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# Export Growing among Knowledge-intensive Service Providers

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*In the German economy, both international trade in goods and also in services have grown quite forcefully. World-wide Germany is the third-largest exporter of services. However, until recently little has been known about the export behavior of service companies, especially small and medium sized enterprises (SME). The exports of SMEs in knowledge-intensive service branches have grown in above average in the years 2003 to 2007. Admittedly, the quotient of exports of these companies is still smaller than that of the large companies.*

*The proportion of companies exporting has increased among both SMEs and large companies. The increase however was especially pronounced among medium-sized companies. A longitudinal study for the period 2003 to 2007 shows that there are relatively few small companies that constantly export, i.e. in all of the years named here. Among the medium-sized companies there are many that–unlike the case of very small companies–first began exporting in these years. The significance of the first-time exporter exceeds the significance of those who have ended their shipments abroad.*

The internationalization of the economy has continued to increase in recent years. According to data from the World Trade Organization, the world-wide value of exports (goods and commercial services[1]) in the year 2009 was double that of the year 2000,[2] while world-wide production only increased by 21 percent. To be sure, world trade is governed by trade in goods; however, trade in services is becoming more and more important. Thus in 2009 world-wide exports of commercial services come to 2.3 times the value from the year 2000, and world-wide export of goods came to 1.9 times that amount. The share of commercial series in world exports increased with this from 18.7 (2000) to 19.8 percent (2009).

The increasing internationalization of trade of services is reflected in the German economy. Exports of commercial services were 2.8 times higher in 2009 than in 2000, while export of doubled goods in this period. After the USA and Great Britain, the German economy is the third largest exporter of commercial services; its share of the world market in 2008 amounted to 6.8 percent. Admittedly, Germany's

**1** Services excluding transportation and tourism services in US-Dollar.

**2** World Trade Organization, International Trade Statistics 2010, Geneva 2010.

JEL Classification:
F14, F23, L80

Keywords:
Export, Knowledge-intensive services, Small and medium sized enterprises

Table 1

**Export of Technological Services* 2006 to 2009**

In Millions of Euros

| | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|
| **Total** | **30 426** | **32 995** | **37 462** | **40 438** |
| Manufacturing | 17 375 | 18 638 | 20 331 | 20 545 |
| Manufacture of food products, beverage and tobacco | 77 | 60 | 47 | 117 |
| Manufacture of pulp, paper and paper products; publishing and printing | 689 | 742 | 510 | 407 |
| Manufacture of chemicals, chemical products | 4 402 | 5 055 | 4 698 | 5 590 |
| Manufacture of machinery and equipment | 1 126 | 1 184 | 1 421 | 1 474 |
| Manufacture of radio, television and communication technologies | 1 099 | 1 126 | 703 | 433 |
| Manufacture of motor vehicles | 3 612 | 3 873 | 5 122 | 4 077 |
| Manufacture of other transport equipment | 1 802 | 2 056 | 2 964 | 3 472 |
| Trade, service and repair of vehicles and personal and household goods | 850 | 923 | 1 003 | 1 026 |
| Transport, storage, communication | 163 | 157 | 295 | 234 |
| Communication | 57 | 33 | 7 | 0 |
| Financial intermediation | 337 | 235 | 1 271 | 2 846 |
| Real estate, renting and business activities | 10 486 | 11 724 | 13 160 | 13 167 |
| Computer and related activities | 5 815 | 6 963 | 7 653 | 7 889 |
| Research and development | 1 072 | 1 149 | 1 336 | 1 322 |
| Other business activities | 3 548 | 3 591 | 4 141 | 3 920 |
| Public budgets, private housholds budgets and other services | 437 | 402 | 451 | 423 |

* Included in technological services are patents and licenses, research and development, IT, engineering and other technical services.

Source: Deutsche Bundesbank. **DIW** Berlin 2011

Exports grew faster in the service sector than in manufacturing.

share of exports of goods on the world-wide export market is considerably higher at nine percent.

In Germany, services are often exported by manufacturing companies. These are obviously services in connection with deliveries of goods—such as needed for project development or commissioning of plants. Only a share of the designated services exported is exported by actual service companies. How high this share currently is can only be estimated, since the only information available is for so-called technological services[3]. According to information from the German Bundesbank two-fifths of the export of technological services derive from companies in the service sector (table 1).The development in the years 2006 to 2009[4] shows that exports from service companies have increased.

Unlike manufacturing companies,[5] little is known about the export behavior of service companies, even if research in this area has increased in recent years.[6] This report should contribute to reducing this deficit of information. This report concentrates on the export behavior of companies in knowledge-intensive, business-oriented service business lines[7]. Knowledge-intensive services make an above-average contribution to the growth of the national economy and are therefore a focus of economic policy.

The basis in data is the structural data survey in the service industry introduced in the year 2000 ("service statistics") (see box). The methodology of service statistics was considerably reorganized with reporting year 2008. This makes the current results no longer comparable with the previous years. This investigation is therefore essentially restricted to the period 2003 to 2007.[8]

**3** Included among technological services in the measure used by the German Bundesbank are patents and licenses and development, IT-, engineering and other technical services.

**4** Comparability with prior years is restricted.

**5** One can glean an overview of the empirical investigations into export behavior in Wagner, J.: Exports and Productivity: A Survey of the Evidence from Firm-Level Data. The World Economy 30 (1), 2007, 60–82 and Wagner, J.: Exports and Firm Characteristics in German manufacturing industries. University of Lüneburg Working Paper Series in Economics, Nr. 188, Lüneburg 2010.

**6** Current results on the internationalization of services can be found in Eickelpasch, A., Vogel, A. (Hrsg.): The Internationalisation of Services – Evidence from Micro Data, Applied Economics Quarterly, Vol. 56, Berlin 2010. Presented in this collection are selected contributions from an international workshop that was held by the Leuphana Universität Lüneburg and by DIW Berlin in June of 2010. There have also been some recent regional studies on the topic. C.f. Gehrke, B., Kawczyk, O., Schasse, U: Updated and expanded analyses on the foreign trade aspects of the economy of Lower Saxony, Hannover 2010.

**7** Included among these according to the definition of NIW/ISI are communications, data processing, research and development, legal, financial and other business consulting, market and opinion research, as well as, architects, engineering agencies and technical testing and analysis. Banks and insurance companies as well as educational institutions also count as knowledge-intensive but are excluded due to lack of information. C.f. Gehrke, B., Legler, H., Schasse, U.: Adäquate quantitative Erfassung wissensintensiver Dienstleistungen, Schwerpunktstudie zum deutschen Innovationssystem 13-2009, Hannover 2009.

**8** The study ties in with an investigation which analyzed export-orientation in the area of business services through the year 2005. Eickelpasch, A.: Export Orientation of Service Companies on the Increase In: Weekly Report, Nr. 5/2008, 28–35.

Box
## Methodology

The source of information is the annual structural survey in the service industry (service statistics),[1] which was carried out in Germany for the first time in the year 2000. The statistics encompass the economic sectors I ("Transport, storage and and communication" ) as well as K ("Real estate, renting and business activities") in the German classification of economic activities, edition 2003.[2] At most 15 percent of the companies from these areas were surveyed in writing by the state statistical offices. The random sample is sorted according to the criteria federal state, economic sector and sales volume.[3] The basic population is comprised of all VAT-liable companies as well as independent business professionals with at least 17,500 Euro annual sales. The statistics include, among other things, information about sales, exports and employment[4]. However, not every company was asked about these, only those with an annual sales volume of 250,000 Euro and more. For this investigation, individual data disclosures from the years 2003 to 2007 that had been rendered anonymous were provided by the Research Data Center for State Statistical Offices, Berlin Office .[5]

The random samples for the surveys from the years 2003 to 2007 were not changed. This made it possible to tie in the annual details with each other. However, projections were not possible, since no projection factors for the longitudinal scope were provided.

In 2007, according to the service statistics in economic sectors I and K, barely 200,000 businesses with sales of more than 250,000 Euro were active, earning at total of 5.8 million employees and total sales[6] of 719 billion Euros, of these 48 billion Euros with customers abroad. Additional information about the distribution of companies, sales, export and employment by business sector can be drawn from the table. These service statistics provide consistent information, admittedly only for the period 2003 to 2007. The target countries of the exports were not recorded, nor are there any statements concerning the other forms of the companies' foreign trade activities, such as cooperation, direct investments or imports. Due to the switch in survey methodology and economic sector systematics, the information from the service statistics for 2008 are not comparable with the results of previous years.

**1** Cf. in detail: Pesch, K.-H. et al: Unternehmensstrukturen in ausgewählten Dienstleistungsbereichen 2004. Wirtschaft und Statistik, 1/2007, 58–67 and Vogel, A.: The German Business Services Statistics Panel 2003 to 2007. In: Schmollers Jahrbuch 129 (2009), 515–522.

**2** Statistisches Bundesamt (Hrsg.): Klassifikation der Wirtschaftszweige mit Erläuterungen. Ausgabe 2003, Wiesbaden 2003.

**3** The projected results are published annually by the state and federal offices.

**4** Employed persons however not included temporary employees.

**5** Special thanks to Anja Malchin from the Research Data Center of the Statistical Offices, Berlin Office, for editing the data and Karl-Heinz Pesch for important tips on the peculiarities of these statistics.

**6** The question dealt with sales from ordering parties domiciled outside of Germany. This includes orders from foreign subsidiaries.

## Exports and shares of exports increase

In the year 2007, companies in knowledge-intensive service branches exported services valuing 21.1 billion Euros, making up 6.9 percent of their sales (Table 2). Compared with 2003, exports increased by 29 percent. The export rate for 2007 lay however only slightly above the export rate for the year 2003, but considerably above the export rates for the years 2004 to 2006. Obviously export activity is subject to wide fluctuations. Compared to the high export rates in the manufacturing industries—it lay in 2007 at 43.4 percent– the export rate in knowledge-intensive service industries is as small as expected.

The most important business line of exports is data processing, which encompasses 43 percent of exports; the second-most-important is the group of architecture and engineering agencies (14 percent). In these branches, the share of exports is higher than average. Very strong export activity can also be found in smaller business lines, such as research and development, in the technical testing and analysis or legal consulting. The lowest is the share of exports in communications (1.9 percent).

With the exception of communications, services for foreign clients have increased in all branches. The increase in technical testing and analysis was especially strong, as well as in legal and business consulting and research and development. Here exports have doubled or tripled. In these branches, the export ratios also increased more significantly than in other branches.

The largest portion of exports (53.2 Percent) is attributable to large companies (Companies with 250 and more employees). This is not at all surprising. What is remarkable is that their export ratio lies only

Box (continued)

Table

### Selected properties of companies in business service sectors 2007

| | Company | Sales | Foreign sales | Employed persons |
|---|---|---|---|---|
| | Number | Millions of Euros | | Number |
| Companies total | 199 076 | 719.22 | 48.24 | 5 766 |
| **Structure in percent** | | | | |
| Transport, storage and communication | 20.4 | 42.7 | 50.6 | 32.2 |
| Land transport; transport via pipelines | 11.0 | 8.6 | 3.7 | 10.4 |
| Water transport | 1.2 | 4.0 | 24.7 | 0.7 |
| Air transport | 0.1 | 1.8 | 4.1 | 0.9 |
| Cargo handling and storage | 0.5 | 0.7 | 0.5 | 0.7 |
| Other supporting transport activities | 0.4 | 2.1 | 0.6 | 2.0 |
| Activities of travel agencies and tour operators | 1.6 | 2.7 | 1.0 | 0.9 |
| Activities of other transport agencies | 4.3 | 9.7 | 12.3 | 5.9 |
| Post and telecommunications | 1.4 | 13.1 | 3.7 | 10.7 |
| Real estate renting and business activities | 79.6 | 57.3 | 49.4 | 67.8 |
| Real estate activities | 19.3 | 13.3 | 2.0 | 4.3 |
| Renting of machinery and equipment without operator and of personal and household goods | 2.6 | 4.1 | 1.7 | 1.3 |
| Hardware consultancy and software consultancy and supply | 5.4 | 5.7 | 16.6 | 4.4 |
| Data processing and database activities | 0.9 | 2.2 | 1.3 | 1.5 |
| Maintenance, other computer related activities | 0.9 | 0.8 | 0.8 | 0.7 |
| Research and development | 0.9 | 1.1 | 2.8 | 1.7 |
| Legal activities | 6.0 | 2.0 | 2.9 | 2.7 |
| Accounting, book-keeping and auditing activities; tax consultancy | 8.5 | 2.5 | 1.2 | 4.3 |
| Market research and public opinion polling, Business and management consultancy activities | 5.1 | 2.9 | 3.1 | 2.3 |
| Management activities of holding companies | 3.3 | 4.9 | 3.1 | 2.4 |
| Architectural and engineering activities and related technical consultancy | 10.0 | 4.2 | 6.1 | 4.4 |
| Technical testing and analysis | 1.0 | 0.7 | 1.1 | 0.9 |
| Advertising | 4.1 | 2.4 | 1.1 | 3.1 |
| Labour recruitment and provirion of personnel | 2.0 | 2.6 | 0.5 | 11.9 |
| Investigation and security activities | 0.7 | 0.5 | 0.1 | 2.4 |
| Industrial cleaning | 2.6 | 1.6 | 0.1 | 12.7 |
| Miscellaneous business activities n.e.c. | 6.4 | 5.7 | 5.1 | 6.9 |
| Business lines of … | | | | |
| Knowledge-intensive services | 47.5 | 42.4 | 43.7 | 39.1 |
| Less knowledge intensive services | 52.5 | 57.6 | 56.3 | 60.9 |

Business sectors classified according to the German classification of economic activities, edition 2003.

Sources: Research Data Center of the State and Federal Statistical Offices; calculations by DIW Berlin.

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a little above average (7.3 percent). It is higher for companies with 50 to 249 employees. The smaller relative export ratios can also be attributable to the fact that large companies, more often than small ones, do not export directly, but instead access foreign markets through their subsidiaries or offices in the specific target country.[9]

## Small and medium-sized companies catch up

The differences in the dynamics of exports are also remarkable. Among large companies expansion was the smallest, while among small and medium-sized companies it was the largest. Companies with fewer than five employees nearly tripled their export sales. This also shows up in the development of their export ratios. Small and medium-sized companies have gained considerable ground.

The export ratio is highest in highly developed states such as Baden-Württemberg (14.9 Percent), Hesse

**9** Gehrke, B. Krawczyk, O., Schasse, U.: op. cit.

Table 2

**Export ratios in business-oriented knowledge-intensive service industries 2003 to 2007**

Share of sales in percent

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2007 ./. 2003 | 2007, 2003 = 100 | Exports in 2007, structure in percent |
|---|---|---|---|---|---|---|---|---|
| **Companies total** | **6,5** | **5,5** | **6,0** | **6,6** | **6,9** | **0,4** | **129** | **100,0** |
| Post and telecommunications | 3,1 | 2,0 | 1,7 | 1,8 | 1,9 | –1,2 | 67 | 8,5 |
| Computer and related activities | 12,4 | 12,4 | 13,5 | 14,7 | 14,3 | 1,9 | 139 | 42,6 |
| Research and development | 12,1 | 14,1 | 13,1 | 14,1 | 17,0 | 4,9 | 192 | 6,4 |
| Legal activities | 5,5 | 8,4 | 8,8 | 9,2 | 9,8 | 4,3 | 246 | 6,6 |
| Accounting, book-keeping and auditing activities; tax consultancy | 1,1 | 1,2 | 1,9 | 3,2 | 3,2 | 2,1 | 311 | 2,7 |
| Market research and public opinion polling, Business and management consultancy activities | 6,5 | 4,8 | 7,0 | 6,9 | 7,2 | 0,8 | 151 | 7,1 |
| Management activities of holding companies | 11,5 | 3,8 | 3,7 | 4,9 | 4,2 | –7,3 | 63 | 7,1 |
| Architectural and engineering activities and related technical consultancy | 6,8 | 7,2 | 7,5 | 7,9 | 9,9 | 3,1 | 165 | 14,0 |
| Technical testing and analysis | 4,2 | 5,7 | 11,5 | 6,6 | 10,2 | 6,0 | 304 | 2,4 |
| Advertising | 2,8 | 2,5 | 2,6 | 3,9 | 3,1 | 0,4 | 140 | 2,6 |
| Companies with … employed persons | | | | | | | | |
| up to 4 | 2,5 | 3,1 | 3,6 | 4,1 | 5,2 | 2,8 | 287 | 4,8 |
| 5 to 9 | 2,5 | 3,1 | 3,3 | 3,5 | 4,0 | 1,5 | 207 | 4,3 |
| 10 to 19 | 3,6 | 3,7 | 4,3 | 4,3 | 5,2 | 1,7 | 176 | 6,7 |
| 20 to 49 | 5,3 | 5,7 | 6,3 | 7,3 | 7,2 | 1,9 | 187 | 11,6 |
| 50 to 99 | 5,9 | 7,8 | 6,2 | 7,8 | 8,0 | 2,1 | 189 | 8,2 |
| 100 to 249 | 9,7 | 8,2 | 8,8 | 9,4 | 8,6 | –1,1 | 130 | 11,3 |
| 250 and more | 7,7 | 5,7 | 6,5 | 7,0 | 7,3 | –0,3 | 105 | 53,2 |
| Companies | | | | | | | | |
| with branch offices in Germany | 6,8 | 6,0 | 6,1 | 6,7 | 7,0 | 0,1 | 117 | 48,9 |
| without branch offices in Germany | 6,1 | 5,0 | 5,9 | 6,5 | 6,9 | 0,8 | 144 | 51,1 |
| Companies located in … | | | | | | | | |
| West Germany | 6,7 | 5,6 | 6,1 | 6,7 | 7,1 | 0,4 | 127 | 95,0 |
| Schleswig-Holstein | 1,5 | 2,2 | 2,0 | 1,7 | 3,2 | 1,7 | 188 | 0,7 |
| Hamburg | 3,2 | 4,1 | 6,8 | 4,9 | 6,3 | 3,1 | 323 | 3,5 |
| Lower Saxony | 1,6 | 3,2 | 3,0 | 4,1 | 4,6 | 3,0 | 360 | 3,0 |
| Bremen | 2,3 | 7,2 | 5,2 | 3,9 | 3,9 | 1,5 | 242 | 0,3 |
| North Rhine-Westphalia | 2,4 | 1,9 | 2,9 | 3,4 | 3,5 | 1,1 | 159 | 17,7 |
| Hessia | 9,7 | 8,8 | 7,2 | 8,3 | 8,8 | –0,9 | 95 | 16,9 |
| Rhineland-Palatinate | 9,8 | 4,2 | 3,1 | 4,3 | 4,7 | –5,1 | 87 | 1,6 |
| Baden-Württemberg | 13,0 | 13,6 | 13,9 | 14,8 | 14,9 | 1,9 | 167 | 33,7 |
| Bavaria | 12,6 | 6,2 | 6,3 | 7,4 | 7,7 | –4,8 | 78 | 17,0 |
| Saarland | 2,5 | 4,0 | 4,2 | 5,3 | 6,7 | 4,2 | 345 | 0,7 |
| East Germany | 3,0 | 3,8 | 5,1 | 5,0 | 5,0 | 2,0 | 222 | 5,0 |
| Berlin | 3,2 | 4,3 | 6,0 | 6,8 | 6,6 | 3,4 | 278 | 3,2 |
| Brandenburg, Mecklenburg-West Pomerania | 4,8 | 2,2 | 2,3 | 2,6 | 3,6 | –1,2 | 92 | 0,5 |
| Saxony, Saxony-Anhalt, Thuringia | 2,1 | 3,6 | 4,7 | 3,2 | 3,5 | 1,3 | 227 | 1,3 |
| *For information only: Exports (million Euros)* | 16 312,3 | 14 644,3 | 16 544,0 | 18 954,2 | 21 087,0 | | | |

Business sectors classified according to the German classification of economic activities, edition 2003.

Sources: Research Data Center of the State and Federal Statistical Offices; calculations by DIW Berlin.

DIW Berlin 2011

**Export ratios increased in all branches.** Communications form the only exception.

(8.8 Percent) and Bavaria (7.7 percent). It can be supposed that service companies in these states profit from the especially export-heavy industry. However, a clear advantage in exports in the major cities is not discernable, even if the export ratios for Hamburg and Berlin are above average.

More up-to-date information on exports is available for the year 2008–but not comparable with that from previous years due to a change in the classification of economic sectors. The business lines with the highest export ratios are research institutions and market and public opinion research (Table 3). The export ratios are also higher than average among IT providers and architecture and engineering agencies. These two branches alone combine to account for nearly 53 percent of export in the year 2008.

Table 3

### Exports and export ratios in business-oriented knowledge intensive service branches 2008

| | Million Euros | Share of sales |
|---|---|---|
| **Companies total** | **32 767** | **10.0** |
| Telecommunications | 2 625 | 3.5 |
| Computer programming, consultancy and related activities | 11 801 | 17.6 |
| Information service activities | 1 218 | 8.4 |
| Legal activities | 1 609 | 11.0 |
| Accounting, bookkeeping and auditing activities; tax consultancy | 744 | 3.7 |
| Activities of head offices | 2 634 | 7.0 |
| Management consultancy activities | 1 780 | 10.3 |
| Architectural and engineering activities and related technical consultancy | 5 456 | 15.4 |
| Technical testing and analysis | 568 | 8.9 |
| Scientific research and development | 1 940 | 22.5 |
| Research and experimental development on biotechnology | 311 | 33.0 |
| Other research and experimental development on natural sciences and engineering | 1 610 | 21.8 |
| Research and experimental development on social sciences and humanities | 18 | 5.9 |
| Advertising | 1 122 | 5.9 |
| Market research and public opinion polling | 449 | 18.9 |
| Other professional, scientific and technical activities | 811 | 10.4 |
| Veterinary activities | 10 | 0.7 |

Business sectors classified according to the German classification of economic activities, edition 2008.

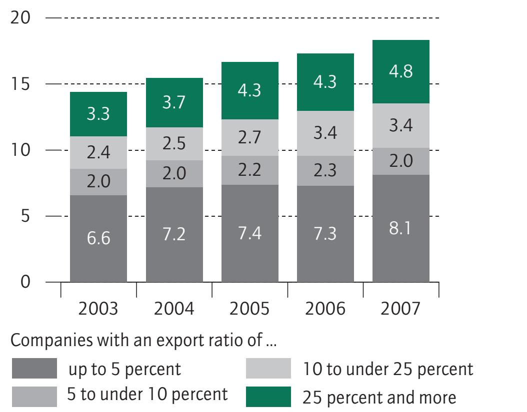
Source: German Federal Office for Statistics. **DIW** Berlin 2011

**Research and Development** as well as market and opinion research reach highest export ratios.

Figure

### Export activity of knowledge-intensive business-oriented service companies 2003 to 2007

Proportion of all companies in percent




Source: Research Data Center for the German State and Federal Office for Statistics. **DIW** Berlin 2011

**The significance of firms with strong exports** is increasing.

## Export participation continues to increase

The microeconomic analysis of service statistics shows that in the year 2007, 18.3 percent of the nearly 95,000 business-oriented knowledge-intensive service companies were active in the export trade (Figure). Since 2003 both the number of companies exporting and the share of all companies exporting have increased: In 2003 participation in exports was still at 14.4 percent, in 2007 it was 18.3 percent. Among these exporting companies, one third saw less than five percent of their sales come from foreign countries. At the other end of the scale is another third for which export accounted for more than a quarter of their total sales. The significance of companies with especially strong exports has increased over time.

Focus on exports is highest in the research and development branch: In 2007 38.7 percent of companies exported (Table 4). The proportion of companies exporting is also higher than average in data processing, testing laboratories, advertising and marketing and opinion research. In these branches, the proportion of exporting companies increased quite strongly between 2003 and 2007. Communications is the only business line, in which the proportion of exporting companies retreated slightly; here there are also only a few companies that have clients abroad.

As one would expect, large companies export more frequently than small ones. In 2007 15 percent of small companies (up to nine employees) had clients in foreign countries. A clear contrast to this is offered by the medium-sized companies, which are by far more involved in export trade. Of this group with 50 to 249 employees, a third supplied services abroad. Among the large companies with 250 and more employees the proportion was similarly high. In the period from 2003 to 2007, the proportion of exporting companies increased in all size categories–most considerably among companies with 20 to 99 employees and among large companies starting at 250 employees, the least among the very small companies with fewer than five employees. Additionally, it can be established that companies with several regional branch offices in Germany export more frequently than those that only have one business location. Companies with several branch offices are for the most part larger firms.

Table 4

**Export activity of knowledge-intensive business-oriented service companies 2003 to 2007**

Share of all companies in percent

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2007 ./. 2003 |
|---|---|---|---|---|---|---|
| **Companies total** | **14.4** | **15.5** | **16.6** | **17.3** | **18.3** | **3.9** |
| Post and telecommunications | 8.8 | 6.6 | 8.2 | 9.1 | 8.5 | –0.3 |
| Computer and related activities | 24.6 | 24.7 | 25.5 | 27.9 | 29.8 | 5.3 |
| Research and development | 32.9 | 35.3 | 36.0 | 34.8 | 38.7 | 5.7 |
| Legal activities | 18.5 | 17.2 | 17.7 | 17.6 | 19.5 | 1.0 |
| Accounting, book-keeping and auditing activities; tax consultancy | 7.4 | 9.4 | 9.4 | 9.6 | 10.6 | 3.2 |
| Market research and public opinion polling, Business and management consultancy activities | 18.8 | 19.1 | 22.5 | 24.7 | 22.6 | 3.8 |
| Management activities of holding companies | 7.8 | 6.6 | 7.1 | 6.8 | 8.0 | 0.2 |
| Architectural and engineering activities and related technical consultancy | 9.0 | 11.5 | 12.8 | 12.1 | 13.6 | 4.6 |
| Technical testing and analysis | 18.0 | 24.9 | 27.5 | 31.1 | 29.0 | 11.0 |
| Advertising | 17.9 | 18.4 | 21.3 | 23.1 | 23.4 | 5.5 |
| Companies with ... employed persons | | | | | | |
| up to 4 | 12.3 | 13.0 | 14.4 | 15.4 | 14.6 | 2.2 |
| 5 to 9 | 11.1 | 12.4 | 13.3 | 13.7 | 15.1 | 4.1 |
| 10 to 19 | 14.6 | 15.6 | 16.7 | 16.6 | 18.8 | 4.2 |
| 20 to 49 | 22.5 | 24.0 | 25.7 | 27.4 | 28.8 | 6.4 |
| 50 to 99 | 28.8 | 32.2 | 32.5 | 36.5 | 35.9 | 7.1 |
| 100 to 249 | 33.4 | 33.8 | 37.0 | 38.6 | 36.3 | 2.9 |
| 250 and more | 28.3 | 27.5 | 28.6 | 29.6 | 34.3 | 6.0 |
| Companies | | | | | | |
| with branch offices | 22.1 | 27.6 | 28.0 | 26.9 | 24.7 | 2.7 |
| without branch offices | 14.0 | 14.9 | 16.1 | 16.8 | 17.9 | 3.9 |
| Companies located in ... | | | | | | |
| West Germany | 15.1 | 16.1 | 17.4 | 17.9 | 19.0 | 3.9 |
| Schleswig-Holstein | 10.1 | 9.5 | 11.2 | 10.8 | 11.5 | 1.5 |
| Hamburg | 15.4 | 16.2 | 17.4 | 20.3 | 21.2 | 5.8 |
| Lower Saxony | 9.0 | 10.8 | 9.7 | 10.6 | 11.5 | 2.5 |
| Bremen | 10.9 | 13.5 | 11.9 | 10.6 | 10.0 | –0.9 |
| Nordrhine-Westphalia | 13.9 | 13.8 | 15.4 | 15.4 | 16.7 | 2.8 |
| Hessia | 19.6 | 19.6 | 22.6 | 23.1 | 23.4 | 3.9 |
| Rhineland-Palatinate | 11.4 | 14.0 | 13.9 | 14.2 | 15.7 | 4.3 |
| Baden-Württemberg | 16.3 | 17.4 | 19.5 | 19.9 | 21.2 | 4.9 |
| Bavaria | 17.4 | 19.8 | 20.5 | 21.3 | 22.7 | 5.2 |
| Saarland | 14.6 | 15.5 | 18.2 | 18.7 | 18.2 | 3.6 |
| East Germany | 10.0 | 11.5 | 12.0 | 13.4 | 13.9 | 4.0 |
| Berlin | 13.8 | 17.4 | 17.0 | 20.4 | 20.9 | 7.1 |
| Brandenburg, Mecklenburg-West Pomerania | 6.5 | 6.1 | 6.4 | 6.9 | 9.9 | 3.4 |
| Saxony, Saxony-Anhalt, Thuringia | 8.9 | 9.6 | 10.6 | 10.8 | 10.5 | 1.7 |
| *For information only:* | | | | | | |
| *Companies with exports (number)* | 11 510 | 12 941 | 14 453 | 15 678 | 17 338 | |

Business sectors classified according to the German classification of economic activities, edition 2003.

Sources: Research Data Center of the State and Federal Statistical Offices; Calculations by DIW Berlin.

**DIW** Berlin 2011

Participation in export trade is highest among medium-sized companies.

## Nearly one-tenth of companies export long-term

The observation that many companies earn only a very small portion of their sales with foreign clients leads to the inference that we are likely dealing with a temporary foreign segment. It could also be the case that these are companies that have just begun to open up foreign markets and therefore are not very active abroad. Among companies with high export ratios, though, one would expect that their exports would be long-term and would form a significant component of their sales strategy.

In order to study the significance of export behavior overtime, longitudinal studies are necessary. However, only companies for which complete information through all observation years is available, in this case, through all five years, can be included in longitudinal analyses[10].

**10** Companies that were counted among the knowledge-intensive branches in 2003. Projection is not possible, since projection factors for the longitudinal study are not available.

Table 5

## Companies that exported either constantly or not constantly in the period 2003 to 2007

Share of all companies in percent

| | Proportion of all companies that | | | | | Total | Balance of companies that began exporting and then stopped |
|---|---|---|---|---|---|---|---|
| | Exported in all years | Began exporting* | Stopped exporting** | Exported in-consistently*** | Did not export | | |
| **Companies total** | **9.2** | **10.0** | **5.5** | **13.1** | **62.2** | **100.0** | **4.5** |
| Post and telecommunications | 5.2 | 7.3 | 3.4 | 7.9 | 76.2 | 100.0 | 3.9 |
| Computer and related activities | 13.6 | 12.1 | 7.7 | 16.5 | 50.2 | 100.0 | 4.4 |
| Research and development | 20.1 | 15.3 | 7.9 | 18.6 | 38.1 | 100.0 | 7.3 |
| Legal activities | 11.4 | 8.2 | 6.7 | 13.5 | 60.2 | 100.0 | 1.5 |
| Accounting, book-keeping and auditing activities; tax consultancy | 4.6 | 6.9 | 2.5 | 10.0 | 76.0 | 100.0 | 4.4 |
| Market research and public opinion polling, Business and management consultancy activities | 11.7 | 14.6 | 7.0 | 15.5 | 51.2 | 100.0 | 7.6 |
| Management activities of holding companies | 3.4 | 4.5 | 4.0 | 5.4 | 82.8 | 100.0 | 0.5 |
| Architectural and engineering activities and related technical consultancy | 7.0 | 10.0 | 3.7 | 11.2 | 68.0 | 100.0 | 6.3 |
| Technical testing and analysis | 11.2 | 10.5 | 6.3 | 16.3 | 55.8 | 100.0 | 4.2 |
| Advertising | 8.9 | 12.3 | 7.4 | 17.5 | 53.8 | 100.0 | 4.9 |
| Companies with … employed persons | | | | | | | |
| up to 4 | 4.1 | 7.6 | 4.4 | 9.2 | 74.7 | 100.0 | 3.2 |
| 5 to 9 | 4.8 | 8.4 | 5.1 | 11.5 | 70.2 | 100.0 | 3.3 |
| 10 to 19 | 6.9 | 9.6 | 5.3 | 13.9 | 64.3 | 100.0 | 4.2 |
| 20 to 49 | 11.5 | 12.2 | 6.4 | 15.8 | 54.1 | 100.0 | 5.8 |
| 50 to 99 | 16.9 | 12.9 | 7.5 | 15.7 | 47.0 | 100.0 | 5.4 |
| 100 to 249 | 28.8 | 12.0 | 4.5 | 11.7 | 43.1 | 100.0 | 7.5 |
| 250 and more | 20.2 | 10.7 | 6.3 | 10.7 | 52.1 | 100.0 | 4.5 |
| Companies | | | | | | | |
| with branch offices in Germany | 21.6 | 13.0 | 6.1 | 13.8 | 45.6 | 100.0 | 6.9 |
| without branch offices in Germany | 7.9 | 9.7 | 5.5 | 13.0 | 64.0 | 100.0 | 4.2 |
| Companies located in … | | | | | | | |
| West Germany | 9.9 | 10.6 | 5.9 | 13.8 | 59.8 | 100.0 | 4.8 |
| Schleswig-Holstein | 7.0 | 7.0 | 4.3 | 10.4 | 71.4 | 100.0 | 2.7 |
| Hamburg | 8.1 | 14.1 | 5.4 | 16.3 | 56.1 | 100.0 | 8.7 |
| Lower Saxony | 6.4 | 8.3 | 4.5 | 11.7 | 69.1 | 100.0 | 3.7 |
| Bremen | 4.3 | 6.1 | 5.8 | 10.8 | 73.0 | 100.0 | 0.4 |
| Nordrhine-Westphalia | 10.0 | 9.6 | 5.9 | 12.0 | 62.5 | 100.0 | 3.6 |
| Hessia | 12.5 | 11.7 | 6.8 | 16.5 | 52.5 | 100.0 | 4.9 |
| Rhineland-Palatinate | 7.2 | 7.2 | 4.3 | 15.0 | 66.3 | 100.0 | 3.0 |
| Baden-Württemberg | 11.7 | 10.8 | 6.7 | 13.0 | 57.8 | 100.0 | 4.1 |
| Bavaria | 11.2 | 13.7 | 5.8 | 16.0 | 53.4 | 100.0 | 7.9 |
| Saarland | 7.9 | 12.1 | 6.5 | 14.4 | 59.2 | 100.0 | 5.6 |
| East Germany | 6.4 | 7.2 | 4.1 | 10.0 | 72.4 | 100.0 | 3.1 |
| Berlin | 7.7 | 10.6 | 6.1 | 15.3 | 60.3 | 100.0 | 4.5 |
| Brandenburg, Mecklenburg-West Pomerania | 4.7 | 4.1 | 2.9 | 5.5 | 82.8 | 100.0 | 1.2 |
| Saxony, Saxony-Anhalt, Thuringia | 6.4 | 6.9 | 3.6 | 9.4 | 73.7 | 100.0 | 3.2 |
| *For information only: Companies (number)* | 1 120 | 1 213 | 671 | 1 587 | 7 554 | 12 145 | |

***** Companies that exported in the years 2004, 2005, 2006 and the respective subsequent years as well as in the year 2007.
****** Companies that ceased exporting in the years 2004, 2005, 2006 and the respective subsequent years as well as in the year 2007.
******* Companies which exported in one or more years but not in others.
Business sectors classified according to the German classification of economic activities, edition 2003.

Sources: Research Data Center of the State and Federal Statistical Offices; calculations by DIW Berlin. **DIW** Berlin 2011

There is a stable core of companies that constantly export.

The count shows that 34.5 percent of knowledge-intensive companies are "panel companies" of this sort[11].

**11** Nearly 30 percent of these companies have only participated in the last year or in the last two, three or four years. Here we may be dealing with newly founded companies that were first surveyed in the framework of a random sample of new businesses. 17 percent of the companies have only participated in the first year, or in the first two, three or four years. Here we may be dealing primarily with closures. For 18 percent of the companies, the availability of information about exports alternates from one year to the next-one year there is information, the next year, none. This could be because they fall above or below the reporting threshold of 250,000 Euros annual sales from one year to the next.

These „panel companies“ were into five groups, into such

- that exported all five years,
- that did not export in the first, first two, first three or first four years , but did export later (“began exporting”),
- that did export in the first, the first two, first three or first four years, but later did not continue to export (“stopped exporting”) and
- in a remaining group that exported some years but not others (“inconsistent export”) and those
- that, did not export in all five years[12].

The longitudinal study yields the following picture: 9.2 percent of these companies exported all five years. Ten percent began exporting and 5.5 percent gave up their export activities. On the balance, the proportion of exporters grew by 4.5 percentage points. In 13.1 percent of the companies consistent behavior cannot be identified; they exported in one or more years, in some years, though, they did not. The remaining 62.1 percent did not export during the study period. (Table 5).

By far the largest share of exports is attributable to the companies that export consistently and constantly. On average for the years 2003 to 2007, this came to just at three-quarters of all exports. The export ratio for this group of companies is, as expected, higher than the other groups with 20.7 percent (2003) and in the years 2004 to 2007 increased slightly. Measured based on these indicators, this group forms the stable core of exporting, knowledge-intensive service companies.

In some branches, the proportion of companies that consistently and constantly export is higher than average, such as in research and development and data processing. In other branches however it is very low (communications and market and opinion research).

Even if one compares the companies that began exporting with those that gave up exporting, there are differences between business lines. The balance of entries and departures from the export market is especially high for market and opinion research and for architecture and engineering agencies companies and in research and development. There the positive balance from companies that began exporting and those that gave up exporting is around seven percentage points.

## More beginning exporters among medium-sized companies

Among the very small companies, the proportion of constantly and consistently exporting companies was very small at 4.1 percent (companies with up to four employees) and 4.8 Percent (five to nine employees). Among the medium sized (50 to 249 employees) and large companies (starting at 250 employees), it is much higher. It is immediately obvious that the proportion of beginning exporters correlates positively with the size, while the proportion of companies that ceased exporting varies quite little. This means that the balance of the increase in exporting companies is considerably smaller among the very small companies than among the medium-sized ones.

In the break-down by German federal states, it is clear that the highly developed states such as Hesse, Baden-Wuerttemberg and Bavaria are those that evince a high share of constantly and consistently exporting companies. The greatest increase in exporting companies (balance) is seen in Bavaria and Hamburg, again, highly developed states.

Among companies with branch offices in Germany, the share of exporting companies is considerably higher than among those that do not maintain any branch offices here (21.6 to 7.9 percent). In the first group, the balance of added exporters is also higher (6.9 percentage points). This result also confirms that companies with supra-regional experience are more likely to take the risk of plunging into the foreign market than companies that only have experience on local markets.

## Conclusions

This study has shown that the export-orientation of business-oriented knowledge-intensive service industries–measured as an export ratio–increased in the years 2003 to 2007. Among the small and medium-sized companies (under 100 employees) it increased more than average, while among the larger companies it remained practically unchanged. With increases in exports, there is also an accompanying increase in the proportion of companies that are active in foreign trade. The proportion of exporting companies did not only increase among the large companies, but also among small and medium sized

**12** One problem for measurement in this classification is that the there is no information for prior years. C.f. Wagner, J.: The post-entry performance of cohorts of export starters in German manufacturing industries. University of Lüneburg. Working Paper Series in Economics No. 187, Lüneburg 2010.

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companies. The largest portion of the export trade is carried by a core of those companies that are constantly active in foreign trade – this core is constituted by a tenth of all companies that account for three quarters of the total volume of exports.

The proportion of those that began exporting in these years likewise comes to a tenth and the share of those that exported at the beginning and then gave up exporting is half as large as that of those that began exporting. In the group of medium-sized companies, not only is the proportion of consistently and constantly exporting companies especially high, but also that of those beginning to export. Taking into account those that have given up exporting, this group comes out better than the small companies, among which those that consistently and constantly export and begin go export is the smallest.

The lower level of foreign-market activity on the part of small and medium-sized companies can be explained as depending on their size, as well as by lack of personnel qualified for international business, inadequate familiarity with the markets and cultural peculiarities or difficulties in finding business partners in-country. This however only explains in part that the very small companies beginning to export–unlike the medium-sized companies that begin to export–are not able to position themselves successfully on foreign markets long-term. It is nevertheless also conceivable that success on foreign markets remained below expectations not least of all because the difficulties in the particular target country or in the company itself were underestimated. Well-founded knowledge of and experience on foreign markets are necessary if not sufficient factors in success.[13]

This is intimated by a current survey conducted by the German Chamber of Industry and Commerce (DIHK), according to which the availability of information about the target country is of even greater importance to the service companies surveyed than for industrial companies.[14]

Very frequently foreign business for service companies comes about in association with companies from other sectors of the economy, mostly manufacturing companies that export to the target companies or invest there[15]. For this reason, the opportunities for building or expanding on a presence abroad increase if service companies cooperate with partners in manufacturing.

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**13** For example Schwens, C., Kabst, R.: Internationalisierung junger Technologieunternehmen: Auslandsmarktwissen und Erfolgsimplikationen. DBW 70 (5), 2010, 443–462.

**14** DIHK (Ed.): Going International. Erfahrungen und Perspektiven der deutschen Wirtschaft im Auslandsgeschäft, Berlin 2010.

**15** For example Birkner, S., Faust, M., Mohe, M., Kordon, T.: Beratung über Grenzen: Eine empirische Analyse zur Internationalisierung der Unternehmensberatung. In: Krcmar, H., Böhmann, T., Sarkar, R.: Export und Internationalisierung wissensintensiver Dienstleistungen, Cologne 2010, 107–144.