

## The German Business Services Statistics Panel 2003 to 2007

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### 1. Introduction

The majority of empirical studies on the firm level have focused only on the manufacturing sector, largely because there are few datasets that allow a detailed investigation of the service sector. However, the German structural survey in the services sector (“Strukturerhebung im Dienstleistungsbereich”), hereafter called the “German business services statistics”, contains a dataset that gives a better picture about enterprises and professional persons in the business-related services sector, namely, firms that are active in the German WZ2003 Sections I (transport, storage and communication) and K (real estate, renting and business activities).<sup>1</sup> This dataset includes information about the number of employed persons, turnover, salaries and wages, investments, subsidies, and variations in stocks. Because the sample of enterprises and professional persons required to give information in 2003 was also used in 2004–2007, it is possible to merge the cross-sectional datasets into a panel dataset that covers the reporting years 2003–2007. The combination is done within the AFiD project<sup>2</sup> of the research data centre of the statistical offices of the Federal States. The resulting “AFiD-Panel Services”, hereafter called the “German business services statistics panel”, allows panel analyses of the German business services sector for the first time.

In the remainder of this paper, Section 2 gives an overview of the business services statistics. Section 3 describes the variables included in the panel dataset, and in Section 4 selected studies that have worked with the German busi-

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<sup>1</sup> The German WZ2003 is based on the Statistical Classification of Economic Activities in the European Community NACE Revision 1.1 (European Commission, 2002).

<sup>2</sup> The acronym AFiD stands for the German “Amtliche Firmendaten für Deutschland” (Official Firm Data for Germany). For more information about the project, see Malchin/Voshage (2009).

ness services statistics panel are presented to show the research potential of the dataset. Section 5 gives a short overview of upcoming changes to the services statistics in the reporting year 2008. Section 6 closes the paper with information about the way of data access.

## 2. About the Data

Based on an initiative by the European Union (European Council, 1996), the statistical offices have collected annual services statistics (“Strukturerhebung im Dienstleistungsbereich”) since the year 2000 (cf. Pesch, 2007) through a structural survey of service activities included in Sections I and K of the German WZ2003, which is based on the Statistical Classification of Economic Activities in the European Community NACE Rev. 1.1 (European Commission, 2002). In particular the statistics contain the sectors of land transport, transport via pipelines (WZ 60), water transport (WZ 61), air transport (WZ 62), supporting and auxiliary transport activities, activities of travel agencies (WZ 63), post and telecommunications (WZ 64), real estate activities (WZ 70), renting of machinery and equipment without operator and of personal and household goods (WZ 71), computer and related activities (WZ 72), research and development (WZ 73), and other business activities (WZ 74) such as legal activities, market research, business and management consultancy activities, advertising, and architectural and engineering activities. Enterprises and professional persons (statistical units) whose main activity is in one of these sectors and that have an annual turnover of EUR 17,500 or more may be asked to provide information to the statistical offices of the Federal States on an annual basis.

The statistical units are selected through a stratified random sample drawn from the business register that is kept by the Federal Statistical Office and the statistical offices of the Federal States. The stratification is based on the Federal States, 4-digit industries and 12 size ranges (in terms of turnover or employees). At most, 15 percent of the statistical units receive a questionnaire from the statistical offices and are asked to participate in the survey. Enterprises and professional persons that are a part of the population under consideration (i.e., statistical units in the German WZ2003 Sections I and K with an annual turnover of EUR 17,500 and higher) have an obligation to provide information if asked. For more details about the sample design, see Federal Statistical Office (2008a, 2 f.).

Because the sample of enterprises and professional persons required to give information in 2003 was also used in 2004–2007<sup>3</sup> (see Federal Statistical Office, 2008a), the cross-sectional datasets (using the ID from the business regis-

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<sup>3</sup> In addition to the sample of enterprises that were required to give information in 2003, samples of new enterprises were annually drawn as a stratified sample from new entries to the business register in the years 2004 to 2007.

ter) can be merged to a panel dataset that covers the reporting years 2003–2007. The combination of the surveys to a panel data set is done within the AFiD project of the research data centre of the statistical offices of the Federal States (see Malchin / Voshage, 2009).

Table 1

**The five most frequent patterns of participation 2003–2005**

No.	Reporting year			Number of statistical units	% of statistical units
	2003	2004	2005		
All enterprises and professional persons					
1	yes	yes	yes	69,968	57.20
2			yes	14,214	11.62
3		yes	yes	12,834	10.49
4	yes			10,045	8.21
5	yes	yes		9,250	7.56
Enterprises and professional persons with an annual sum of turnover and other operating income greater than or equal to EUR 250,000 (full questionnaire)					
1	yes	yes	yes	36,303	56.51
2			yes	7,268	11.31
3		yes	yes	6,690	10.41
4	yes			5,540	8.62
5	yes	yes		4,719	7.35
Enterprises and professional persons with an annual sum of turnover and other operating income lower than EUR 250,000 (reduced questionnaire)					
1	yes	yes	yes	28,063	42.96
2			yes	10,096	15.45
3	yes			7,807	11.95
4		yes	yes	7,799	11.94
5	yes	yes		6,034	9.24

Data base: The German Business Services Statistics Panel 2003 to 2005.

*Note:* “yes” indicates that the statistical unit participated in the respective reporting year; a blank indicates that the enterprise did not participate in the respective reporting year. Considered are enterprises and professional persons in the German WZ2003 Sections I and K that had to report to the German business services statistics in at least one of the three years under consideration.

For the reporting years 2003–2005<sup>4</sup> the panel dataset contains nearly 70,000 enterprises and professional persons with information in all three re-

<sup>4</sup> As of this writing the panel dataset is available only for the reporting years 2003 to 2005. The 2003–2006 version of the panel will be available in the spring of 2009, and the 2003–2007 version of the panel will be probably released at the beginning of 2010. See Section 6 for more information about data access.

porting years (see Table 1). This corresponds to 57.2 percent of all enterprises that participated in the survey at least in one of the three reporting years under consideration. More than 36,000 statistical units had an annual sum of turnover and other operating income that was EUR 250,000 or higher in all three periods. These enterprises and professional persons had to provide information on the full questionnaire for the reporting years 2003–2005. (See Section 3 for more information about the questionnaire.)

### 3. Variables Included

The business services statistics panel includes information about the economic sector, the number of employed persons, total turnover, salaries and wages, investment, and variations in stocks. However, small statistical units with an annual sum of turnover and other operating income lower than EUR 250,000 are given an abbreviated questionnaire, so more detailed information, like information on non-domestic turnover, is missing for these statistical units. A complete list of the variables included for enterprises and professional persons with an annual sum of turnover and other operating income that is smaller than EUR 250,000 and for those with an annual sum of turnover and other operating income that is equal or greater than EUR 250,000 can be found in Table 2. The questionnaire that is presented here was used in the reporting years 2003–2007.

The variables included in the business services statistics follow the Commission Regulation concerning the definitions of characteristics for structural business statistics (European Commission, 1998). As a result, it is possible to compute, for example, the value-added at factor costs (i.e., the gross income from operating activities after adjusting for operating subsidies and indirect taxes) and the gross operating surplus (i.e., the surplus that is generated by operating activities after the labour factor input has been recompensed) in line with the definition by the European Commission (1998, 55 f.).

Some additional notes: The number of persons employed covers all persons employed by the enterprises and professional persons<sup>5</sup> on 30 September of the reporting year, excluding agency workers, freelancers (Freie Mitarbeiter), and persons employed abroad. The information on the number of employees is not yet stated in full-time equivalent units. Exports are defined as the amount of turnover with customers abroad (including also exports to foreign subsidiaries).<sup>6</sup> Unfortunately, the dataset contains no information about the target

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<sup>5</sup> Included are working proprietors, partners working regularly in the enterprise and unpaid family workers, full- and part-time workers, employees, persons who work outside, civil servants, apprentices, trainees and voluntary workers.

<sup>6</sup> In the case of multinational companies, the turnover of foreign subsidiaries is excluded.

Table 2

**Variables included in the German business services statistics panel 2003 to 2007**

	Variables included in questionnaire for enterprises and professional persons with an annual sum of turnover and other operating income that is:	
	smaller than EUR 250,000	greater than or equal to EUR 250,000
Economic sector	X	X
Legal form	X	X
Number of subsidiaries	X	X
Turnover and other operating income (VAT excluded)	X	X
– turnover		X
– exports		X
– other operating income		X
Number of persons employed (on 30. 9.)	X	X
– part-time employed persons		X
– female employed persons		X
– employees (i.e., wage and salary earners)	X	X
– apprentices		X
(Gross) Wages and salaries	X	X
Social security costs	X	X
Material expenses (deductible VAT excluded)	X	X
– for goods and services purchased for resale in the same condition as received		X
– for raw materials and consumables		X
– other operating charges		X
– charges for rents and operational leasing	X	X
Stocks at the beginning and the end of the year (valued at acquisition costs / deductible with VAT excluded)	X	X
– stocks of goods and services purchased for resale in the same condition as received		X
– stocks of raw materials and consumables		X
– stocks of finished self-produced goods and work in progress (valued at cost of production)		X
Gross investment	X	X
– in machinery and equipment		X
– in buildings and structures		X
– in land		X
– capitalised production		X
– in intangible assets		X
– in software		X
Taxes on production, public fees and charges	X	X
Subsidies	X	X
For statistical units with subsidiaries in more than one Federal State: turnover, wages and salaries, investment, employed persons broken down by Federal States		X

Note: The original questionnaire can be found in Federal Statistical Office (2008b, 11 ff.).

countries for exports or other international activities such as partnerships, direct investments or imports. Finally, cross-sectional weights are provided for the business services statistics, although longitudinal weights are not available.

#### 4. Research Potential

The German business services statistics panel dataset has enough observations to allow detailed analyses of business services enterprises and professional persons over time. Thus, it is possible to test whether findings that have been derived almost solely from the manufacturing sector are transferable to the business services sector.

A case in point is the huge amount of literature on the micro-econometrics of international trade, which provides evidence mainly for the manufacturing sector. In contrast to other regularly collected, non-exclusive datasets from German data production facilities<sup>7</sup>, the business services statistics panel contains a sufficient number of observations, as well as information about the firms' total exports. The availability of this data offers the chance to contribute to the literature on international trade by analysing export activities of business services firms over time. Thus, several studies were based on the business services statistics panel for 2003–2005. Braakmann and Vogel (2009) considered the impact of the 2004 EU enlargement on enterprise performance and on the export behaviour of business services enterprises and professional persons in Germany's eastern border region, while Eickelpasch / Vogel (2009) analysed the impact of several firm-specific characteristics on the firms' export performance. Vogel's 2009 investigation was in line with empirical models used to analyse the manufacturing sector in terms of whether export premia and self-selection into export markets exist in the German business services sector. Finally, Vogel / Wagner (2009) conducted an empirical study on the relationship between exports and profitability in the business services sector.

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<sup>7</sup> For example, the Establishment Panel of the Institute for Employment Research of the Federal Labour Services in Germany (*Institut für Arbeitsmarkt- und Berufsforschung der Bundesagentur für Arbeit / IAB*) contains business services establishments and these establishments' percentage of exports to total turnover (see Kölling, 2000). However, the small sample size of business services establishments does not allow for detailed analyses of business services establishments that export. In particular, the number of enterprises beginning export activities is very small, which inhibits, for example, the analysis of the self-selection into export markets. Further, the turnover tax statistics panel from the German Federal Statistical Office and the statistical offices of the Federal States includes all business services enterprises whose annual total turnover exceeds EUR 17,500. However, the analysis of business services enterprises that export is limited by the fact that the dataset contains only the exports of goods and not the exports of services (see Vogel / Dittrich, 2008).

Further research topics could include investigation of the heterogeneity of enterprises within business services sectors in terms of their growth in several performance indicators, or analyses of the differences between the developments in the East and West German business services sectors on the enterprise level. In addition, regional references—the Federal State is directly included and the district (Kreis) is available via the business register—allow the integration of regional context variables such as the gross domestic product, the rate of unemployment, and the tax rates of the region where the enterprise is located.

## 5. Prospects

Because of the German WZ2008, the NACE Revision 2 (see European Parliament, 2006) and the revised regulations concerning structural business statistics (see European Parliament, 2008), the design of the business services statistics will change with the reporting year 2008. According to Redling (2008), the considered business lines will be extended to more services sectors (including sectors that were seen as manufacturing sectors in the NACE Revision 1.1), and a completely new sample will be drawn. The statistics will also include new variables, namely, the number of employees expressed in full-time equivalent units, payments for agency workers, and more detailed information about turnover (e.g., information about the exports to EU and non-EU countries). However, more detailed information about turnover will be recorded only for statistical units with more than 20 employed persons and only for selected business lines. (See Redling, 2008, for more details.) Consequently, this major change in the services statistics inhibits the continuation of the business services statistics panel beyond 2007. However, starting with 2008, a new services statistics panel will offer new research possibilities concerning a wider range of service activities, as well as new variables.

## 6. Data Access

The access to micro-data of official statistics is provided by the research data centres of the German Federal Statistical Office and the statistical offices of the Federal States.<sup>8</sup> At the beginning of 2009, the German business services statistics panel 2003–2006 became available via controlled remote data processing, which facilitates analysis of the formally anonymised original data. It is also possible to work with the de facto anonymised dataset of the business services statistics panel on safe scientific workstations on the protected premises of the statistical agencies. The panel for the reporting years 2003–2007 will probably be released at the beginning of 2010.

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<sup>8</sup> See Zühlke et al. (2004) and [www.forschungsdatenzentrum.de](http://www.forschungsdatenzentrum.de) for more details about the different ways of data access.

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