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Exporters in Services: New Evidence from Italian Firms

By Giuliano Conti, Alessia Lo Turco, and Daniela Maggioni*

Abstract

This paper provides new evidence on the determinants of the export performance of firms in services based on a cross-section of Italian firms in the NACE Sections G, I and K for the year 2003. The empirical analysis of the determinants of the export status and intensity shows that the success of service firms in foreign markets is specifically related to their experience in the national market, their belonging to national and international networks and to their relationship with large industrial firms. A higher level of productivity and a higher skill intensity only seem to matter when exporting to more distant industrial countries.

Keywords: Services, firms' internationalisation

JEL Classifications: L80, L25, D24, F14

1. Introduction

In the policy debate, attention has nowadays moved from trade liberalization in goods to trade liberalization in services.

The importance of services in the improvement of a country's efficiency and, in general, of its knowledge and technological frontier shows their centrality: on one hand, services, such as transport and communication, link different production blocks and their efficiency affects the overall competitiveness in the production of final goods (Jones and Kierzkowsky 1990); on the other hand, knowledge-intensive business services build and strengthen the innovative capacity of an economic system and improve a country's long run growth potential (Grossman and Helpman 1991, Antonelli 1998)¹.

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In advanced countries services represent more than two thirds of value added and employment and show the highest growth rates. OECD Countries have recorded an average annual growth rate of 2.87% in services for the 1995–2004 period against a rate of 1.81% for manufacturing².

In the same way, service trade has also experienced a huge growth in recent decades. The rapid technological change brought about by computers and new technological discoveries has positively affected the export of services: a larger number of services is nowadays tradable and those already traded have become easier and easier to trade (Blinder 2006).

In particular, trade in services and the International Fragmentation of Production (IFP) are deeply interconnected. On the one hand, manufacturing firms outsource ancillary services to domestic and international firms, on the other hand, an enlarging service sector helps the disintegration of the production processes across different locations (Grossman and Rossi-Hansberg 2008).

Even though competitiveness in providing services has become key issue, very little is known about the players involved in this phenomenon (Love and Mansury 2009, Vogel 2008 and 2009, Vogel and Eickelpasch 2009). For advanced economies, the analysis of the performance of service firms in the export market could call for a higher attention of the domestic policy to these firms in addition to the manufacturing ones. Apart from the importance of service firms in creating employment, internationalisation of services may improve a country's overall efficiency which can have positive consequences on the performance of manufacturing firms. These issues may be central for Italy, the target country for our analysis where services represent a large share of the value added³ and manufacturing exports are more focused on traditional activities⁴. The latter, in fact, provide lower employment opportunities nowadays due to fast technological advancements and tougher international competition, and may significantly benefit from internationalised services to preserve competitiveness and reap new ideas and innovations.

In addition, for Italy, policies should also take into account the traditional regional disparities between the South and the rest of the country, which are even more severe as regards the distribution of service activities. Service exports are highly

¹ Knowledge and technology constitute the fundamental basis of the Lisbon Strategy for a healthy European industrial sector to gain competitiveness in the global economy. As corollary to the previous statement stands the suggestive evidence by Kox and Rubacalba (2007) of a significant and strong positive correlation between the average income per capita and the share of business services in total employment in European countries.

² Cfr. OECD 2009.

³ The Italian service sector has grown from 67% of the total value added in 1995 to 73% in 2004 and, even though Business Services only account for a small share, they have shown the highest growth rates in the following years (OECD 2009). Credits for exports have significantly increased in recent years (26% in the period 2001–2008).

⁴ Cfr. ISTAT 2006.

biased toward Northern and Central regions, and the South lags behind especially for high knowledge-intensive activities and financial services⁵.

The contribution of this paper is aimed at providing new evidence on the service firms' export performance. In particular, using a sample of Italian business service firms, we try to investigate whether the traditional export determinants, found to be significant for manufacturing, also play a role in service firms. To the best of our knowledge, our work is the first of its kind to provide original evidence on the internationalisation of Italian service firms. As a further contribution, we also analyse the export performance in different destination markets: the EU25 aggregate, the EU15, the non-EU markets and the *industrial* markets outside Europe. This allows for the assessment of the differences between exporters to *close* and *distant* markets. The work has been structured as follows: Section 2 surveys the related literature, section 3 presents the data, discusses some evidence on the service sector firms in Italy and describes the empirical strategy, Section 4 shows the results and Section 5 concludes.

2. A Review of the Literature

The standard theory of international trade builds on the hypothesis of a "representative firm", treating firms within a sector as identical. Evidence proves that only a share of firms engages in exports and that internationalised firms are usually very different from domestic firms in terms of several characteristics (Bernard and Jensen 1995). First of all, the presence of scale economies as a determinant of trade can hint at a firm's size as being one of the important characteristics affecting its export behaviour. Size can capture the firm's ability to face those fixed entry costs which are usually related to its involvement in exports (Wagner 1995, Wagner 2001, Sterlacchini 2001). Furthermore, exports can significantly influence the exploitation of scale economies and, through this channel, enhance the firm's competitiveness (Baldwin and Gu 2004).

Research on the export determinants has recently focused greatly on firm efficiency and the empirical literature has shown that in the manufacturing sector more productive firms self-select into the export market, while exports cannot always be considered as the *Mida's touch* for the firm's performance (Clerides et al. 1998, Bernard and Jensen 1999, Bernard et al. 2007, for a survey see Wagner 2007)⁶. This has led to new questions for the trade theory and, introducing heterogeneity into Krugman's (1980) model, Melitz (2003) has described the self-selection of more productive firms into the export markets.

⁵ Cfr. ICE-ISTAT 2009.

⁶ Evidence on *learning by exporting* is still not conclusive, even if, especially for low and middle income countries, some recent studies support positive export effects (Van Biesebroeck 2005 for Sub-Saharan Africa, De Loecker 2007 for Slovenia, Maggioni 2009 for Turkey).

However, as this strand of the economic theory addresses Total Factor Productivity (TFP) as the main factor behind the firm's export activity, some other part of the literature specifically addresses innovation and knowledge as the determinant for the export behaviour of a firm.

According to the technology gap theory, advanced countries export innovative products which provide monopoly rents for a certain period. Then, in the period that follows, imitation occurs and new innovations are needed to maintain the previous monopoly gains, in this respect innovation triggers exports. According to the product cycle theory (Vernon 1966), proximity between customers and producers is important for developing new products and processes and again the size of both the firm and the domestic market is the most important factor in determining the firm's competitiveness in the first stage, after which new goods can be exported to low income markets. Next, from this part of the literature a prominent role of scale economies, process and product innovations comes out as determinants of the export flows. These hypotheses have been tested on micro-level databases, and the findings point at innovation and R&D as the important drivers of the export behaviour of firms (Basile 2001, Sterlacchini 2001, Barrios et al. 2003).

More than size, static scale economies or innovation, some other part of literature (Johanson and Vahne 1977, 2003) stresses the importance of knowledge⁷, both in the form of objective and experiential – market and firm specific – knowledge (Penrose 1959). Going international is a continuous learning process for which the resources of a firm and the way it combines them are fundamental. This can be added to the firm's experience in the market it addresses and the knowledge about its opportunities within the market. International experience is acquired by a *learning-by-doing* process (Blomstermo and Sharma 2003). This is why, at first, firms internationalising penetrate neighbouring markets that are familiar to them and only later do they focus on more distant markets. On the other hand, the firm's internal resources of knowledge may prove fundamental in driving the internationalisation process and reaping its benefits. Especially, the performance of some professional and technical service firm's in foreign markets could be more related to the endowment of human capital than to the size of the physical assets.

In short, the theory of the internationalization of the firm and the existing evidence on the manufacturing firms in general hint at the positive role that size, productivity, innovation and the firm's own experience and that of other neighbouring firms play in determining the firm's export behaviour.

Within this framework, very little attention has been paid to the service sector firms. Although the liberalization of some service sectors together with technological advancements allow service firms to reap advantages from international mar-

⁷ Building on the evidence of very small Swedish firms going abroad, the so-called *Uppsala theory of internationalization* stressed that, more than size, something else should be identified as major determinant for a firm's internationalization.

kets, very few studies address the determinants of the export behavior of service firms and which mainly concern case studies developed within the business literature. Business studies researchers on the subject of internationalization of services can be divided into two groups (Blomstermo and Sharma 2003). The first group believes that there are important differences between service and manufacturing firms' internationalization due to intangibility, simultaneity in production/consumption, perishability, variability and ownership of services. Only those services with high tangibility and a low need for interaction between production and consumption can be easily exported, while other types of services with a high degree of intangibility, of interaction and simultaneous production and consumption (such as hospital and consulting) are location bound and need the firm's presence in the foreign market. The second group agrees with a slightly modified theory of internationalization for service firms. The experience developed with manufacturing should be used within the service sector. In particular, the intangibility of services which seems to be the basic problem is not really so true nowadays since a software or a project or even a hospital consultancy can be provided and stored on a cd-rom or in general in a file.

Three different strategies have been identified in the internationalization of service firms (Erramilli and Rao 1990, Majkard and Sharma 1998, Hellman 1996): customer-follower, market-seeker, follow-the-leader. The first typology refers to service firms going abroad to follow their customers, the second typology refers to service firms exclusively geared towards entering foreign markets to serve foreign customers and finally, the third typology concerns the oligopolistic sectors where followers go abroad to mimic the leader. Most of the existing evidence is based on case studies which in general shows that experiential knowledge is quite important. Erramilli (1991) finds that US service firms choose similar markets when they have a low experiential knowledge and only later do they move on to more distant markets. Coviello and Munro (1995, 1997) investigated how network relations can influence the internationalization process of a firm. Focusing on software firms they find that their internationalization is deeply affected by their relation with hardware producers which provide them with experiential knowledge. Also, there is a growing evidence that firms enter the foreign market very early and also reap the benefits of internationalization earlier than manufacturing firms, especially when they provide high-tech services (Contractor et al. 2003, Contractor et al. 2007).

Only recently some more systematic research has been conducted on the determinants of the internationalization of service firms. Gourlay, Seaton and Suppakitjarak (2005) examined the determinants of export behaviour (export status and intensity) for a panel of UK service industry firms from 1988 to 2001. Their results indicate that firm size, research intensity, average director's pay and the variance of the sterling-dollar exchange rate, all increase the probability of becoming an exporter. Eickelpasch and Vogel (2009) find, for the firms in the German service sector, a positive effect of size, human capital and productivity and the experience of the

national market. However, most of these effects disappear when controlling for firm-specific time-invariant unobserved heterogeneity. Love and Mansury (2009) focus on the relatively more knowledge-intensive business firms and actually confirm for the US that more productive firms self-select into the export market. But there is no effect of size or of productivity on the export intensity.

We intend to contribute to this stream of literature by providing comparable evidence for a sample of Italian firms in the business service sectors. Besides representing one of the fewest works on the topic, to the best of our knowledge, our research also represents the only existing evidence on Italian service firms internationalization. Furthermore, the survey design allows us to distinguish the significance of the export determinants according to different destination markets. Gathering the suggestions from both the empirical and the theoretical literature, we have split the destination markets according to the level of trade and transport costs, thus testing the hypothesis that exporting to more *distant markets is more costly and difficult than exporting to closer ones* (Mayer and Ottaviano 2007, Melitz and Ottaviano 2008).

3. The Empirical Strategy

3.1 The Data

In the following analysis, we used of a sample of business service firms from the 2001–2003 *CAPITALIA Survey*. This data source concerns firms based and operating in the Italian manufacturing, construction, energy, mining and business services industries. For each of these sectors a representative sample of firms is provided. A wide range of firms' characteristics is obtained by means of a questionnaire which is merged with data from the firms' balance sheets. The survey, then, provides information on 1,521 firms in the services Sections G, I and K of the NACE Rev.1 Classification⁸.

We remove the firms in the potentially non-tradable activities⁹ and with anomalous values of labour and capital¹⁰. After the cleaning procedure we remain with 1,159 firms, 1008 of which are present in 2003, for which Table 1 displays their distribution and internationalisation modes across the 2-digit service groups which

⁸ The three sections respectively refer to the activities of "Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods", "Transport, storage and communication" and "Real estate, renting and other business activities".

⁹ We excluded a total of 146 firms, mostly in Real Estate Activities and firms in those potentially non tradable activities, such as *Cleaning, Vigilance and Canteen services*. However we repeated the following empirical exercise leaving these firms in the sample and the results presented below were basically unchanged.

¹⁰ We dropped the firms in the lower and upper 1% of the distribution of value added per worker and per capital.

are listed and described in table 8 in the Appendix. More than one third of them belongs to the G section, while the majority of firms belongs to the final category of Renting and other business services¹¹.

Table 1
Distribution and International Involvement of Firms
across Sectors – Year 2003

NACE	Freq.	Exporter (%)	FDI (%)	Offshorer (%)
50	2	50	0	0
51	129	49	5	3
52	158	4	4	1
60	23	48	4	4
63	73	18	1	4
64	12	8	8	0
71	20	20	0	5
72	275	19	3	3
73	18	44	11	11
74	298	29	3	4
Total	1,008	24	3	3

The questionnaire provides plenty of information on the international involvement of the firms. The definition of exporter, FDI and offshorer status is traced back from the following questions:

- Did the firm sell all or part of its services abroad in 2003?
- Did the firm make investments abroad between 2001–2003, has the firm invested abroad?
- Is the firm delocalizing part of its activity abroad, at the moment?

From these questions we build a dummy variable taking value 1 when firms say yes, and 0 otherwise.

For the export activity, the questionnaire provides one more question allowing us to identify the export intensity:

- What percentage of the total sales [does the firm export]?

Due to the particular nature of services with respect to manufacturing, we use the information on the export intensity only in the sub-sample of firms in the sec-

¹¹ The detailed list of 3-digit groups included in the analysis and the number of firms within each of these sectors is available from the Authors upon request and is also available in the web appendix at <http://www.univpm.it/Entra/Engine/RAServePG.php/P/329510011848/T/Allegati-del-docente>

tions I and K, thus excluding firms in section G where it is more difficult (if not impossible) to distinguish the turnover from the sale of their services and that from the sale of goods¹².

Finally, for the export activity only, the questionnaire also allows for the identification of five destination markets: EU-15, New EU members, Other non-EU European Countries, Other extra-European industrial countries and Other extra-European non industrial countries.

Building on the idea that exporting to more *distant* market represents a more difficult task for a firm (Mayer and Ottaviano, 2008), we firstly group these markets according to the presence / absence of trade and / or transport costs¹³ into:

- EU: including EU15 and new EU members;
- non EU: including the extra-European countries (Other extra-European industrial countries, Other extra-European non industrial countries) and other countries in Europe not belonging to the EU.

Secondly, according to the belief that more developed markets involve tougher competition (Melitz and Ottaviano, 2008), within these groupings we enucleate the following two according to their average income level¹⁴:

- EU15;
- Extra-Europe Industrial countries.

From the right panel of Table 1, about 24% of the firms in our sample are involved in exports while a much smaller share is involved in FDI or offshoring (4% and 3% respectively).

¹² The WTO GATS defines trade in services in four ways:

- *mode 1*-"cross-border supply" when the firms provide the service from their country and customers consume it in their own country;
- *mode 2*-"consumption abroad" when the consumers or the firms make use of a service in another country (e.g., tourism);
- *mode 3*-"commercial presence" when a foreign company sets up subsidiaries or branches to provide services in another country (e.g., foreign banks setting up operations in a country);
- *mode 4*-"presence of natural persons" when individuals travel from their own country to supply services in another (e.g., fashion models or consultants);

As our sample is made up of firms belonging to the trade, transport, and business service sectors, all of the four modes can occur. However, defining exports is more complicated especially for the retail and wholesale trade sectors. For the firms which are not intermediaries in these sectors, the sale of goods also incorporates the sale of their services and it is difficult, if not impossible, to disentangle the service from the good.

¹³ In this respect, markets are classified as distant both in geographical and economic meaning.

¹⁴ We will only focus on industrial countries because, in our sample, the overall number of firms exporting to non-industrial destinations is very small so it cannot be used in the empirical analysis below.

The favoured export destinations (Table 2) are within the EU, and the EU15 countries are the most preferred. The average share of firms exporting to industrial countries is about 19% if the destination market is within the EU which drops to about 8% for extra-European industrial destinations. The G section (*Retail & Wholesale Trade*) displays the highest percentage of exporting firms regardless of the destination.

Table 2

Export Destinations and Intensity – Year 2003

	Export Destinations (% of firms)				
	All	EU	EU15	Non-EU	Extra-Europe Ind
G	25	20	19	15	10
I	24	21	21	9	6
K	24	18	16	13	8
Total	24	19	17	13	8

	Export Intensity (% of turnover) by destination				
	Total	EU	EU15	Non-EU	Extra-Europe Ind
I	6.63	4.54	4.47	2.09	1.57
K	6.48	3.03	2.93	3.35	1.96
Total	6.50	3.25	3.16	3.16	1.90

The lower panel of Table 2 shows the export intensity for the sub-sample of business services excluding the firms in the G section. The share of exports is much lower than what reported on manufacturing firms (about 30% from the same survey¹⁵), however firms in section I are on average slightly more intensively involved in exports and the largest part of exports is directed to the EU market.

The firms in our sample are mostly domestically owned firms. In 2003 only 46 (4.6% of the total number of firms in 2003) of them reported to be under foreign control¹⁶ and even less, 36 (3.6% of the total number of firms in 2003), report a control position by the foreign owner above the 50% of the company's capital¹⁷. Finally, only 15 of the foreign controlled firms are exporters and represent 6% of

¹⁵ A higher export share for manufacturing with respect to service SMEs is also shown in Lejpras (2009) for East-Germany.

¹⁶ Following the standard definition (IMF and OECD), we define a firm as foreign owned when the foreign resident owns more than 10% of the total capital).

¹⁷ The total number of foreign owned firms in our sample, regardless of the share of foreign assets, represents the 5% of our sample, i.e., about 50 firms.

exporting firms in 2003, then no strong relationship emerges between the two phenomena.

3.2 Modeling Export Determinants

Our main aim is to investigate the potential drivers behind the international involvement of service firms. Even if the database contains some information about the 2001–2003 period (such as balance sheet variables, labour and many others), the export activity, is reported only for 2003. To model the export determinants we build on the following specification:

$$(1) \quad \text{export}_i = \alpha_0 + \alpha_1 X_i + \epsilon_i$$

here, export_i represents the firm's export performance in terms of either export status – a binary variable taking value 1 for the event of exporting and 0 otherwise – or export intensity – the share of exports over turnover. From all the findings and suggestions mentioned in section 2, X_i contains the following variables as regressors:

Table 3
Export Determinants

Variable	Measure of
<i>LP</i>	Labor Productivity
<i>Age</i> , <i>Age</i> ²	Experience
<i>Lab</i> , <i>Lab</i> ²	Size
<i>HL</i> , Highly educated labor share	internal resources (human capital)
<i>FDIOFF</i> , FDI or Offshorer	Network
<i>FlexL</i> , Flexible labor	Internal resources
<i>Group_{serv}</i> , Service group	Network
<i>Group_{ind}</i> , Industrial group	Network
<i>Sale_{nat}</i> , <i>Sale_{nat}</i> ² , National Sales over Total Turnover	Intensity of domestic experience
<i>Sell_{large}</i>	Backward linkages / experience
<i>Sell_{SMEs}</i>	Backward linkages / experience
<i>Inno_{serv}</i> , Service innovation	Innovation
<i>Inno_{proc}</i> , Process innovation	Innovation

LP measures labour productivity as real value added per worker¹⁸; *Age* and *Lab* are respectively measured as the number of years between the date of the establish-

¹⁸ Although in the literature on manufacturing firms it is standard the use of the Total Factor Productivity (TFP) as a measure of efficiency, we prefer to stick to the use of labour productivity. This choice allows for a direct comparability of our findings to the previous work on the topic of service internationalisation (Eickelpasch and Vogel 2008, Love and

ment of the firm and 2003 and the number of workers in the firm; *HL* is the share of workers with a tertiary education level out of the total number of workers, while *FlexL* is a dummy taking value 1 if the firm uses any form of labor considered as flexible by the Italian law (temporary work, etc.); *Group_{serv}* (*Group_{ind}*) takes value 1 for firms belonging to a service (industrial) group; *Sale_{nat}* is the share of turnover sold in the national market outside the firm region; *Sell_{large}* (*Sell_{SME}*) takes value 1 if the firm sells to large (small and medium) industrial firms¹⁹; finally, *Inno_{serv}* (*Inno_{proc}*) takes value 1 if the firm has introduced a service (process) innovation in the 2001–2003 survey period.

Finally, each of the specification also includes sector dummies, a dummy taking value 1 for those firms located in the South of Italy (*South*) and a measure of the average productivity in the regional manufacturing sector (*LP_{reg}*), as an additional control for unobserved factors related to location differences in the business environment, and we cluster standard errors at the regional level to correct for any correlation among firms in the same region²⁰ (Moulton 1990).

For the variables in Table 3, Table 4 presents the descriptive statistics, and Table 9 in the Appendix shows the test for the difference in means between exporters and non exporters for the overall sample. The two sets of firms are not significantly different in size in their use of flexible labor and in innovation activity. However, among the statistically significant differences, the exporters, in particular, display a higher share of human capital (*HL*). They are more involved in industrial rather than service groups (*Group_{ind}* and *Group_{serv}*), sell more to large firms (*Sell_{large}*) and have a much higher share of sales in the national market outside the region. For the differences in productivity and the firm's own experience, (*LP* and *Age*), the *t*-test rejects the null however the difference is not as striking as one could expect.

The next section is devoted to the presentation and discussion of the results from the estimation of the empirical model 1 and, as standard in the literature, we estimate a probit model for the export status and a truncated regression for the export intensity to account for the possibility of different signs in the coefficients with respect to the export status.

As a general premise to the presentation of our results, we would like to emphasize that we work on a cross-section of firms. Unfortunately, this means that we are not really able to address the issue of endogeneity and to estimate the causal effect of our right hand side variables with respect to the export probability or the inten-

Mansury 2009) and to overcome the shortcomings of the computation of TFP for service firms. See section 4.3.

¹⁹ Other customer typologies in the survey concern service firms, the government, banks and families.

²⁰ However, the significance of the results regarding the firm level determinants shown in the following section does not change substantially when the cluster is omitted.

Table 4

Descriptive Statistics – 2003

Variable	Observations	Mean	Std. Dev.	Min	Max
<i>LP</i>	1008	3.67	0.68	0.45	6.02
<i>Age</i>	978	16.80	14.10	1	155
<i>Age</i> ²	978	480.71	1390.82	1	24025
<i>Lab</i>	1008	3.15	1.09	1.61	8.99
<i>Lab</i> ²	1008	11.11	8.67	2.59	80.74
<i>FDIOFF</i>	1008	0.06	0.23	0	1
<i>HL</i>	912	0.19	0.24	0	1
<i>FlexL</i>	996	0.24	0.43	0	1
<i>Group_{Serv}</i>	999	0.17	0.38	0	1
<i>Group_{Ind}</i>	995	0.07	0.26	0	1
<i>Sale_{nat}</i>	995	43.16	42.49	0	100
<i>Sale</i> ² _{nat}	995	3666.40	4270.09	0	10000
<i>Sell_{Large}</i>	996	0.43	0.50	0	1
<i>Sell_{SMEs}</i>	996	0.52	0.50	0	1
<i>Inno_{Serv}</i>	1008	0.35	0.48	0	1
<i>Inno_{Proc}</i>	1008	0.24	0.43	0	1

sity of the export activity. Although an instrumental variable approach would be necessary, valid instruments are not at our disposal. As such, we will interpret our results as correlations, which can be limiting but still insightful.

Table 10 in the Appendix shows the pairwise correlation coefficients for the variables in our model. Most of them are interrelated. However no correlation hints at possible collinearity among our right hand side variables

4. Results

4.1 Export Status

Table 5 displays the results from the estimates of the above empirical model for the export status of service firms in all service sections G, I and K. The first column refers to the export performance in general while the remaining four columns refer to different destination markets so as defined in section 3: EU, EU15, Non-EU and Extra-Europe Ind, respectively. The same set of results is then replicated, both for the export status (Table 6), on the sub-sample of business service firms in sections I and K. Dropping firms from the *Wholesale and Retail Trade* sector allows for a comparison of the results on the export status with the ones on the export

intensity in the following sub-section 4.2. As a matter of fact, dropping the section G avoids the above mentioned difficulty in defining the export intensity for these firms and, more importantly, helps in adopting a narrower and, possibly, more homogeneous definition of business service firms within the great variety of the service sector activities.

In the following, we will comment on the results from the two Tables, focusing on each of the regressors one by one.

Labour Productivity: while out of the total sample more productive firms are not more likely to be exporters, some interesting differences emerge from destination markets when the firms belonging to the NACE section G are removed from the sample. Confirming our idea, being more productive is positively related to the probability of being successful in exporting towards more *distant and costly* markets, both in terms of trade and transport costs.

Internal Experience and Size: the firm's own internal experience (*Age*, *Age*²) and its size (*Lab*, *Lab*²) prove to be significant only when the total sample is considered and the general result is mainly driven by firms exporting to the EU. The sign on the coefficients mimics previous findings on manufacturing firms and implies a positive correlation of the export status with experience and size which however has a declining marginal importance (e.g., Barrios et al., 2003). However, lack of confirmation of this result in the sub-sample estimates for the export status (Table 6) could possibly hint at the fact that the performance of the firms in *Wholesale and Retail Trade* is more similar to the one of the manufacturing firms. Part of the literature on services distinguishes between physical and knowledge capital intensive services (Erramilli and Rao 1993, den Hertog 2000). The former are more intensive in the use of physical assets and then are characterized by important scale economies. The latter, on the contrary, rely more on the use of knowledge, i.e., human capital. Due to the composition of our sample, firms belonging to the G section could be considered more intensive in physical assets when compared to the average endowment of the remaining firms, the majority of which belong to the more knowledge-intensive activities of the K section. This could then explain the significance of size for the exporters in the G section compared to the remaining firms.

Human Capital and Temporary Work: regardless of the sample composition, the use of temporary work (*FlexL*) is not importantly – and in some cases negatively – related to the firm's export activity, while the share of highly educated workers (*HL*) seems to be a significant feature of the firms involved in exports in non-EU and Extra-Europe industrial countries (Table 5). The result for the latter group of countries is also confirmed in the sub-sample of Table 6 while, in this case, the coefficient for the overall Non-EU destinations turns out to be insignificant.

International and National Networks: being in an international network (*FDIOFF*) especially proves to be an important characteristic of firms operating in non European markets. Differently, being in a group with other industrial firms

($Group_{Ind}$) is very significant for the firm's export performance, regardless of the destination or the sample composition. Finally, being in a *mono-product* group ($Group_{Serv}$), when significant, appears negatively related to the probability of being an exporter. A possible explanation for these findings is related to the role of spillovers from manufacturing exporters which may facilitate to overcome the threshold between being a domestic service provider and becoming a service exporter.

National Market Experience: the type of experience acquired in the national market is always very significantly related to the export status of a firm. In this respect, the share of sales in the national market outside the region where the firm is located ($Sale_{nat}$, $Sale_{nat}^2$) always displays a positive and significant contribution, even though declining at the margin. As suggested by the theory in section 2, acquiring experience in markets which are different from the local one, but closer in terms of national customs, can be a determinant for a firm's success in the international arena. Furthermore, all Tables below also highlight that service firms selling to large manufacturing firms ($Sell_{Large}$) display a higher probability to go abroad. On the contrary, having mainly small and medium firms as customers goes together with a lower probability of becoming an exporter.

Innovation Activities: the innovation activity of the service firms ($Inno_{Serv}$, $Inno_{Proc}$), when significantly related to their export performance shows a negative outcome. This result could be considered counterintuitive with respect to the previous evidence for these markets, and it should be definitely investigated in more depth (Basile 2001, Sterlacchini 2001, Barrios et al. 2003). However, it is difficult to measure innovation and, in particular, our result could be due to the specific survey design which defines a firm as innovative if it has introduced a service or a process innovation in the period 2001–2003. According to this narrow definition, firms which are already at the frontier and have introduced an important innovation in the period before 2001–2003 appear as non-innovative and the measure would not really represent the real cross-section distribution of innovative capability across firms.

Business Environment: the dummy capturing the location in the South is always negatively related to export performance while productivity in the regional manufacturing sector shows positively and significantly related to export towards extra-European markets, thus reinforcing the idea that the business environment of the firm is an important condition in making business abroad, especially when destination markets are *distant*.

These findings concerning the export status, regardless of the destination, are confirmed by Eickelpasch and Vogel (2009) for the German Business Service sector in the period 2003–2005, although we find human capital to be significant only in the sub-sample of non-EU markets. Unlike our results, Love and Mansury (2009) for the U.S.A. show that human capital and productivity are significantly and positively related to the export status. They also show that the firm's age is not significant and service innovators are more likely to be exporters.

Table 5
Determinants of Export Status: Total Sample

VARIABLES	All	EU	EU15	Non-EU	Extra-Europe Ind
LP	0.094 [0.074]	0.017 [0.088]	0.043 [0.092]	0.154 [0.105]	0.119 [0.142]
Age	0.023*** [0.004]	0.015** [0.006]	0.015* [0.008]	0.017** [0.009]	0.015 [0.015]
Age^2	-0.000*** [0.000]	-0.000** [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
Lab	0.486** [0.239]	0.517** [0.211]	0.407* [0.225]	0.307 [0.295]	0.077 [0.309]
Lab^2	-0.068** [0.031]	-0.069** [0.029]	-0.056* [0.032]	-0.045 [0.034]	-0.012 [0.034]
$FDIOFF$	0.766*** [0.215]	0.359* [0.203]	0.219 [0.191]	0.693** [0.300]	0.666** [0.312]
HL	0.337 [0.272]	0.192 [0.267]	0.287 [0.326]	0.356* [0.187]	0.741*** [0.208]
$FlexL$	-0.289* [0.152]	-0.230* [0.128]	-0.230 [0.148]	-0.061 [0.170]	-0.216 [0.263]
$Group_{Serv}$	-0.359** [0.166]	-0.204 [0.180]	-0.176 [0.208]	-0.413 [0.275]	-0.269 [0.241]
$Group_{Ind}$	0.453*** [0.109]	0.442*** [0.121]	0.406*** [0.147]	0.510** [0.211]	0.285 [0.181]
$Sale_{nat}$	0.045*** [0.003]	0.046*** [0.004]	0.045*** [0.004]	0.038*** [0.006]	0.034*** [0.006]
$Sale_{nat}^2$	-0.000*** [0.000]	-0.000*** [0.000]	-0.000*** [0.000]	-0.000*** [0.000]	-0.000*** [0.000]
$Sell_{large}$	0.310*** [0.064]	0.217*** [0.083]	0.160* [0.085]	0.412*** [0.141]	0.484*** [0.161]
$Sell_{SMEs}$	-0.264*** [0.100]	-0.126 [0.133]	-0.068 [0.136]	-0.418*** [0.091]	-0.370*** [0.118]
$Inno_{serv}$	-0.081 [0.072]	-0.090 [0.114]	-0.205* [0.115]	-0.049 [0.078]	-0.314** [0.136]
$Inno_{proc}$	0.119 [0.119]	0.083 [0.143]	0.206 [0.141]	0.010 [0.161]	0.120 [0.205]
LP_{reg}	0.320 [0.221]	0.140 [0.357]	0.278 [0.379]	0.460* [0.263]	-0.173 [0.488]
$South$	-0.606*** [0.118]	-0.605*** [0.172]	-0.519*** [0.173]	-0.538*** [0.136]	-0.954*** [0.356]
Observations	876	876	876	876	876

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

N.B.: All specifications include sectoral dummies. *All*: all destinations; *EU*: destinations in the European Union; *EU15*: destinations in the EU15; *Non-EU*: destinations outside the EU and/or outside Europe outside Europe; *Extra-Europe Ind*: industrialised destinations outside the EU and/or outside Europe.

Table 6

Determinants of Export Status: NACE Sections I and K

VARIABLES	All	EU	EU15	Non-EU	Extra-Europe Ind
<i>LP</i>	0.135 [0.094]	0.080 [0.113]	0.113 [0.105]	0.277** [0.112]	0.344*** [0.111]
<i>Age</i>	0.016** [0.006]	0.012 [0.009]	0.011 [0.011]	0.002 [0.012]	-0.011 [0.012]
<i>Age</i> ²	-0.000** [0.000]	-0.000** [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
<i>Lab</i>	0.532 [0.357]	0.483* [0.274]	0.380 [0.309]	0.113 [0.369]	-0.225 [0.435]
<i>Lab</i> ²	-0.072 [0.046]	-0.064* [0.038]	-0.051 [0.043]	-0.011 [0.044]	0.037 [0.050]
<i>FDIOFF</i>	0.934*** [0.220]	0.394 [0.252]	0.211 [0.243]	0.939*** [0.280]	0.825*** [0.279]
<i>HL</i>	0.225 [0.280]	0.120 [0.272]	0.216 [0.348]	0.149 [0.211]	0.667*** [0.250]
<i>FlexL</i>	-0.232* [0.140]	-0.248** [0.108]	-0.275* [0.152]	-0.004 [0.211]	-0.021 [0.285]
<i>Group_{Serv}</i>	-0.272 [0.185]	-0.102 [0.184]	-0.078 [0.214]	-0.436* [0.261]	-0.234 [0.266]
<i>Group_{Ind}</i>	0.481*** [0.161]	0.461*** [0.136]	0.417*** [0.133]	0.623** [0.246]	0.449*** [0.161]
<i>Sale_{nat}</i>	0.040*** [0.005]	0.040*** [0.005]	0.040*** [0.004]	0.037*** [0.007]	0.031*** [0.008]
<i>Sale_{nat}</i> ²	-0.000*** [0.000]	-0.000*** [0.000]	-0.000*** [0.000]	-0.000*** [0.000]	-0.000*** [0.000]
<i>Sell_{large}</i>	0.415*** [0.082]	0.302** [0.117]	0.248* [0.128]	0.556*** [0.127]	0.736*** [0.147]
<i>Sell_{SMEs}</i>	-0.194 [0.138]	-0.045 [0.169]	0.041 [0.166]	-0.452*** [0.113]	-0.483*** [0.095]
<i>Inno_{serv}</i>	-0.069 [0.099]	-0.138 [0.162]	-0.256 [0.158]	-0.091 [0.098]	-0.375** [0.163]
<i>Inno_{proc}</i>	0.131 [0.127]	0.103 [0.184]	0.226 [0.184]	0.014 [0.152]	0.125 [0.205]
<i>LP_{reg}</i>	0.418* [0.246]	0.090 [0.398]	0.248 [0.421]	0.828*** [0.253]	0.015 [0.441]
<i>South</i>	-0.509*** [0.194]	-0.534** [0.228]	-0.430* [0.228]	-0.484*** [0.165]	-1.070*** [0.250]
Observations	648	648	648	648	648

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

N.B.: All specifications include sectoral dummies. *All*: all destinations; *EU*: destinations in the European Union; *EU15*: destinations in the EU15; *Non-EU*: destinations outside the EU and/or outside Europe; *Extra-Europe Ind*: industrialised destinations outside the EU and/or outside Europe. NACE Section I refers to *Transport and Communication*; NACE Section K refers to *Renting, IT, R&D and Business Activities*

4.2 Export Intensity

As previously mentioned, the method adopted to estimate export intensity is the truncated regression model. As regards export intensity, the empirical literature has often relied on the use of the tobit or the fractional probit (Papke and Wooldridge 1996) model. However, both estimators assume that in corner solution applications a single mechanism determines the choice between $export = 0$ and $export > 0$ and the amount of exports, given that $export > 0$ (Cragg 1971, Wooldridge 2002). In other words, the implicit assumption in the tobit and in the fractional probit is that the signs on the coefficients are the same as the signs emerging from the probit. Since we are actually interested in detecting any possible difference between the determinants of status and intensity, following Love and Mansury (2009), we tested the Tobit model²¹ and, rejecting the null hypothesis, we opted for a truncated regression model²². Unfortunately, we had to drop two destination markets – EU and non-EU – due to lack of convergence of the maximization algorithm. Table 7 shows the results for the overall export intensity, for the export intensity in the EU15 and in the Extra-Europe Industrial destinations. Most of the coefficients are not significant and for the EU15 none of them turns out to be significant. This could be due to the small number of observations²³. However, when the overall export intensity is taken into account (first column of Table 7), the coefficients for the firm's size (*Lab* and *Lab*²) and for the use of flexible labour (*FlexL*) are exactly reversed with respect to the findings on the export status. Only the squared term is significant for the share of sales outside the region (*Sale_{nat}*²) and displays a negative coefficient, thus conveying a different insight with respect to the previous findings in Tables 5 and 6. A smaller size, a higher use of flexible labour and a lower share of sales outside the region characterize firms with higher export intensity. The result on the share of sales outside the region is also confirmed in column three where the coefficient on the dummy for service innovators turns out to be significant and with the "right" sign. A higher export intensity in Extra-European industrial countries is positively and significantly associated with the service innovation status of the firm²⁴. In conclusion, while being a service innovator is not one of the features of exporters, it becomes a significant characteristic of firms displaying a higher intensity of exports in distant industrial countries.

²¹ We also estimated a fractional probit, and the results mimicked exactly the ones with tobit which conveyed predictions very similar to the ones obtained with the probit on the export status.

²² The resulting test statistics is a χ^2 with 19 degrees of freedom which, in the three cases of Table 7, takes the values of 112.35, 52.31 and 75.83, respectively, implying the rejection of the null.

²³ Love and Mansury (2009) also find two significant coefficients only over 14 determinants. The two variables that prove significant in their work are the dummy for being an independent firm and the innovator dummy.

²⁴ Bratti and Felice (2009) address the issue of causality for the manufacturing firms from the same survey. They find a robust positive effect of exporting on product innovativeness.

Love and Mansury (2009) for the U.S.A. show exactly reverse findings: being a service innovator is positively related to the probability of being an exporter, while it is negatively associated with high export intensity. This conflicting evidence would need further investigation, however it could be tentatively interpreted on the basis of the different competitiveness of the USA and Italy in the knowledge-intensive service provision. The former is a leader, then firms in these sectors do not need additional innovation activities to deepen their international involvement. Italian firms, instead, may need to put more effort in innovating to strengthen their export vocation in tougher – distant and advanced – markets.

4.3 Robustness

Before drawing any conclusion, we have tested the robustness of our findings with the following checks.

- *NACE Section K* – We repeated our estimates for the sub-sample of firms belonging to the NACE section K and again the main results stay unchanged. However, labour productivity only turns out to be significant for non-EU industrial countries, the dummy *FDIOFF* is not significant anymore for the same markets and the signs on *Age* and *Age*² are inverted implying that younger firms show a higher probability to export in these markets. The latter result however should be interpreted with caution since more than reflecting the so-called “born international” firms phenomenon, it could be related to a possibility that these service firms originate from the disintegration of manufacturing firms and, although being “young”, benefit from the experience matured within the previous organizational framework.
- *Past history of the firm* – Even if we were not able to control for the unobserved heterogeneity which could affect our results²⁵, we tested them taking the past history of the firm into account. In this respect this could help in getting a clue on the direction of the causality especially between productivity and export behaviour. We then replaced the continuous firm level variables for which we had information for each year in the 2001–2003 survey period (namely *LP*, *Lab* and *HL*) with their averages in the three years, and the main results hold. Furthermore, differently from the basic specification of Table 5, the coefficient on labour productivity is significant and positive when all the destination markets are considered and for exporters to Non-EU industrial countries. This could reveal that past productivity is meaningful for being successful in the international market and could also suggest a sort of self-selection process which however would need to be more deeply addressed.
- *Foreign control* – Although the number of firms under foreign control is very small we tested whether the inclusion of a dummy variable equal to 1 for these

²⁵ See Wooldridge 2005 and, for an application Sala and Yalcin 2009.

Table 7
Determinants of Export Intensity: NACE Sections I and K

VARIABLES	All	EU15	Extra-Europe Ind
<i>LP</i>	0.004 [0.127]	-0.441 [2.045]	-0.051 [0.096]
<i>Age</i>	-0.002 [0.025]	-0.273 [0.697]	0.001 [0.014]
<i>Age</i> ²	0 [0.000]	0.003 [0.010]	0 [0.000]
<i>Lab</i>	-0.747* [0.411]	-4.797 [12.331]	0.031 [0.295]
<i>Lab</i> ²	0.108** [0.054]	0.643 [1.627]	0.009 [0.033]
<i>FDIOFF</i>	0.299 [0.216]	2.407 [6.410]	0.237 [0.149]
<i>HL</i>	0.394 [0.419]	0.429 [4.727]	0.149 [0.210]
<i>FlexL</i>	0.439* [0.246]	4.269 [10.291]	0.239 [0.179]
<i>Group_{serv}</i>	-0.224 [0.331]	1.616 [4.694]	-0.1 [0.159]
<i>Group_{ind}</i>	0.603* [0.308]	5.978 [14.130]	0.18 [0.136]
<i>Sale_{nat}</i>	0.001 [0.011]	0.126 [0.331]	-0.027*** [0.008]
<i>Sale_{nat}</i> ²	-0.000* [0.000]	-0.002 [0.006]	0 [0.000]
<i>Sell_{large}</i>	0.01 [0.201]	-2.077 [5.110]	-0.104 [0.134]
<i>Sell_{SMEs}</i>	-0.473** [0.228]	-2.239 [5.829]	-0.389** [0.157]
<i>Inno_{serv}</i>	-0.106 [0.191]	3.799 [9.342]	0.274** [0.123]
<i>Inno_{proc}</i>	0.155 [0.209]	-0.485 [2.402]	0.078 [0.126]
<i>LP_{reg}</i>	-0.455 [0.756]	7.189 [19.529]	-0.316 [0.533]
<i>South</i>	-0.629 [0.548]	0.595 [4.597]	-0.27 [0.288]
Observations	151	107	49

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

N.B.: All specifications include sectoral dummies. *All*: all destinations; *EU15*: destinations in the EU15; *Extra-Europe Ind*: industrialised destinations outside the EU and/or outside Europe.

NACE Section I refers to *Transport and Communication*;

NACE Section K refers to *Renting, IT, R&D and Business Activities*

firms and 0 otherwise could affect our results but they stayed unchanged. While in the total sample foreign control turns out to be positively and significantly related to the probability of exporting to non EU destinations, for the sections I and K the dummy is positive and significant for non-EU destinations and negative and significant for destinations within EU 15.

- *TFP* – The limited information on physical capital and lack of detailed information on intangible assets²⁶ led us to use labour productivity to measure the firm's performance. However, to check the robustness of our findings on the relationship between productivity and the export status, we substituted labour productivity with the Total Factor Productivity index (Good et al. 1997). Despite of the drop in the number of observations, the results remained substantially unchanged.
- *Regional controls* – Results are also confirmed when the regional indicator for manufacturing productivity is replaced by other regional proxies for the business environment. In particular, we include the number of manufacturing plants in the region and its coefficient is positively and significantly related to the probability to export especially to non European industrial countries confirming the importance of the business environment in the export performance of service firms. Nevertheless the main results on productivity, human capital, network and national experience are substantially robust. Our estimates are also confirmed when we include other regional controls, such as the capital intensity in manufacturing, or when we include a regional measure of productivity for the whole business environment (service and manufacturing plants in the region).

The same checks for robustness were conducted on export intensity, and the results shown in Table 7 remained basically unchanged. All these sets of results are not shown here for the sake of brevity. However are readily available from the Authors upon request²⁷.

5. Conclusions

The empirical evidence on the service firms' internationalization has usually been restricted by lack of data at firm level. Lack of systematic research on this topic has created limited understanding to the comprehension of the most dynamic sector, which represents more than two thirds of value added in advanced economies (OECD 2009). The importance of services in linking manufacturing activity

²⁶ Intangible capital has been found to be an important factor of production and has shown to contribute significantly to labour productivity in manufacturing firms (Bontempi and Mairesse 2009), and we believe that it can prove to be yet more important in service production.

²⁷ The complete set of checks for robustness is also available in a WEB appendix at <http://www.univpm.it/Entra/Engine/RAServePG.php/P/329510011848/T/Allegati-delladocente>.

across the globe and their role in knowledge production are fundamental to assess a country's potential for long run efficiency and growth (Jones 2008, Grossman and Helpman 1991). All these characteristics call for the policy maker's attention to the issue.

Within this framework, this paper provides new evidence on the export performance of firms in Italian Business Services. To the best of our knowledge, this is the first evidence on this issue and is based on the use of the CAPITALIA survey 2001–2003.

Unfortunately, some limits still remain in our work. As a matter of fact, although the survey provides plenty of information on firms' activities, the export behaviour is only recorded for 2003 thus leaving us with a cross-section of firms which does not let us identify any causal relationship between our right-hand-side variables and the export indicator. Furthermore, the small number of firms in our sample could in some cases affect the significance of our findings.

Even if for some variables the evidence mimics previous findings for the manufacturing sector, some peculiar characteristics can be observed for service firms. What emerges first is that there are some elements which are key factors for being an exporter, regardless of what activity is being done and what market is being targeted. In this respect, being in a network with large and industrial firms and having a wide experience in the national market is positively related to the probability of becoming an exporter. On the other hand, the firm's ability to reach more *distant* and *tougher* markets is also related to other capabilities which are not significant in the absence of trade costs. According to our findings on the sub-sample of sections I and K, only more productive and skilled labor endowed firms have a higher probability to export to industrial countries outside Europe. Turning to export intensity, a lower share of sales outside the region and reliance on the use of flexible labour are related to higher export intensity. Finally, while innovation does not seem to matter for having the status of a service exporter, being a service innovator is positively related to higher export intensity in *distant* industrial countries.

The paucity of observations prevent us to confidently generalise these results to the overall Italian business service sector and to draw strong policy implications from them. If we could interpret our results in terms of causality, we could suggest policy makers to tailor specific interventions for service firms. Policies to alleviate the burden of the export sunk costs, to invest in human capital and innovation activities could help the competitiveness of service firms especially in tougher markets. However our findings are only descriptive and, even though they represent a first step towards the understanding of service firms' international activities, they can, nevertheless, suggest some interesting avenues for future research. The importance of the relationship with customer industrial firms strongly comes forth and calls for a more in-depth investigation of the backward links, i.e., from manufacturing to services. In addition, the relationship between innovation activity and export

status and intensity should be more carefully addressed. This research agenda especially calls for an effort to improve the data collection on service firms.

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Appendix

Table 8

NACE Sectors

NACE	Description
G	Retail & Wholesale Trade
50	Sale, maint. and rep. of motor vehicles
51	Wholesale trade and commission trade,
52	Retail Trade
I	Transport and Communication
60	Land Transport
63	Supporting and auxiliary transport ac
64	Post and Telecommunications
K	Renting, IT, R&D and Other Business Activities
71	Renting of machinery and eq.
72	Computer and related activities
73	R&D
74	Other business activities

Table 9

Comparison Non-Exporters / Exporters

Variables	Non-Exporters	Exporters	T-Test
<i>LP</i>	3.64	3.75	-2.30**
<i>Age</i>	16.04	18.79	-2.65***
<i>Lab</i>	3.16	3.12	0.43
<i>FDIOFF</i>	0.04	0.12	-4.85***
<i>HL</i>	17.73	22.74	-2.83***
<i>FlexL</i>	0.24	0.24	0.07
<i>Group_{serv}</i>	0.18	0.14	1.35
<i>Group_{ind}</i>	0.06	0.10	-2.10**
<i>Sale_{nat}</i>	39.65	54.26	-4.71***
<i>Sell_{large}</i>	0.39	0.57	-5.07***
<i>Sell_{SMEs}</i>	0.52	0.52	-0.05
<i>Inno_{serv}</i>	0.35	0.36	-0.39
<i>Inno_{proc}</i>	0.24	0.26	-0.66

Table 10
Pairwise Correlation Coefficients

	LP	Age	Lab	FDIOFF	HL	FlexL	Group _{serv}	Group _{ind}	Sale _{nat}	Sell _{large}	Sell _{SMEs}	Inno _{serv}	Inno _{proc}	LP _{reg}
LP	1													
Age	0.04	1												
Lab	-0.05*	0.12*	1											
FDIOFF	0.02	0.00	0.15*	1										
HL	0.11*	-0.15*	0.06*	0.11*	1									
FlexL	0.17*	0.04	0.24*	0.03	0.07*	1								
Group _{serv}	0.18*	-0.12*	0.15*	0.01	0.09*	0.10*	1							
Group _{ind}	0.13*	-0.02	0.08*	0.01	0.08*	0.14*	0.27*	1						
Sale _{nat}	0.24*	-0.08*	0.10*	0.09*	0.27*	0.16*	0.10*	0.10*	1					
Sell _{large}	0.07*	-0.01	0.03	0.05*	0.13*	0.03	0.03	0.05	0.21*	1				
Sell _{SMEs}	0.01	-0.03	-0.10*	-0.05	-0.01	-0.01	-0.01	0.04	0.01	0.32*	1			
Inno _{serv}	0.02	-0.05	-0.01	0.02	0.20*	-0.01	0.01	0.04	0.08*	0.12*	0.09*	1		
Inno _{proc}	0.03	-0.07*	0.08*	0.02	0.15*	0.06*	0.05	0.04	0.16*	0.11*	0.07*	0.41*	1	
LP _{reg}	0.12*	0.03	-0.06*	0.02	0.05	0.07*	0.02	0.06*	0.11*	0.14*	0.04	0.06*	0.05	1

* Significant at least at 10%.

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