

# Internationalisation of production and growth of services

## The case of the “Made in Italy” specialised provinces

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### *Preliminary draft*

## **1. Introduction**

The paper investigates whether and to which extent the processes of international re-localisation of production (IRP) occurring in manufacturing firms affect the growth of services. The literature aiming at exploring the effects of IRP has so far mainly dealt with issues relating to technological spillovers and the long-term changes in the relationships between multinational companies (MNCs) and their affiliates. Much less investigated has been the issue of whether and to which extent the international involvement of firms affects the local production system in which they are located.

The approach here adopted aims at integrating the traditional set of conceptual and methodological tools used to tackle MNCs-related issues. Among these, the concern with the determinants rather than the effects of firms' choice to internationalise and, from a methodological point of view, the use of proxies such as international trade and FDI indicators to measure internationalisation. The paper draws therefore the attention on the IRP phenomena taken as a whole and, more in particular, it aims at assessing the context-specific factors as being affected by IRP processes.

From the methodological point of view, the level of analysis privileged in this work yields an important novelty content. We aim in fact at giving content and dimension to the issue of the *systemic* effects of the IRP. By systemic it is intended the effects of IRP on the firms and sectors, which are not directly involved in the IRP, rather, they belong to the same *filière* and are located in the same local area (province). In particular, we explore the causal relationship between IRP and the growth of services in the “made in Italy” specialised provinces. The “made in Italy” is a privileged arena of analysis, due to the fact that firms operating in this sector are part of well integrated local production systems (districts), and have experienced a great deal of re-localisation of production over the last decade.

As far as the implications of the methodology adopted in this paper are concerned, an extensive discussion has been provided by Schiattarella in previous works and summed up in next section. In the following sections an empirical investigation of the link between IRP and service growth is provided, which is based on the use of the Italian Census of Manufacturing and Service Enterprises (1991-1996) and International Trade data (ISTAT, 1995 and 1998). In particular, three groups of provinces have been identified, jointly relating to their level of specialisation in the “made in Italy” and the magnitude of international re-localisation of production (outsourcing) strategies carried out. Descriptive evidence on the employment growth dynamics in the main service sectors located in the

three groups of provinces is shown. A simple model is then tested, which aims at accounting in a regression framework for the effects of the IRP on service growth. The final section summarises the main findings of the empirical analysis and briefly discusses the implications of the methodological approach adopted.

## **2. The effects of multinationalisation: a reassessment**

The analysis of the effects of multinationalisation has been a marginal topic in the theory of the multinational enterprise. Most of the literature has so far focussed on the determinants rather than the effects of multinationalisation. The internationalisation of production has been a rising phenomenon, involving an increasing number of firms from an increasing number of countries. As a consequence of this, the analysis has been primarily devoted to the factors that lead firms to expand internationally. In this view, the multinationalisation of entire economic systems overlapped with the multinationalisation of the “ideal” firm<sup>1</sup>. The theory of the multinationalisation of production has therefore coincided with the theory of the *multinational company*.

This approach to the analysis of multinationalisation started to evolve in the second half of the ‘90s, due in part to the extent reached by these processes. Today the world economy is in fact highly internationalised, with most of large companies and a good fraction of small and medium enterprises producing across different countries. The focus of the analysis has somehow shifted from the determinants to the effects of internationalisation, addressing in particular the following questions: i) how do firms that are internationalised, change, and do the fact of being internationalised affect their characteristics?; ii) how do local and national economic systems change when they host firms carrying out inward and/or outward internationalisation strategies?

However, the renewed interest in these issues did not translate into a promising research agenda. This is not surprising since – as mentioned above – the attention has remained confined to the factors affecting the decision of becoming internationalised, and hence to the study of the firm that chooses whether to expand internationally.

Further, the adoption of firm-based approaches in the study of the effects of the internationalisation of production strongly limits the effectiveness of the research efforts. This is due to several reasons. First, if the objective of the analysis is the effects of the process of internationalisation on the characteristics of the multinational firm, the conclusions of the study are necessarily influenced by the basic hypotheses underlining the theory of the multinational company. For example, by adopting the efficiency approach, the effects of the process of multinationalisation are taken for granted, as they lie in the efficiency gains of the firm. If one also assumes the presence of rational economic agents, the firm-level effects of the processes of multinationalisation can only be positive, as the opposite would contradict the main assumption. On the contrary, when the main hypothesis is that firms expand internationally in order to gain market power, the effects of such choice depend on more complex oligopolistic interactions.

Despite the literature on the multinational firm is quite rich, the examples above show that the theoretical background adopted to analyse the effects of internationalisation does not seem to be adequate.

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<sup>1</sup> See R. Schiattarella, "Dalla teoria dell'impresa multinazionale alla teoria dei processi di multinazionalizzazione?", in Acocella N., Rey G. M., Tiberi M., (eds.), "Saggi di Politica Economica", Vol. III, Angeli, 1999.

The limitations of the firm-based approach are even more severe as far as the analysis of the effects of multinationalisation on local and national economic systems are concerned. For example, by using the efficiency-approach, most of the studies indicate that the processes of internationalisation positively affect the firms' as well as their outward countries' growth. According to this view, the extent of the internationalisation of a firm is a proxy for its systemic efficiency and for the ability of being economically successful in the long term. The empirical evidence has in several cases disproved such approach.

A better understanding of the relationship between the multinational firms and the economic environment in which they operate is crucial in order to achieve more convincing conclusions. Most of the debate on the processes of internationalisation of production aims at understanding these linkages. During the '90s there has been a deeper investigation on the network relationships created by the firm in the outward and inward region/country, as well as on the network structure developed within the multinational company. On the contrary, the relationships between the firms internationally involved and the other firms and institutions located in the same area have not been sufficiently investigated.

The methodological approach proposed in this work draws upon previous analyses carried out by Schiattarella<sup>2</sup>. In this context it suffices to highlight that we refer to the literature dealing with the relationship between international trade and employment. Among the international trade approaches there are specific contributions on the effects of *outsourcing* (or international re-localisation of production) that are useful for studying the effects of the internationalisation of production.

Although the trade flow might actually measure the extent of *outsourcing*, such a phenomenon is far more complex than trade *tout court*. The relationship between the subjects involved in the *outsourcing* strategy – the outsourcing firm and the international subcontractor – can be either hierarchical, co-operative, or market-based.

In this context, the international re-localisation of production has been considered *per se* as a phenomenon to be explored, regardless the different forms it might take (international trade, co-operation agreements, or foreign direct investments). This is not simply a matter of measurement. The novelty of our analysis resides in the fact that the effects of internationalisation are analysed at the level of local economy (province), considered as a whole. This is precisely what has been already mentioned as *systemic* effect of the processes of internationalisation.

A crucial importance has been attributed to the factors that characterise the systems. The export from a specific area is a proxy of local firms' competitiveness as well as of system-specific characteristics such as the industrial structure (e.g. dimension, ownership characteristics, sectoral composition etc.), the institutional framework (e.g. education, labour market characteristics etc.) and social characteristics (e.g. habits, etc.).

If the characteristics of the system are important in determining agents' behaviours, then each firm can choose the form of internationalisation according to the range of choices made in the entire system. In other words, the value of the alternative strategies among which the firm can choose can be understood only at the level of the system. When there are system-specific factors that overlap with firm-specific factors, the export and the agreements signed by a firm that is part of an internationalised network (or system) could be considered as part of the process of internationalisation of production. The ownership structure of the foreign activity cannot discriminate between what is and what is not international production. In short, when one moves

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<sup>2</sup> See Schiattarella (2001) "The impact of the international re-localisation of production in the Made in Italy sector", paper presented to the AITEG (Assessing the Impact of Technological Innovation and Globalisation on Employment) workshop in Madrid, Universidade Complutense.

from the firm to the system view, it is also necessary to clarify the meaning of international production.

Obviously, by using a system-based approach, one should not forget that firm-level characteristics are crucial when systemic factors are not dominant. Yet, they are important in explaining the evolution of the systems themselves.

The characteristics of the "made in Italy" sector are consistent with this new approach. First of all, this sector is composed of small and very small firms that are part of "local districts". Second, these firms are simultaneously internationalising their production activities, in such a way that the system-specific factors seem to overlap with the firm-specific factors. In this particular context we aim at accounting for the effect of internationalisation on the inter-sectoral structure on the local economy and in particular on the growth of service employment.

### **3. The empirical evidence**

The presence of a relationship between IRP processes occurred in the Made in Italy specialised provinces and the growth of services within the same provinces is empirically tested below. The empirical analysis draws upon the results of previous studies carried out by one of the authors of this work (Schiattarella, 2001<sup>3</sup>). The results of such studies are briefly recalled in the next section, as to provide the background for the further step taken in this work. Two main dimensions are especially explored as having a potential effect on the growth of services: the degree of involvement in IRP and the level of specialisation in the "Made in Italy" branches. Accordingly, three groups of provinces have been identified, which share a high level of specialisation in the "Made in Italy". On the contrary, the firms located in these provinces show different strategies of international re-localisation of production.

The three groups of provinces are then considered in the second section and the employment growth in the main service sectors thereby located is illustrated. The relationship between the degree of international involvement in the "Made in Italy" specialised provinces and services' growth is therefore explored.

Further, a simple model is tested, which aims at accounting for the effects of the main dimensions of IRP on the patterns of growth in different service sectors. In particular, the degree of involvement in IRP has been considered as an explanatory variable of the employment growth differentials across services. The model controls as well for the overall employment trend in the rest of the economy across provinces, as well as the level of specialisation in the Made in Italy branches, by including dummy variables which capture the effects of IRP within the three groups of provinces identified above.

#### ***3.1 The international re-localisation of production in the Made in Italy specialised provinces. The background***

In this section the two dimensions (IRP strategies and Made in Italy specialisation) which the analysis is focussed on are explored.

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<sup>3</sup> Paper quoted in the previous footnote.

The tables in the Appendix report the results of a previous analysis carried out by Schiattarella, which are briefly recalled here. Tables A1 and A2 jointly identify three groups of provinces, on the basis of the Made in Italy specialisation and different degree of IRP involvement. In particular, Table A2 shows that all the provinces considered are specialised in the Made in Italy branches (textile, clothes and leather), as the share of employees in such branches out of total manufacturing employment by province is higher than 25%. The national average weight of the Made in Italy out of total manufacturing employment is in fact less than 20%. The provinces considered (table A3), though representing only the 25% of all the Italian provinces, employ more than half of the total Made in Italy job force.

Table A1 shows that the three groups of provinces differ according to the degree of involvement in international re-localisation of production strategies. An International Re-localisation Index (IRI) has been calculated for all the Italian provinces. The IRI is a ratio between the share of internationally re-localised sales and the share of employment in the Made in Italy sector by province. The index is therefore able to provide a measure of the relative importance of the international involvement of Made in Italy firms in each province, as compared to the whole dimension of production. In particular, Group 1 shows the highest degree of international involvement, for the provinces included have shown the highest International Re-localisation Index (IRI higher than 1). In turn, Group 2 and 3 show a medium and low international involvement (IRI between 0.5 and 1 and IRI lower than 0.5, respectively).

### ***3.2 The growth of services across groups of provinces***

The three groups of provinces identified above represent a privileged domain of investigation as far as the research purposes of this paper are concerned. Firstly, local areas which proxy the Italian local systems of production (district) with a strong sectoral specialisation have been selected, for which the IRP processes have been particularly strong over the period considered. Once controlled for the level of specialisation across the provinces, by choosing different degrees of internationalisation, it is possible to check the presence of a link between the degree of internationalisation of production and the patterns of employment growth in services by province. The challenge is to infer whether differences in service growth across provinces reflect a direct impact of the IRP processes or, rather, to what extent they are due to other interacting factors.

The tables 1 to 4 below report the average rates of employment growth in services across the three groups of provinces as compared to the national average. A special focus has been devoted to the business service branches, both as a whole and for the three digit level sectors, such as legal and accounting, engineering, technical consultancy, marketing, other business, security and cleaning services. Data come from the Italian Census of Manufacturing and Service Enterprises (1991-1996).

[Tables 1 and 2 about here]

Table 1 reports the average annual growth rate of employment in whole service sector. A link between the growth of employment in services and the international involvement of the provinces in which they are located emerges. The growth rate in the whole service sector in Group 1 is higher than in the others, as well as with respect to the national average. Over the period considered, in fact, the employment growth in the whole service is decreasing at the national level, though not so dramatically (-0.6%), whereas groups 1 and 2 present a positive, though low rate of growth.

Table 2 reports the employment growth rates in the business services, both at the three and two-digit level of aggregation (ATECO 91), across the groups of provinces. For two sectors only it is

possible to identify a link between the location in different groups and the intensity and direction of service growth. In particular, the technical consultancy and security sectors grow faster in the first group of provinces, both as compared to the other groups' average and to the national one, which is negative in both sectors. The case of technical consultancy is particularly striking, as the sector's growth rate in the first group is 20%, whereas the other two groups show on average 3.5% and the national average growth is even negative. It has to be pointed out that overall, the growth trend of the business services' branch does not seem to be strongly differentiated when related to different groups. Conversely, the selected provinces, regardless their different propensity to internationally re-localise phases of production cycle, systematically show better job growth as compared to the national average.

[Table 3 and 4 about here]

Table 3 and 4 show the average annual growth rate of employment respectively in ICT and R&D services and the most traditional branches, such as trade, transport and communication and financial services. While the first two sectors are two-digit level of ATECO classification, the latter have been aggregated. The trade branch include the two-digit sectors of trade and repair of motorvehicles, wholesale, retail trade and hotel and restaurants; the transport branch aggregates land, sea, air transport and travel and transport agencies; finally, the financial services include banking, insurance and other financial services.

A relationship between growth rates across different groups emerges clearly as far as the ICT, R&D, financial and transport branches are concerned. In particular, degree of internationalisation and service growth seems to be positively related for the ICT and transport services, while is negative for R&D and financial services. No clear relationship can be inferred as far as the trade branch is concerned.

At a first glance, it seems therefore that service growth performance and the international involvement of the Made in Italy activities located in the same provinces are related. This is the case for the software, technical consultancy, security and transport services. Overall, all the groups show better employment trends as compared to the national average, regardless both the specific sector and the degree of international involvement.

This seems to suggest that for some service sectors the driving factor for a better growth performance as compared the national trend might be related to other structural factors. Namely, an overall better growth performance of the whole economies at the provincial level, and/or factors related to the industrial specialisation of the province considered. In other terms, services might grow better in the provinces considered because the whole local economy has better performed, as compared to the national average. Conversely, the fact that a province is specialised in the Made in Italy branch, as it is the case for the selected provinces, might boost services employment performance, due to a strong sectoral interdependence (*filière*) between Made in Italy and services operating in the same province. Both determinants will be controlled for when the presence of a direct causal relationship between IRP and service growth will be tested.

### ***3.3 The relationship between IRP, Made in Italy specialisation and growth of services across provinces.***

The empirical evidence presented in the previous sections has shown that the average annual growth rate of employment in some of the service sectors considered monotonically changes across the three groups of provinces specialised in the Made in Italy, both positively and negatively. This

suggests that the growth of these service sectors at the provincial level might be affected by the different propensity of the Made in Italy branch to internationally re-localise production.

A further step of our analysis aims at accounting in a regression framework for the presence and extent of a causal relationship between services growth patterns and the strategies of international re-localisation of production in the Made in Italy sector across Italian provinces.

The econometric exercise has been carried out taking into account all the 103 Italian provinces. Our main concern has been in fact to properly isolate the effect of IRP processes on the growth of services. This has brought about the problem of adequately representing the relationships in analysis, by providing an appropriate specification of the model. In turn, from an econometric point of view, this means finding a series of proxies, which are able to control for the highest number of possible determinants of the phenomenon in analysis, namely the employment growth rate of services.

The specification of the model empirically tested is the following:

$$[1] \quad \dot{s}_i = \alpha + \beta \cdot irp_i + \delta \cdot (\dot{e}_i - \dot{e}_N) + \chi_j \sum_{j=1}^3 D_j + \varepsilon_i$$

where:

$\dot{s}_i$  : average annual growth rate of service sectors over the period 91-96 across provinces (SERV9196);

$irp_i$  : value of the re-localisation index in the Made in Italy branch by province (DELINDEX);

$(\dot{e}_i - \dot{e}_N)$  : difference between the provincial and the national average annual growth rate of employment of the total economy (DTOTE9196);

$D_j$  : Dummy for provinces with a share of employees in the Made in Italy out of total manufacturing above 25% and value of International Re-localisation Index respectively above 1, between 0.5 and 1, and below 0.5 (GROUP, with  $j = 1, 2, 3$ );

$\varepsilon_i$ : Error term for province  $i$ , : where  $\varepsilon_i \approx IN(0, \sigma^2)$

and:

$\alpha$  is the constant;

$\beta$ ,  $\delta$  and  $\chi_j$  are the parameters to be estimated.

For the sake of simplicity, the indexes  $i$  and  $j$  are assumed in the following. The variable DELINDEX proxy the different propensity to internationalisation of the Made in Italy firms across provinces. The dummy variables (GROUP<sub>1</sub>, GROUP<sub>2</sub>, GROUP<sub>3</sub>) are intended to capture the effects of different propensity to internationalisation in the Made in Italy jointly with a high level of specialisation in these branches, that is within the three groups of provinces identified in the previous sections. The variable DTOTE9196 is intended to control for the relative position of each

province as compared to the national average, as far as the employment trend in the total economy is concerned.

[Table 5 about here]

Table 5 lists the variables entered in a traditional OLS regression with robust standard errors. We have tested the equation [1] separately for each dependent variable reported in Table 5, that are the average annual growth rate of employment of different services and for the service sector as a whole. The table also lists the set of explanatory variables previously discussed.

As the variables have been standardised, the parameters can be interpreted as elasticity of the employment growth rates of services with respect to DELINDEX and DTOTE9196.

It is worth noting that the series of explanatory variables are quite heterogeneous, though a preliminary check of the correlation among them has been performed to control for multicollinearity. Therefore it is expected that the variable DTOTE9196 will capture the most of the variance to be explained. On the one hand, this allows us to properly isolate the effects of the variable DELINDEX, by formulating quite a conservative specification, such as the one proposed above. On the other hand, this makes the empirical exercise quite risky, for the variables related to the intensity of the international involvement and the Made in Italy specialisation are likely to have quite a low explicative power, when compared to the DTOTE9196 variable.

The results of the estimating procedure are reported in Table 6 and 7.

[Table 6 and 7 about here]

The first equation refers to the average annual growth rate of the whole service sector. The estimated relationship seems to be quite effective in capturing the variance of the dependent variable, as the value of the R-squared is quite high (over 73%). The internationalisation of the Made in Italy branches has a significant and positive impact on the growth performance of the whole service sector located within the same province. As expected, the most of the variance is explained by the variable DTOTE9196, which proxy the relative position of each province in terms of growth of the whole economy. The results of the estimates also show that internationalisation in the Made in Italy has an impact *per se* on service growth, regardless the level of Made in Italy specialisation of each province. Such a result is crucial first and foremost from a methodological point of view, as it confirms that the effects of internationalisation of production have to be accounted for from a systemic perspective.

The following equations test the effects of the explanatory variables included in the model respectively on the most traditional branches of services, that is trade, transport and finance, as well as for R&D and software industry. Further on, the regressions have been carried out on some of the business services dis-aggregated at the three digit level (engineering, legal, technical consultancy) as well as for the whole business sector (Table 7). The selection responds to the need of checking whether the most innovative and high-growing services over the last decades, have been affected by the process of international re-localisation carried out by the Made in Italy branches.

The results show that the IRP processes significantly affect the growth patterns of the service branches considered in most of the cases, confirming that the methodological approach adopted in this work is able to capture the effects of internationalisation at the *systemic* level. In particular, the variable DELINDEX has a positive impact on the growth patterns of the traditional branches of services. Conversely, the estimated coefficient of DELINDEX is negative in the cases of the

business services, both considered as a whole and for most of the single sectors, such as engineering and legal services. On the contrary, the level of specialisation in the Made in Italy does affect the growth of employment in the case of technical consultancy, as the value of the coefficient of the variable *GROU1* is positive and high. This confirms, as emerged in the previous section, that in some case it is the joint presence of strong specialisation and high propensity to internationalisation which affects service growth.

As expected, the coefficient of the variable *DTOTE9196*, controlling for the relative position of each province as far as the overall trend of the economy is concerned, is positive and statistically significant in most of the equation estimates. This suggests that most the growth of service branches reflect the overall trend of the economy at the provincial level.

#### **4. Summary of the findings**

The paper aims at providing a new methodological approach to the analysis of the effects of internationalisation of production (IRP), which is able to integrate the traditional set of tools so far used in the literature to tackle the MNCs-related issues. It is in fact argued that the mainstream firm-based approach to the analysis of multinationalisation is in some case inadequate to tackle the complex issue of the effect of IRP. The analysis aims therefore at drawing the attention on the systemic dimension of IRP, by giving content and dimension to the notion of *systemic* effects of the IRP. By systemic it is intended the effects of IRP on the firms and sectors, which are not directly involved in the IRP; rather, they belong to the same *filière* and are located in the same local area (province).

The paper provides an empirical-based analysis of whether and the extent to which the processes of international re-localisation of production (IRP) carried out by firms' affect the growth of services operating in the same local area.

Overall, the results of the empirical analysis presented in this work have shown that a link between IRP carried out in "made in Italy" firms and the growth of services located in the same province emerges. In particular, such a link is positive for the service sector as a whole as well as for the traditional branches like trade and financial service. A negative relationship has on the contrary been found in the case of business services, and, in particular, for the science-based sectors (engineering, R&D, software industry). From our results it can therefore be inferred on the one hand that IRP, taken as a major change in the mode of production organisation (outsourcing), is able to pull the growth of traditional branches of services. On the other hand, IRP processes seem rather to crowd out the growth of science-based business service sectors, as the relationship between IRP and such branches emerges to be negative.

The results of the empirical analysis confirm on the one hand that IRP processes do affect the local economies in which internationally involved firms are located (in this case the economy of provenience). On the other hand, and more generally, it emerges that the methodological approach here adopted can be further developed. The future research agenda on internationalisation cannot miss the opportunity to adopt new methodological tools able to enlarge the domain of analysis to the systemic effects of IRP.

**Table 1 - Growth of employment in total services by groups of provinces (1991-1996)**

<b>Province</b>	<b>Total Services</b>
Group 1	0,5%
Group 2	0,4%
Group 3	-0,4%
<b>Italy</b>	<b>-0,6%</b>

*Average Annual Rate of Growth (number of employees, Local Units, 1991-1996)*

Source: ISTAT, Census of Manufacturing and Services Enterprises (1991,1996)

**Table 2 - Growth of employment in Business services by branches\* and groups of provinces (1991-1996)**

Province	<i>Legal &amp; Accounting</i>	<i>Engineering</i>	<i>Technical Consulting</i>	<i>Marketing</i>	<i>Security</i>	<i>Cleaning</i>	<i>Other Business</i>	<b>Total Business</b>
Group 1	4,0%	6,7%	20,0%	-5,3%	3,4%	6,5%	7,9%	5,4%
Group 2	3,8%	6,6%	3,2%	-5,6%	1,1%	4,0%	8,8%	4,9%
Group 3	4,3%	6,9%	4,0%	-3,9%	0,5%	8,1%	8,9%	5,5%
<b>Italy</b>	<b>4,2%</b>	<b>3,7%</b>	<b>-5,5%</b>	<b>-6,9%</b>	<b>-3,5%</b>	<b>2,7%</b>	<b>9,5%</b>	<b>3,8%</b>

*Average Annual Rate of Growth (number of employees, Local Units, 1991-1996)*

*\*Three digit level of ATECO91 Classification*

Source: ISTAT, Census of Manufacturing and Services Enterprises (1991,1996)

**Table 3 - Growth of employment in ICT and R&D services by groups of provinces (1991-1996)**

Province	<b>Computer &amp; Software</b>	<b>R&amp;D</b>
Group 1	2,4%	-1,6%
Group 2	2,1%	-1,3%
Group 3	0,8%	12,0%
<b>Italy</b>	<b>1,9%</b>	<b>-19,3%</b>

*Average Annual Rate of Growth (number of employees, Local Units, 1991-1996)*

Source: ISTAT, Census of Manufacturing and Services Enterprises (1991,1996)

**Table 4 - Growth of employment in Financial, Transport and Trade services by groups of provinces (1991-1996)**

Province	<b>Financial</b>	<b>Transport &amp; Communication</b>	<b>Trade &amp; Hotel Rest.</b>
Group 1	-0,3%	0,1%	-1,1%
Group 2	0,4%	-0,6%	-0,9%
Group 3	0,7%	-1,3%	-2,3%
<b>Italy</b>	<b>-0,7%</b>	<b>-1,4%</b>	<b>-1,7%</b>

*Average Annual Rate of Growth (number of employees, Local Units, 1991-1996)*

Source: ISTAT, Census of Manufacturing and Services Enterprises (1991,1996)

**Table 5 - List of the variables used in the model*****Dependent variables\****

<b><i>ACHRONYM</i></b>	<b><i>PROXY</i></b>
<b>ENG9196</b>	Engineering
<b>LEG9196</b>	Legal and Accounting
<b>OTHB9196</b>	Other Business services
<b>RD9196</b>	Research and Development
<b>SOFT9196</b>	Computer, Software and related
<b>TBUS9196</b>	Total Business Services (Legal, Engineering, Technical Consultancy, Marketing, Training, Security, Cleaning and Other Business services)
<b>TECH9196</b>	Technical Consultancy
<b>TFIN9196</b>	Total Financial services (Banking, Insurance, Other Financial services)
<b>TTRACO9196</b>	Transport and Communication (Land, Air, Sea Transport, Travel agencies and Post and Telecommunication)
<b>TTRADE9196</b>	Trade services (Trade and repair of motorvehicles, Retail, Wholesale trade and Hotel and Restaurants)
<b>TSER9196</b>	Total Services

**\*All variables are standardised average annual growth rates of employment 1991-1996**

***Explanatory variables\*\****

<b><i>ACHRONYM</i></b>	<b><i>PROXY</i></b>
<b>DELINDEX</b>	Value of the Re-localisation Index by province
<b>GROUP1</b>	Dummy for provinces with a Re-loc. Ind. above 1 and the share of employees in the Made in Italy above 25%
<b>GROUP2</b>	Dummy for provinces with a Re-loc. Ind. between 0.5 and 1 and the share of employees in the Made in Italy above 25%
<b>GROUP3</b>	Dummy for provinces with a Re-loc. Ind. below 0.5 and the share of employees in the Made in Italy above 25%
<b>DTOTE9196</b>	Difference between the provincial and the national average annual growth rate of employment in Total Economy

**\*\*All variables are standardised values**

**Table 6 - The relationship between the growth of services, international re-localisation of production and Made in Italy specialisation in Italian provinces - OLS Estimates with robust Std.Err.**

Dependent var.	Explanatory variables						N° Obs.	Adj. R-Squared
	CONST.	DELINDEX	GROUP1	GROUP2	GROUP3	DTOTE9196		
<b>TSER9196</b>	.002 [.04]	.10** [2.32]	.008 [.04]	.06 [.46]	-.13 [-.53]	.818** [10.03]	103	.732
<b>TTRADE9196</b>	.004 [.07]	.110** [1.92]	-.04 [-.26]	.139 [.82]	-.217 [-.69]	.773** [8.97]	103	.675
<b>TTRACO9196</b>	.001 [.01]	.098* [1.50]	.190 [.42]	-.162 [-.57]	.06 [.20]	.378** [3.11]	103	.175
<b>TFIN9196</b>	-.043 [-.40]	.151** [2.78]	-.102 [-.31]	.139 [.61]	.451 [1.46]	.323** [3.05]	103	.160
<b>RD9196</b>	.087 [.75]	.062 [.72]	-.656** [-2.18]	-.583** [-2.18]	.133 [.33]	-.134 [-1.10]	99	.080
<b>SOFT9196</b>	.104 [.95]	-.072 [-.85]	-.240* [-1.50]	-.223 [-.81]	-.862 [-1.70]	.195* [1.68]	103	.092

\*\* significant at 5%; \* significant at 10%

**Table 7 - The relationship between the growth of services, international re-localisation of production and Made in Italy specialisation in Italian provinces - OLS Estimates with robust Std.Err.**

Dependent var.	Explanatory variables						N° Obs.	Adj. R-Squared
	CONST.	DELINDEX	GROUP1	GROUP2	GROUP3	DTOTE9196		
<b>TBUS9196</b>	.073 [.67]	-.170 [-1.30]	-.287 [-.88]	-.325 [-1.29]	-.285 [-.60]	.319** [2.44]	103	.112
<b>ENG9196</b>	-.006 [-.05]	-.153* [-1.65]	.063 [.26]	.055 [.17]	-.040 [-.23]	-.092 [-.95]	103	.040
<b>LEG9196</b>	.086 [.75]	-.207** [-2.93]	-.351** [-2.12]	-.420* [-1.71]	-.273 [-.72]	.210** [2.09]	103	.090
<b>TECH9196</b>	-.073 [-.69]	-.143* [-1.52]	1.34** [2.56]	-.163 [-.68]	.156 [-.69]	.246** [2.01]	101	.160

\*\* significant at 5%; \* significant at 15%

**Table A1 - International re-localisation of production indexes  
in the Made in Italy specialised provinces (1996)**

Province	Intern. Re-local. Sales	%	Total Employees	%	Int. Re-loc. Index*	Group**
Arezzo	123.842	2,6076	15.344	1,66	1,57	1
Lecce	98.123	2,0661	19.128	2,07	1,00	1
Padova	243.276	5,1224	28.208	3,06	1,67	1
Pistoia	99.866	2,1028	15.461	1,68	1,25	1
Treviso	369.827	7,787	35.696	3,87	2,01	1
Varese	245.479	5,1688	35.993	3,90	1,32	1
Ascoli	88.758	1,8689	30.639	3,32	0,56	2
Como	87.344	1,8391	28.576	3,10	0,59	2
Firenze	149.083	3,1391	39.941	4,33	0,72	2
Macerata	76.867	1,6185	21.813	2,37	0,68	2
Mantova	63.101	1,3286	17.695	1,92	0,69	2
Novara	58.584	1,2335	12.617	1,37	0,90	2
Perugia	37.786	0,7956	13.571	1,47	0,54	2
Prato	133.285	2,8064	39.225	4,25	0,66	2
Teramo	55.012	1,1583	16.309	1,77	0,66	2
Vercelli	19.581	0,4123	5.613	0,61	0,68	2
Vicenza	184.827	3,8917	45.329	4,91	0,79	2
Avellino	6.069	0,1278	7.056	0,77	0,17	3
Bari	42.067	0,8858	26.025	2,82	0,31	3
Benevento	2.010	0,0423	2.797	0,30	0,14	3
Biella	37.654	0,7928	26.463	2,87	0,28	3
Enna	0	0	793	0,09	0,00	3
Pescara	4.437	0,0934	4.698	0,51	0,18	3
Pisa	27.625	0,5817	20.234	2,19	0,27	3
Rovigo	480	0,0101	9.551	1,04	0,01	3
<b>Italy</b>	<b>4.749.288</b>	<b>100</b>	<b>922.268</b>	<b>100</b>		

Source: ISTAT, International Trade, 1996 and Intermediate Census of Manufacturing and Services, 1996

\* The index is calculated as a ratio between the share of internationally re-localised sales

in the M. in Italy by province and the share of total employment in the M. in Italy by province

\*\* The groups have been identified according to the value of the index: (group 1- index higher than 1; group 2- index between 0.5 and 1 included; group 3- index lower than 0.5)

**Table A2 - Made in Italy specialised\* provinces (1996)**  
*Number of employees in the local units*

Province	Made in Italy	Total manufacturing	M. in Italy (%)
Arezzo	15.344	43.694	35,12
Lecce	19.128	37.225	51,38
Padova	28.208	112.500	25,07
Pistoia	15.461	32.711	47,27
Treviso	35.696	140.026	25,49
Varese	35.993	134.565	26,75
<b>Total Group 1</b>	<b>149.830</b>	<b>500.721</b>	<b>29,92</b>
Ascoli Piceno	30.639	51.349	59,67
Como	28.576	84.495	33,82
Firenze	39.941	112.887	35,38
Macerata	21.813	41.846	52,13
Mantova	17.695	57.924	30,55
Novara	12.617	50.223	25,12
Perugia	13.571	53.457	25,39
Prato	39.225	46.409	84,52
Teramo	16.309	35.442	46,02
Vercelli	5.613	20.394	27,52
Vicenza	45.329	160.105	28,31
<b>Total Group 2</b>	<b>271.328</b>	<b>714.531</b>	<b>37,97</b>
Avellino	7.056	23.486	30,04
Bari	26.025	81.154	32,07
Benevento	2.797	9.008	31,05
Biella	26.463	36.554	72,39
Enna	793	2.916	27,19
Pescara	4.698	16.801	27,96
Pisa	20.234	46.551	43,47
Rovigo	9.551	25.379	37,63
<b>Total Group 3</b>	<b>97.617</b>	<b>241.849</b>	<b>40,36</b>
<b>Italy</b>	<b>922.268</b>	<b>4.855.777</b>	<b>18,99</b>

**Table A3 - Made in Italy specialised groups of provinces (1996)**  
*Number of employees in the local units*

Province	Made in Italy	M. in Italy (%)
Group 1	149.830	16,25
Group 2	271.328	29,42
Group 3	97.617	10,58
<b>Total Groups</b>	<b>518.775</b>	<b>56,25</b>
<b>Italy</b>	<b>922.268</b>	<b>100,00</b>

\* The provinces have been considered M. in Italy (textiles, leather and related sectors)

specialised when the share of employment in the M. in Italy sector on the whole manufacturing sector is higher than 25%

Source: ISTAT, Census of Manufacturing and Services Enterprises (1991,1996)