

STATISTICS DIRECTORATE

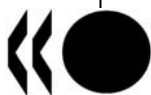
Working Party on International Trade in Goods and Trade in Services Statistics**FIRM LEVEL ANALYSIS OF INTERNATIONAL TRADE IN SERVICES****The case of Austria****16-18 November 2009, OECD Headquarters, Paris**

Item 5.5 of the Agenda. For discussion.

Balance of payments statistics serve as the common basis for analyzing cross-border trade in services, providing information about exports and imports by individual countries or by economic or monetary areas, specified by service categories and partner countries. However, balance of payments statistics do not deliver insight into the facts that determine trade flows as it is not countries who trade services but corporations. Consequently, trade in services ought to be analyzed at the firm level, taking into account company structures. The results may serve interest groups, politicians, business and industry as important sources of information for economic decisions.

This paper sheds some light on the determinants of trade in services and delegates are invited to comment and discuss the paper. It would be interesting to hear about related developments and experiences in other countries.

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FIRM LEVEL ANALYSIS OF INTERNATIONAL TRADE IN SERVICES THE CASE OF AUSTRIA¹

Patricia Walter

Introduction

1. Balance of payments statistics serve as the common basis for analyzing cross-border trade in services, providing information about exports and imports by individual countries or by economic or monetary areas, specified by service categories and partner countries. However, balance of payments statistics do not deliver insight into the facts that determine trade flows as it is not countries who trade services but corporations. Consequently, trade in services ought to be analyzed at the firm level, taking into account company structures. The results may serve interest groups, politicians, business and industry as important sources of information for economic decisions.

2. In Austria, the central bank is in charge of compiling balance of payments statistics. In 2006, a major change in data collection was introduced; since then, micro data on exports and imports of services (except travel) have been collected in close cooperation with Statistics Austria, replacing the former settlement system. The structural change in data collection has effectively boosted the quality and availability of statistics on international trade in services. Data on exports and imports per service category and partner country are available on a per-enterprise basis. The company register number may be used to link these data with structural or company register information, e.g. about company headquarters, sales revenues, the number of employees and about outward and inward FDI or with foreign trade statistics data. These structural statistics of trade in services are compiled on a yearly basis, starting 2006.

3. In 2006, nearly 5,000 nonfinancial enterprises were engaged in international trade in services in Austria. Their economic activities involved some 774,000 employees, sales revenues of about EUR 250 billion, of which service export revenues of about EUR 20 billion, and service import expenditures of roughly EUR 15 billion. Micro data analysis comes to the conclusion that Austria does not feature “typical” service exporters. Much rather, it is possible to distinguish between various types of service traders: (1) network industries, where exports are intrinsic to the system (the postal, telecommunications and transport services); (2) technology-intensive parts of the manufacturing industry, including e.g. the automotive industry, chemicals and TV and radio broadcasting; (3) transnational enterprises that organize their production on a world-wide basis and maintain research centres in Austria; (4) group management providing a broad range of services, e.g. advertising, legal consultancy and financial services; and (5) local, specialized companies in areas such as technology and management consultancy.

¹ For reading the full text in „STATISTIKEN – Special Issue, Pattern of Trade in Services 2006, June 2009“ go to the central bank’s website under www.oenb.at/en/.

1. The Framework for Compiling External Statistics in Austria

4. In January 2006, the Oesterreichische Nationalbank (OeNB) introduced a new compilation system for the balance of payments to improve these statistics' quality and coverage. Prior to 2006, data had largely been gleaned as secondary information from banks' records on payment transactions (settlement system). Progressive economic globalization rendered the largely indirect reporting system increasingly unsuitable for providing the high quality of balance of payments statistics demanded by national and international users.

5. The OeNB stopped using bank reports on behalf of their customers and introduced direct surveys of economic agents. At the heart of the new system are random samples from enterprises, institutional investors, banks and households; the sampling process differs depending on the type of transaction surveyed. To benefit from synergies in the new reporting system, the OeNB works in close cooperation with Austria's other key producer of statistics, Statistics Austria. Since 2006, the OeNB has thus concentrated on capturing financial transactions and the financial sector, whereas Statistics Austria has focused on real economy data. The OeNB remains responsible for consolidating the different reports and for the quality and publication of the balance of payments statistics.

6. On behalf of the OeNB, Statistics Austria compiles data on service exports and imports by nonfinancial corporations classified under sections C to I, K, M and O as well as division 67 of the Austrian Statistical Classification of Economic Activities (ÖNACE) 2003. The OeNB, in turn, conducts the surveys of the financial sector (mainly banks and insurance companies) with regard to trade in services; this relates to the divisions 65 and 66 of ÖNACE 2003.

7. The surveys of trade in services cover business activities according to the Extended Balance of Payments Services Classification (EBOPS), taking hold of some 50 different service items. The survey design for the nonfinancial sector is a stratified corporate sample within the scope of the structural business survey (SBS). The respondents were grouped by industry classified at the ÖNACE two-digit level. The reporting obligation applies to those nonfinancial corporations whose service exports or imports surpass a specified threshold. Every industry has a particular reporting threshold of between EUR 50,000 and EUR 200,000, with the threshold chosen to capture at least 90% of all service imports and exports in every industry.

8. Unreported data are imputed using an estimation method. To this end, service exports and imports of reporting enterprises are stratified by industries and turnover size classes, median values are calculated, and these are then applied to nonreporting enterprises. Robust regression is used to estimate service exports and imports at values below the threshold. To this end, exports and imports are calculated as a function of sales.

9. OeNB and Statistics Austria back casted service exports and imports for the period from 1995 to 2005, using the methodology in place since 2006. The introduction of the new survey system had caused trade flows to slump as the statistical artefact "unclassified transactions" disappeared. The new time series shows that Austria is generating growing surpluses on service exports and imports (excluding travel) and that these are contributing substantially to the positive long-term trend of the current account balance: Between 1998 and 2008, net service trade augmented from EUR 1 billion to EUR 6 billion, a rise from 0.7% of GDP to 1.5%. The underlying service flows have grown considerably, exports by an average of 10% a year.

2. The Determinants of Trade in Services

a) Description of the Data Set

10. The SBS has been drawn up annually in Austria since the reporting year 1997, in compliance with the requirements of the relevant EU regulation.² The SBS are compiled on the basis of a survey of those companies whose employment figures and sales revenues are above legally defined thresholds. In 2006, the SBS comprised 289,635 reporting units including an estimate for companies below the reporting threshold.

11. For analyzing trade in services by Austrian companies, an extract that included only active enterprises registered according to the company register was drawn from the 2006 SBS. Thus, companies that are covered by the SBS but that do not have a registration number were not included. Conversely, registered companies that are part of the trade in services survey but that are not covered by the SBS were included. The total data sample thus covers 138,306 enterprises and is applied to below as “basic population”.

12. A sample was drawn from this population; it comprises 4,963 enterprises that either exported or imported services, or did both, in 2006. Using the company register number as the identification criterion, 14 variables were defined for each enterprise, including the industry in which the company operates (ÖNACE 2003), annual average employment, sales revenues, exports and imports of goods totals, company headquarters (Austrian province), date of establishment, outward FDI (yes or no) and inward FDI (yes or no) as well as the type of service, the country of incorporation of the trade partner, and export revenues and import expenditures.

13. The data on service exports and imports were taken from the survey of nonfinancial corporations' trade in services. They do not cover travel, nor do they account for trade by financial corporations. Consequently, insurance and banking services are recorded only rudimentarily, above all exports of financial services. Also figures comprise only reported service exports and imports and leaves imputed and estimated values out of account.

14. Most structural information about the reporting enterprises was taken from the 2006 SBS. Master data of companies covered by the trade in services survey in 2006 but not covered by the SBS were taken from the company register. These data were complemented by information derived from the OeNB's company database. Finally, exports and imports of goods date from foreign trade statistics.

15. The breakdown of enterprises by industry displays a heterogeneous structure. The size of the sampling fraction differs from industry to industry, which is attributable to the statistical coverage concept that applies to international trade in services: The reporting thresholds were determined to minimize cost to the respective industries and at the same time to ensure that the degree of coverage was sufficient in every service category.

- The sample comprises just fewer than 940 manufacturing companies; these account for 19% of the sample. The sampling fraction comes to about 6% of the population. Most of the companies manufacture machinery and equipment or metals, or are in the publishing or food industry.
- 222 enterprises or 4% of the sample – less than 2% of the population – are construction companies.

² Regulation (EC) No. 295/2008 of the European Parliament and of the Council of 11 March 2008 concerning structural business statistics.

- Service providers represent the bulk of the companies in the sample, *i.e.* 3,560 companies or almost 72%. However, these service companies represent only 3% of the population, which is indicative of the very fragmented corporate structure in Austria. Most of the service companies belong to the following industries: wholesale trade and commission trade, supporting and auxiliary transport activities (shipping companies and travel agencies), land transport (including transport via pipelines), data processing, management consulting, management of holding companies, architectural and engineering services, and advertising.

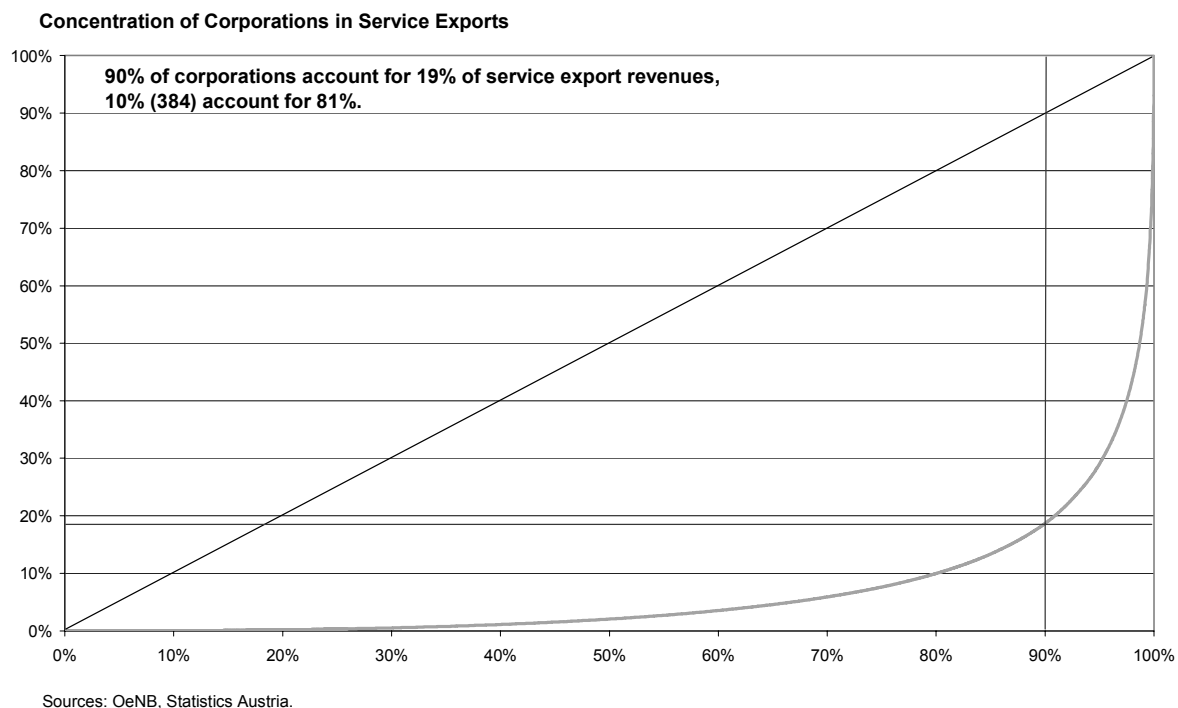
16. Nearly EUR 20 billion of service exports were gathered by the sample. In terms of the 2006 balance of payments, this corresponds to a degree of coverage of 95%; the service imports of the sample account for a volume of EUR 15 billion or 85%. The degree of coverage is highest for exports of communications services and for merchanting and other trade-related services; it is lowest for personal, cultural, and recreational services and for agricultural, mining, and on-site processing services. The reason for the low degree of coverage is that data from the national accounts complete survey data for the compilation of personal services; moreover in 2006, the survey system for agricultural services was still in the project stage.³

b) Concentration of Enterprises in Trade in Services

17. According to the sample, 4,013 Austrian enterprises exported services in 2006. 10% (384) of these companies generated more than 80% of total service export revenues, indicating that only a small number of Austrian companies which do business abroad account for Austria's service exports. Most of these firms belong to the service sectors (1) supporting and auxiliary transport activities; activities of travel agencies, (2) management activities of holding companies, (3) business and management consultancy activities, (4) wholesale trade and commission trade, except of motor vehicles and motorcycles, (5) land transport; transport via pipelines and (6) computer and related activities.

18. 4,057 enterprises imported services in 2006, of which, similar as for exports, 10% (388) account for 80% of import expenditures. In other words, although in principle, every company can purchase services abroad, a small group of enterprises accounts for the bulk of total expenditure on service imports. Most of the companies are in the same sectors as those in which exports are concentrated; other companies are in advertising and air transport. Most of these service sectors can be classified as network industries whose external business orientation is inherent to the system. Other industries with considerable service imports are in the machinery manufacturing and the chemical manufacturing industries.

³ Legal services exhibit a comparatively low degree of export and import coverage (63%) because in Austria, a large proportion of such services are provided within banking groups and are reported by banks (the sample does not include financial intermediaries).



c) The Significance of Service Exports for Total Sales

19. The indicator to measure the importance of external trade is the export ratio, i.e. exports as a percentage of sales revenues. The service sector accounts for 77% of export revenues according to the sample. The export ratio comes to 12%, which means that export revenues account for only one-eighth of Austrian service companies' total sales revenues.

20. External trade in services is most important for air transport as well as providers of architectural and engineering services, with both categories selling about one-half of their services abroad. With an export ratio of up to 5%, service exports are least important for retailers and motor vehicle traders. Among enterprises not classified under the service sector, service exports are relevant above all for manufacturers of radio, television and communication equipment and apparatus, measuring roughly 4%.

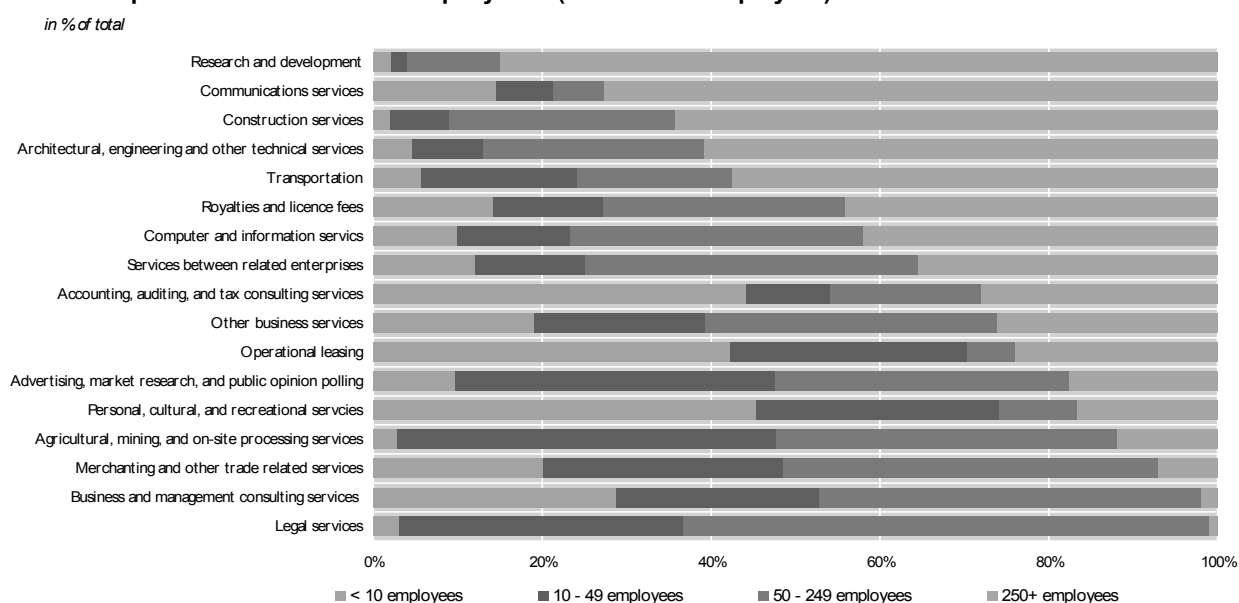
21. Looking at services exports in detail, service industries with over 90% industry-related exports include various transportation services; transport and travel agencies; postal and telecommunications services; legal services; accounting, auditing, bookkeeping, and tax consulting services; market research and public opinion polling; and architectural, engineering, and other technical services. Business and management consultancy activities offer a wide range of services, including computer and information services, technical services and advertising services. Retail trade and motor vehicle sales have the second-highest share of revenues from royalties and license fees after the research and development sector.

| Export Ratios by Service Industries | | |
|--|--|--------------|
| Service Industries according to ÖNACE 2003 | | Export Ratio |
| <i>in % of sales revenues</i> | | |
| 50 | sale, maintenance and repair of motor vehicles; retail sale of automotive fuel | 1.8 |
| 51 | wholesale trade and commission trade | 5.4 |
| 52 | retail trade; repair of personal and household goods | 0.7 |
| 55 | hotels and restaurants ¹ | 1.5 |
| 60 | land transport and pipeline transport | 23.5 |
| 61 | water transport | 27.4 |
| 62 | air transport | 53.9 |
| 63 | supporting transport activities; travel agency services | 28.5 |
| 64 | postal and telecommunications services | 8.3 |
| 67 | financial services and insurance activities | 22.1 |
| 70 | real estate activities | 3.5 |
| 71 | renting of machinery and equipment without operators | 9.3 |
| 72 | computer-related activities | 19.5 |
| 73 | <i>research and development</i> ² | x |
| 74.11 | legal activities | 32.4 |
| 74.12 | accounting/auditing activities, tax consultancy | 12.5 |
| 74.13 | market research and public opinion polling | 31.9 |
| 74.14 | business and management consulting, incl. public relations consultancy | 47.4 |
| 74.15 | management activities of holding companies | 28.0 |
| 74.20 | architectural and engineering activities | 51.0 |
| 74.30 | technical testing and analysis | 38.2 |
| 74.40 | advertising | 11.1 |
| 74.50 | labor recruitment and provision of personnel | 7.8 |
| 74.60 | investigation and security activities | 2.0 |
| 74.70 | building and industrial cleaning activities | 2.8 |
| 74.80 | miscellaneous business activities | 30.9 |
| Sources: OeNB, Statistics Austria. | | |
| ¹ except for travel. | | |
| ² In the ÖNACE division research and development, the analysis produces implausible results due to statistical distortions: The survey on cross-border services and the 2006 Structural Business Survey captured data from different years, so that not all companies are recorded with the same date in both surveys | | |

d) The Influence of Company Size on Trade in Services

22. Data reveal that companies that export services are roughly ten times the size of the respective industry average. This fact is influenced by technical reasons as the survey of cross-border trade in services is organized as a sample using thresholds. But also for economic reasons, a company must apparently exceed a particular size to be able to engage systematically in service exports.

23. The distribution of exports of a particular service by company size shows that sophistication and innovation content of service exports correlate positively with company size. This result corresponds to the average number of employees in the respective related industries. Exports of network services (communication, transport) are also provided mainly by large companies. Trade in knowledge-based services, though, is predominantly transacted by small and medium-sized enterprises. Trade-related services – above all merchanting – are exported primarily by small and very small enterprises.

Service Exports as a Function of Company Size (Number of Employees)


Sources: CeNB, Statistics Austria.

e) Links between Trade in Services and Group Activities

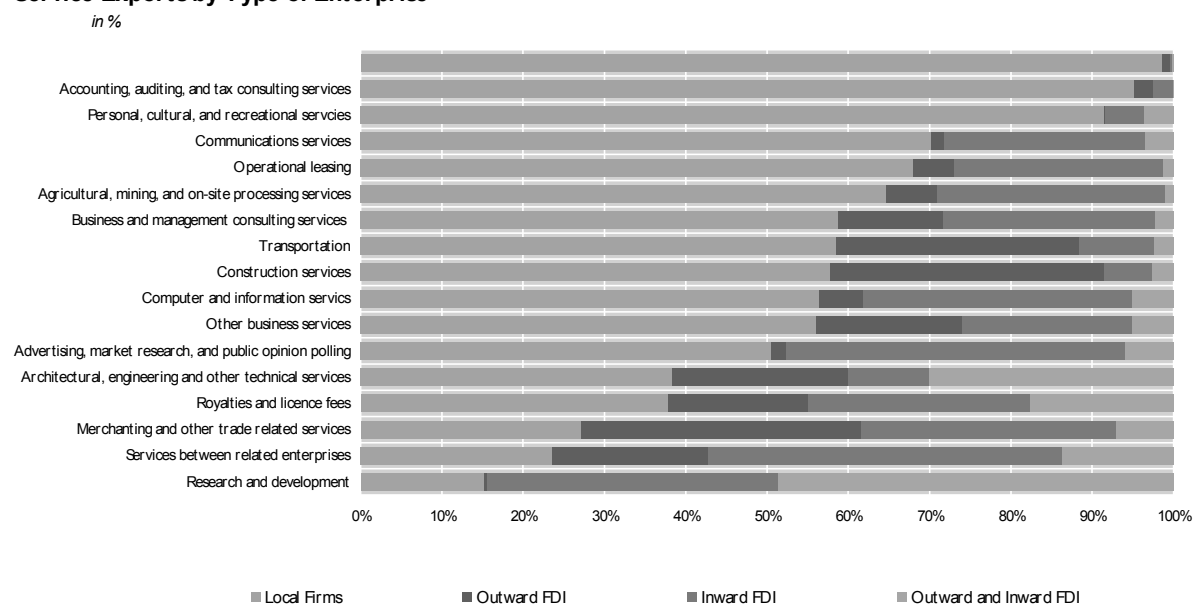
24. Beside goods and service trade and the granting of patents and licenses, companies can resort to a third important form of internationalization of production: cross-border FDI. Not until Austria joined the EU and Eastern Europe opened up did internationalization gather momentum. By the end of 2007, Austrian outward and inward FDI had grown to an estimated EUR 100 billion each. Bridgeheads – foreign-controlled resident investors that are part of a multinational group and that have subsidiaries abroad themselves – play a special role. Some 900 of 3,300 Austrian direct investments abroad are such regional headquarters.

25. The sample was divided into local companies and companies that are part of an international group. More than half of all Austrian service exports are attributable to companies with investment ties to a foreign group. These companies with inward or outward FDI generate over half the export revenue from research and development; architectural, engineering and other technical services; and merchanting and other trade-related services. The share of royalty and license fee revenue is correspondingly high (34%). Particularly high, some 85%, is the share of foreign-controlled companies in export revenues of research and development services. Also over 50% of service import expenditures in Austria are attributable to companies with foreign group investments. Conversely, local firms predominate in exports of knowledge-based services, such as legal services; accounting, auditing and bookkeeping, and tax consulting services; and personal, cultural, and recreational services.⁴

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In this context, the criterion for an inward direct investment is direct foreign control of at least 50% of a company's capital. Therefore, the influence of activities of international groups on trade in services must be assumed to be even larger than the analysis showed, as it did not cover inward FDI from 10% to 50% or indirect FDI. Future analyses will be able to capture inward FDI more broadly.

Service Exports by Type of Enterprise



Sources: OeNB, Statistics Austria.

f) Links between Trade in Services and Goods

26. Four-fifths of this analysis' basic population have no imports or exports. This corroborates the results of international research about the low participation of companies in external trade and is attributed to the prohibitively high transactions costs involved in external trade. This group is followed by the 6.8% segment of Austrian companies that perform goods exports and imports and by the 5.9% segment that has imports only, and finally by the segment of companies that exclusively exports goods (2.7%). Only then follows the group of firms that are engaged in both, trade in goods and services.

27. Overall, manufacturing enterprises that export goods and services account for approximately 40% of goods exports and 15% of service exports. Companies belonging to the ÖNACE division manufacture of radio, television and communication equipment and apparatus garner the highest share of service export revenues (about 4%), followed by manufacturers of chemicals, engineering companies, companies engaged in the manufacture of fabricated metal products, companies that manufacture electrical machinery and apparatus, and enterprises in the motor vehicle manufacturing industry. The two industries with the largest shares of goods exports – engineering and motor vehicle manufacturing – have service export revenues that are far lower than their goods export revenues. Nevertheless, their service revenues are in the triple-digit millions. In line with the internationalization stages theory, we might assume that the most innovative manufacturing industries provide innovative services and logistics services along with goods exports at the outset, only to outsource these services to subsidiaries at a later stage.

| Export of Service Packages by Manufacturing Enterprises | | |
|---|--|--|
| Activity according to ÖNACE 2003 | | leading service category |
| 15-16 | manufacture of food products, beverages and tobacco products | royalties and licence fees |
| 17 | manufacture of textiles | research and development |
| 18 | manufacture of wearing apparel | merchandising and other trade related services |
| 19 | manufacture of leather and related products | transportation |
| 20 | manufacture of wood and wood products | royalties and licence fees |
| 21 | manufacture of pulp and paper | merchandising and other trade related services |
| 22 | publishing, printing and reproduction of recorded media | advertising, market research, and public opinion polling |
| 23-24 | manufacture | research and development |
| 25 | manufacture of rubber and plastic products | architectural, engineering, and other technical services |
| 26 | manufacture of other non-metallic mineral products | advertising, market research, and public opinion polling |
| 27 | manufacture of basic metals | merchandising and other trade related services |
| 28 | manufacture of metal products | construction services |
| 29 | Manufacture of machinery and equipment n.e.c. | architectural, engineering, and other technical services |
| 30 | manufacture of office machinery and computers | research and development |
| 31 | manufacture of electrical equipment | architectural, engineering, and other technical services |
| 32 | manufacture of radio, television and communication equipment | research and development |
| 33 | manufacture of medical, precision and optical instruments | architectural, engineering, and other technical services |
| 34 | manufacture of motor vehicles and trailers | research and development |
| 35 | manufacture of other transport equipment | architectural, engineering, and other technical services |
| 36-37 | Manufacturing | research and development |

Sources: OeNB, Statistics Austria.

3. Conclusions

28. Results of this analysis were highly welcomed in Austria, by both, politicians as well as researchers. As it were, it was a contribution for closing down a gap which had persisted so far within the country's statistical landscape regarding the determinants of trade in services. It would now be of high interest to analyze other, comparable small and open economies for the purpose of comparing countries and come to common conclusions. Combining balance of payments with business and register data is a practicable way for doing so.

29. The analysis suggests that only a small group of Austrian companies exclusively exports or exclusively imports services. There is a strong correlation between trade in goods and services, which matches the corresponding content of goods and services, e.g. providing transport, assembly, repair and maintenance, planning and training services.

30. The analysis also provides evidence that the supply of services to Austria and the demand for services from abroad is very unevenly distributed and is concentrated on a small number of enterprises, above all service providers such as shipping companies and travel agencies, transport and trade companies, holding companies, management consultancies and advertising companies as well as computer and related companies.

31. Manufacturing companies – manufacturers of machinery and equipment and of radio, television and communication equipment and apparatus – also export and import services. Thus, outside of the inherent external trade orientation that applies to network industries, trade in services is dependent on a high degree of technical and knowledge content.

32. The strong concentration of trade in services on a small number of enterprises also relates to company size. Foremost export of construction, transport, communications, research and development and architectural and engineering services is a function of the number of employees. Conversely, external trade in knowledge-based services is focused on SMEs. Consequently, company structure appears to be a key

criterion for the degree of technical sophistication of service exports and for the country's positive or negative competitive position.

33. Companies with inward or outward FDI account for more than half of Austria's cross-border trade in services. In particular research and development services and cross-border payments of royalties and license fees are linked to group activities.

34. The analysis was also able to identify various regional specializations in Austria's service trade and shows that service trade relations are determined primarily by proximity.