

# Microdatabase: Statistics on international trade in services

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# 1 Introduction<sup>1</sup>

The data on international trade in services for German firms has recently been made available to researchers and can be used in the Research Centre of the Deutsche Bundesbank. The purpose of this documentation is to give an overview of this data. In addition, we present some descriptive statistics based on the Statistics on International Trade in Services.

The documentation is organised as follows. Section 2 describes the dataset and gives some useful information for working with this data. Section 3 presents descriptive statistics in order to give a first impression of the data. Section 4 concludes.

## 2 The Microdatabase

### 2.1 General information

Germany's Statistics on International Trade in Services (SITS) are collected by the Deutsche Bundesbank in order to compile Germany's Balance of Payments (BoP) Statistics. The SITS give information on international service transactions carried out by German residents. It is mandatory to report service transactions that exceed the statutory reporting threshold. The legal basis for collecting the data is Section 26 of the Foreign Trade and Payments Act (*Außenwirtschaftsgesetz*) in combination with Section 56a ff and 59 ff of the Foreign Trade and Payments Regulation (*Außenwirtschaftsverordnung*). Additionally, the Law on Statistics for Federal Purposes (*Bundesstatistikgesetz*), particularly the terms of Articles 9, 15 and 16, is applicable.

The definition of service transactions in the SITS is based on the residence principle, ie these are payments between residents and non-residents. The reporting requirement applies to German firms including banks, as well as to individuals and public authorities if service transactions vis-à-vis non-residents exceed €12,500 or its equivalent in another currency. Furthermore, the Deutsche Bundesbank supplements the data with estimates for transactions that are below the reporting threshold and for some service categories for which the required methodology cannot be reported (eg transportation). Therefore, the SITS cover almost the entire spectrum of German service exporters and importers and comprise three of the four modes of supplying services defined in the General Agreement on Trade in Services (GATS)<sup>2</sup>

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<sup>1</sup> We would like to thank Wolfgang Gleich for his very helpful assistance in the preparation of this documentation. All errors and inaccuracies are those of the authors.

<sup>2</sup> However, the SITS do not allow the precise assignment of a service transaction to a certain GATS mode. For example, it is not possible to distinguish whether research and development service provided by a firm took place via mode 1 (from own country) or mode 4 (by movement of an employee abroad).

Mode 1: *cross-border trade*. In this case a supplier provides a service to a consumer from the country of his/her residence, eg via internet or telephone, while the consumer stays in his/her own country, eg architectural plans drawn up by an architecture office based in Germany that are sent via e-mail to a firm in France.

Mode 2: *consumption abroad*. In this instance, a consumer moves to the country of the supplier to consume the respective service, eg travel.

Mode 4: *presence of natural persons*. Mode 4 applies if a supplier temporarily moves to the country of the consumer to provide the respective service, eg services of a German engineer in China.

As the SITS only cover transactions between residents and non-residents, mode 3 – *commercial presence* – is not captured by the statistics. Examples are sales of services rendered by German-based firms through their affiliates abroad or sales made by foreign-based firms through German affiliates in Germany, ie transactions take place between residents.

The SITS comprise information on the value of each reported transaction (service exports and imports), type of service transaction according to the BoP classification, country of destination or origin, and sector of the party required to report. The transactions are reported in general according to the gross coverage principle, ie if firms undertake mutual transactions and then offset payments, they must report the values of the individual transactions rather than netted values payable to the trading partner. Taxes are also included in the reported transaction values. Table 1 summarises the variables contained in the SITS.

**Table 1: Variables**

Variable	Description
nummer	Number of reporting unit. Numeric identifier of the (German) firm.
jahr	Year.
mnt	Month.
einnahmen	Incoming payment / value of the exported transaction in thousand EUR.
ausgaben	Outgoing payment / value of the imported transaction in thousand EUR.
kza	Type of service transaction according to the official coding list of the BoP. A list of service codes is given in the appendix (Table A. 1) <sup>3</sup> .
lan	Destination or origin country according to the list of countries for Foreign Trade and Payments Statistics of the Federal Republic of Germany. A list of country codes is given in the appendix (Table A. 2).
bra	Sector classification of firm according to NACE Rev. 1. A list of sector codes is given in the appendix (Table A. 3).
bra2	Sector classification of firm according to NACE Rev. 2 (available from year 2008 on).

<sup>3</sup> A detailed description of each service type is presented in Deutsche Bundesbank (2009).

## 2.2 Specifics of the data

### *Modifications*

In principle, the SITS prepared for research purposes are very similar to the raw data as only some minor adjustments are made. Any observations not required for research purposes are removed from the data. For example, observations with an entry of zero for both incoming and outgoing payments are excluded. This may occur if a cancellation of the same payment amount took place. Compound items for individuals (summarised reports of individuals) as well as for firms (several small reports are gathered, so that it is not possible to distinguish between units) are also removed. Estimated numbers are also excluded from the data. Furthermore, the raw data contain the currency of the transaction. In principle, transaction values must be reported in Euro. Currency information may be inserted if the transaction was reported using reporting form Z1 (outgoing payments through resident financial institutions)<sup>4</sup>. These payments are then converted by the Bundesbank to Euro using monthly average exchange rates. Since this is only the case for a small number of transactions and most payments are in Euro, the currency variable does not yield further information and is thus deleted from the dataset.

### *Negative values*

Some values of incoming and outgoing payments are negative in the SITS. This happens if incorrect payments are cancelled or corrected. In this case the same reported value appears with a negative sign in the original reported month, for the same country and service type. The mistakenly reported amounts can be corrected in two ways. First, the total sum of the initial payment is cancelled (minus original amount on the same payment side - export or import - of the same month and for the country and service type originally reported) and the new correct amount is reported as a new observation. It is also possible to report only the amount by which the initial payment is increased or reduced. Therefore, in order to correct for cancellations and adjustment payments, the incoming and outgoing values for each firm-year-month-service type-country observation have to be aggregated.

### *Reporting the sector classification of the firm*

The sector of a firm may differ across different reporting dates. This can happen if the firm has changed its sector in the specific year. The sector information contained in every observation corresponds to the reported sector of the firm at the time of the transaction.

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<sup>4</sup> For more information on the different reporting systems see Bundesbank website: [http://www.bundesbank.de/Redaktion/EN/Standardartikel/Service/Reporting\\_systems/external\\_sector\\_statistics\\_reports\\_z1\\_z4\\_and\\_z10.html?nsc=true](http://www.bundesbank.de/Redaktion/EN/Standardartikel/Service/Reporting_systems/external_sector_statistics_reports_z1_z4_and_z10.html?nsc=true)

### *Calculation of aggregates*

Please note that further adjustments are made for the calculation of aggregates (eg total service exports or imports for Germany) reported in official statistics on international trade in services by the Deutsche Bundesbank, eg not the entire payment is counted as a service, especially in the case of insurance and financial intermediation. As mentioned above, the SITS for researchers do not include estimates and compound items, so that replication of these aggregated numbers is not possible through mere addition of service transaction values for a given point in time.

### *Values below the reporting threshold*

Even though service transactions exceeding €12,500 must be reported, there are observations with reported values below this threshold. This may occur if residents either voluntarily report transactions or transaction values that had been mistakenly reported are corrected.

## **2.3 Combining the data with other microdata**

Except for industry sectors, the SITS do not include any further information on firm characteristics (such as total sales, firm size, balance sheet information, etc). Therefore, combining this data with other statistics at firm-level may extend research possibilities significantly.

The SITS can easily be merged with the Microdatabase Direct Investment (MiDi)<sup>5</sup>. The MiDi comprises information on German foreign direct investments abroad (outward FDI) and foreign direct investments in Germany (inward FDI). The SITS and the MiDi have common numeric firm identifiers through which the datasets can be linked. Please note that both datasets are not completely congruent and differ in reporting limits as well as in time dimensions (SITS: monthly data; MiDi: annual data).

## **2.4 Data access**

Germany's SITS described above are available for research purposes. For confidentiality reasons, the data can only be accessed at the Research Centre of the Deutsche Bundesbank in Frankfurt am Main. The data is compiled in panel form and currently covers the years 2001 to 2010 on a monthly basis. The SITS are updated once a year.

Researchers who wish to work with the data are asked to send a proposal of the planned research project to the Research Centre of the Bundesbank ([visitingresearcher@bundesbank.de](mailto:visitingresearcher@bundesbank.de)).

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<sup>5</sup> For more information on MiDi see Lipponer (2009).

### 3 Some descriptive statistics

In this section we present some descriptive statistics using the dataset. First, we give a general overview of the data. Second, following Breinlich and Criscuolo (2011) – who analyze the service export and import patterns of UK firms – we look at firm-level trade and describe the main characteristics of German service traders.

In our analysis, we only consider firm activities. Therefore, service types indicating government receipts and expenditure, merchant trading, transactions to and from international organisations, and private transfers are excluded. We also exclude any observations from NACE Rev. 1 industrial sectors that are not related to business activities (eg activities of households, state and international organisations). Then, we adjust negative values by aggregating the single export and import transactions of each firm on a year-month-service type-country-industry basis.

#### 3.1 General overview

Table 2 reports the number of firms in our data, subdivided into three categories: exporters<sup>6</sup>, importers<sup>7</sup> and firms that participate in two-way trade, ie export and import. For Germany, we observe more importers than exporters of services. From 2001 to 2010, between 61 and 77 percent of firms involved in international services trade were solely importers, but their share of all service traders has been declining over the years. On the other side, the number of firms in two-way trade continuously increased, from about 15 percent in 2002 to 24 percent in 2010. The share of firms solely involved in export also increased, but at a lower level, from 7 percent in 2001 to 15 percent in 2010.

**Table 2: Number of firms in our dataset**

Year	Exporters*		Importers*		Exporter & Importer	
	Number	% of all firms	Number	% of all firms	Number	% of all firms
2001	1996	7.1	21729	77.1	4452	15.8
2002	2804	8.9	24097	76.4	4624	14.7
2003	2877	9.1	24222	76.5	4583	14.5
2004	2942	9.8	22398	74.2	4831	16.0
2005	2955	10.1	20992	71.6	5363	18.3
2006	3512	11.6	20738	68.6	5991	19.8
2007	4204	13.2	20854	65.7	6700	21.1
2008	4442	13.7	20758	64.0	7217	22.3
2009	4302	14.1	18996	62.2	7227	23.7
2010	4512	14.9	18442	60.7	7417	24.4

\* Firms that export and import are not included.

<sup>6</sup> Number of all firms that export only, eg firms that export but do not import.

<sup>7</sup> Number of all firms that import only, eg firms that import but do not export.

The SITS provide information on service transactions for over 70 service types. A detailed breakdown of the different service types is given in the Appendix. For brevity, we group single service types into eleven main categories (see Table A. 4 in Appendix). Tables 3 and 4 indicate the number of exporters and importers of each service category, what share of all exporters or importers they represent, respectively, traded values and the share of trade to or from EU and EMU (European Monetary Union) countries. In the following analysis, we do not distinguish between firms which solely export and those which solely import and two-way-traders, and define exporters as firms with positive exports, ie two-way traders are included, and importers as firms with positive imports (importers that also export are included). Furthermore, pooled results for the years 2001 to 2010 are reported<sup>8</sup>.

**Table 3: Service exports by categories, 2001-2010**

Service category	Exporters		Exports			
			Total		of which to EU	of which to EMU
	Number	Share, %	bn €	Share, %	Share, %	Share, %
Transport	4994	12.5	398.65	29.2	44.6	26.6
Insurance	1373	3.4	321.59	23.5	57.2	39.6
Other business services	13196	33.0	232.69	17.0	52.2	34.9
R&D	2828	7.1	102.19	7.5	31.0	19.3
Computer/information	3555	8.9	80.47	5.9	48.4	34.4
Construction	3172	7.9	78.05	5.7	39.0	26.7
Financial services	2821	7.1	61.47	4.5	76.1	42.1
Other	4043	10.1	46.79	3.4	61.5	30.4
Communication	688	1.7	29.71	2.2	61.5	38.9
Personnel	1765	4.4	10.82	0.8	43.8	24.6
Travel	1513	3.8	4.44	0.3	47.8	31.3
Total		100.0		100.0		

\* Firms with positive exports.

**Table 4: Service imports by categories, 2001-2010**

Service category	Importers		Imports			
			Total		of which from EU	of which from EMU
	Number	Share, %	bn €	Share, %	Share, %	Share, %
Transport	20049	12.3	372.23	25.5	52.2	34.1
Insurance	6490	4.0	324.42	22.2	58.2	40.7
Other business services	48366	29.6	287.05	19.7	55.9	35.2
R&D	9557	5.8	91.89	6.3	40.2	28.4
Other	24140	14.8	86.60	5.9	48.7	25.0
Computer/information	13851	8.5	75.55	5.2	55.2	38.7
Travel	11902	7.3	68.88	4.7	55.9	49.4
Construction	9862	6.0	56.20	3.8	48.6	31.7
Communication	4185	2.6	43.61	3.0	56.0	40.7
Financial services	5952	3.6	38.80	2.7	69.5	30.9
Personnel	9088	5.6	15.09	1.0	48.9	26.8
Total		100.0		100.0		

\* Firms with positive imports.

<sup>8</sup> Although there is some between-year variation, the main patterns are similar to pooled results.



In terms of the number of firms, other business services is the largest category for both exports and imports, followed by transport in the case of exports and other services for imports. Transport service accounts for the largest amount of exports (29 percent of overall service exports) and imports (26%) followed by insurance (24% of exports and 22% of imports) and other business services (17% of exports and about 20% of imports). The percentage share of exports to EMU countries varies between 19% in R&D services and 42% in financial services. Exports to EU countries also differ a lot between service categories, eg 31% in R&D and 39% in construction and over 75% in financial services. Imports from EU and EMU countries are, on average, larger than exports, especially for R&D, travel, transport, and smaller for financial and other services.

The SITS include information on service traders from all industrial sectors. We use the sector classification according to NACE Rev. 1, as it is reported for all years<sup>9</sup>. There are some firms in the dataset without any sector information, thus we exclude these firms from the calculations. For a better overview, we group sectors into larger categories (see Table A. 5 in Appendix). Tables 5 and 6 show the statistics for service exports and imports, respectively. Firms from all industrial branches are involved in international trade in services. In terms of traded values, the transport and communication sector accounts for the largest share of exports (29% of overall exports) and imports (28%) and is followed by the financial intermediation sector in the case of exports (22%) and manufacturing in the case of imports (25%). Business activities make up the third largest group (22% of exports and 19% of imports).

**Table 5: Service exports by industrial sectors, 2001-2010**

Industrial sector	Exporters*		Exports*	
	Number	Share, %	bn €	Share, %
Transport/communication	4123	15.3	396.27	29.1
Financial intermediation	2761	10.2	299.21	22.0
Business activities	9643	35.8	295.36	21.7
Manufacturing	4926	18.3	284.67	20.9
Wholesale/retail	2869	10.6	50.26	3.7
Other	1450	5.4	23.16	1.7
Construction	1178	4.4	12.90	0.9
Total		100.0		100.0

\* Firms with positive exports.

<sup>9</sup> The NACE Rev. 2 sector classification is available from 2008 on. The assignment of NACE Rev. 2 branches to previous years has not been carried out and is not available as this would require a large amount of effort. NACE Rev. 1 is still used after 2008.

**Table 6: Service imports by industrial sectors, 2001-2010**

Industrial sector	Importers*		Imports*	
	Number	Share, %	bn €	Share, %
Transport/communication	10711	13.5	406.07	28.0
Manufacturing	19415	24.4	360.75	24.9
Business activities	23098	29.0	278.82	19.2
Financial intermediation	3268	4.1	278.13	19.2
Wholesale/retail	14436	18.2	67.00	4.6
Other	5965	7.5	49.99	3.4
Construction	2626	3.3	10.32	0.7
Total		100.0		100.0

\* Firms with positive imports.

Furthermore, Table 7 shows the most important services that are traded within the industrial sectors. Generally, firms trade services that correspond to their sector, eg firms from industrial sector transport/communication export and import mostly transport services (91 and 73%, respectively). Manufacturing firms are active in other business services and R&D.

**Table 7: Most important services by industrial sectors, 2001-2010**

Industrial sector	Most important services	
	Exports*	Imports*
Manufacturing	Other business services (40%), R&D (28%), construction (19%)	Other business services (45%), R&D (19%), transport (11%)
Transport/communication	Transport (91%), communication (6%), other business services (2%)	Transport (73%), travel (13%), communication (8%)
Business activities	Insurance (37%), other business services (21%), computer/information (21%)	Insurance (39%), other business services (19%), computer/information (15%)
Construction	Construction (95%), other business services (5%), personnel (0.3%)	Construction (84%), other business services (12%), other (1%)
Financial intermediation	Insurance (71%), financial service (19%), other business services (6%)	Insurance (76%), financial service (11%), other business services (6%)
Wholesale/retail	Other business services (63%), transport (18%), computer/information (6%)	Other business services (45%), transport (30%), computer/information (8%)
Other	Other (61%), other business services (25%), R&D (5%)	Other (67%), other business services (15%), transport (5%)

\* Firms with positive exports (imports).

Trade in services with the top 10 countries accounts for over 60 percent of total services trade, and about 40 percent of all firms (see Table 8 for exports and Table 9 for imports).

**Table 8: Top countries: exports, 2001-2010**

Rank	Countries	Exporters*		Exports*	
		Number	Share, %	bn €	Share, %
1	USA	7744	4.7	212.50	15.5
2	UK	8477	5.1	164.02	12.0
3	Switzerland	9131	5.5	111.32	8.1
4	Netherlands	7586	4.6	101.41	7.4
5	France	7461	4.5	72.13	5.3
6	Austria	7297	4.4	55.23	4.0
7	Italy	5870	3.6	52.11	3.8
8	Japan	2591	1.6	35.82	2.6
9	Spain	4779	2.9	35.16	2.6
10	Belgium	5315	3.2	34.39	2.5
Total			40.1		63.9

\* Firms with positive exports.

**Table 9: Top countries: imports, 2001-2010**

Rank	Countries	Importers*		Imports*	
		Number	Share, %	bn €	Share, %
1	USA	23732	5.6	244.06	16.7
2	UK	26405	6.2	184.72	12.6
3	Netherlands	20251	4.7	113.06	7.7
4	Switzerland	25480	6.0	102.82	7.0
5	France	18520	4.3	93.01	6.4
6	Austria	19587	4.6	77.49	5.3
7	Spain	12170	2.8	54.36	3.7
8	Italy	14881	3.5	52.78	3.6
9	Belgium	12677	3.0	37.59	2.6
10	Ireland	6288	1.5	35.79	2.5
Total			42.1		68.2

\* Firms with positive imports.

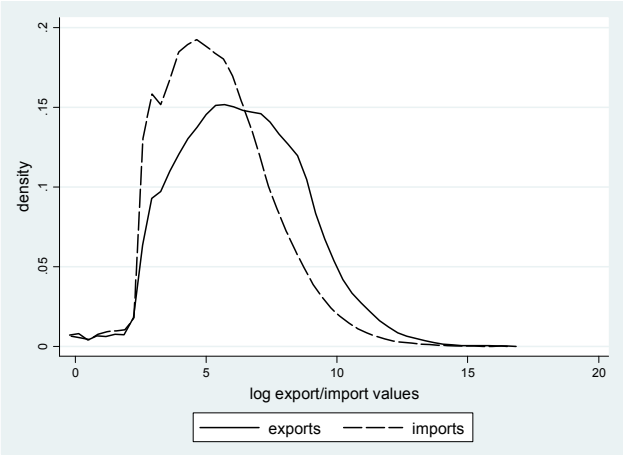
### 3.2 Service trade at firm-level

In the following we look at service trade at firm-level and highlight the main characteristics of German service traders. Similar to the results of Breinlich and Criscuolo (2011) for UK firms, we find a great deal of variation in traded values, number of service types and partner countries as well as a strong concentration of service trade on the most important services and trading partners across as well as within firms. The pooled results for 2001 to 2010 are reported in this section. The statistics are calculated using firm-year observations, eg a firm that is engaged in trading services in different years is counted as a new observation for the respective year.

#### *Heterogeneity of trade in services at firm level*

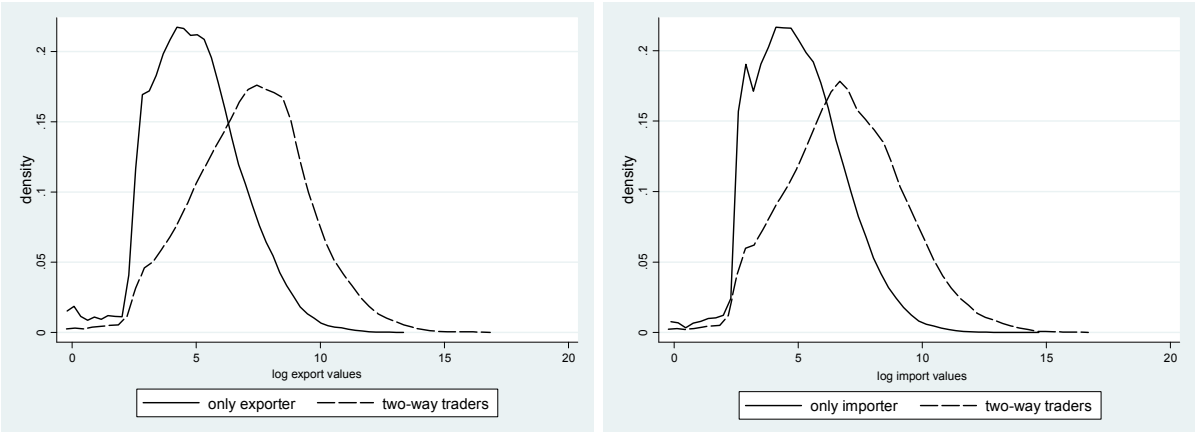
Firms involved in international trade in services vary in traded values, number of services traded, and number of countries served.

Figure 1 shows the distribution of exports and imports using kernel density estimations. We see large heterogeneity across firms in terms of traded values. However, the right skewed plot indicates that there are few firms trading large values and many firms with small to mid-sized values. In the case of imports, the distribution is slightly shifted to the left, thus compared to exports, traded values per firm-year are somewhat smaller.



**Figure 1: Distribution of export/import (kernel density estimation), 2001-2010**

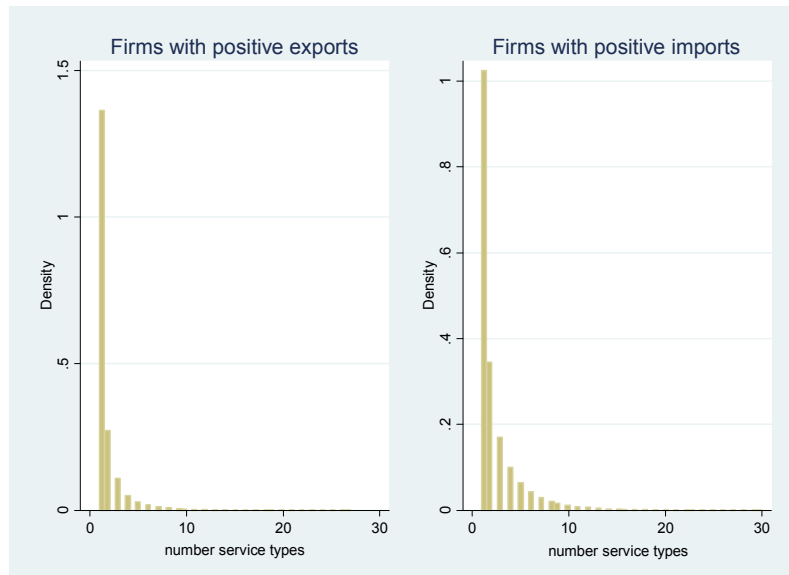
Furthermore, if we compare exporters only with exporters that also import (Figure 2, plot on the left), we see that two-way traders are larger in terms of exported values. A similar picture arises in the case of imports (Figure 2, plot on the right).



**Figure 2: One-way versus two-way traders. Distribution of export/import values (kernel density estimation), 2001-2010**

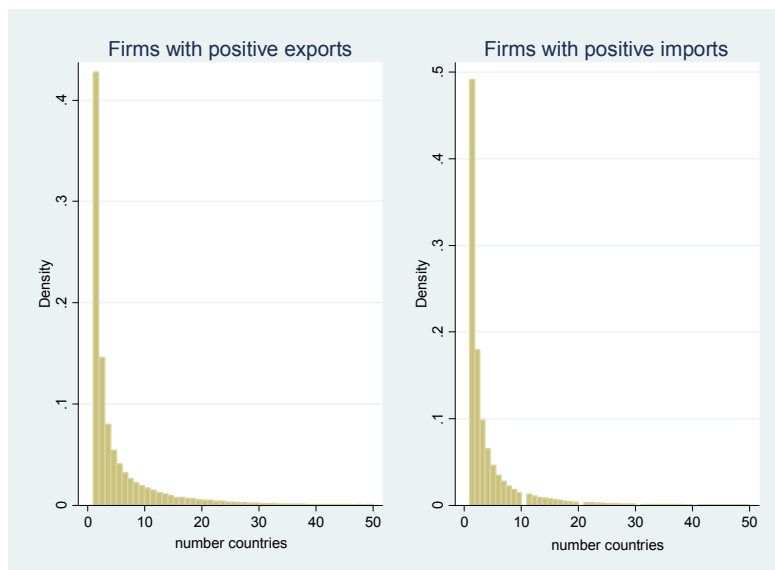
The number of service types that firms export or import also differs across firms (Figure 3)<sup>10</sup>. It is striking that most firms trade just one service (72 percent of exporters and 55 percent of importers)<sup>11</sup>.

<sup>10</sup> For confidentiality reasons, the largest number of service types reported in Figure 3 is 30.



**Figure 3: Distribution of number of service types, 2001-2010**

We get similar results for the number of destinations or countries of origin (Figure 4)<sup>12</sup>. Many firms have just one trading partner (42 percent of exporters and 44 percent of importers), although some firms trade with a very large number of countries.

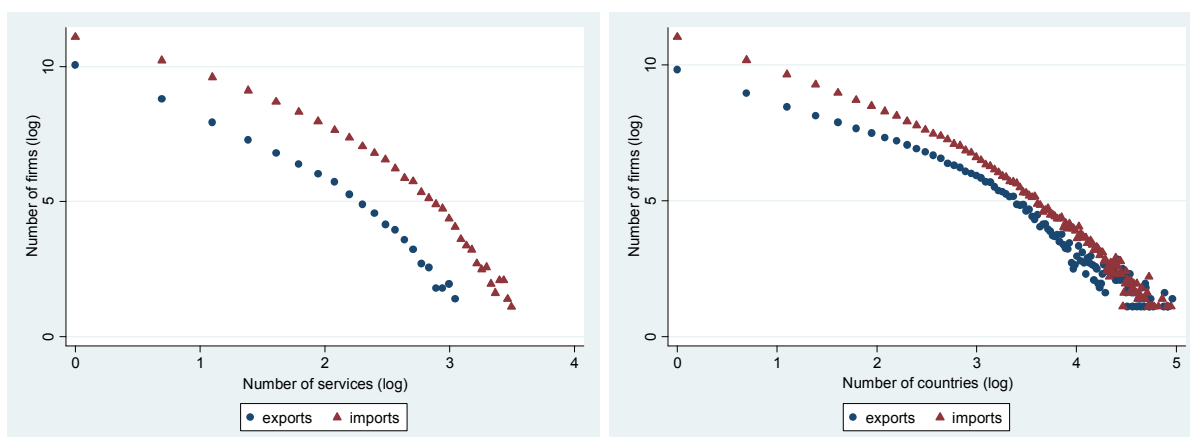


**Figure 4: Distribution of number of countries, 2001-2010**

Figure 5 further illustrates a negative relationship between the number of service types as well as trading partners and the number of firms. A similar pattern for UK service traders has been reported in Breinlich and Criscuolo (2011, p 10).

<sup>11</sup> One possible explanation could be that the classification of services types has not been disaggregated much as, for example, in the case of trade in goods.

<sup>12</sup> Again, for reasons of confidentiality the largest number of trading partners is 50.



**Figure 5: Number of firms and number of service types/countries, 2001-2010**

### *Concentration of service trade*

Using the data on German service traders we also found a strong concentration of service trade on a few firms, whereas the dominance of large firms is particularly striking. One percent of the largest service traders account for 64 percent of all exports and 68 percent of all imports. Furthermore, Table 10 shows the percentage share of traders and trade volume for firms that trade at least 1, 2, 3, 5 or 10 services. About 1 percent of exporters and 3 percent of importers trade more than 10 service types, but they account already for 22 percent of total exports and 50 percent of total imports. Firms that export or import in more than 50 countries represent less than 1 percent of all exporters or importers, but account for almost 50 percent of exports and imports, respectively (Table 11).

**Table 10: Trade concentration across firms: services types, 2001-2010**

Trade with at least X countries	Exports*		Imports*	
	% of all exporters	% of total exports	% of all importers	% of total imports
1	100	100	100	100
2	27.6	75.4	45.0	91.5
3	13.2	64.4	26.4	82.5
5	4.8	48.8	11.9	71.2
10	0.8	21.6	2.6	50.9

\* Firms with positive exports/imports.

**Table 11: Concentration of trade across firms: countries, 2001-2010**

Trade with at least X countries	Exports*		Imports*	
	% of all exporters	% of total exports	% of all importers	% of total imports
1	100	100	100	100
2	57.6	94.9	55.6	94.9
3	43.1	92.5	39.5	92.6
5	29.8	88.9	24.7	89.2
10	15.8	82.2	11.3	81.4
30	2.6	59.8	1.6	59.9
50	0.9	48.1	0.5	48.5

\* Firms with positive exports/imports.

Furthermore, we find a strong concentration of trade within firms. Firms concentrate their activities on the most important services and trading partners. Table 12 shows the percentage of exports and imports of the most, second most, third most, etc important service types of overall exports and imports (similar for countries of destination or origin). The most important service accounts for 93 percent of firm's total exports and 86 percent of imports. The share of traded values for second, third, etc most important services and countries are strongly declining. The fifth most important service composes just 2 percent of exports and 3 percent of imports<sup>13</sup>. Exports/imports to/from top trading partners make up 76/78 percent of overall services exports/imports.

**Table 12: Trade concentration within firms, 2001-2010**

Rank of service/country	Share on firm total exports*, %		Share on firm total imports*, %	
	Service type	Country	Service type	Country
1	93.2	76.0	86.3	77.5
2	19.4	20.6	21.6	22.1
3	7.4	10.6	9.3	11.1
4	3.6	6.8	5.0	6.9
5	2.0	4.9	3.0	4.8

\* Firms with positive exports/imports. All firms are included.

## 4 Conclusion

This documentation presents Statistics on International Trade in Service (SITS) for Germany that recently have been prepared for research purposes. As the reporting threshold is rather low – all international service transactions over €12,500 must be reported to the Deutsche Bundesbank – the dataset includes almost the whole spectrum of German firms that are involved in international trade in services. The dataset can be used as a panel from 2001 onwards at a monthly frequency at the Research Centre of the Deutsche Bundesbank.

<sup>13</sup> The results in Table 12 are calculated using all firms, ie also firms that export/import only one service and to/from one country. If we exclude these firms from the analysis, the pattern of strong concentration on most important services and trading partners remains the same.

The SITS provide comprehensive information on Germany's international service trade and allow an analysis of the main patterns of service trade at the firm level. After describing the content of the database and giving an overview of the number of firms, service types, industrial sectors of firms involved in international trade in services, we look at firm-level characteristics of German service traders. In this study, we find patterns similar to those that were presented in Breinlich/Crisciolo (2011) for UK firms. We confirm that trade in services is very heterogeneous among firms. Firms differ significantly in terms of traded values, number of services and number of trading partners. While a large number of firms trade just one service product with one country, the differences between small and large traders are very pronounced. We also find that trade in services is highly concentrated. The few largest exporters and importers account for the majority of the overall exports and imports, respectively. Firms that export or import many service types to/from many countries comprise a large proportion of overall trade. Furthermore, service traders concentrate their activities on the most important services and most important markets.



## References

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## Appendix

Table A. 1: Service types

Service	Code
<b>Travel</b>	017
<b>Passenger transport and transport of goods</b>	
<b>Sea transport</b>	
Expenditure on cross-border passenger transport and on sea transport between third-party countries	016
Expenditure on sea freight in connection with German imports	210
Expenditure on sea freight in connection with German exports	220
Expenditure on sea freight between third countries	260
Receipts from sea freight between third countries	081
Expenditure on ancillary transport services in shipping	310
Receipts from seaports and firms operating there	300
<b>Inland waterway transport</b>	
Receipts from cross-border passenger transportation and from inland waterway transport between third countries	015
Expenditure on cross-border passenger transportation and on inland waterway transport between third countries	016
Receipts from and expenditure on inland freight water transport including towage charges and the cost of pushing barges in connection with Germany's external trade	216
Expenditure on inland waterway transport between third countries	260
Receipts from inland waterway transport between third countries	080
Receipts from and expenditure on inland waterway transport within the economic territory	271
Payments by inland waterway enterprises for ancillary transport services (except for fuel and other ship supplies)	320
Payments by inland waterway enterprises for fuel and other ship supplies	362
Receipts from supplying goods to meet the need of foreign inland waterway ships (eg fuel)	362
<b>Air transport</b>	
Receipts from and expenditure of resident airlines for the cross-border transport of passengers and for carrying passengers between third countries	014
Payments to non-resident airlines for the cross-border transport of passengers and for carrying passengers between third countries	015
Expenditure on the transport of passengers by non-resident airlines within the economic territory	020
Receipts and expenditure of resident airlines for air freight services in connection with Germany's external trade	225
Payments to non-resident transport enterprises for air freight in connection with Germany's external trade	244
Expenditure on air freight between third countries	260
Receipts from air freight between third countries	082
Receipts from and expenditure on air freight within Germany	270
Receipts from ancillary transport services in air transport	360
Expenditure of resident airlines eg for take-off, landing and overflying charges as well as air traffic control	360
Expenditure of resident airlines on the purchase of goods such as fuels, on-board catering and on-board sales	361
<b>Transport by pipeline and electricity transmission</b>	
Receipts and expenditure on transport by pipeline in connection with Germany's external trade	226
Receipts for providing pipelines/transmission through pipelines for transport through Germany (without withdrawals)	215
Receipts from and expenditure on the transmission of electricity	217
<b>Rail transport</b>	
Receipts from and payments by resident rail companies for the cross-border transport of passengers and for carrying passengers between third countries	013
Payments to non-resident rail companies for the cross-border transport of persons and for carrying passengers between third countries	016
Receipts from and expenditure on the bilateral movement of rail freight	233
Expenditure on rail freight between third countries	260
Receipts from rail freight between third countries	080

Receipts of resident rail companies from transit	234
Receipts from and expenditure on rail freight within Germany	271
Receipts from ancillary transport services provided within Germany for non-resident rail operators	340
Payments by resident rail companies for ancillary transport services provided by non-residents abroad	340
<b>Road transport</b>	
Receipts from the cross-border transport of passengers from carrying passengers between third-party countries by resident road transport companies (eg coach holidays)	015
Expenditure on the cross-border transport of passengers and on carrying passengers between third-party countries (eg coach holidays)	016
Expenditure on freight transport by land in connection with Germany's external trade	240
Receipts from freight transport by land between third countries	080
Expenditure on freight transport by land between third countries	260
Receipts from and expenditure on freight transport by land within Germany	271
Expenditure on ancillary transport services provided by road haulage companies (except fuel and other vehicle supplies)	320
Expenditure on road haulage companies for fuel and other vehicle supplies	362
Receipts from supplying goods to meet the needs of foreign land craft equipment (eg fuel)	362
<b>Miscellaneous</b>	
Receipts from freight transport by land and other forms of transport (that cannot be assigned to any other item or cannot be divided up) as well as receipts arising from refunds of freight advances in connection with Germany's external trade	370
Expenditure on ancillary transport services by other resident enterprises	330
Receipts from inland ports and airports as well as other subsidiary traffic companies	310
Freight and incidental services in merchanting	250
<b>Insurance transactions</b>	
<b>Resident policy holders</b>	
Expenditure on premiums/receipts arising from claims	
Life insurance	400
Secondary life insurance market	401
Transport insurance for German imports and exports	410
Other insurance transactions	420
<b>Resident insurance corporations</b>	
<b>Direct insurance contracts with non-residents</b>	
Premium receipts / expenditure arising from claims	
Life insurance	440
Transport insurance for German imports and exports	441
Other insurance transactions	442
<b>Direct insurance contracts with residents</b>	
Expenditure arising from claims	
Life insurance	443
Transport insurance (imports and exports)	444
Other insurance transactions	445
<b>Receipts from and expenditure on reinsurance</b>	
Outgoing business	450
Incoming business	451
Other receipts from recoveries etc	460
<b>Miscellaneous services</b>	
Acquisition, sale and utilisation of copyrights, inventions, processes and other rights	
Artistic copyrights	501
Patents, licences, inventions, processes (technical know-how)	502
Other rights (eg trade marks, franchise fees, marketing rights and rights to use a name)	503
Emission rights (eg EU allowances, assigned amount units)	507
Film and television industry	510
Research and development	511
Engineering and other technical services as well as architects' fees	512
IT services	513
Freelance work	514
Commercial, organisational and administrative services	516
Personnel leasing	517
Communications services	518
Payments for other entrepreneurial work	519
Disposal services	534
Compensation of employees	521

Commission fees	523
Financial services	533
Subsidies to subsidiaries, branches and operating plants	530
Overhead expenses	531
Advertising and trade fair expenses	540
Postal and courier services	591
Rents/operational leasing	594
Other services	595
<b>Repairs</b>	
Repairs to means of transport	560
Repairs to buildings and other immovables	561
Repairs to goods imported and exported for the purpose of repair	562
<b>Construction services</b>	
Construction sites in Germany – payments made to non-resident firms in the economic territory (excluding payment for imports of goods)	570
Construction sites in Germany – receipts from goods deliveries to non-resident firms in the economic territory commissioned by residents	580
Construction sites abroad – expenditure of resident firms on construction work abroad commissioned by non-residents	580
Construction sites abroad – receipts from construction work abroad commissioned by non-residents (excluding export proceeds)	570
<b>Incidental payments for merchandise and service transactions</b>	
Cash discounts, warranties, warranty payments, price surcharges etc in trade in goods (import and export) where the payment is to be recorded as an adjustment item relating to the statistical value of the goods in the foreign trade statistics (including intra-statistics)	
Reduction in the statistical value (eg cash discounts, warranties, warranty payments)	600
Increase in the statistical value (eg price surcharges)	602
in service transactions	610
in merchanting	250
Import turnover tax	601
<b>Receipts and expenditure of general government</b>	
<b>Expenditure on pensions</b>	
Pensions – claims from the social security funds	526
Pensions – claims from previous employment	527
War victims' pensions and related benefits	528
Other pensions (eg accident benefits, reimbursement of contributions already paid)	529
<b>German tax revenue and refunds (reports from the Regional Finance Office and tax authorities)</b>	
Income tax and solidarity surcharge	762
Investment income tax and corporation tax	763
Value-added tax	764
Trade tax	765
Refund of Federal taxes	790
Refund of state government taxes and local authority taxes	791
<b>Federal government payments to German diplomatic missions</b>	
Payments to German diplomatic missions to cover regular operating costs	710
Wage and salary payments to German employees at German embassies and consulates	712
Wage and salary payments to non-German employees at German embassies and consulates	525
<b>Expenditure on indemnification payments</b>	
General government indemnification payments	720
General government indemnification payments arising from agreements concluded with other countries and international organisations	723
Contributions to international organisations and refunds of these contributions	740
<b>Expenditure in connection with development aid</b>	
Central government development aid	750
Development aid from state governments, local authorities and other public bodies	753
<b>Other receipts and expenditure of general government</b>	
Receipts and expenditure of the Federal armed forces for services	700
Central government receipts and expenditure for unrequited transfers	760
Receipts and expenditure of state governments, local authorities and other public bodies to non-residents	761
Debt relief granted by central government	725
<b>Goods and services supplied to foreign troops stationed in Germany</b>	
Receipts from deliveries of goods	770

Receipts from deliveries of goods	780
Receipts from services provided	775
Receipts from services provided	785
<b>Private transfers</b>	
<b>Receipts and expenditure arising from transactions with foreign authorities</b>	
Transfers to / from foreign authorities and international organisations eg for foreign income tax	810
Incoming payments for subsidies received from the European Union	812
<b>Payments arising from inheritances, legacies, donation, restitution, immigration and emigration</b>	<b>850</b>
<b>Support payments and alimony, other unrequited payments</b>	
Pensions and similar payments (eg company pensions)	522
Indemnification payments by private sector entities, such as enterprises and associations	724
Debt relief granted by the private sector	727
Support payments and alimony	851
Payments made in the field of development aid by church bodies or private aid organisations as well as funds received (for example, from the EU) for forwarding to developing countries	852
Penalties and warranty payments, lump-sum severance payments, gambling revenue, stakes, player transfers etc as well as premium refunds from insurance transactions	854
Payments sent by foreign workers to their home countries for the purpose of supporting family members	861
Payments sent by foreign workers to their home countries for the purpose of acquiring buildings or undertaking other capital investments	862
<b>Other payments not attributable to financial transactions or trade in goods</b>	
Other payments that are unclassifiable, eg cancellations, misdirected payments repayments of advance payments and double payments	900

**Table A. 2: Countries**

Code	Country
1	France, Desirade Island, French Guiana, Guadeloupe, Les Saintes Isles, Marie-Galante Islands, Martinique, Monaco, Réunion, St. Barthelemy, St. Martin (french)
3	Netherlands
5	Italy
6	United Kingdom (excl. Guernsey, Jersey and Isle of Man), Northern Ireland
7	Ireland
8	Denmark
9	Greece
10	Portugal, Azores, Madeira
11	Spain, Canary Islands, Tenerife
17	Belgium
18	Luxembourg
21	Ceuta
23	Melilla
24	Iceland
28	Norway, Spitsbergen, Svalbard
30	Sweden
32	Finland
37	Liechtenstein
38	Austria
39	Switzerland, Busingen
41	Faroe Islands
43	Andorra
44	Gibraltar
45	Vatican City, Holy See
46	Malta
47	San Marino
52	Turkey
53	Estonia
54	Latvia
55	Lithuania
60	Poland
61	Czech Republic

63	Slovakia
64	Hungary
66	Romania
68	Bulgaria
70	Albania
72	Ukraine
73	Belarus
74	Republic of Moldova
75	Russian Federation
76	Georgia
77	Armenia
78	Azerbaijan
79	Kazakhstan
80	Turkmenistan
81	Uzbekistan
82	Tajikistan
83	Kyrgyzstan
91	Slovenia
92	Croatia
93	Bosnia and Herzegovina
94	Yugoslavia
95	Kosovo
96	Republic of Macedonia, the former Yugoslavia
97	Montenegro
98	Serbia
99	Serbia including Kosovo
107	Guernsey
108	Jersey
109	Isle of Man
199	Countries not identified: Europe
204	Morocco
208	Algeria
212	Tunisia
216	Libyan Arab Jamahiriya
220	Egypt
224	Sudan
228	Mauritania
232	Mali
236	Burkina Faso
240	Niger
244	Chad
247	Cape Verde
248	Senegal
252	Gambia
257	Guinea-Bissau
260	Guinea
264	Sierra Leone
268	Liberia
272	Côte d'Ivoire
276	Ghana
280	Togo
284	Benin
288	Nigeria
299	Countries not identified: Africa
302	Cameroon
306	Central African Republic
310	Equatorial Guinea
311	Sao Tome and Principe
314	Gabon
318	Republic of the Congo
322	Democratic Republic of the Congo
324	Rwanda
328	Burundi
329	St. Helena, Ascension, Tristan da Cunha
330	Angola, Cabinda
334	Ethiopia
336	Eritrea
338	Djibouti

342	Somalia
346	Kenya
350	Uganda
352	United Republic of Tanzania, Zanzibar
355	Amirante Isles, Seychelles
357	British Indian Ocean Territory
366	Mozambique
370	Madagascar
373	Mauritius
375	Comoros
377	Mayotte
378	Zambia
382	Zimbabwe
386	Malawi
388	South Africa
389	Namibia
391	Botswana
393	Swaziland
395	Lesotho
400	United States of America, Puerto Rico
404	Canada
406	Greenland
408	St. Pierre and Miquelon
412	Mexico
413	Bermuda
416	Guatemala
421	Belize
424	Honduras, Swan Islands
428	El Salvador
432	Nicaragua
436	Costa Rica
442	Panama (incl Canal Zone)
446	Anguilla
448	Cuba
449	St Kitts and Nevis
452	Haiti
453	Bahamas
454	Turks and Caicos Islands
456	Dominican Republic
457	US Virgin Islands
459	Antigua and Barbuda
460	Dominica
463	Cayman Islands
464	Jamaica
465	St Lucia
467	St Vincent and the Grenadines
468	British Virgin Islands
469	Barbados
470	Montserrat
472	Trinidad and Tobago
473	Grenada
474	Aruba
478	Bonaire, Curacao Island, Netherlands Antilles, Saba, St. Eustatius
479	St. Martin (netherl.)
480	Columbia
484	Bolivarian Republic of Venezuela
488	Guyana
492	Suriname
500	Ecuador, Galapagos Islands
504	Peru
508	Brazil
512	Chile
516	Plurinat State of Bolivia
520	Paraguay
524	Uruguay
528	Argentina
529	Falkland Islands (Islas Malvinas)
599	Countries not identified: America

600	Cyprus
604	Lebanon
608	Syrian Arab Republic
612	Iraq
616	Iran
624	Israel
625	Occupied Palestinian Territory
626	Timor-Leste
628	Jordan
632	Saudi Arabia
636	Kuwait
640	Bahrain
644	Qatar
647	United Arab Emirates, Abu Dhabi, Ajman, Dubai, Fujairah, Ras al Khaima, Sharjah, Umm al-Qaiwain
649	Oman
653	Yemen
660	Afghanistan
662	Pakistan
664	India
666	Bangladesh
667	Maldives
669	Sri Lanka
672	Nepal
675	Bhutan
676	Myanmar
680	Thailand
684	Democratic Republic of Laos People
690	Vietnam
696	Cambodia
700	Borneo, Indonesia
701	Eastern Malaysia, Labuan, Malaysia, Sabah
703	Brunei Darussalam
706	Singapore
708	Philippines
716	Mongolia
720	China, Tibet
724	Democratic Republic of Korea
728	Republic of Korea
732	Japan
736	Taiwan
740	Hong Kong
743	Macau
799	Countries not identified: Asia
800	Australia, Tasmania
801	Papua New Guinea
802	Oceania (AUS)
803	Nauru
804	New Zealand
806	Solomon Islands
807	Tuvalu
809	New Caledonia
810	Oceania (US)
811	Wallis and Futuna (Islands)
812	Christmas Island (Pacific Ocean), Kiribati
813	Pitcairn Islands Group
815	Fiji
816	Vanuatu
817	Tonga
819	Samoa
820	Northern Mariana Islands
822	French Polynesia, Society Islands, Tahiti, Tuamotu (Paumotu) Islands
823	Federated States of Micronesia
824	Marshall Islands
825	Palau
830	Am. Samoa
831	Guam
832	United States Minor Outlying Islands



833	Cocos Islands (Keeling Islands)
834	Christmas Island (Indian Ocean)
835	Heard and the McDonald Islands
836	Norfolk Island
837	Cook Islands
838	Niue
839	Tokelau
855	Countries not identified: intra EMU
856	Countries not identified: Extra EMU / Intra EU
857	Countries not identified: Extra EMU
858	Countries not identified
890	Polar Region
891	Antarctica
892	Bouvet Island
893	South Georgia and South Sandwich Islands
894	French Southern Territories
899	Countries not identified: Oceania
>900	International Organisations <sup>14</sup>

**Table A. 3: Economic sectors (NACE Rev. 1)**

Code	Sector
10	Agriculture, hunting and related service activities
20	Forestry, logging and related service activities
50	Fishing, fish farming and related service activities
100	Mining of coal and lignite, extraction of peat
110	Extraction of crude petroleum and natural gas, service activities incidental to oil and gas extraction, excluding surveying
120	Mining of uranium and thorium ores
130	Mining of metal ores
140	Other mining and quarrying
150	Manufacture of food products and beverages
160	Manufacture of tobacco products
170	Manufacture of textiles
180	Manufacture of wearing apparel, dressing and dyeing of fur
190	Tanning and dressing of leather, manufacture of luggage, handbags, saddlery, harness and footwear
200	Manufacture of wood and of products of wood and cork, except furniture, manufacture of articles of straw and plaiting materials
210	Manufacture of pulp, paper and paper products
220	Publishing, printing and reproduction of recorded media
230	Manufacture of coke, refined petroleum products and nuclear fuel
240	Manufacture of chemicals and chemical products
244	Manufacture of pharmaceuticals, medicinal chemicals and botanical products
250	Manufacture of rubber and plastic products
260	Manufacture of other non-metallic mineral products
270	Manufacture of basic metals
280	Manufacture of fabricated metal products, except machinery and equipment
290	Manufacture of machinery and equipment n.e.c.
300	Manufacture of office machinery and computers
310	Manufacture of electrical machinery and apparatus n.e.c.
320	Manufacture of radio, television and communication equipment and apparatus
330	Manufacture of medical, precision and optical instruments, watches and clocks
340	Manufacture of motor vehicles, trailers and semi-trailers
350	Manufacture of other transport equipment
351	Building and repairing of ships and boats
352	Manufacture of railway and tramway locomotives and rolling stock
353	Manufacture of aircraft and spacecraft
354	Manufacture of motorcycles and bicycles
355	Manufacture of other transport equipment n.e.c.
360	Manufacture of furniture, manufacturing n.e.c.
370	Recycling

<sup>14</sup> List of codes for international organisations, see Bundesbank website:  
[http://www.bundesbank.de/Navigation/EN/Service/Reporting\\_systems/External\\_sector\\_statistics/Code\\_lists/code\\_lists.html](http://www.bundesbank.de/Navigation/EN/Service/Reporting_systems/External_sector_statistics/Code_lists/code_lists.html)

400	Electricity, gas, steam and hot water supply
410	Collection, purification and distribution of water
450	Construction sector
500	Sale, maintenance and repair of motor vehicles and motorcycles, retail sale of automotive fuel
510	Wholesale trade and commission trade (except of motor vehicles and motorcycles)
520	Retail trade (except of motor vehicles and motorcycles), repair of personal and household goods
550	Hotels and restaurants
600	Land transport, transport via pipelines
610	Water transport
620	Air transport
630	Supporting and auxiliary transport activities, activities of travel agencies
640	Post and telecommunications
641	Post and courier activities
642	Telecommunications
655	Deutsche Bundesbank
656	Other credit institutions
657	Financial leasing
658	Other financial intermediaries
659	Investment funds
660	Insurance and pension funding, except compulsory social security
670	Activities auxiliary to financial intermediation
705	Housing enterprises
706	Other real estate activities
710	Renting of machinery and equipment without operator and of personal and household goods
720	Computer and related activities
730	Research and development
740	Other business activities
741	Legal, accounting, book-keeping and auditing activities; tax consultancy; market research and public opinion polling; business and management consultancy; holdings
742	Architectural and engineering activities and related technical consultancy
743	Technical testing and analysis
744	Advertising
745	Labour recruitment and provision of personnel
746	Investigation and security activities
747	Industrial cleaning
748	Miscellaneous business activities n.e.c
749	Management activities of holding companies
756	Federal government
757	Federal states
758	Local government and local authority associations
759	Social security and employment promotion
800	Education
850	Health and social work
900	Sewage and refuse disposal, sanitation and similar activities
910	Activities of membership organizations n.e.c.
920	Recreational, cultural and sporting activities
921	Motion picture and video activities
922	Radio and television activities
923	Other entertainment activities
924	News agency activities
925	Library, archives, museums and other cultural activities
926	Sporting activities
927	Other recreational activities
930	Other service activities
955	Private households with employed persons
956	Other households
960	Undifferentiated goods producing activities of private households for own use
999	Extra-territorial organizations and bodies
0	Not classified

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**Table A. 4: Aggregate service categories**

Aggregate service category	Service types
Travel	17
Transport	13-16, 20, 80-82, 210, 215-217, 220, 225, 226, 233, 234, 240, 244, 260, 270, 271, 300, 310, 320, 330, 340, 360-362, 370, 560
Insurance	400, 401, 410, 420, 440-445, 450, 451, 460
Financial services	533
Communication	518, 591
Construction	561, 570, 580
Computer/information services	513
R&D	502, 511
Other business services	512, 516, 519, 523, 530, 531, 534, 540, 594
Personnel services	517, 521
Other services	501, 503, 507, 510, 514, 595

**Table A. 5: Aggregate industrial sectors**

Aggregate industrial sector	Sectors according to NACE Rev. 1
Manufacturing	100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 244, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 351, 352, 353, 354, 355, 360, 370
Construction	450
Wholesale/retail trade	500, 510, 520
Transport/storage/communication	600, 610, 620, 630, 640, 641, 642
Financial intermediation	655, 656, 657, 658, 659, 660, 670
Business activities, incl. real estate/renting	705, 706, 710, 720, 730, 740-749
Other	10, 20, 50, 400, 410, 550, 800, 850, 900, 910, 920-927, 930

