Business Services versus manufacturing: an empirical inquiry on Italian firms and their internationalization modes

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Introduction

Foreign Direct Investments (FDI) in services account for the bulk of global FDI stocks and flows (UNCTAD, 2004, 2008 and 2009) and represent one of the most striking features of the past decade growth. The internationalization of the service sectors and of tertiary support functions reflects partly an actual increase in the output of the business services sector and partly an increase in 'outsourcing'. Having the choice between providing business services internally to satisfy the demand for business services generated by their manufacturing operations or 'outsourcing' to external contractors, manufacturing firms have increasingly resorted to the latter. While internally provided business services are often not recorded as business services output but as output of the manufacturing firm, 'outsourced' business services are actually recorded as such if this is the external contractor's main sector of activity.

The propensity of manufacturers to fragment the production process into increasingly smaller components has meant that business services have begun to play an even more important role in the manufacturing value

chain. Using input-output tables for OECD countries it is possible to observe the rising importance of services as providers and suppliers for manufacturing; for example UK firms increased their services' inputs from 25% in 1984 to 44% in 1995. In France the share of services increased by 17% in the period 1995-2000 and at the end of this period services accounted for 28% of all inputs; finally in Italy services represent 11% of manufacturing firms' costs. Traditional sectors such as machinery, equipment or textiles, use services to organize production, sell their output and manage their financial activities and so providing inputs which are strategic for firms' life cycles. Hence, it could be expected that when a manufacturing firm decides to relocate its production abroad through foreign direct investment (FDI), it increases the probability that its services suppliers also engage in FDI in the same foreign country, especially if the supply of services requires geographic proximity and "face to face" relations. This phenomenon, which increases also skilled workers exposure to international competition, has generated a great deal of attention about the potential negative consequences of firms internationalization, especially in developed countries (Mankiw and Swagel, 2006). Against this background a great number of questions have been recently addressed. Some studies have focused on the effect of offshoring on labour demand, finding that the effects are quite limited (Barba Navaretti and Castellani 2004; Amiti and Wei, 2005; Liù and Trefler 2008; Crinò, 2009), or vary depending on the income-level of destination countries (Ekholm and Hakkala, 2006). Other studies have analyzed whether, as for goods, the remote supply of services remains limited, finding that distance shields workers to a significant extent from the threat of offshoring, but that distance costs have declined over the period of study (Head et al. 2008). Other studies have analyzed the location of FDI in services, to determinate whether investments are driven by market size and agglomeration effects or by costs (Head and Mayer, 2004; Crozet et al., 2004; Nefussi and Schwellnuss 2009). While location choices in the manufacturing are relatively well understood and broadly studied, the choice to realize an investment abroad in business services is still relatively understudied. And even though there are few reasons to expect the model driving location choices of business services firms is fundamentally different from the one driving those in manufacturing, some determinants of location choices in manufacturing may have a quantitatively different effect in services. Comparing location determinants of French firms abroad in the manufacturing and service sectors, Nefussi and Schwellnus (2007) find no difference between the determinants of these two types of activities but they also show how the location of business services depends on the French downstream demand generated by manufacturing affiliates. Using these results they suggest that domestic services production will decrease together with manufacturing production, unless a country attracts FDI and provides "good" services for foreign firms.

In line with Nefussi and Schwelnuss (2007), we investigate the location determinants of Italian FDI in business services[1] over the period 1995-2005. After a brief characterization of business services firms in Italy, we analyse whether the traditional empirical location choice model for manufacturing firms can be applied to Italian business services firms and to which extent parameter estimates differ between services and manufacturing. To estimate the location determinants we fit discrete choice models to a dataset of Italian multinationals and test whether the location choices of manufacturing firms and business services are interdependent. To do so, we introduce a proxy for the downstream demand of Italian manufacturing affiliates, which allows us to measure the downstream demand of Italian manufacturing affiliates for each host country, combining information on production and sectors of the Italian firm-level data with Italian input-output tables (Py and Haten, 2009). Our results suggest that, as for the manufacturing sector, market potential is an important location criterion for FDI in

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[1] Business services primarily provide services to other businesses ranging from accounting and legal services to industrial cleaning. For the purposes of this paper the business services sector is statistically defined as a subset of Section K in the national accounts, comprising computer and related activities, research and development and other business activities – Standard Industrial Classification (SIC) codes 72-74 - but it includes also elements of telecommunications and services included in sections I and J.

services. However, a high availability of skilled labor is a major advantage when it comes to attract FDI in services. The functional analysis largely improves the identification of location criteria both for production and services. Findings also indicate differences in attractiveness between Eastern and Western Europe, depending on the activity considered.

Business services in Italy

In most OECD countries, business services are catching up with manufacturing in terms of their contribution to GDP, showing to be one of the most dynamic sectors (OECD 2007). The weight of business services is increasing also on Italian GDP (Istat 2009). The characteristics of services sector makes FDI a major channel for foreign providers to contest services markets (Hoekman and Mattoo, 2008). The propensity of manufacturers to fragment the production process into increasingly smaller components represents an even more important role for business services in the manufacturing value chain. The Italian service sector accounts for 70% of the Italian firms internationalization activities but only 33% of the foreign affiliates employment and less than half of the turnover. Around one fifth of foreign affiliates is in the business services, and the weight has slightly increased between 2000 and 2007. Among sub sectors, logistic and transport have had a more dynamic trend. Furthermore, many business services cannot be traded internationally, and so they need to follow their downstream customer. This should increase the probability to engage in FDI in the same foreign location of the manufacturing firm Focusing on sub sectors included in the business services aggregate, we can notice:

1) the limited and decreasing presence, in terms of employees and turnover, of foreign affiliates in logistic and transports in Eastern Europe, despite the modest growth of affiliates (in 2006 overtook those in manufacturing in EU15) and employees in manufacturing. The presence of important hubs in other EU15 countries and the strong integration of European markets have certainly affected the location choices of Italian firms.

2) Professional services are around 5% of Italian participations in foreign firms. Mostly firms are located in EU15; in 2006 more than 70% of the value added was due to firms located in EU15. The fall in the share of EU15 on employees of foreign affiliates corresponded to an increase of employees in affiliates in Eastern Europe, Central America and East Asia. The fact that the geographical distribution of foreign affiliates providing professional services remained constant, suggests that the average dimension of firms located in those areas increased. Even though professional services could be considered an activity where "face to face" relationships matter more than for logistic and transports, there is no clear evidence of a causality nexus with FDI in manufacturing. This could be due to the fact that in these type of activities there is the need of a good local knowledge, so that "local" actors may be privileged.

3) At the end of 2006, FDI in telecommunications were about 2,5% of internationalization activities of Italian firms, a share which has been constant since 2000. On the contrary, in the same time span, the weight of foreign affiliates in telecommunication on turnover and employees substantially shranked. The bulk of telecommunication affiliates is in EU15; however, the number of employees and the turnover of foreign affiliates are substantially higher in South America. This fact is affected by important operations by the main Italian telecommunication firm. This seems to have operated more to exploit the potentiality of the South American market than to serve in a more efficient way Italian manufacturing firms.

According to the dataset ICE-Reprint,[2] we identify and select 3600 foreign investments in 150 different

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[2] Informations on date and destination country of FDI come from the survey ICE - REPRINT, which contains information on affiliates' employment and sector of activities. This source provides in particular the country chosen and the date at which operations started for all manufacturing and business services affiliates.

countries, over the period 1995-2005. The bulk of these investments are in manufacturing, 2980, while around one fifth is in business services. Our sample is relatively small: 655 investments, out of the 143 possible destination countries 55 are never chosen, 47 are chosen once and another 22 are chosen twice. As shown by table 1 the most Italian investments abroad are directed to the EU and Eastern Europe, even if these destinations are mainly important in particular for Fdi in the business services. The first of these two regions appears to be very attractive to service activities, while East European countries seem to be preferable for manufacturing activities. This suggests that there might be some specificities in the location determinants of FDI in services.

Theoretical background and the econometric model

According to several empirical studies focusing on the manufacturing sector (Head and Mayer, 2004; Amiti and Javorcik, 2006), market access is the core determinant in location decisions. This criterion is crucial in location choices of the service sectors (Nefussi and Schwellnus, 2007). In empirical analysis, the location of some service activities can be less sensitive to market size, in particular those that surround production as in the case of call centers and on-line services (Hatem 2005), or with respect to the location of headquarters (Strauss-Kahn and Vives, 2005). In location choices a central role is held by agglomeration forces (Head et al., 1995, 1999; Crozet et al., 2004; Head and Mayer 2004), even though effects can differ in intensity depending on the type of activity. Some surveys on multinational firms confirm the influence of labour skills on location decisions. According to UNCTAD (2007), it plays an important role, being a factor that can have a decisive influence where certain activities are concerned (Ramasamy and Yeung, 2010)

Our empirical approach is based on Head and Mayer (2004), where profits increase with Market Potential (MPr) and decrease with variable costs (cr). As in Mayer et al. (2007), variable costs depend on transaction costs (tcr) and on production costs. Let's assume that the production function is Cobb Douglas with constant returns, that it uses work (wr) and other inputs (vr), such as intermediate goods or land. Taking α as the share allocated to work and A_r as total factor productivity, we obtain the following equation:

$$U_r = -\alpha \ln w_r - (1-\alpha) \ln v_r - \ln tc_r + \ln A_r + (\sigma - 1)^{-1} \ln MP_r \quad (1)$$

We do not have the possibility to observe directly v_r and A_r so we try capture them with several proxies and a random term (see next section). We will refer to MP_r as the "Krugman Market Potential" Krugman (1992), and following Nefussi and Schwellnuss (2007), we split market potential in market j for an Italian business services affiliate into demand coming from Italian firms and consumers and demand from firms and consumers of other countries. This split allows us to take into account that Italian firms or consumers may have a consumption bias in favour of Italian affiliates located in their country of establishment, which may be particularly relevant for the business services demand of Italian manufacturing affiliates located abroad. Instead of consuming business services from foreign providers or importing business services from Italy, they may prefer to consume business services from Italian providers that are located in the same foreign country. The rationale is that business services are often specifically tailored to the manufacturing firms' demands and often require a high level of complex 'face to face' communication.

The market potential measure can be therefore decomposed into a component which accounts for the demand of final consumers and firms from all countries except Italy (mp_j^{-i}) and a component accounting for Italian final consumers and firms (dd_{ji}, a mnemonic for downstream demand). Only a small part of business services production is consumed by final consumers so it appears plausible to interpret it as a measure of downstream demand of Italian manufacturing affiliates for the output of Italian business services affiliates located in their country of establishment. And so the corrected market potential measure may thus be written as:

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$$m\widetilde{p}_{ij} = mp_{j}^{-1} + (1+\lambda)mp_{j}^{i}$$

where λ>0 measures the strenght of the consumption bias.

Substituting the consumption bias corrected measure of market potential for the standard measure of market potential in equation (1), rearranging and expressing all variables in natural logarithms, we obtain our estimable reduced form:

$$\Pi_{ij} = \beta_0 + \beta_1 w_{ij} + \beta_2 tc_{ij} + \beta_3 mp_j + \gamma dd_{ij} + \varepsilon_i \qquad (2)$$

where $\gamma = \beta_2 \lambda^3$.

Equation (2) is tested using the conditional logit model, a discrete choice model. The underlying logic is to assume that firm's location decisions are based on the maximization of a profit function subject to uncertainty. But it is not possible to observe each country's potential profitability, while, it is possible to observe the location choices made by firms in countries with characteristics that can be observed. In this model the dependent variable is a binary variable that takes the value one if FDI is observed to take place in a particular location and a value zero if it does not take place.

Let R= (1,...,r,...N) be all the potential locations, at time t. Each potential location offers to firm i a profit Π_{rt} given by:

$$\Pi_{rt} = V_{rt} + \varepsilon_{rt}$$

with $V_{rt} = \beta X_{rt}$, that is a function of observable characteristics X_{rt} of each location choice r, and a vector of coefficients β to be estimated and the unobservable advantages of location r that econometrician does not observe denoted with ε_{rt}. At time t, firm i chooses the location which provides it with the highest profits. So, the probability of firm i choosing region r is expressed as:

$$P_{ir} = prob(\pi_{ir} > \pi_{ik}) = prob(\varepsilon_{ik} < \varepsilon_{ir} + V_{ir} - V_{ik})$$

McFadden (1974) has shown that under the Independence of Irrelevant Alternatives (IIA) assumption the expected probability of investing in a particular location can be restricted to a value between zero and one by expressing it in the form of a conditional logit, estimated via maximum likelihood:

$$P_i = \frac{e^{\theta X_i}}{\sum e^{\theta X_n}}$$

Determinants of FDI in manufacturing and Business Services: results

Table 3 reports the results of a conditional logit model; specification (1) shows coefficients obtained with the standard set of variables, successively in the specifications (2) to (3) we add others geographical effects. Finally in columns (4) to (6) we add fixed effects to the analysis with the dummy OECD, which is a way to capture unobserved correlations in the characteristics of countries belonging to the same development level.

A standard location choice model explains well the location choices in business services. The coefficients on the determinants of location choice in services result to be quietly similar to those in manufacturing. A significant negative effect on the probability of investing results come from the coefficient of the variable distance; while larger regions attract significantly more investors than small ones in all specifications; the existence of a common border has a significant positive effect, as well as market potential. It is worth noting that

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[3] Equation (2) is a generalisation of equation (1), in the sense that the latter is a special case of equation (2) with $\beta_2\lambda = 0$. For λ> 0 profits of a Italian business services affiliate from locating in market j decrease not only with marginal costs of production and increase with market potential but also increase with downstream demand from Italian manufacturing affiliates located in market j.

common borders appear to have a larger positive effect on the probability of investing in manufacturing than in services. This could be due to the fact that a large part of Italian business services does not require face to face communication but can be provided at a distance. The only noticeable difference between location choices in manufacturing and services appear to be on the estimated coefficients on per capita GDP. It is highly significant in all specifications, suggesting that FDI tend to go to countries with lower GDP per capita because they are highly motivated by cost saving reasons. In the case of business services, the coefficient of GDP is significant and positive; this suggests that countries with higher levels of economic development, as measured by per capita GDP, tend to have a larger relative demand for services. Anyway, all results seem to be in line with other studies (Nefussi and Schwellnuss 2007).

Table 3: Conditional Logit Results

Conditional Logit Model

Dependent Variable: choice of location in manufacturing sector						
	(1)	(2)	(3)	(4)	(5)	(6)
Ln_distance	-0.30	-0.78	-0.77	-0.27	-0.79	-0.79
	(0.02)***	(0.03)***	(0.03)	(0.03)***	(0.03)***	(0.03)***
Common Border	0.42	0.34	0.47	0.21	0.42	0.52
	(0.09)***	(0.0811)***	(0.08)***	(0.08)***	(0.08)***	(0.08)***
Ln_gdp_procapite	-0.05	-0.18	-0.17	-0.06	-0.08	-0.08
	(0.03)*	(0.03)***	(0.03)***	(0.02)***	(0.0330)***	(0.0331)***
Ln_Market Potential	0.25	0.63	0.60	0.16	0.70	0.67
	(0.01)***	(0.03)***	(0.03)***	(0.02)***	(0.0297)***	(0.0302)***
Ln_area		0.58	0.56		0.60	0.58
		(0.02)***	(0.02)***		(0.02)***	(0.02)***
Landlocked			-0.51			-0.48
			(0.1)***			(0.1)***
Dummy OECD	no	no	no	si	si	si
Number of obs	165432	165432	165432	165432	165432	165432
Pseudo R2	0.04	0.13	0.14	0.05	0.14	0.14

N.B: dummy OECD is a dummy for high income countries; in the brackets there are standard errors; * significant at 10%; ** significant at 5%; *** significant at 1%

Table 1a

Conditional Logit Model

Dependent Variable: choice of location in business sectors						
	(1)	(2)	(3)	(4)	(5)	(6)
Ln_distance	-0.36	-0.76	-0.76	-0.27	-0.75	-0.75
	(0.05)***	(0.06)***	(0.06)***	(0.05)***	(0.06)***	(0.06)***
Common Border	0.35	0.34	0.47	0.47	0.35	0.47
	(0.13)***	(0.13)***	(0.13)***	(0.13)***	(0.13)***	(0.13)***
Ln_gdp_procapite	0.55	0.25	0.25	0.21	0.20	0.22
	(0.05)***	(0.05)***	(0.051)***	(0.05)***	(0.05)***	(0.05)***
Ln_Market Potential	0.2	0.59	0.59	0.18	0.59	0.57
	(0.03)***	(0.03)***	(0.05)***	(0.05)***	(0.05)***	(0.05)***
Ln_area		0.587	0.57		0.57	0.55
		(0.03)***	(0.03)***		(0.03)***	(0.03)***
Landlocked			-0.49			-0.47
			(0.17)**			(0.18)**
Dummy OECD	no	no	no	si	si	si
Number of obs	90879	90879	90879	90879	90879	90879
Pseudo R2	0.15	0.25	0.25	0.18	0.25	0.25

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N.B: dummy OECD is a dummy for high income countries; in the brackets there are standard errors; * significant at 10%; ** significant at 5%; *** significant at 1%

Table 1b

Does the Location of Manufactures inflow on the Location Choices of Business Services?

The following table (Table 4) reports the result of the estimation of whether business services FDI follow manufacturing FDI. The parsimonious conditional choice model for business services of Table 3 is augmented by a lagged downstream manufacturing demand index[4]. Columns from (1) to (4) show specifications elaborated firstly with the Nefussi's indicator while in columns (5) to (8) there are those with a new one we propose to better represent the Italian situation. Lastly columns (9) to (12) check the robustness of the obtained results by estimating our model with another downstream demand indicator constructed with turnover as a proxied for the manufacture demand of Italian affiliates. Columns (1) to (2) show that downstream manufacturing demand of Italian affiliates appears to have a negative effect on the probability of business affiliates of choosing a particular location. The estimated elasticity of the choice probability with respect to our downstream manufacturing demand index is less than –0,1 and statistically significant at the 10% level. Similar results are obtained when we test our downstream indicator (Ln_downstream demand_cing_addetti), as it is possible to see in columns (5)-(6).

Dependent Variable: FDI choice in business services												
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Ln_distance	-0.50	-0.55	-0.28	-0.36	-0.51	-0.56	-0.28	-0.37	-0.42	-0.47	-0.31	-0.42
	(0.06)***	(0.06)***	(0.07)***	(0.07)***	(0.06)***	(0.06)***	(0.07)***	(0.07)***	(0.05)***	(0.05)***	(0.07)***	(0.07)***
Common Border	0.80	1.27	0.52	0.90	0.79	1.27	0.51	0.90	0.83	1.26	0.14	0.76
	(0.13)***	(0.14)***	(0.14)***	(0.14)***	(0.13)***	(0.14)***	(0.14)***	(0.14)***	(0.13)***	(0.14)***	(0.14)	(0.14)***
Ln_gdp_procapite	0.13	0.22	0.17	0.23	0.13	0.22	0.17	0.23	0.13	0.22	0.21	0.28
	(0.05)*	(0.05)***	(0.06)**	(0.06)***	(0.05)*	(0.05)***	(0.06)**	(0.06)***	(0.05)***	(0.05)***	(0.06)***	(0.06)***
Ln_potential market	0.53	0.51	0.26	0.25	0.54	0.52	0.26	0.26	0.45	0.44	0.26	0.22
	(0.03)***	(0.03)***	(0.04)***	(0.04)***	(0.03)***	(0.03)***	(0.04)***	(0.04)***	(0.03)***	(0.03)***	(0.04)***	(0.04)***
landlocked		-1.34		-1.14		-1.35		-1.15				-1.48
		(0.18)***		(0.19)***		(0.18)***		(0.19)***				(0.19)***
Ln_downstream demand_NF	-0.06	-0.08	-0.02	-0.06								
	(0.03)*	(0.03)*	(0.04)	(0.04)								
Ln_downstream demand_cing_addetti					-0.08	-0.09	-0.03	-0.07				
					(0.03)*	(0.03)**	(0.04)	(0.04)				
Ln_downstream demand_cing_fatturato									0.07	0.05	-0.05	-0.09
									(0.03)**	(0.03)*	(0.03)	(0.04)
Dummy_OECD	no	no	si	si	no	no	si	si	no	no	si	si
Observations	82034	82034	82034	82034	82034	82034	82034	82034	82034	82034	82034	82034
Pseudo R2	0.13	0.15	0.13	0.14	0.1366	0.1498	0.15	0.16	0.14	0.15	0.19	0.2

*N.B: dummy OECD is a dummy for high income countries; in the brackets there are standard errors; * significant at 10%; ** significant at 5%; *** significant at 1%;*

table 2

But when we introduce the high income countries dummy, we obtain (colums 3 and 4) always results not statistically significative for the variables downstream demand, which means that the probability to choose a location for affiliates in business services is not affected by downstream demand from manufacturing affiliates.

While, it is interesting to stress that the specifications in column (9-12) of Table 3 include the turnover of

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[4] Downstream demand from Italian manufacturing firms is proxied, according to Nefussi et al. (2009) by the following variable:

$$dd_j = \frac{\beta^b}{\tau_{jj}} \sum_{m=1}^{M} a^m y_j^m$$

where τ_{jj} is the internal distance in country j (CEPIIs distance database), β_b is the share of business services output used as intermediate input in other sectors, a_m is the share of manufacturing sector m in intermediate demand for business services, and y_{mj} is the production of manufacturing sector m in country j. The coefficients β_b and a_m are obtained from input-output tables, assuming that the unit input demands of Italian manufacturing affiliates abroad are similar to the input demands of manufacturing establishments located in Italy. Production of foreign manufacturing affiliates (y_{mj}) is not available in our Italian firm-level data and so it is chosen to proxy by employment and then also by turnover. We substitute the coefficient a_m proposed by Nefussi and Schwellnuss (2007) with the expenditure coefficient s_m. We choose to lag the downstream demand variable by one period so that transitory shocks that affect simultaneously profits in business services and employment in downstream manufacturing do not bias our estimated coefficients.

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manufacturing, as a proxy of the manufacturing production in a particular location. In this case we obtain a positive sign of the variable but only when we don't use high income countries dummy.

To better understand the peculiarity of the negative sign of the downstream demand coefficient, which means that the probability that business services "follow" manufacturing affilates is reduced with an increase in the demand from manufacturing affilates, we have decided to run the model also on subsector. The underlying assumption we want to test is that FDI in business services can follow different logic and in particular will "follow" FDI in manufacturing only if there is need of a face to face service. In this case we use only our downstream demand indicators. Results support the view of different behavior in different sub-sectors. In particular, the probability of foreign direct investment in telecommunications seems to be positively and significantly increased by the demand of domestic manufacturing. On the other hand, professional services, logistic, R&D, informatics at the first test do not appear to be attracted by manufacturing foreign affilates demand.

	Variabile dipendente: Localizzazione investimento							
	TLC		SERP&INGE		NOLE&LOGI		SOFT&INFO	
	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
Ln_lag_dd_tlc_L	0.10	0.08	-0.08	-0.09	-0.11	-0.11	-0.15	-0.17
	(0.0623)*	(0.0628)	(0.0447)**	(0.0445)**	(0.0931)	(0.0925)	(0.0652)**	(0.0662)***
Ln_distance	-0.13	-0.19	-0.40	-0.44	-1.01	-1.03	-0.35	-0.43
	(0.1133)	(0.1154)*	(0.0901)***	(0.0911)***	(0.1969)***	(0.1967)***	(0.1367)***	(0.1416)***
Contiguity	0.73	1.29	0.20	0.61	-0.11	0.13	0.39	1.10
	(0.2623)***	(0.2689)***	(0.2219)	(0.2382)***	(0.4206)	(0.4458)	(0.3019)	(0.3084)***
Ln_gdp_procapite	0.73	0.72	0.56	0.54	0.30	0.28	0.87	0.89
	(0.1035)***	(0.1055)***	(0.0743)***	(0.0748)***	(0.1497)**	(0.1494)**	(0.1309)***	(0.1360)***
Ln_mp_hm	0.10	0.10	0.23	0.23	0.18	0.18	0.32	0.33
	(0.0715)*	(0.0719)*	(0.0574)***	(0.0573)***	(0.1328)	(0.1317)	(0.0818)***	(0.0825)***
Landlocked		-1.59		-0.95		-0.54		-1.78
		(0.3990)***		(0.2804)***		(0.4173)		(0.4742)***
Observations	20964	20964	34605	34605	9397	9397	16912	16912
Pseudo R2	0.18	0.19	0.15	0.16	0.14	0.14	0.23	0.25

Conclusions

This paper provides empirical evidence on the location choices in business services using an Italian firm-level dataset. We show that the parameter estimates of a standard location choice model for services are fairly close to the ones in manufacturing. Location choice probabilities in services decrease with distance but increase with shared border and market potential. The effects of GDP per capita vary across services sub-sectors but are generally weaker than those for manufacturing. The less negative coefficient on GDP per capita may reflect the stylised fact that demand for services tends to increase with the level of economic development.

We then examine whether manufacturing location choices may influence location choices in services. Starting by the Nefussi and Schwellnuss analisys we have elaborated a new indicator of the demand coming from manufacturing which is able to capture better the input-output linkages of the business services with the manufacturing sector. We find that the downstream demand of Italian manufacturing affiliates does not have a positive effect on the location choice probabilities of Italian business services affiliates. The only business service sub–sector in which we find a positive effect is the Telecomunication. This lends further plausiblity to the proposed mechanism underlying the complementarity between manufacturing and business services that depends critically on strong input-output linkages between the two sectors. Robustness checks support the view that the

obtained results are not driven by unobserved country heterogeneity or by endogeneity of the downstream manufacturing demand variable.

We believe that location choices of BS can be correlated to those of manufacturing in different ways. The probability that FDI follow those in manufacture is a continuum. It is higher for services which need a "face to face" and lower for those services tha need a deep knowledge of the local enviromnet and legal system.

In the model most likely the relationship is not linear but FDI in business services are only triggered when a certain threshold of demand is reached. The attempt to divide business services in sub-sectors provides some interesting hints, but the number of observation and the actual occurrence of events is too low to draw convincing conclusions. Furthermore, lack of appropriate data results in impossibility to convincingly split business services into those that need a "face to face" and the rest.

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Abstract

This paper briefly describes location decisions of Italian Business Services firms against the background of the recent phenomenon of international fragmentation of production. It assesses the advantages of business services offshoring, highlighting the role of different typologies of services, and dividing those that need a "face to face" relationships from those that can be provided at a distance, for instance by broad band and are intrinsically "impersonal". For those services which need a "face to face" approach, we test the hypothesis that FDI "follow" FDI in manufacturing, going to the same destination markets or to close ones. To this task, we propose a new measure of downstreaming demand, which we construct from input-output tables. The econometric results support the view that (i) the likelihood of FDI in business services is higher in high income countries (while that of FDI in manufacturing is related to cost saving investments); (ii) distance matters; (iii) market potential is very relevant in enhancing the likelihood of investing for both firms in manufacturing and in business services; (iv) a part from some specific services that need a "face to face", FDI in business services do not seem to follow manufacturing. This last result is at odds with a similar study carried out on French data and can be explained by the peculiar nature of Italian internationalization pattern: small and medium manufacturing firms doing cost saving investment in close markets (European Union or other central European countries) and even smaller firms in services, except from financial intermediation. The policy implications of this result are interesting: contrary to the recent theory of "unbundling", in Italy skilled workers in the business services sector still seem to be sheltered from competition of low costs countries.