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**International Trade  
in Services: Data,  
Issues, Findings, and  
Recommendations**

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## ***International Trade in Services: Data, Issues, Findings, and Recommendations***

### *Introduction*

In this short paper, I selectively review the recent empirical literature on international trade in services. While there is now a considerable body of work that explores (aggregate) cross-country data, I take an explicitly European perspective, focusing on studies using (disaggregate) micro data from individual European countries.

Trade in services has become a hot topic of research for at least three reasons. First, the service sector is rapidly gaining in importance, especially for developed countries. Although services already represent a large part of the economy, the sector is still growing sizably.

More notably, cross-border trade in services is expanding at a fast pace. As service activities often differ fundamentally from manufacturing, these developments present major new challenges for economic analysis and policy-making.

Second, the analysis of trade patterns has shifted markedly from the country level towards the firm perspective. Firm-level decisions on doing international business, including decisions on the structure and organization of the firm, have become of enormous theoretical and empirical interest. Adding to findings for merchandise trade and foreign direct investment, trade in services offers a new and promising area of research which may provide important insights.

Third, various features of trade in services raise and deserve interest in their own right. These issues range from the threats and opportunities of service

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offshoring, to the remarkable resilience of cross-border flows in services during the financial crisis and the 'great trade collapse'.

The remainder of the paper is structured as follows. Section 2 highlights some data issues specific to the analysis of trade in services. Section 3 presents some stylized facts, followed by a discussion of recent findings in section 4. Section 5 provides an empirical application. Section 6 briefly concludes.

## *Data*

Motivated by the vast amount of empirical research on firm-level merchandise trade, a growing literature aims to replicate (and possibly extend) such analysis for trade in services. As researchers are often restricted by the limited availability of and/or access to the relevant firm-level data, information on trade in services (which is usually collected at the national central bank) may provide new opportunities for research.

The structure of the micro data on trade in services is basically similar to the data collection for merchandise trade; a typical entry in the data set contains the value of a firm's shipment of a product (that is, type of service) to a destination country over a particular period of time. However, there are also a number of notable differences. First, services are intangible and, therefore, difficult to measure. As a result, the data is likely to be more noisy. For instance, in contrast to cross-border deliveries of merchandise goods, where shipments can be inspected by customs officers, exports and imports of services seem to be more dependent on the trader's valuation. Second, services are highly diverse. Services range from tourism and transport to patent payments and financial services. Services are often (roughly) sorted into eleven broad categories, with the total number of categories to classify services being 138 (in Germany). Table 1 lists the categories, sorted by declining importance in German services trade by trade value. For products, in contrast, there are harmonized classification schemes which contain more than 10,000 product categories.

Micro data sets are available for individual countries and typically accessible only by permission. As a result, it is almost impossible to match and analyze data sets across countries. More importantly, the data sets are characterized by country-specific features. Therefore, it seems particularly worthwhile to explore similar issues (or replicate previous findings) and then compare results across

countries. Mayer and Ottaviano (2007) provide an example of such cross-country examination for firm-level analyses of merchandise trade.

The most prominent analyses of country-level data sets of international trade in services include; Breinlich and Criscuolo (2011) on the United Kingdom's Annual Respondents Database, Ariu (2012) on the Belgium's NBB dataset on Trade in Services, and Biewen, Blank, and Lohner's (2011) description of Germany's Bundesbank dataset on Trade in Services. Other relevant country studies are Walter and Dell'mour (2010) on Austria, Gaulier, Milet, and Mirza (2011) on France and Federico and Tosti (2012) on Italy. Table 2 provides a summary of the main features of these studies.

## *Stylized Facts*

Reviewing the evidence on firm-level trade in services for individual countries, there are a number of notable stylized facts. For instance, similar to findings for goods trade, typically only a small fraction of a country's firms engage in the export and import of services; these firms are large, accounting for a sizable share of the total output of an industry.

Not surprisingly, there is also evidence of an 'exporter premium'. Service exporting firms differ systematically from non-exporters in essentially all relevant firm characteristics. For instance, exporters are larger in size; they are also more productive.

Reviewing the trading patterns of exporting firms, there is considerable heterogeneity across firms in terms of trade values, number of countries served and number of services traded. The majority of trade activity is highly concentrated in a few firms which serve many markets and trade many types of services. The strong pattern of concentration is observable even within firms, with the top destination and the top service accounting for the majority of a firm's overall trade.

While most of the variation in trading activity across firms is driven by the intensive margin (that is, variation in the firms' trade per country and service type), differences in a country's trading activity across markets is explained

mainly by the extensive margin (that is, the number of firms and services traded per country).

## *Specific Issues*

An interesting empirical finding that has recently received considerable attention is the remarkable resistance of trade in services to the dramatic decline in cross-border trade that occurred after the bankruptcy of Lehman Brothers. In the fourth quarter of 2008, world trade surprisingly collapsed, leading to an extensive search for explanations. For instance, as credit conditions tightened sharply, there has been a growing interest among economists into the procedures of trade financing.

For services, however, trade has been found to be relatively resilient. For Belgian firms, Ariu (2013) reports a decline in goods trade by 27% in the first half of 2009 relative to 2008, while trade in services dropped by only 3%. Specifically, it is argued that services are immune to income shocks.

Other interesting issues include the difference between cross-border and establishment trade of services, trade in tasks in services, and the role of China (which has seen strong trade growth in everything but services).

## *An Application: Duration of Trade*<sup>1</sup>

Recent research finds that trade relationships are surprisingly short-lived. Besedeš and Prusa (2006a, 2006b) and Besedeš (2008) examine the duration of US merchandise trade and find that the median duration of exporting a product to the US is on the order of two to four years. Other papers confirm this result for more countries. For instance, Nitsch (2009) shows that German import trade is also characterized by short relationship length; the majority of trade relationships exist for just a few, often only one to three, years. Brenton, Saborowski and von Uexkull (2010) and Besedeš and Prusa (2011) report

similar findings for developing countries. Besedeš and Prusa (2010) provide an overview.

The length of trade relationships in services trade, by contrast, is generally unknown. In this section, I aim to explore this issue in more detail. Specifically, I ask: “Is services trade similarly fraught with failure, such that about half of all relationships fail shortly after they get started?”

I examine data on German firm-level trade in services, provided by the Deutsche Bundesbank. The data is at the monthly level (which implies that the data is close to the transaction level), covering the period from 2001 to 2010. In total, there are 9,006,653 observations.

The Bundesbank compiles information on transactions between residents and non-residents; the data covers, in the terminology of the General Agreement on Trade in Services (GATS), cross-border trade (when a service is produced in one country and consumed in the territory of another country), consumption abroad (when the service is consumed in the territory in which it has been produced by the resident of another country), and the presence of natural persons (when a supplier provides the service in another country sending to that country one or more employees), but not commercial presence (when the service is provided by a supplier through the commercial presence in the country of the consumer). For firms, it is mandatory to report transactions to the Bundesbank above a threshold of 12,500 euros. The transaction values include taxes.

For the analysis of the duration of trade relationships, aggregation is an important issue. The more aggregated the trade flow, the higher is the probability that this trade relationship is still in existence in the next period. Figure 1 illustrates this pattern for different levels of aggregation. Figure 2 shows that for monthly data the analysis is not distorted by any seasonal pattern of trade.

Table 3 summarizes the results on the duration of trade. The table reports the length of export trade relationships (in years) for different service categories; I distinguish between samples without and with left-censored spells (without much effect). In line with findings for goods trade, trade in services turns out to be extremely short-lived. The median duration of an export of a given service

<sup>1</sup> This section draws extensively on Besedeš and Nitsch (2014).

to a particular country is just one year. Besedeš and Nitsch (2014) report more detailed results.

## Conclusion

In this short background paper, I review recent empirical research on international trade in services from a European perspective. I highlight various issues for the analysis of data on trade in services. I also provide an illustrative application.

A few lessons can be drawn. First, international trade in services is a heavily under-researched field of considerable economic importance. The coverage and treatment of foreign services transactions also has great policy relevance. Second, there is an urgent need for harmonized data sets. Currently available data is highly fragmented between countries, with large differences in structure and quality. Third, there is little evidence in favor of a governmental promotion of service activities. Service transactions are typically short-lived and heavily concentrated among the largest firms.

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## Appendix

**Table 1: Service Categories in Germany, 2001-2010**

	Exports				Imports			
	Firms	%	Bn.€	%	Firms	%	Bn.€	%
<b>Transportation</b>	4994	12	399	29	20049	12	372	26
<b>Insurance</b>	1373	3	322	24	6490	4	324	22
<b>Other business serv.</b>	13196	33	233	17	48366	30	287	20
<b>R&amp;D</b>	2828	7	102	8	9557	6	92	6
<b>Computer/information</b>	3555	9	80	6	13851	9	76	5
<b>Construction</b>	3172	8	78	6	9862	6	56	4
<b>Financial services</b>	2821	7	61	5	5952	4	39	3
<b>Other</b>	4043	10	47	3	24140	15	87	6
<b>Communication</b>	688	2	30	2	4185	3	44	3
<b>Personal activities</b>	1765	4	11	1	9088	6	15	1
<b>Travel</b>	1513	4	4	0	11902	7	69	5

Source: Deutsche Bundesbank

**Table 2: Micro Data Sets of Services Trade**

Country	Period	Frequency	Firms
<b>Austria</b>	2006	annual	4,963
<b>Belgium</b>	1995-2005	quarterly	~6,000
<b>France</b>	1999-2007	annual	~10,000
<b>Germany</b>	2001-2010	monthly	~30,000
<b>Italy</b>	2008-2009	quarterly	2,955
<b>UK</b>	2000-2005	annual	~40,000

Source: Own compilation.

Table 3: Median Duration of German Service Exports by Type of Service

Service	No left censoring			With left censoring			
	Avg	Mdn	Max	Avg	Min	Mdn	Max
Travel	1.20	1	5	1.76	1	1	10
Transport	1.20	1	5	2.51	1	1	10
Insurance	1.27	1	5	2.42	1	1	10
Financial serv.	1.24	1	5	2.53	1	1	10
Communication	1.17	1	4	2.81	1	2	10
Construction	1.30	1	5	2.04	1	1	10
Comp./inform.	1.19	1	4	2.33	1	1	10
R&D	1.25	1	5	2.33	1	1	10
Other bus. serv.	1.20	1	5	2.08	1	1	10
Personal	1.20	1	5	2.04	1	1	10
Other	1.19	1	5	2.00	1	1	10

Notes: yearly, full sample, exports, firms-services-country

Figure 1: Export Survival in German Services Trade

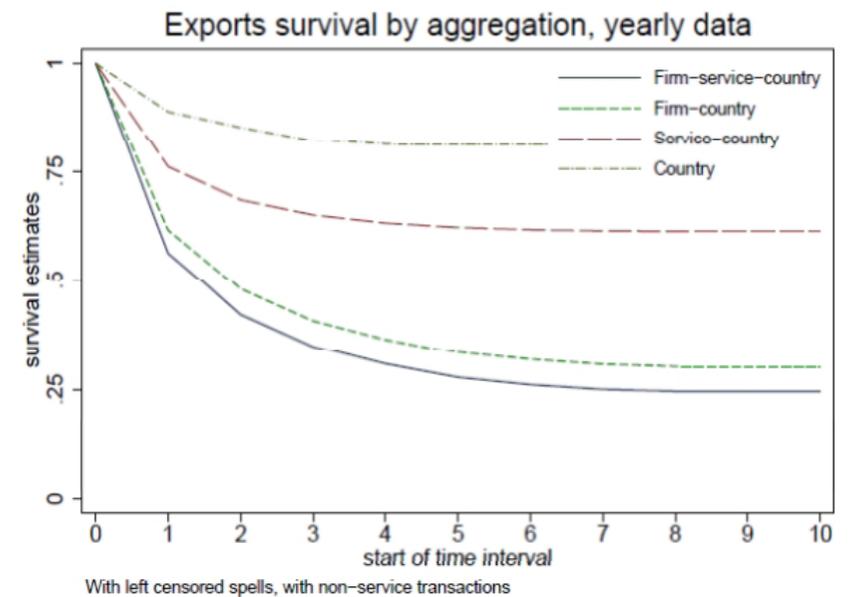
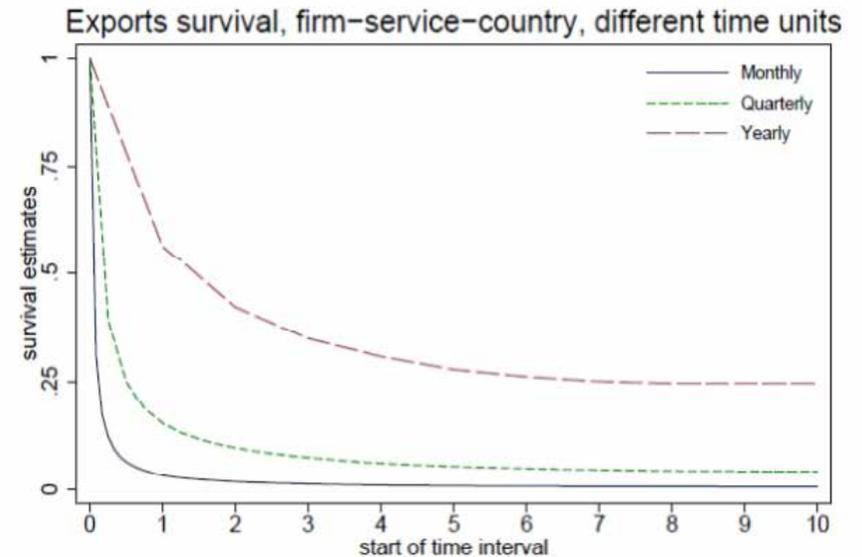
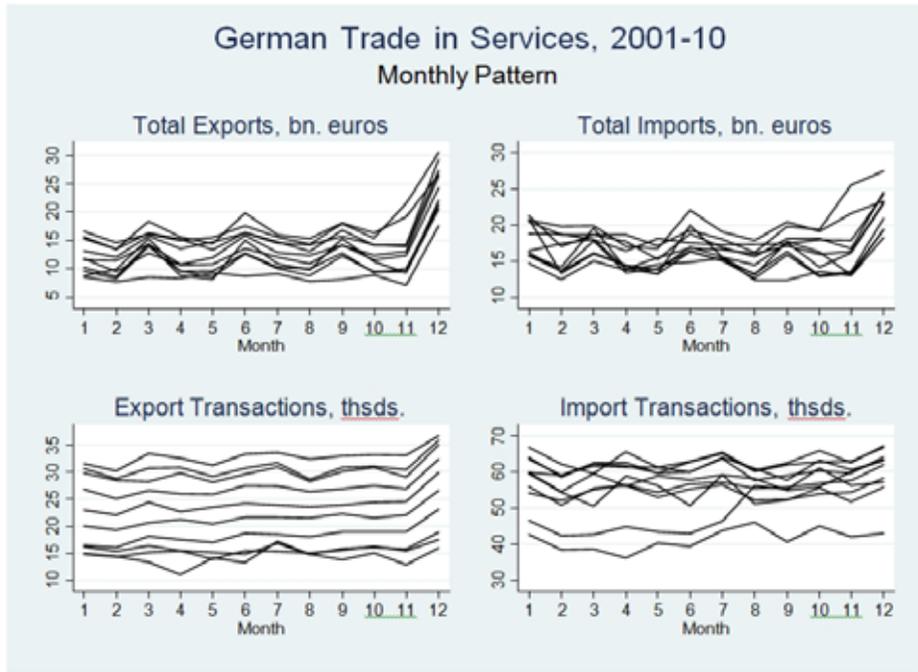


Figure 2: Seasonal Pattern of Trade in Services





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