Schmollers Jahrbuch 132 (2012), 609 – 618
Duncker & Humblot, Berlin

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 send to: Joachim Wagner, Leuphana University of Lueneburg, Institute of Economics, Campus 4.210, 21332 Lueneburg, 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 Data Sets of the LMU-ifo Economics & Business Data Center – A Guide for Researchers

By Christian Seiler

1. Introduction

The LMU-ifo Economics & Business Data Center was founded by the Ifo Institute and the Ludwig-Maximilian-University of Munich in 2008 to establish a central place for the collection and supply of research data on economic and business sciences. This joint initiative aims to increase synergies between empirical and theoretical research. Since its foundation in 1949, the Ifo Institute has collected relevant data for the Federal Republic of Germany with respect to cyclical trends, capital spending by firms and their innovation strategy. In addition to Ifo survey data, EBDC offers combined panel data sets of these surveys

with balance sheet data from Amadeus and Hoppenstedt. These panels include both Ifo Institute survey data (Ifo panel data at firm level), as well as external accounting data and other structural enterprise information concerning corporate finance or investment activity.

2. Ifo Survey Data

At the core of the data sets provided by the EBDC are the micro data sets of the Ifo surveys. The Ifo Institute conducted its Ifo Business Survey (IBS, *ifo Konjunkturtest*) for the first time in 1949. The most well-known result is the Ifo Business Climate Index (*ifo Geschäftsklimaindex*), which is closely observed by journalists, researchers and the general public. Abberger / Wohlrabe (2006) provide an overview of studies with respect to forecasting issues of the Ifo Business Climate Index. The survey initially covered the manufacturing sector, but was quickly extended in the 1950s to the trade (1950) and construction sector (1956). In 1995, the survey was also introduced in the service sector on a quarterly basis and has been performed monthly since 2004. The main characteristic of the survey is that nearly all of the questions constitute inherent tendency statements that make it possible to generate quick results on the current situation and expectations concerning the most interesting business parameters such as demand, prices or staff, see Becker / Wohlrabe (2008). In line with the Joint Harmonised EU Programme of Business and Consumer Surveys[1] these variables measure cyclical development over time. In addition to the four main sectors, Ifo also performs a quarterly business survey of the insurance industry.

Besides the IBS, the Ifo Institute also conducts other surveys on a less frequent basis. In 1955, the Ifo Investment Survey (IVS, *ifo Investitionstest*) was introduced in manufacturing, and was subsequently extended to trade (1956). Today, the IVS is regularly performed in its original form in manufacturing. However, the IVS in trade has been conducted in an abbreviated form since 1999 as special questions in the IBS for trade. Ifo also performs the Ifo Innovation Survey (INS, *ifo Innovationstest*) on an annual basis, which focuses on innovation activities, the aims of innovative developments and factors influencing the innovation process. Besides this extensive survey, the IBS features some special questions on the topic of innovation. Whereas in the IBS, IVS and INS German firms are questioned on their business parameters, the Ifo World Economic Survey (WES) launched by Ifo in 1981 asks experts in foreign countries about the economic situation and their expectations. Topics cov-

[1] The surveys conducted by the Ifo Institute are performed in similar way in all EU member states to calculate comparable results such as the EU Economic sentiment indicator.

ered include trade balances, inflation rates and domestic share prices. More information on this survey can be found in Stangl (2007).

Not all data sets are available back to the first wave of the survey. Table 1 gives an overview of the first wave, the available data sets, the number of observations, as well as the number of different questions. All surveys were quickly introduced to former Eastern Germany after German reunification in 1990. Further information on the methodological foundations of all the Ifo Institute's surveys can be found in Goldrian (2007). However, all users should bear in mind that *the questions asked can differ between sectors even if the survey is the same*. This is because many questions cannot be answered meaningfully in other sectors such as, for example, capacity utilization in trade. For the IBS, Table 2 gives an overview of selected questions that were asked in at least two out of four sectors. In general, we recommend that each analysis should start with the most interesting sector and it should subsequently be checked whether it is possible to extend the research question to the other sectors.

Table 1

Overview of Ifo surveys

Survey	Sector	First wave	Frequency	Available data sets	Number of questions[2]
IBS	manufacturing	1949	monthly	since 1980	66
	construction	1956	monthly	since 1991	113
	trade	1950	monthly	since 1991	45
	service	1995	monthly[3]	since 1995	20
	insurance	1999	quarterly	since 1999	33
IVS	manufacturing	1955	bi-annually	since 1964	208
	trade	1956	yearly[4]	since 2000	6
INS	manufacturing	1979	yearly	since 1982	697
WES	-	1981	quarterly	since 1983	47

[2] Including special questions that may be asked only in a single wave as of the last wave in 2010.

[3] On a quarterly basis between 1995 and 2004.

[4] Bi-annually until 1999.

Table 2

Comparable questions in the IBS across sectors (selection)

Question	Manufacturing	Construction	Trade	Service
Business expectations	X	X	X	X
Business situation	X	X	X	X
Capacity utilization	X	X		
Demand	X			X
Employees	X	X	X	X
Orders	X	X		
Prices	X	X	X	

3. Combined Data Sets

In order to increase the potential of microdata analyses, the EBDC provides combined data sets by merging Ifo survey and Amadeus / Hoppenstedt balance sheet data. This data merger is performed with record linkage. After this procedure, merges with higher uncertainty are checked for accordance. Hönig (2010) gives a more detailed introduction to this procedure. Notice that the merge is done if there exists at least one year for which both, survey and balance sheet data, are available for the same company. The merge of balance sheet data with the IBS leads to the *EBDC Business Expectations Panel* (BEP), while merging this data with the IVS gives the *EBDC Business Investment Panel* (BIP) and merging it with the INS (including special questions on innovation topics from the IBS) leads to the *EBDC Business Innovation Panel* (BINP). For all of these panels, combinations, e.g., all firms which appear in the BEP as well as in the BIP, exist and can be used in the EBDC. Figure 1 offers an overview of the construction of the EBDC business panels. However, as balance sheet data are usually on annual frequency and the Ifo survey data normally have higher frequencies, the analyst has to think about *how to join these different types of frequencies (aggregate or disaggregate information)* on the one hand, and has to *adjust the coverage of the balance sheet data* on the other, as the business year of a company may not correspond to the calendar year, e.g., a balance sheet may cover the period from April 2009 to March 2010. Balance sheet data in the EBDC panels therefore have their own row in the data set marked by month = 99.[5] So, for any analysis including survey and balance sheet data, the user has to think about how to combine these data in order to perform a regression analysis.

[5] The balance sheet data are assigned to the year that includes most of the fiscal year, e.g., a balance sheet from April 2009 to March 2010 is assigned to 2009.

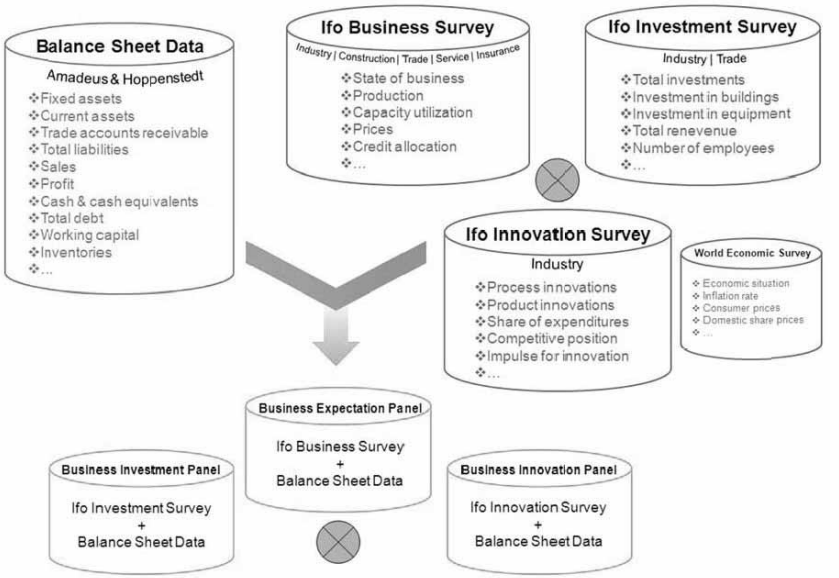

Figure 1: Data sets provided in the EBDC

4. Some Descriptive Statistics

In order to get an idea of the structure and magnitude of the EBDC data sets, we provide some descriptive statistics in this section. As the EBDC business panels are a subset of the IBS, the question arises as to whether representativeness is still given. Figure 2 shows the Ifo Business Climate Index for the manufacturing sector for all companies in the IBS (black) and for the subset of firms for which balance sheet data is available in BEP (grey). It can clearly be seen that no structural difference exists, i.e., the BEP can be stated as a representative subset with respect to the IBS. Table 3 shows the number of enterprises and observations before and after merging Ifo survey with balance sheet data. For example, the IBS in manufacturing contains 1,458,240 observations from 16,830 enterprises as of the last wave in 2010. After merging these observations with balance sheet data, 606,024 observations from 4,896 enterprises remain. For every enterprise, a merge is done in cases where survey and balance sheet data exist in parallel for at least one year.

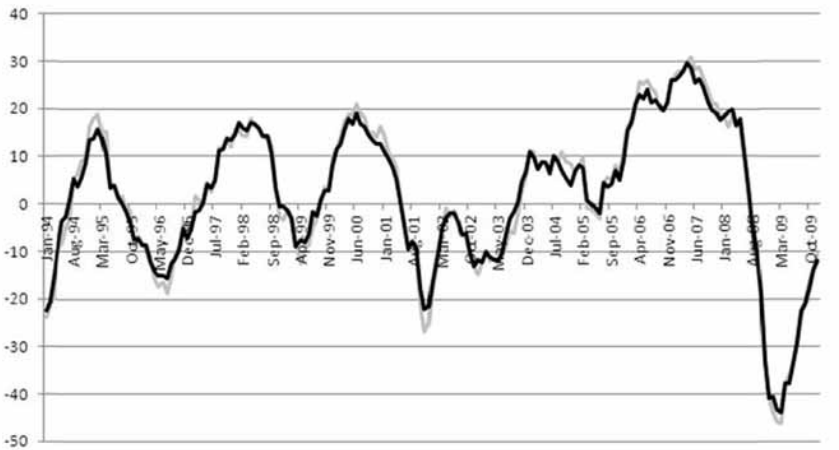

Figure 2: Ifo Business Climate Index for the manufacturing sector 1994 – 2009
(black = original indicator from the whole IBS,
grey = indicator calculated from the subset
of firms included in the BEP).

Table 3

Number of observations and enterprises in the Ifo surveys and the combined data sets[6]

Survey	Sector	Observations before merge	Enterprises before merge	Observations after merge	Enterprises after merge
IBS	manufacturing	1,458,240	16,830	606,024	4,896
	construction	775,609	19,887	338,953	6,337
	trade	705,371	6,747	299,882	5,196
	service	175,568	6,936	158,386	5,217
IVS	manufacturing	344,462	20,835	193,957	5,465
	trade	9,869	2,617	11,896	1,291
INS	manufacturing	38,471	7,399	69,705	3,950

[6] As of the last wave in 2010. The insurance sector in the IBS, as well as the construction sector in the IVS, are not combined due to a lack of appropriate balance sheet data. The higher number of observations in the IVS trade after the merge results due to the fact that balance sheet data back to 1998 are included if survey and balance sheet are available for at least one year.

5. Research Papers with EBDC Data

Although the EBDC has existed since 2008, a lot of research papers were published prior to this date as the surveys of the Ifo Institute have been conducted for over 60 years. An overview of microdata analyses prior to the foundation of the EBDC is given in Becker / Wohlrabe (2008). Table 4 gives an overview of publications since 2008. It can clearly be seen that the range of topics is very broad. For example, Bachmann / Elstner / Sims (2010) analyse economic uncertainty by using the "tandem"-questions (situation and expectations), which appear for various business parameters in the IBS. Schenkelberg (2011) analyses the price setting behaviour of German firms, Carstensen / Schenkelberg (2011) analyse different price setting and inflation theories with the IBS and Strasser (2012) looks at price setting behavior with respect to credit constraints. With the onset of the financial crisis in 2008, several papers appeared that deal with credit constraints, e.g., Engemann / Eck / Schnitzer (2011), Felbermayr / Heiland / Yalcin (2012) and Rottmann / Wollmershäuser (2013). Carstensen / Elstner / Paula (2011) analysed the effects of oil market developments on the 2008 / 2009 German recession.

In addition to answering economic issues, topics with respect to survey methodology have also been discussed. Abberger / Birnbrich / Seiler (2009) conducted a meta survey for the IBS in trade to evaluate information on the respondent and the questions asked in the standard IBS. Stangl (2008) compares the ordinal tendency answers in the IBS with continuous replies on a Visual Analog Scale. Seiler (2010) and Seiler / Heumann (2012) analyse the IBS with respect to nonresponse and evaluate their implications for macro level results.

Table 4

Overview of publications with EBDC data since 2008

Study	Main topic(s)	Data set(s)
Abberger, Birnbrich and Seiler (2009)	Respondents	Special
Bachmann, Elstner and Sims (2010)	Economic uncertainty	IVS
Carstensen, Elstner and Paula (2011)	Oil market, demand shocks	IBS
Carstensen and Schenkelberg (2011)	Price setting	IBS
Engemann, Eck and Schnitzer (2011)	Trade credits	BEP
Falck, Heblich and Kipar (2011)	Process & product innovation	INS
Felbermayr, Heiland and Yalcin (2012)	Export, credit constraints	IBS, BEP
Fidrmuc and Hainz (2009)	Banking supervision	IBS
Kipar (2011)	Bank lending, innovation	INS
Pesaran and Timmermann (2009)	Correlations, Markov chains	IBS
Paula (2010)	Innovation	INS

Study	Main topic(s)	Data set(s)
Schenkelberg (2011)	Price setting	IBS
Seiler (2010)	Nonresponse	IBS
Seiler and Heumann (2012)	Nonresponse, imputation	IBS
Stangl (2008)	Economic expectations	IBS
Strasser (2012)	Price setting	IBS

6. Access and Service

Due to the high confidentiality and the obligation to maintain the secrecy of both survey results and panel member identity, the EBDC panels can only be used on the premises of the EBDC and are made available with a time lag. The data can only be accessed on computers which have no internet access, printer or other external storage media and which can only be used in the presence of an EBDC staff member. This person will ensure, on completion of the researcher's stay, that the anonymised data do not allow the identification of individual firms and that no inferences can be drawn regarding panel composition. Moreover, after this examination has been successfully carried out, the EBDC staff member will send the results in Stata format.

Individuals can apply for access to EBDC datasets by completing a form at the Ifo website www.ifo.de/ebdc. In addition, a short description of the research project and accompanying information as to scheduling must be submitted to gain permission. Upon request the EBDC will send a test package by email containing an anonymised and randomized EBDC test panel in Stata-format, as well as the documentation on the respective original dataset. The EBDC expressly supports empirical research projects and is thus free-of-charge.

References

Abberger, K./*Birnbrich*, M./*Seiler*, C. (2009): Der 'Test des Tests' im Handel – eine Metaumfrage zum ifo Konjunkturtest, ifo Schnelldienst 62 (21), 34–41.

Abberger, K./*Wohlrabe*, K. (2006): Einige Prognoseeigenschaften des ifo Geschäftsklimas – Ein Überblick über die neuere wissenschaftliche Literatur, ifo Schnelldienst 59 (22), 19–26.

Bachmann, R./*Elstner*, S./*Sims*, E. (2010): Uncertainty and Economic Activity: Evidence from Business Survey Data, NBER Working Paper 16143.

Becker, S. O./*Wohlrabe*, K. (2008): European Data Watch: Micro Data at the Ifo Institute for Economic Research – The "Ifo Business Survey, Usage and Access", Schmollers Jahrbuch – Journal of Applied Social Science Studies 128 (2), 307–319.

Carstensen, K. / *Elstner*, S. / *Paula*, G. (2011): How Strongly Did the 2007 / 08 Oil Price Hike Contribute to the Subsequent Recession?, CESifo Working Paper No. 3357.

Carstensen, K. / *Schenkelberg*, H. (2011): Time- or State-Dependence? An Analysis of Inflation Dynamics using German Business Survey Data, Munich Discussion Paper 2011 – 5.

Dischinger, M. / *Riedel*, M. (2010): The Role of Headquarters in Multinational Profit Shifting Strategies, Oxford University Center for Business Taxation WP 10 / 03.

Eidenmüller, H. / *Engert*, A. / *Hornuf*, L. (2010): Where Do Firms Issue Debt? – An Empirical Analysis of Issuer Location and Regulatory Competition in Europe, ECGI – Finance Working Paper No. 292 / 2010.

Engemann, M. / *Eck*, K. / *Schnitzer*, M. (2011): Trade Credits and Bank Credits in International Trade: Substitutes or Complements?", BGPE Discussion Paper No. 108.

Falck, O. / *Heblich*, S. / *Kipar*, S. (2011): Incumbent innovation and domestic entry, Small Business Economics 36 (2), 271 – 279.

Felbermayr, G. / *Heiland*, I. / *Yalcin*, E. (2012): Beschäftigungseffekte der Exportkreditgarantien der Bundesrepublik Deutschland Hermesdeckungen, ifo Schnelldienst 65 (1), 20 – 30.

Fidrmuc, J. / *Hainz*, C. (2009): Financial Integration and Banking Regulation: Cross-Border Lending in Germany, "Paolo Baffi" Centre Research Paper Series No. 2009 – 46.

Goldrian, G. (2007): Handbook of survey-based business cycle analysis, Ifo Economic Policy Series, Cheltenham.

Hönig, A. (2010): Linkage of Ifo Survey and Balance-Sheet Data: The EBDC Business Expectations Panel & the EBDC Business Investment Panel, Schmollers Jahrbuch – Journal of Applied Social Science Studies 130 (4), 635 – 642.

Kipar, S. (2011): The Effect of Restrictive Bank Lending on Innovation: Evidence from a Financial Crisis, Ifo Working Paper No. 109.

Paula, G. (2010): Financing Conditions, the Concept of Innovation Capacity and the Innovative Activity of Firms, CESifo Working Paper No. 3296.

Pesaran, M. H. / *Timmermann*, A. (2009): Testing Dependence Among Serially Correlated Multicategory Variables, Journal of the American Statistical Association 104 (485), 325 – 337.

Rottmann, H. / *Wollmershäuser*, T. (2013): A Micro Data Approach to the Identification of Credit Crunches, Applied Economics 45 (17), 2423 – 2441.

Schenkelberg, H. (2011): Why are Prices Sticky? Evidence from Business Survey Data, Munich Discussion Paper No. 2011 – 2.

Seiler, C. (2010): Dynamic Modelling of Nonresponse in Business Surveys, Ifo Working Paper No. 93.

Seiler, C. / *Heumann*, C. (2012): Microdata Imputations and Macrodata Implications: Evidence from the Ifo Business Survey, Department of Statistics, Technical Report No. 119.

Stangl, A. (2008): Essays on the Measurement of Economic Expectations, Munich Dissertations in Economics.

Stangl, A. (2007): European Data Watch: Ifo World Economic Survey Micro Data, Schmollers Jahrbuch – Journal of Applied Social Science Studies 127 (3), 487 – 496.

Strasser, G. H. (2012): Exchange Rate Pass-Through and Credit Constraints: Firms Price to Market as Long as They Can, Boston College Working Papers in Economics 788.