

Exporters and importers of services: firm-level evidence on Italy

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CompNet Workshop
Frankfurt, 24-25 June 2013

Introduction

- Increasing tradability of services (ICT, global value chains, lower regulatory barriers)
- World exports of services now represent about 20% of world exports of goods and services
- Firm-level evidence on trade in services: almost non existent just a few years, now growing fast but still some limitations
- Our contribution
 - Report a set of stylized facts on trade in services in Italy
 - Analyze relation between cross-border trade in services and the activity of foreign affiliates (export versus FDI)

Related literature

- Wide literature using aggregate data on trade in services
 - Survey in Francois and Hoekman 2010 JEL; among recent studies, Fillat Castejon, Francois and Woerz 2008, Head, Mayer and Ries 2009, Christen and Francois 2010, Oldenski 2011
- Firm-level evidence on trade by firms in service sectors
 - Conti, Lo Turco and Maggioni 2010 (Italy), Temouri, Vogel and Wagner 2010 (France, Germany and UK), Minondo 2012 (Spain)
- Firm-level evidence on trade in services
 - Breinlich and Criscuolo 2011 JIE (UK); Ariu 2011, 2013, Ariu and Mion 2010 (Belgium), Kelle and Kleinert 2010, Biewen, Harsch and Spies 2012 (Germany), Walter and Dell'mour 2010 (Austria), Gaulier, Mirza and Milet 2011 (France), Haller, Damijan, Kaitila, Kostevc, Maliranta, Milet, Mirza and Rojec 2013 (Finland, France, Ireland and Slovenia), Tello Casas and Caloca 2013 (CompNet project: France, Germany and Spain)
- Firm-level evidence on export versus FDI in services
 - Bhattacharya, Patnaik and Shah 2012 (India, two sectors)
 - Kelle, Kleinert, Raff and Toubal 2012 (Germany)

- In 2008 the Bank of Italy started collecting firm-level data on trade in services in order to compile the “services” item in Italy’s current account
- We use a cross-section of data in 2009
 - Firm-level information by type of services (29 EBOPS categories) and partner country
 - Highly representative sample of firms ($n=2,955$), which covers more than 50% of Italy’s total exports and imports of “other services” (other than travel and transport)
- For a subsample of firms, merge with data on foreign affiliates statistics (FATS)
- Some limitations
 - No data on very small firms (sampling scheme targets medium-large firms)
 - No data on trade in goods

Trade in services

- BOP definition of trade in services
 - “Transactions between resident units and non-resident units”
(residence = center of economic interest within a country)
- BOP Services:
 - Travel (not included)
 - Transport (not included)
 - **Other services** (included)
 - Communications services
 - Insurance services
 - Financial services
 - Computer and information services
 - Royalties and licence fees
 - Other business services
 - Personal, cultural and recreational services
- Exports + Imports of Other services: 5.2% of Italy's GDP

Stylized facts (1)

- Importing services is more frequent than exporting services (in contrast to UK)
 - The median firm exports only one type of service \Rightarrow firms' specialisation in producing a single type of service
 - The median firm imports 3 types of services \Rightarrow use of different services as intermediate inputs
- Trade in services is highly concentrated among firms (as in UK, Austria, etc.)
 - The top 100 exporters account for 45% of total exports
 - The top 100 importers account for 39% of imports
- Trade in services is also concentrated within firms
 - For a firm exporting 3 service types, the top service types accounts for 77% of the firm's exports of services
 - For a firm exporting to 3 countries, the top market accounts for 73% of the firm's exports of services

Stylized facts (2)

- The distribution of service types is strongly related to the sector of activity (on both export/import sides)
 - Information and communication firms \Rightarrow Computer and telecommunication services, royalties and franchises
 - Professional, scientific and technical activities firms \Rightarrow Technical services
 - Insurance firms \Rightarrow Reinsurance
 - Manufacturing firms \Rightarrow Services between affiliates, royalties and franchises, advertising services
- Manufacturing firms are important traders in services (as in Germany)
 - Almost half of manufacturing firms in our sample export services
 - They account for 1/3 of the value of both exports and imports of services

Stylized facts (3)

- Decomposition of firm-level trade value in three margins:
 - Number of service types (extensive margin)
 - Number of countries (extensive margin)
 - Value per country-service type combination (intensive margin)
- Firm-level variation is mainly driven by the intensive margin (as in UK)
 - Exports: 70% of firm-level variation explained by the intensive margin
 - Imports: 65% of firm-level variation explained by the intensive margin
- All margins are positively correlated with firm size and, with only a few exceptions, productivity

Stylized facts (4)

- Decomposition of country-level trade value in three margins:
 - Number of firms (extensive margin)
 - Number of service types (extensive margin)
 - Value per firm-service type combination (intensive margin)
- Country-level variation is mainly driven by the extensive margins
 - Exports: 41% of variation due to number of firms, 27% to service types
 - Imports: 43% of variation due to number of firms, 26% to service types
- Gravity equation: distance is negatively correlated with trade (-0.64 exports, -0.85 imports)
 - Negative effect of distance only on extensive margins

Foreign affiliates' activity in services: data

- Merge with firm-level data on foreign affiliates in order to capture the provision of services through FDI (GATS mode 3)
 - Bank of Italy survey (Foreign Affiliates Survey - FATS)
 - Available for a subsample of firms (878 out of 2,955)
 - Variables: number of employees, sales, country of location and main sector of activity of foreign affiliates
- Measurement issues
 - No information on sector breakdown of sales \Rightarrow consider only foreign affiliates whose main sector of activity is in services
 - No information on the destination country of foreign affiliates' sales \Rightarrow export-platform FDI less important for services
- Allows to compute the ratio of exports of services on the sum of exports and foreign affiliates' sales (propensity to export services)

Export versus FDI in services

- Foreign affiliates' activity is even more concentrated than trade in services
- Propensity to export services (relative to FDI) varies a lot across sectors
 - High for R&D, engineering and advertising, low for finance and insurance (as in the U.S.: Oldenski 2011)
- Propensity to export services varies across partner countries
 - Higher in smaller markets; not significantly related to distance
- Propensity to export services varies across firms
 - Higher for smaller and less productive firms

Concluding remarks

- Report firm-level patterns on trade in services in Italy (largely consistent with previous literature)
 - Trade in services is highly concentrated
 - Trade in services is not restricted to firms in service sectors
 - Firm-level variation is largely driven by intensive margin
 - Country-level variation is largely driven by extensive margin
 - Despite intangibility of services, distance has a strong negative effect
- Analyze the choice between export and FDI in services at the firm level (very limited evidence in the existing literature)
 - Foreign affiliates' activity even more concentrated than trade
 - Propensity to export relative to sell through foreign affiliates varies across sectors
 - Exports preferred to FDI by smaller and less productive firms and in smaller markets

Thank you for your attention

Table: Number of firms by industry

Industry	No X-M	Only X	Only M	X&M	Total
Manufacturing	203	36	300	426	965
Electricity, gas, water	33	4	47	17	101
Construction	34	6	15	13	68
Wholesale and retail trade	183	16	152	119	470
Transportation and storage	18	2	20	40	80
Accommodation and food service	3	0	6	8	17
Information and communication	7	0	21	58	86
Finance and insurance	698	12	119	170	999
Real estate	13	0	4	1	18
Professional and other activities	6	1	4	34	45
Administrative activities	9	2	20	24	55
Other	12	1	15	23	51
Total	1219	80	723	933	2955
<i>Total (row %)</i>	<i>41.3</i>	<i>2.7</i>	<i>24.5</i>	<i>31.6</i>	<i>100.0</i>

Full sample. Unweighted data. X: exporter. M: importer.

Table: Value of trade in services by industry (EUR millions)

Industry	Exports	%	Imports	%
Manufacturing	9816	35.5	10719	33.0
Electricity, gas, water	55	0.2	393	1.2
Construction	130	0.5	127	0.4
Wholesale and retail trade	1238	4.5	1757	5.4
Transportation and storage	1853	6.7	1228	3.8
Accommodation and food service activ.	153	0.6	54	0.2
Information and communication	3343	12.1	7507	23.1
Financial and insurance (incl. banks)	8607	31.1	8844	27.2
Real estate activities	17	0.1	76	0.2
Professional, scientific and technical activ.	1180	4.3	831	2.6
Administrative and support service activ.	224	0.8	514	1.6
Other	1040	3.8	439	1.4
Total	27657	100.0	32490	100.0

Full sample. Weighted data.

Table: Value of trade in services by service type traded (EUR millions)

Type of service	Export	%	Import	%
Reinsurance	5833	21.1	6260	19.3
Services between affiliated enterprises, n.i.e.	3880	14.0	2993	9.2
Other miscellaneous business services	3717	13.4	3880	11.9
Telecommunication services	2155	7.8	2567	7.9
Research and development services	1605	5.8	1082	3.3
Other royalties and license fees	1412	5.1	2208	6.8
Advertising, market research	1331	4.8	1567	4.8
Franchises and similar rights	1126	4.1	2639	8.1
Computer services	995	3.6	2399	7.4
Financial services	1626	5.9	1688	5.2
Architectural, engineering	859	3.1	1379	4.2
Auxiliary services	851	3.1	515	1.6
...
Total	27657	100.0	32490	100.0

Full sample. Weighted data.

Exporters and importers of services

Table: Number of firms by industry

Industry	No X-M	Only X	Only M	X&M	Total
Total	1219	80	723	933	2955
(row %)	41.3	2.7	24.5	31.6	100.0
of which: Manufacturing	203	36	300	426	965
(row %)	21.0	3.7	31.1	44.1	100.0

Full sample. Unweighted data. X: exporter. M: importer.

Table: Top exporters and importers of services

	Top 5	Top 10	Top 20	Top 50	Top 100
Export	14.7	20.8	27.9	38.2	45.5
Import	14.2	18.7	23.3	31.8	38.6

Full sample. Share of top exporters or importers' trade values (unweighted) on total trade values in the reference population (weighted).

Table: Distribution of exporters and export value by number of service types and countries

No. types	No. countries						All
	1	2	3	4	5-9	10+	
Number of exporters							
1	22.7	6.5	5.3	1.8	6.1	9.4	51.8
2	3.8	4.2	2.3	0.9	4.2	3.9	19.4
3	0.5	1.1	1.5	1.1	4.4	4.4	12.9
4	0.0	0.5	0.4	0.4	2.2	3.9	7.4
5+	0.0	0.1	0.4	0.6	2.3	5.1	8.4
All	27.0	12.3	9.9	4.7	19.2	26.8	100.0
Export value							
1	6.0	1.7	0.9	1.2	2.0	14.9	26.8
2	4.4	0.6	0.6	0.2	2.4	8.3	16.5
3	0.0	1.6	1.0	0.3	3.7	4.3	11.1
4	0.0	0.1	0.1	0.0	1.5	5.6	7.3
5+	0.0	0.0	0.5	0.2	2.2	35.3	38.3
All	10.4	4.1	3.1	2.1	11.8	68.5	100.0

Full sample. Weighted data for export value.

Table: Distribution of importers and import value by number of service types and countries

No. types	No. countries						All
	1	2	3	4	5-9	10+	
Number of importers							
1	11.9	2.9	1.8	0.8	2.0	2.5	21.8
2	3.3	5.2	1.5	1.7	2.4	2.0	16.1
3	1.3	1.6	2.1	2.0	3.7	2.5	13.2
4	0.8	0.4	1.6	0.8	4.1	3.2	11.0
5+	0.6	1.2	1.1	2.1	11.7	21.2	37.9
All	17.8	11.3	8.1	7.4	23.9	31.4	100.0
Import value							
1	1.8	0.6	0.6	1.4	1.0	4.3	9.8
2	1.7	0.3	0.2	0.3	1.1	3.8	7.4
3	0.5	0.6	0.2	1.0	0.7	1.9	4.9
4	6.3	0.2	0.5	0.4	1.0	5.4	13.9
5+	0.3	4.7	0.2	0.3	7.6	50.8	64.0
All	10.7	6.4	1.8	3.4	11.4	66.2	100.0

Full sample. Weighted data for import value.

Table: Firm-level margins: exports

Variables	(1) Ln(Value)	(2) Ln(No. of countries)	(3) Ln(No. of types)	(4) Ln(Value per country*type)
	Full sample (including banks)			
Ln(Value)	1.000*** (0.000)	0.216*** (0.012)	0.088*** (0.007)	0.697*** (0.015)
Observations	1013	1013	1013	1013
R^2	1.000	0.416	0.254	0.739
	CB sample			
Ln(Employees)	0.725*** (0.087)	0.318*** (0.035)	0.159*** (0.025)	0.249*** (0.074)
Ln(Value added per employee)	0.408** (0.162)	0.064 (0.061)	0.035 (0.045)	0.309*** (0.111)
Industry FE	Yes	Yes	Yes	Yes
Observations	614	614	614	614
R^2	0.303	0.349	0.200	0.203

Robust standard errors in parentheses. Weighted regressions.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table: Firm-level margins: imports

Variables	(1) Ln(Value)	(2) Ln(No. of countries)	(3) Ln(No. of types)	(4) Ln(Value per country*type)
	Full sample (including banks)			
Ln(Value)	1.000*** (0.000)	0.203*** (0.009)	0.144*** (0.007)	0.653*** (0.014)
Observations	1656	1656	1656	1656
R^2	1.000	0.405	0.340	0.671
	CB sample			
Ln(Employees)	0.945*** (0.081)	0.330*** (0.029)	0.190*** (0.023)	0.424*** (0.069)
Ln(Value added per employee)	0.664*** (0.139)	0.182*** (0.050)	0.130*** (0.037)	0.352*** (0.110)
Industry FE	Yes	Yes	Yes	Yes
Observations	987	987	987	987
R^2	0.350	0.314	0.221	0.189

Robust standard errors in parentheses. Weighted regressions.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table: Country-level margins: exports

Variables	(1) Ln(Value)	(2) Ln(No. of firms)	(3) Ln(No. of types)	(4) Ln(Value per firm*type)
Ln(Value)	1.000*** (0.000)	0.411*** (0.016)	0.268*** (0.010)	0.321*** (0.024)
Observations	230	230	230	230
R^2	1.000	0.791	0.772	0.478
Ln(Distance)	-0.644*** (0.182)	-0.467*** (0.103)	-0.267*** (0.063)	0.089 (0.086)
Ln(GDP)	1.018*** (0.060)	0.494*** (0.025)	0.301*** (0.018)	0.223*** (0.037)
Observations	191	191	191	191
R^2	0.697	0.766	0.675	0.139

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table: Country-level margins: imports

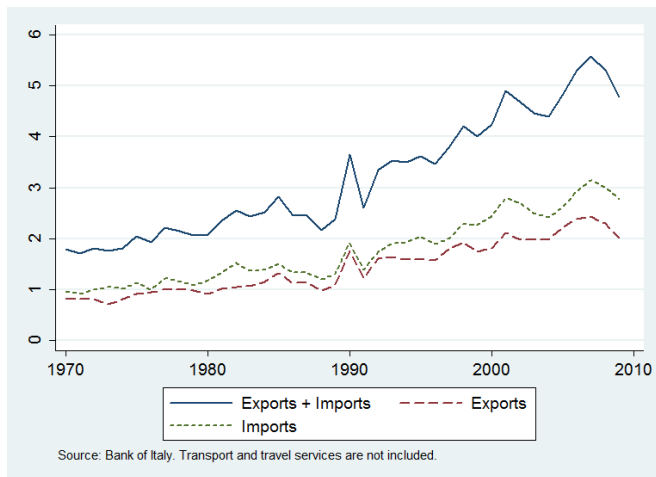
Variables	(1) Ln(Value)	(2) Ln(No. of firms)	(3) Ln(No. of types)	(4) Ln(Value per firm*type)
Ln(Value)	1.000*** (0.000)	0.431*** (0.021)	0.255*** (0.011)	0.315*** (0.031)
Observations	223	223	223	223
R^2	1.000	0.779	0.760	0.441
Ln(Distance)	-0.847*** (0.191)	-0.559*** (0.115)	-0.279*** (0.056)	-0.009 (0.090)
Ln(GDP)	1.043*** (0.073)	0.567*** (0.029)	0.313*** (0.019)	0.163*** (0.045)
Observations	188	188	188	188
R^2	0.612	0.765	0.661	0.068

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table: Ratio of exports to the sum of exports and foreign affiliates' sales by service type

Type of service	Share
Research and development services	0.89
Architectural and engineering services	0.61
Advertising and market research	0.42
Computer services	0.41
Other business, professional and technical services	0.21
Communication services	0.12
Business and management consultancy	0.10
Insurance services	0.04
Financial services (except holding)	0.01
...	

Other services (% on GDP): Italy



Sample

- Non-banks: sample survey. Source: Bank of Italy
 - Threshold: sales \geq 70 EUR millions
 - 3,800 firms above the threshold (45 % of total sales in reference population)
 - 2,141 firms provided data for all quarters in 2009
- Banks: data available for all banks (814). Source: Bank of Italy
- Full sample (2,955 firms)
 - Number of employees: 635 (mean), 191 (median)
- Smaller sample with balance sheet data (1,489 firms)
 - Number of employees: 755 (mean), 281 (median)