2.7 On the Representativeness of the ifo Business Survey

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2.7.1 Introduction

From the results of the ifo Business Survey, one should be able to draw the most reliable and robust conclusions possible about developments in the German economy. This applies to both the analyses at the aggregate level with the business cycle indicators and to scientific evaluations at the level of the anonymized micro data. To ensure this, the panel of survey participants must meet various requirements in order to provide as accurate a picture as possible of the business landscape in Germany. Though full surveys of all companies would be desirable, they are neither practical nor feasible. Moreover, participation in the ifo surveys is voluntary. Therefore, the ifo Business Survey is based on a sample of companies active in Germany. The sample size must be of a certain size to provide solid results. In this context, it is important to cover all the important economic sectors (professional representation) as well as a sufficiently large share of companies (company representation). Furthermore, so-called selection effects, which would lead to systematic distortions of the results, must be avoided. Therefore, it is important to ensure that both the regional composition of the participants and the distribution of the companies by size and economic sector roughly reflect the composition of all German companies. Generally, the sample has to accurately reflect the essential properties of the population of all German companies.

2.7.2 Panel Size and Representativeness by Economic Sector

The panel of participating companies is designed to obtain meaningful results and to draw accurate conclusions not only for the overall economy, but for various economic sectors as well. Table 2.27 provides an overview of the average monthly number of participants in 2021 for all economic sectors covered by the ifo Business Survey.[6] It also shows how many employees the participating companies have, compared to all companies in Germany. The survey panels for manufacturing and construction, for example, cover around 15% of all employees in these sectors. For manufacturing of motor vehicles, more than 50% of the workforce is covered in the sample of surveyed companies. The figures for retail and wholesale trade are at 9% and 10% respectively. In the service sector, the ifo Business Survey covers 4.5% of the workforce. Within the service sector, the information and communication sector has the highest coverage of the workforce, at 17%.

[6] Strictly speaking, it is the number of questionnaires received and not the number of companies that is shown here. In the construction sector, there are many companies that fill out several questionnaires per month because they cover different types of construction. This is also true for some large companies in manufacturing, if they cover different sectors.

Table 2.27: Number of participants and coverage by industries

Sector	Participants in the ifo Business Survey	Employees covered	Employees total	Coverage rate
Manufacturing	2,105	1,049,355	6,833,142	15.4%
Food, beverages, tobacco	117	18,196	727,118	2.5%
Textiles, wearing apparel, leather	66	6,603	115,980	5.7%
Wood, paper, printing	210	27,217	353,102	7.7%
Chemicals, coke and petroleum, pharmaceutical products	141	84,232	525,524	16.0%
Rubber, plastic, glass, non-metallic mineral products	271	58,587	597,659	9.8%
Basic metals and metal products	431	82,051	1,067,512	7.7%
Computer, electronic and optical products	120	19,920	415,809	4.8%
Electrical equipment	166	47,499	354,330	13.4%
Machinery	401	140,591	1,045,778	13.4%
Motor vehicles	81	466,857	906,571	51.5%
Manufacturing of other products	101	97,602	723,759	13.5%
Electricity, water, waste management	55	7,808	516,550	1.5%
Construction	2,754	83,526	550,652	15.2%
Trade	1,651	351,517	4,013,504	8.8%
Motor vehicles	104	5,344	313,270	1.7%
Wholesale trade	812	122,306	1,195,800	10.2%
Retail trade	735	223,867	2,504,434	8.9%
Service sector	2,274	508,034	11,329,199	4.5%
Transportation and storage	216	79,264	1,917,373	4.1%
Accommodation and food service activities	219	9,799	1,026,749	1.0%
Information and Communication	343	210,935	1,241,842	17.0%
Financial and insurance activities	66	14,088	976,730	1.4%
Real estate	71	4,786	297,216	1.6%
Professional, scientific and technical activities	803	101,173	2,406,856	4.2%
Administrative and support service activities	308	74,642	2,317,457	3.2%
Arts, entertainment and recreation	103	4,693	294,955	1.6%
Others	145	8,654	850,021	1.0%

Note: Monthly averages for the year 2021.
Sources: ifo Business Survey; Federal Statistical Office.

Overall, the ifo Business Survey focuses on industries that are particularly cyclical and thus provide good signals for general economic developments. This is especially true for the manufacturing sector. By contrast, other sectors, such as agriculture, public services, finance, or healthcare, are hardly or not at all covered by the surveys. They are characterized less by cyclical than by structural developments. However, information from surveys can also be very valuable for less cyclical economic sectors, especially in crisis situations such as the Covid-19 pandemic. For this reason, the ifo Institute aims to further increase the number of participants in areas that have not been so well covered to date. Furthermore, there are plans to include additional sectors, such as finishing trades in the construction sector, that have not so far been part of the survey.

Table 2.28 shows the distribution of companies in the ifo survey by industry in relation to the distribution of companies in Germany as a whole, the number of employees, and gross value added (GVA) for 2021.[7] It can be seen that the distribution is in part very close to the comparative figures. For example, in manufacturing the number of firms is relatively overrepresented in the ifo survey, but also relatively close to the values of the GVA and the number of employees. In the trade sector this is to some extent reversed: The number of companies is relatively well represented and the GVA is slightly underrepresented.

Table 2.28: Distribution of the survey participants compared to the population in Germany

	ifo Business Survey	Distribution of German firms by		
	Count	Count	Employees	Value Added
Manufacturing	32.6	8.2	26.2	34.5
Electricity, water, waste management	0.9	3.2	2.2	4.7
Construction	11.9	14.6	8.4	6.9
Trade	26.9	22.3	20.9	17.6
Transportation and storage	3.5	4.1	7.5	6.1
Accommodation and food service activities	3.6	9.2	8.0	2.8
Information and Communication	5.1	4.9	4.8	7.2
Real estate	1.2	6.2	1.8	3.8
Professional, scientific and technical activities	11.0	18.9	8.8	9.1
Administrative and support service activities	3.2	8.4	11.3	7.3

Note: Monthly averages for the year 2021.
Sources: ifo Business Survey; Federal Statistical Office.

2.7.3 Coverage by Firm Size

Table 2.29 shows the shares of participants in the panel of the ifo Business Survey by company size compared to all German companies.[8]

[7] The percentage distribution of companies differs somewhat from that in Table 2.27 because it counts the number of companies, rather than the number of responses.
[8] The official figures are provided by the Federal Statistical Office in the statistics for small and medium-sized enterprises (code 48121). The data here is limited to the manufacturing, energy, water, and waste disposal sectors,

Table 2.29: Distribution of the ifo Business Survey panel by industry and size

	small	medium	large
Manufacturing	12.7	12.2	7.8
Electricity, water, waste management	0.5	0.3	0.1
Construction	6.4	4.5	1.0
Trade	18.5	6.5	1.9
Transportation and storage	1.8	1.2	0.6
Accommodation and food service activities	2.5	1.0	0.1
Information and Communication	3.3	1.5	0.4
Real estate	0.8	0.3	0.1
Professional, scientific and technical activities	8.3	2.2	0.4
Administrative and support service activities	1.8	1.0	0.4
Total	56.6	30.8	12.6
Distribution of German firms by			
Count	96.8	2.6	0.6
Employees	39.7	16.6	43.7
Value Added	26.4	15.7	58.0

Notes: Definition of size classes: small = 1-49 employees, medium = 50-249 employees, large = 250+ employees, shares in %. Monthly averages for the year 2021.
Sources: ifo Business Survey; Federal Statistical Office.

It can be seen that the distribution in the ifo Panel is between the actual distribution in the overall population and the weighted distributions according to the number of employees and gross value added, so that even without weighting a very good picture of the German economy emerges. This is an excellent compromise, since an enormous number of small companies would be needed for an exact representation of the size class distribution. The focus of the panel composition was more on achieving the greatest possible coverage of gross value added and workforce in the overall economy, as well as in the various sectors of the economy. Since gross value added tends to increase with company size, the focus is usually more on large and medium-sized companies. As a result, self-employed persons and micro-enterprises account for a smaller share in the panel of the ifo Business Survey than in the overall economy. They are generally not considered a driving force for overall economic developments. However, in order to provide even more in-depth results for this group in the future, which can be of great interest especially in times of crisis, the ifo Institute is currently systematically expanding the number of participating micro-enterprises and self-employed

as well as construction, trade, accommodation, and food services, and business-related service providers.

persons (Section 4.3). In conclusion, however, it can be emphasized that at the sector level sufficient numbers of survey participants are already available for all company size classes.

2.7.4 Regional Numbers of Participants

A further essential property of the panel is the regional distribution of the participating companies. To obtain a picture of the entire German economy, it is important that all regions are sufficiently represented in the sample. Table 2.30 shows the average monthly number of participants in 2021 for all 16 German federal states. It illustrates that the regional distribution of companies in the panel is relatively close to the distribution of all companies within Germany. German states with a high share of Germany's gross domestic product, such as Bavaria, North Rhine-Westphalia, and Baden-Wurttemberg, are also most strongly represented in the business surveys.

A sufficiently large number of participants in all sectors even makes it possible to calculate business cycle indicators at the federal state level (Lehmann et al. 2019, 2022). Thus, monthly results are calculated for the states of Baden-Wurttemberg, Bavaria, Hesse, Lower Saxony, North Rhine-Westphalia and Saxony (for more information see Section 4.1).

Table 2.30: Monthly participants in the ifo Business Surveys by regions and survey areas

	Total	Manufacturing	Construction	Trade	Service sector	Share in panel	Share in Germany	GDP share
Bavaria	1841	405	612	349	475	21.0%	18.8%	18.5%
Northrine-Westphalia	1776	477	466	354	479	20.2%	20.2%	20.5%
Baden-Wurttemberg	1227	386	333	213	295	14.0%	13.7%	15.0%
Lower Saxony	751	154	281	158	158	8.5%	8.7%	8.8%
Hesse	569	131	122	124	192	6.5%	7.6%	8.5%
Saxony	487	141	189	53	104	5.5%	4.4%	3.8%
Thuringia	362	116	156	42	48	4.1%	2.2%	1.8%
Rhineland Palatinate	306	63	108	67	68	3.5%	4.7%	4.5%
Schleswig Holstein	293	44	116	63	70	3.3%	3.6%	3.0%
Saxony-Anhalt	240	58	99	46	37	2.7%	1.9%	1.9%
Brandenburg	207	49	65	47	46	2.4%	2.8%	2.2%
Hamburg	206	16	28	41	121	2.3%	2.8%	3.5%
Mecklenburg Western Pomerenia	179	28	90	20	41	2.0%	1.7%	1.4%
Berlin	173	15	41	19	98	2.0%	5.0%	4.6%
Saarland	94	14	25	38	17	1.1%	1.0%	1.0%
Bremen	73	8	23	17	25	0.8%	0.7%	1.0%

Notes: All figures refer to year 2021.
Sources: ifo Business Survey; Federal Statistical Office.

2.7.5 Conclusion and Outlook

In summary, various criteria apply for the representativeness of a panel for business surveys. Compiling the panel of the ifo Business Survey, all these criteria were taken into consideration, including good representativeness both for the calculation of business cycle indicators and for economic analyses at the level of the anonymized microdata.

Nevertheless, the ifo Institute is striving for a continuous expansion of the survey panel. The panel will be increased in the economic sectors already covered, and sectors that are not yet covered will be added. The panel with self-employed persons and microenterprises will also be expanded, enabling even greater in-depth analyses in the future.

Besides the representativeness of the panel, it is also very important that competent person(s) within the participating companies fill out the questionnaire. They should be at the top of the companies' hierarchy and therefore have all the information they need to answer the questions at any given time. The next chapter shows that the participants at the ifo Business Survey also fulfill this requirement.