researchers to distinguish firm mortality and other reasons preventing repeated contact (such as changes of firm name or telephone number, or relocations).

On the one hand, the unique characteristics of the KfW / ZEW Start-up Panel will spur research on newly founded firms in Germany. Scientific-use-files of the KfW / ZEW Start-up Panel will be made available for intense use by external researchers. On the other hand, the data are also suitable for international comparative research. For example, the design of the Kauffman Firm Survey for the United States (Robb et al., 2009) is similar to the KfW / ZEW Start-up Panel in that it tracks newly founded firms over more than six years and also focuses on firm strategies, financing, innovation and labour demand.

References

- Agarwal, R. / Audretsch, D. B. (2001): Does entry size matter? The impact of the life cycle and technology on firm survival, *Journal of Industrial Economics* XLIX (1), 21–43.
- Almus, M. / Engel, D. / Prantl, S. (2000): The „Mannheim Foundation Panels“ of the Centre for European Economic Research (ZEW), ZEW Documentation 00–02, Zentrum für Europäische Wirtschaftsforschung, Mannheim.
- Audretsch, D. B. / Fritsch, M. (2003): Linking entrepreneurship to growth: The case of West Germany, *Industry and Innovation* 10 (1), 65–73.
- Bellmann, L. / Dörfer, G. / Dostal, W. / Kühl, J. / Lahner, M. / Schnur, P. / Ulrich, E. / Wolfsteiner, M. (1991): Das IAB-Betriebspanel: Ansatz und Aufbau, *Mitteilungen aus der Arbeitsmarkt- und Berufsforschung* 24 (3), 514–530.
- Birch, D. L. (1989): Change, innovation, and job generation, *Journal of Labour Research* 10 (1), 33–38.
- Brüderl, J. / Preisendörfer, P. / Ziegler, R. (1992): Survival Chances of Newly Founded Business Organizations, *American Sociological Review* 57, 227–242.
- Brüderl, J. / Preisendörfer, P. / Ziegler, R. (2007): Der Erfolg neu gegründeter Betriebe. Eine empirische Studie zu den Chancen und Risiken von Unternehmensgründungen, 3rd, ext. edn., Berlin.
- Fryges, H. / Gottschalk, S. / Kohn, K. (2009): The KfW / ZEW Start-up Panel: Design and Research Potential, ZEW Discussion Paper No. 09-053, Zentrum für Europäische Wirtschaftsforschung, Mannheim.
- Gottschalk, S. / Gude, H. / Kanzen, S. / Kohn, K. / Licht, G. / Müller, K. / Niefert, M. / Spengler, H. (2008): KfW / ZEW-Gründungspanel für Deutschland – Beschäftigung, Finanzierung und Markteintrittsstrategien junger Unternehmen, Creditreform, KfW, ZEW (eds.), Mannheim.
- Grupp, H. / Legler, H. (2000): Hochtechnologie 2000 – Neudefinition der Hochtechnologie für die Berichterstattung zur technologischen Leistungsfähigkeit Deutschlands, research report for the Federal Ministry of Education and Research, Karlsruhe, Hannover.
- Janz, N. / Ebling, G. / Gottschalk, S. / Niggemann, H. (2001): The Mannheim Innovation Panels (MIP and MIP-S), *Schmollers Jahrbuch* 121 (1), 123–129.
- Kohn, K. / Spengler, H. (2008a): Finanzierungsstruktur von Existenzgründungen in Deutschland, *FINANZ BETRIEB* 10, 72–76.
- Kohn, K. / Spengler, H. (2008b): KfW-Gründungsmonitor 2008. Gründungen in Deutschland: weniger aber besser – Chancenmotiv rückt in den Vordergrund, KfW Bankengruppe, Frankfurt am Main.
- Kohn, K. / Spengler, H. (2009): KfW-Gründungsmonitor 2009. Abwärtsdynamik im Gründungsgeschehen gebremst – weiterhin wenige innovative Projekte, KfW Bankengruppe, Frankfurt am Main.
- Lo, V. / Reize, F. (2008): KfW-Mittelstandspanel 2008. Mittelstand – auch kleine Unternehmen – erfolgreich im Ausland!, KfW Bankengruppe, Frankfurt am Main.

- Metzger, G. / Niefert, M. / Licht, G. (2008): High-Tech-Gründungen in Deutschland – Trends, Strukturen, Potenziale, research report (in cooperation with Microsoft Germany), Zentrum für Europäische Wirtschaftsforschung, Mannheim.*
- Myers, S. C. / Majluf, N. S. (1984): Corporate Financing and Investment Decisions When Firms Have Information That Investors Do not Have, Journal of Financial Economics 13, 187–221.*
- OECD (2005): Oslo Manual – Guidelines for Collecting and Interpreting Innovation Data, 3rd edn., Organisation for Economic Co-Operation and Development and Statistical Office of the European Communities, Paris.*
- Prantl, S. (2001): Bankruptcy, subsidized loans, and exit decisions of start-up firms, dissertation, University of Mannheim.*
- Robb, A. / Ballou, J. / DesRoches, D. / Potter, F. / Zhao, Z. / Reedy, E. J. (2009): An Overview of the Kauffman Firm Survey – Results from the 2004–2007 Data, Ewing Marion Kauffman Foundation, Kansas City.*
- Sternberg, R. / Brixy, U. / Hundt, C. (2007): Global Entrepreneurship Monitor (GEM) – Länderbericht Deutschland 2006, Global Entrepreneurship Research Association, Hannover / Nürnberg.*
- Tchouvakhina, M. / Hofmann, C. (2003 / 04): The KfW Start-up Monitor – An Instrument for In-Depth Analysis of Start-up Activity in Germany, RWI Mitteilungen 54 / 55 (3–4), 267–285.*
- Van Praag, C. M. (2003): Business Survival and Success of Young Small Business Owners, Small Business Economics 21, 1–17.*