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Manufacturing and services in Italian labour market areas in an historical perspective (1981-1996)

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CONVERGENCE AND INTEGRATION OF MANUFACTURING INDUSTRIES AND PROVISION OF SERVICES IN LOCAL LABOUR MARKET AREAS IN ITALY

Abstract

This paper aims at checking and proving the existence of great geographical differences in the development of the service sector in Italy as identified through the territorial grid of Local Labour Market Areas (LLMA). While in many areas in Italy there is a close integration between specific manufacturing sectors and the provision of services, in other areas the low supply of services seems to be one of the causes of lagging growth.

From a sectoral point of view, our analysis goes beyond the traditional division of production activities into three groups and suggests a classification of services by the nature of services provided and in particular according to the economic subjects to whom they are addressed.

From a geographical point of view, the grid chosen is based on LLMAs, as suggested by Istat (1997). A long-term analysis based on data from the 1981, 1991 and 1996 censuses allows to identify patterns in the type of development of LLMAs as concerns manufacturing and tertiary specialisation and their different routes (convergence, externalisation, integration, etc.).

1. Foreword

The analysis of local development processes implies first of all the identification of differences emerging among its elements. For this reason the territorial grid chosen should be adequate to the study's objective, in keeping with the characteristics of the Italian development model, based on the small size both of firms and areas, that can be fully understood only with the aid of proper subdivisions.

Territorial studies on Italy stress the weakness of an approach based on traditional administrative boundaries, since the latter derive from historical, orographical and political criteria that are not adequate for highlighting the deep differences characterising Italy, where local situations and the historical divide between North and South still play a major role.

“Local labour market areas” (LLMAs)¹ represent the territorial aggregations that allow a better understanding of local development phenomena at a “micro” level. Istat favours the use of this subdivision, as explained in its 1999 Annual Report², and finds it especially useful for an analysis of the so-called “service society” based on the interesting results obtained by classifying LLMAs according to their productive specialisation.

The present paper enhances the territorial analysis of the tertiary sector by introducing the dynamic component represented by the comparison of the 1981 and 1991 censuses and of the 1996 intermediate census of manufacturing and services.

We present here an analysis that uses the results of the above mentioned classification to better understand the specialisation dynamics of market services and in particular their integration with manufacturing, the typical industry of some local Italian situations.

Summarising, the originality of our approach is based on a long-term comparison (1981-1996) for describing the specialisation dynamics of market services; on the use of a territorial classification of the 784 LLMAs highlighting their prevailing sectoral features; and on the use of a functional classification of the tertiary sector that better identifies the nature of services provided and the economic entities making use of them.

This allowed us to highlight two important aspects: firstly, in a number of local Italian situations the production fabric is not integrated, i.e. the traditional manufacturing specialisations are not accompanied by a good endowment and a wide range of services intensity; whereas the areas where these features are present are more frequent in traditional urban concentrations. Secondly, in a long-term perspective, we notice a trend in the localisation of service firms that favours the areas with a strong manufacturing tradition at the expense of urban areas.

2. Classification of LLMAs according to their sectoral features

The classification of the 784 LLMAs by sector allows to identify industrialisation patterns and spatial configuration. The classification was performed on the basis of data from the intermediate census³ of local units and employed persons in local units, subdivided into 50 classes of economic activity and 4 size classes⁴. Data were subjected to a simple correspondence analysis, which allowed to identify significant factorial axes; cluster analysis⁵ was applied to the latter.

In order to obtain clusters of LLMAs we used the number of employed persons in local units by

economic activity, so that we could describe sectoral specialisation in good detail⁶. It should be stressed that the classification we adopted is based on the census of manufacturing and services and therefore cannot identify merely agricultural specialisations, which seem present especially in the Mezzogiorno (especially North-Eastern Sicily). We tried an alternative version, which also took into account the four size classes, but it was clear that this increase in detail made analysis heavier (variables increase fourfold) without providing a significant increase in information. In this case too the classification algorithm grouped LLMAAs by prevailing economic activity, independent from size class, so size appears to be already integrated in sector specialisation. We can thus state that LLMAAs differ mainly in terms of specialisation and that this feature includes also other ones, such as prevailing size. It was thus also possible to adopt a model of simplified analysis which, taking into account only the number of employed persons per type of economic activity, also provides results that can be more easily interpreted.

The 784 LLMAAs were classified in 11 clusters (Tables 1 and 2). The first one aggregates non-specialised LLMAAs. In economic-territorial terms, it includes those areas deprived of specific localisation factors and in general not undergoing significant development processes. This cluster is formed by over 300 LLMAAs with a resident population of over 13 million, made up of 700 units with over 2 million employed persons.

Table 1 - LLMAAs, municipalities, resident population and average size per cluster of LLMAAs. Year 1996 (number and percent shares)

CLUSTERS OF LLMAAs	LLMAAs		MUNICIPALITIES		POPULATION		AVERAGE SIZE	
	number	%	number	%	number	%	Munic.	Popul.
Non-specialised LLMAAs	311	39.7	2,278	28.1	12,850,512	22.4	7	41,320
Non-manufacturing LLMAAs	113	14.4	1,165	14.4	18,703,198	32.5	10	165,457
Urban	39	5.0	738	9.1	17,156,482	29.9	19	439,742
Mining and quarrying	3	0.4	35	0.4	146,932	0.3	12	48,981
Tourism	71	9.1	392	4.8	1,399,784	2.4	6	19,715
Manufacturing LLMAAs	360	45.9	4,657	57.5	25,907,257	45.1	13	71,983
<i>Light manufacturing</i>	<i>266</i>	<i>33.9</i>	<i>3,207</i>	<i>39.6</i>	<i>17,588,255</i>	<i>30.6</i>	<i>12</i>	<i>66,154</i>
<i>"made in Italy"</i>	212	27.0	2,622	32.4	13,368,352	23.3	12	63,099
Textiles	7	0.9	139	1.7	616,392	1.1	20	88,056
Leather and leather goods	42	5.4	391	4.8	3,456,143	6.0	9	82,289
Eyewear	5	0.6	55	0.7	147,368	0.3	11	29,474
<i>Other manufacturing LLMAAs</i>	<i>94</i>	<i>12.0</i>	<i>1,450</i>	<i>17.9</i>	<i>8,319,002</i>	<i>14.5</i>	<i>15</i>	<i>88,477</i>
Building materials	72	9.2	941	11.6	4,787,214	8.3	13	66,459
Transport facilities	13	1.7	284	3.5	2,376,096	4.1	22	182,777
Television apparatus	9	1.1	225	2.8	1,155,692	2.0	25	128,410
Italy	784	100.0	8,100	100.0	57,460,967	100.0	10	73,292

Source: Istat, Population and archives of municipalities

Of the remaining 10 clusters, 3 have a non manufacturing specialisation and the other 7 have a manufacturing specialisation. In the first sub-group one cluster (*urban LLMA*) is specialised in transport facilities and service activities, which define higher urban functions and in fact includes the LLMAAs of the largest Italian cities; the second one is small and specialised in mining and quarrying; the third one is characterised by the concentration of persons employed in tourism activities (hotels, camping places, restaurants, bars and canteens) and aggregates most LLMAAs oriented to tourism. Non manufacturing LLMAAs are over 100 with a resident population of nearly 19 million: they are made up of 1,200,000 local units with over 4.5 million employed persons.

The seven manufacturing clusters aggregate 360 LLMAAs with a resident population of nearly 26 million (more than 45% of total Italian population) and are made up of 49% of all Italian local units with 53% of employed persons, but they represent 60% of all manufacturing local units with over 68% of employed persons. These clusters can be broken down into two sub-groups: the first one (light manufacturing LLMAAs) is made up of four clusters specialised in light traditional manufacturing (textiles, clothing, leather and leather goods, eyewear) and includes 266 LLMAAs with a resident population of nearly 18 million and over 5 million employed persons in 1,300,000 local units (this sub-group represents about two thirds of all persons employed in manufacturing). We have here four clusters: “made in Italy”, textiles, leather and leather goods and eyewear. The second sub-group is specialised mainly in manufacturing of motor vehicles and in the processing of non metal minerals, it includes 94 LLMAAs with a resident population of over 8 million and over 2 million employed persons in nearly 600,000 local units. The three clusters are: building materials, transport facilities and television apparatus.

Table 2 - LLMAs, employed persons and average size by economic activity and cluster of LLMAs.
Year 1996 (absolute values, average size and percent shares)

GRUPPI DI SLL	TOTAL MANUFACTURING AND SERVICEA			of which: MANUFACTURING		
	LLMAs	Employed persons	Average size	LLMAs	Employed persons	Average size
ABSOLUTE VAUES AND AVERAGE SIZES						
Non-specialised LLMAs	721,623	1,959,317	2.7	91,147	443,372	4.9
Non-manufacturing LLMAs	1,225,410	4,565,198	3.7	147,007	1,121,223	7.6
Urban	1,100,605	4,193,363	3.8	133,592	1,057,932	7.9
Mining and quarrying	5,973	18,679	3.1	676	5,361	7.9
Tourism	118,832	353,156	3.0	12,739	57,930	4.5
Manufacturing LLMAs	1,846,826	7,267,081	3.9	352,956	3,291,182	9.3
<i>Light manufacturing</i>	<i>1,275,818</i>	<i>5,051,647</i>	<i>4.0</i>	<i>266,755</i>	<i>2,408,247</i>	<i>9.0</i>
"made in Italy"	947,732	3,782,685	4.0	196,895	1,843,281	9.4
Textiles	55,068	225,390	4.1	15,871	126,193	8.0
Leather and leather goods	262,039	990,375	3.8	51,821	412,819	8.0
Eyewear	10,979	53,197	4.8	2,168	25,954	12.0
<i>Other manufacturing LLMAs</i>	<i>571,008</i>	<i>2,215,434</i>	<i>3.9</i>	<i>86,201</i>	<i>882,935</i>	<i>10.2</i>
Building materials	346,429	1,331,172	3.8	56,812	531,391	9.4
Transport facilities	161,967	683,016	4.2	21,723	281,386	13.0
Television apparatus	62,612	201,246	3.2	7,666	70,158	9.2
Italy	3,793,859	13,791,596	3.6	591,110	4,855,777	8.2
PERCENT SHARE BY GROUP						
Non-specialised LLMAs	19.0	14.2	--	15.4	9.1	--
Non-manufacturing LLMAs	32.3	33.1	--	24.9	23.1	--
Urban	29.0	30.4	--	22.6	21.8	--
Mining and quarrying	0.2	0.1	--	0.1	0.1	--
Tourism	3.1	2.6	--	2.2	1.2	--
Manufacturing LLMAs	48.7	52.7	--	59.7	67.8	--
<i>Light manufacturing</i>	<i>33.6</i>	<i>36.6</i>	<i>--</i>	<i>45.1</i>	<i>49.6</i>	<i>--</i>
"made in Italy"	25.0	27.4	--	33.3	38.0	--
Textiles	1.5	1.6	--	2.7	2.6	--
Leather and leather goods	6.9	7.2	--	8.8	8.5	--
Eyewear	0.3	0.4	--	0.4	0.5	--
<i>Other manufacturing LLMAs</i>	<i>15.1</i>	<i>16.1</i>	<i>--</i>	<i>14.6</i>	<i>18.2</i>	<i>--</i>
Building materials	9.1	9.7	--	9.6	10.9	--
Transport facilities	4.3	5.0	--	3.7	5.8	--
Television apparatus	1.7	1.5	--	1.3	1.4	--
Italy	100.0	100.0	--	100.0	100.0	--

Source: Istat, Intermediate census of manufacturing and services 1996

3. A functional classification of the tertiary sector

The classification of economic activities adopted for the intermediate census (Ateco91) is homogenous with the international classification of economic activities Nace rev. 1 and attributes LLMAs and their employed persons to a sector with the criterion of prevailing products. While it is relatively easy to identify a prevailing product in manufacturing, the classification is more dubious in the case of services. For this reason, but also for other reasons related to their higher articulation, for services we employed a functional classification that better identifies the relations between services and manufacturing and the subjects making use of said services.

The classification suggested is an adaptation, based on Ateco91, of a model presented by Iscom (1988), which at the time had been applied to Ateco81. This process was performed in two phases:

- the creation of a conversion matrix of the economic activity codes from 1981 to 1991, using the

more detailed elements of the 1991 classification (economic activity categories with 5 digits) and then the adjustment with the functional classification suggested;

- the attribution of activities entering the observation field for the first time in the intermediate census or the ones changing definition to the functional classification.

The result of this process is displayed below:

List 1 – The suggested functional classification⁽¹⁾

COD	Name	Number of Ateco91 categories included
600	6 - Services to production	150
610	6.1 – Wholesale trade	94
620	6.2 - Services to firms	56
700	7 - Services to families	168
710	7.1 – Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods)	86
720	7.2 - Hotels and restaurants	20
730	7.3 - Health and social work	31
740	7.4 -Other community, social and personal service activities	31
800	8 – Network services	91
810	8.1 – Trade and renting of transport equipment and fuels	24
820	8.2 - Transport	29
830	8.3 - Communications	5
840	8.4 – Monetary and financial intermediation	13
850	8.5 - Insurance	5
860	8.6 - Real estate activities with own property and on account of third parties	5
870	8.7 - Activities of membership organizations n.e.c.	10
900	9 - Collective services	24
910	9.1 – Central and local agencies; administration of local bodies	24

(1) For the sake of brevity, sub-classes were not included

The classification scheme adopted divides tertiary activities into four functions according to the prevailing object of destination of the services provided, which in turn are divided into classes and sub-classes:

- services to production are services that provide intermediate inputs to other agricultural or manufacturing or service activities;
- services to families are totally destined to final consumption whose recipients are easily identifiable (families). They include also some services provided to the public sector and by non profit organisations (health, education, etc.);
- network services can have a final or intermediate use and recipients can be both families and firms. This function includes all the economic activities that make relations and connection possible among activities and economic subjects, thus allowing the transmission of tangible and intangible goods;
- collective services are directed to a recipient that cannot be precisely identified, but the whole community benefits from them.

4. The recent situation

The analysis of the sectoral specialisation features of LLMA's based on data from the 1996 intermediate census of manufacturing and services classified LLMA's in 11 clusters, homogeneous in terms of their prevailing production. This geography of specialisation, along with the four areas into which Italy is

traditionally divided, was used as the type and territorial key for interpreting the role of market services and trying to identify their relations with production activities in general and with manufacturing in particular over a long enough period (from the 1981 to the 1996 census).

The assumption we intend to verify here is that the response of local economies to the changes in the market, in production modes and product innovations generated different choices, that are functional to the specialisation and production history of each cluster. There is, for example, a growing tendency to externalise functions and activities that are not tightly related to the core business of firms and it is one of the most significant trends in the period examined. This must have obviously affected the growth of the tertiary sector and the birth of new types of activities in response to the demand for strategic services for coping with market challenges.

In the period we studied, the trend to the tertiarisation of the Italian productive system became stronger, both in terms of ability to produce wealth and to employ workers, as it did in most other mature economies. National accounts allow to quantify more precisely these dynamics over a period of about two decades: in the early eighties saleable services represented about 45% of GDP and 36% of labour units. In 1996 the share of saleable services increased by over 5 percentage points (to 50.1%), while labour units in this sector increased even more sharply and reached about 45%. More recently these trends consolidated further, bringing the share of saleable services to 50.9% of GDP and labour units to 47.3% of the national total in 2000.

Table 3 - Persons employed in market services by cluster of LLMA and geographic area. Year 1996
(percent share and localisation coefficient)

CLUSTERS OF LLMA GEOGRAPHICAL AREAS	Percent share					Localisation coefficients			
	Services to production	<i>of which: services to firms</i>	Services to families	Network services	Total	Services to production	<i>of which: services to firms</i>	Services to families	Network services
CLUSTERS OF LLMA									
Non-specialised LLMA	14.3	14.4	19.0	15.1	16.3	0.88	0.89	1.17	0.93
Non-manufacturing LLMA	41.6	43.5	36.5	43.1	40.2	1.03	1.08	0.91	1.07
Urban	39.9	41.7	30.3	40.9	36.7	1.09	1.14	0.83	1.11
Mining and quarrying	0.1	0.1	0.2	0.1	0.1	0.63	0.74	1.54	0.75
Tourism	1.7	1.7	6.0	2.1	3.4	0.49	0.50	1.77	0.63
Manufacturing LLMA	44.1	42.1	44.5	41.7	43.5	1.01	0.97	1.02	0.96
<i>Light manufacturing</i>	<i>28.9</i>	<i>26.4</i>	<i>29.9</i>	<i>26.8</i>	<i>28.6</i>	<i>1.01</i>	<i>0.92</i>	<i>1.04</i>	<i>0.94</i>
<i>"made in Italy"</i>	21.1	19.3	21.8	19.3	20.8	1.01	0.93	1.05	0.93
Textiles	1.2	1.0	1.0	1.0	1.1	1.08	0.98	0.97	0.95
Leather and leather goods	6.5	5.8	6.7	6.3	6.5	1.00	0.89	1.03	0.97
Eyewear	0.2	0.2	0.4	0.2	0.3	0.73	0.74	1.38	0.83
<i>Other manufacturing LLMA</i>	<i>15.1</i>	<i>15.7</i>	<i>14.6</i>	<i>14.9</i>	<i>14.9</i>	<i>1.02</i>	<i>1.06</i>	<i>0.98</i>	<i>1.00</i>
Building materials	8.6	8.3	9.2	8.7	8.8	0.98	0.94	1.03	0.98
Transport facilities	5.3	6.1	3.9	4.8	4.6	1.14	1.32	0.84	1.03
Television apparatus	1.2	1.3	1.5	1.4	1.4	0.86	0.94	1.11	1.01
GEOGRAPHICAL AREAS									
North-Wst	35.9	35.6	28.6	32.4	32.1	1.12	1.11	0.89	1.01
North-East	22.0	20.5	23.7	21.3	22.4	0.98	0.91	1.06	0.95
Centre	20.5	21.6	21.8	23.0	21.7	0.94	0.99	1.00	1.06
Mezzogiorno	21.6	22.3	25.9	23.3	23.7	0.91	0.94	1.09	0.98
Italy	100.0	100.0	100.0	100.0	100.0	1.00	1.00	1.00	1.00

Source: Istat, Intermediate census of manufacturing and services 1996

Even if these trends are very clear, the territorial evolution has not been homogeneous.

The situation showed by the 1996 intermediate census confirms the existence of specific relations between prevailing product specialisation and endowment and specialisation of some tertiary functions. As can be seen in Table 3, the highest concentration of employed persons in the three types of services is found in the cluster urban LLMA, which includes 39 LLMA with 37% of all employed persons, in particular in services to production (39.9%) and network services (40.9%).

Localisation coefficients⁷ characterising this cluster of LLMA show values higher than 1, except only in services to families that show values lower than the national average. Among non manufacturing LLMA, the cluster of tourism LLMA shows a low specialisation in network services and services to production, offset by an extremely high localisation coefficient of services to families (1.77), within which are included hotels and restaurants.

The seven clusters of manufacturing LLMA includes 43.5% of total persons employed in market services and shows localisation coefficients substantially in line with the national average. If we look at the most important cluster of this sub-group, the 212 "made in Italy" LLMA with a specialisation in the typical production of small and medium sized firms (furniture, clothing, light mechanic), the share of employed persons in services is adequate to the size of this cluster (a little over 20% in average), but does not show significant specialisation in services more tightly linked to production: in general they are under-specialised in services to firms and network services, although only slightly.

Higher specialisation in production and network services are registered in the 13 LLMA making up the transport facilities cluster (among which are the Turin, Cassino, Melfi and Termini Imerese LLMA). In particular these LLMA show the highest localisation coefficient in services to firms (1.32) which include advanced functions such as information technology, R&D, advertising and professional services.

Non specialised LLMA, which form the largest group and employ little over 16% of total persons employed in market services, show very low specialisation levels consistent with the features of this cluster and indirectly confirm the internal consistency of the classification of LLMA we adopted.

In Table 3 the geographic distribution of market services and their sector specialisation are displayed. These data show that the North-West still plays a stronger role due to the presence of many areas with urban specialisation (which show a traditional tertiary vocation) and in motor vehicle construction. The North-West also shows specialisation coefficients higher than 1 in all cases except services to families. The presence of important tourism spots is probably the reason of the higher specialisation in services to families in the North-East. As concerns LLMA in the Centre and the Mezzogiorno, we see a specialisation in network services (1.06) in the Centre, while in the Mezzogiorno all specialisation coefficients are lower than the national average, except services to families.

An analysis based only on the localisation quotient cannot measure the response of local economies to the potential demand of tertiary functions. Success in an area can often be measured also through the range of production and service functions offered by the area, as this too represents an expression of its appeal, that can bias and orient the localisation choices of firms.

In order to meet this need for measurement, we used the specialisation index⁸ which measures dissimilarities of LLMA from the national situation, expressed in terms of concentration of employed persons in the various categories of services. In this case we needed a threshold reference value through which to distribute LLMA; thus values higher than the average in the specialisation indices of the 784 LLMA were considered the expression of a higher sectoral concentration, while values lower than the average show lower concentration and therefore greater variety in supply. Combining the specialisation index and the localisation coefficient we obtained a classification of LLMA in four groups (Tables 4-6):

- *weak* LLMA show a specialisation index higher than the average and a localisation coefficient lower than 1. Thus these can be defined as LLMA with high concentration levels and low endowment, so substantially marginal ones;
- *differentiated* LLMA show sectoral specialisation lower than the national average, but territorial specialisation (localisation coefficient) lower than 1, thus favouring supply range rather than intensity;
- *specialised* LLMA show the opposite situation, with a localisation coefficient higher than 1 and a specialisation index higher than the national average. They are therefore endowed with a good amount of employed persons although at the price of a limited range of supply;
- *strong* LLMA, instead are defined by higher than national average localisation coefficients and lower than the national average specialisation index, so they are the highest and most complete segment in terms of tertiary supply.

4.1 The sector of services to production

If we apply this classification to LLMAs, we see that there are very few strong LLMAs: they are only 73 out of a total of 784 (9.3%), even if they employ over 50% of all employed persons (Table 4). Approximately half of all LLMAs (349 LLMAs, or 44.5%) are considered weak, while the remaining ones belong mainly to the group of differentiated ones, that is to say those privileging the range of sectoral specialisation. The geographic position of these areas corresponds to the traditional development areas in Italy: 22 strong LLMAs are in the North-West (15.7%), while 25 (17.9%) are in the North-East. In the Mezzogiorno slightly less than half LLMAs (240 or 44.5%) have sectoral and territorial specialisation lower than the national average, while only 11 LLMAs represent excellent exceptions. Also in the case of services to production we see a confirmation of the traditional differences between North and South, and the latter presents also a tertiary sector based mainly on traditional services (mainly to families) with a limited supply of services to firms. Innovative services (such as information technology) show a particularly wide gap between North and South.

Table 4 - LLMAs by sectoral and territorial specialization (a) in services to production, cluster of LLMAs and geographic area. Year 1996 (absolute values and percent share)

CLUSTERS OF LLMAS GEOGRAPHICAL AREAS	LLMAS					Percent shares of employed persons					
	Weak LLMAs	Differentiated LLMAs	Specialised LLMAs	Strong LLMAs	Total	Weak LLMAs	Differentiated LLMAs	Specialised LLMAs	Strong LLMAs	Total	Total (a.v.)
CLUSTERS OF LLMAS											
Non-specialised LLMAs	199	94	7	11	311	16.9	42.6	2.9	37.6	100.0	338,268
Non-manufacturing LLMAs	52	52	1	8	113	1.3	42.3	0.9	55.5	100.0	982,196
Urban	4	26	1	8	39	0.3	40.8	0.9	57.9	100.0	941,244
Mining and quarrying	2	1			3	6.1	93.9			100.0	1,764
Tourism	46	25			71	24.6	75.4			100.0	39,188
Manufacturing LLMAs	98	193	15	54	360	3.7	33.7	3.0	59.6	100.0	1,040,116
<i>Light manufacturing</i>	<i>79</i>	<i>136</i>	<i>10</i>	<i>41</i>	<i>266</i>	<i>4.8</i>	<i>31.1</i>	<i>3.4</i>	<i>60.8</i>	<i>100.0</i>	<i>683,273</i>
"made in Italy"	66	106	7	33	212	3.9	32.0	4.3	59.9	100.0	497,320
Textiles		5		2	7		24.0		76.0	100.0	27,231
Leather and leather goods	11	22	3	6	42	8.5	27.4	1.0	63.1	100.0	153,837
Eyewear	2	3			5	6.1	93.9			100.0	4,885
<i>Other manufacturing LLMAs</i>	<i>19</i>	<i>57</i>	<i>5</i>	<i>13</i>	<i>94</i>	<i>1.6</i>	<i>38.6</i>	<i>2.4</i>	<i>57.4</i>	<i>100.0</i>	<i>356,843</i>
Building materials	17	41	4	10	72	2.6	48.8	3.8	44.8	100.0	203,832
Transport facilities	1	9	1	2	13	0.1	10.7	0.9	88.4	100.0	125,007
Television apparatus	1	7		1	9	1.0	88.7		10.3	100.0	28,004
GEOGRAPHICAL AREAS											
North-Wst	27	86	5	22	140	1.8	23.3	1.9	73.0	100.0	846,758
North-East	43	68	4	25	140	4.3	32.8	2.2	60.7	100.0	519,448
Centre	39	78	4	15	136	1.8	67.2	1.3	29.7	100.0	483,539
Mezzogiorno	240	107	10	11	368	12.0	42.6	3.2	42.2	100.0	510,835
Italy	349	339	23	73	784	4.6	38.6	2.1	54.8	100.0	2,360,580

Source: Istat, Intermediate census of manufacturing and services 1996

(a) Weak LLMAs: sector specialisation higher than average and territorial specialisation lower than average

Differentiated LLMAs: sector specialisation lower than average and territorial specialisation lower than average

Specialised LLMAs: sector specialisation higher than average and territorial specialisation higher than average

Strong LLMAs: sector specialisation lower than average and territorial specialisation higher than average

This gap is even sharper if we compare relative endowment in terms of employed persons. While in the South "weak" LLMAs are 12.0% of the total, in the North they go from 1.8% in the North-West to 4.3% in the North-East. Furthermore, the gap is wider in "strong" LLMAs: while in the North-West these employ 73.0% of total employed persons, in the Mezzogiorno they employ only 40%.

The distribution of LLMAs by type is more articulated and highlights local situations where the relation

between manufacturing specialisation and services to production is important. In the sub-group of strong LLMA, in some instances this relation is accompanied also to a specialisation in manufacturing in the field of the so-called “made in Italy”. They are 33 LLMA, representing 15.6% of this sub-group and relate to mature productions (e.g. LLMA in Busto Arsizio, Vigevano, Treviso, Carpi, Pesaro, Arezzo and Pordenone). Nearly 60% of employed persons operate in strong LLMA, while another high share is found in LLMA with sectoral specialisation but low territorial specialisation (“differentiated” LLMA); Weak LLMA are only 66 with a low share of employed persons in services to production (3.9%).

Also the clusters of other manufacturing LLMA show a significant concentration of employed persons in strong LLMA, reaching a 57.4% share. Within this sub-group especially high is the endowment of transport facilities that aggregates 88.4% of employed persons in two highly specialised LLMA (Turin and Avellino) .

Another significant concentration is registered in urban LLMA which concentrate about 60% of the total 941,000 employed persons in services to production in 8 highly specialised LLMA. Important cities of the North, such as Milan and Bologna belong to this cluster, as well as some important cities of the South (Naples, Catania and Cagliari).

Overall two important indications emerge:

- the sector of services to production still privileges urban functions and concentration in the tertiary. Beside the productive specialisation of individual LLMA, the LLMA most specialised and endowed in services to production are concentrated in centres already relevant both in size (resident population) and in importance of the tertiary sector;
- an indirect consequence of the above indication is that in general, except for a few instances, there are very few integrated areas, where a relevant manufacturing activity coexists with a good supply of services to production.

4.2 The sector of services to families

This sector is homogeneously distributed among the various types of LLMA and geographic areas. As presented in Table 1, localisation coefficients are always higher than 1, except in a few instances in the North-West, in urban areas and in transport facilities LLMA.

Services to families, with over 2.6 million employed persons, cover over 36% of total market services. As the demand for this type of services is generated locally, their distribution within the various types of LLMA and the four geographic areas reflects the distribution of resident population.

Tablea 5 - LLMAs according to sector and territorial specialisation (a) in services to families, cluster of LLMAs and geographic areas. Year 1996 (absolute values and percent share)

CLUSTERS OF LLMAS GEOGRAPHICAL AREAS	LLMAS					Percent shares of employed persons					
	Weak LLMAs	Differentiated LLMAs	Specialised LLMAs	Strong LLMAs	Total	Weak LLMAs	Differentiated LLMAs	Specialised LLMAs	Strong LLMAs	Total	Total (a.v.)
CLUSTERS OF LLMAS											
Non-specialised LLMAs	1	12	140	158	311	2.1	22.4	23.3	52.2	100.0	508,480
Non-manufacturing LLMAs		21	77	15	113		69.7	17.7	12.6	100.0	974,630
Urban		21	5	13	39		83.8	1.6	14.5	100.0	810,166
Mining and quarrying			3		3			100.0		100.0	4,912
Tourism			69	2	71			96.8	3.2	100.0	159,552
Manufacturing LLMAs	4	53	76	227	360	0.8	46.8	8.5	43.9	100.0	1,188,601
<i>Light manufacturing</i>	<i>1</i>	<i>37</i>	<i>59</i>	<i>169</i>	<i>266</i>	<i>0.1</i>	<i>47.0</i>	<i>8.5</i>	<i>44.5</i>	<i>100.0</i>	<i>798,908</i>
"made in Italy"	1	29	43	139	212	0.2	44.4	7.6	47.8	100.0	582,072
Textiles		2		5	7		64.1		35.9	100.0	27,696
Leather and leather goods		6	12	24	42		55.3	10.0	34.6	100.0	178,664
Eyewear			4	1	5			51.3	48.7	100.0	10,476
<i>Other manufacturing LLMAs</i>	<i>3</i>	<i>16</i>	<i>17</i>	<i>58</i>	<i>94</i>	<i>2.2</i>	<i>46.6</i>	<i>8.6</i>	<i>42.6</i>	<i>100.0</i>	<i>389,693</i>
Building materials	3	13	13	43	72	3.5	41.6	10.8	44.1	100.0	244,682
Transport facilities		3	2	8	13		76.5	1.9	21.6	100.0	104,423
Television apparatus			2	7	9			12.7	87.3	100.0	40,588
GEOGRAPHICAL AREAS											
North-Wst	2	30	34	74	140	0.5	65.6	6.9	27.0	100.0	763,191
North-East		21	59	60	140		43.1	26.0	30.9	100.0	634,201
Centre		13	24	99	136		52.4	4.3	43.3	100.0	581,131
Mezzogiorno	3	22	176	167	368	2.4	39.1	21.6	36.9	100.0	693,188
Italy	5	86	293	400	784	0.8	50.5	14.7	34.0	100.0	2,671,711

Source: Istat, Intermediate census of manufacturing and services 1996

(a) Weak LLMAs: sector specialisation higher than average and territorial specialisation lower than average

Differentiated LLMAs: sector specialisation lower than average and territorial specialisation lower than average

Specialised LLMAs: sector specialisation higher than average and territorial specialisation higher than average

Strong LLMAs: sector specialisation lower than average and territorial specialisation higher than average

It is however possible to classify LLMAs according to the four types of specialisation and to highlight some significant difference (Table 5). First of all there is a quite low number of "weak" LLMAs (only five) which contains a negligible share of employed persons (less than 1%). The highest concentration of employed persons is found in areas with high territorial specialisation (specialised LLMAs) and in strong ones which include 293 and 400 LLMAs respectively. These two types represent the great majority of the 784 LLMAs, but have a lower than 50% share of employed persons. The remaining half of all employed persons is concentrated in the highly sectorally specialised LLMAs (in terms of varied supply) which are significantly present in large cities. Among these are in fact the mainly urban LLMAs located in Milan, Bologna, Rome, Naples and Palermo.

Looking at the other end of the situation (strong LLMAs) we see that they are quite frequent in the Mezzogiorno (167 out of 368) with 37% of all employed persons in the sector. A high concentration of employed persons in strong LLMAs is found in non specialised LLMAs (52.2%).

In general, this group of services does not provide relevant information: this sector in fact has quite modest size and productivity and was recently undergoing restructuring processes. The fact that it is made up mainly of traditional activities, such as retail trade, and that it does not contain activities with growth potential, such as tourism, especially in the Mezzogiorno, makes this sector nearly residual.

4.3 The sector of network services

Typical of this sector is the grouping of the service activities linking economic subjects with an

essentially mixed destination as they are addressed both to the intermediate consumption of firms and to the final consumption of families. Due to these linking functions they play a relevant role that should be kept in mind when analysing results.

Network services employ a nearly 32% share of total employed persons in market services. Once again the more specialised LLMs in this sector are urban and transport facilities LLMs (whose localisation coefficients are 1.11 and 1.03 respectively). As for geographic location, we see specialisations in the North-West and Centre but in the North-East and Mezzogiorno localisation coefficients decrease below 1. The distribution by type of specialisation shows a clear prevalence of weak LLMs (327) concentrated in the Mezzogiorno and in non specialised LLMs (Table 6). The share of employed persons in these LLMs is quite low (less than 5%). The 181 weak LLMs in the Mezzogiorno however employ 13% of all employed persons.

This difference enhances the marginality of these areas that do not have great links to the territory and are therefore less attractive for new investment and localisation of firms.

Table 6 - LLMs by sector and territorial specialisation (a) in network services, cluster of LLMs and geographic area. Year 1996 (absolute values and percent share)

CLUSTERS OF LLMAS GEOGRAPHICAL AREAS	LLMAS					Percent shares of employed persons					Total (a.v.)
	Weak LLMAs	Differentiated LLMAs	Specialised LLMAs	Strong LLMAs	Total	Weak LLMAs	Differentiated LLMAs	Specialised LLMAs	Strong LLMAs	Total	
CLUSTERS OF LLMAS											
Non-specialised LLMAs	181	83	25	22	311	13.0	45.8	5.1	36.1	100.0	348,125
Non-manufacturing LLMAs	51	33	8	21	113	2.0	9.0	5.4	83.6	100.0	991,305
Urban	1	9	8	21	39	0.0	6.2	5.7	88.1	100.0	940,667
Mining and quarrying	2	1			3	9.8	90.2			100.0	2,055
Tourism	48	23			71	39.3	60.7			100.0	48,583
Manufacturing LLMAs	95	193	26	46	360	4.2	54.8	2.9	38.1	100.0	959,118
<i>Light manufacturing</i>	<i>74</i>	<i>155</i>	<i>16</i>	<i>21</i>	<i>266</i>	<i>4.9</i>	<i>65.6</i>	<i>2.4</i>	<i>27.1</i>	<i>100.0</i>	<i>616,963</i>
"made in Italy"	59	124	12	17	212	5.2	75.0	3.0	16.8	100.0	443,501
Textiles	1	6			7	0.7	99.3			100.0	23,243
Leather and leather goods	11	23	4	4	42	3.9	30.9	1.1	64.0	100.0	144,785
Eyewear	3	2			5	22.8	77.2			100.0	5,434
<i>Other manufacturing LLMAs</i>	<i>21</i>	<i>38</i>	<i>10</i>	<i>25</i>	<i>94</i>	<i>2.9</i>	<i>35.4</i>	<i>3.8</i>	<i>57.9</i>	<i>100.0</i>	<i>342,155</i>
Building materials	17	30	10	15	72	3.5	53.3	6.5	36.6	100.0	200,255
Transport facilities	2	4		7	13	1.4	4.6		94.0	100.0	109,894
Television apparatus	2	4		3	9	4.1	28.6		67.2	100.0	32,006
GEOGRAPHICAL AREAS											
North-West	23	85	3	29	140	1.1	32.2	1.7	65.0	100.0	744,894
North-East	41	76	8	15	140	4.6	49.9	5.5	40.0	100.0	490,183
Centre	32	73	17	14	136	2.2	29.0	2.7	66.1	100.0	527,925
Mezzogiorno	231	75	31	31	368	11.7	25.5	8.6	54.2	100.0	535,546
Italy	327	309	59	89	784	4.6	33.7	4.3	57.4	100.0	2,298,548

Source: Istat, Intermediate census of manufacturing and services 1996

(a) Weak LLMAs: sector specialisation higher than average and territorial specialisation lower than average

Differentiated LLMAs: sector specialisation lower than average and territorial specialisation lower than average

Specialised LLMAs: sector specialisation higher than average and territorial specialisation higher than average

Strong LLMAs: sector specialisation lower than average and territorial specialisation higher than average

Table 6 – LLMs by sector and territorial specialisation (a) in network services, cluster of LLMs and geographic area. Year 1996 (absolute values and percent share)

On the other hand, 39% of LLMAs can be defined as differentiated (which means that the articulation by sector is homogenous with the national average, but endowment is lacking). In the 309 LLMAs of this type, we find 33.7% of nationally employed persons, most of which are in the North-West and North-

East. Also in manufacturing LLMA, in particular in the cluster we called “made in Italy”, there is a significant number of these LLMA: 155 LLMA (of which 124 of the “made in Italy” group) employ about two thirds of employed persons. Some important productive districts are included in this group, such as Suzzara, Lumezzane, Carpi, Arezzo, Biella, Fermo and Barletta. The fact that we find similar situations also in services to production suggests that, even in relevant economic-manufacturing districts, at tertiary level the fabric is weak, and this can be seen as a possible obstacle to development when the availability of advanced, transport and financial services is crucial to success for an area.

At the other end, we can classify as strong areas the 89 LLMA which employ 57.4% of employed persons in the sector. They are located mainly in the North-West and the Mezzogiorno (29 and 31 LLMA respectively) and in general in large and medium-sized cities. Among these we find the largest metropolitan areas in the country (Milan, Turin, Venice, Genoa, Rome, Naples, Bari and Palermo) but also smaller cities where transport activities play a relevant role (Ravenna, La Spezia, Livorno, Lamezia Terme, Trapani).

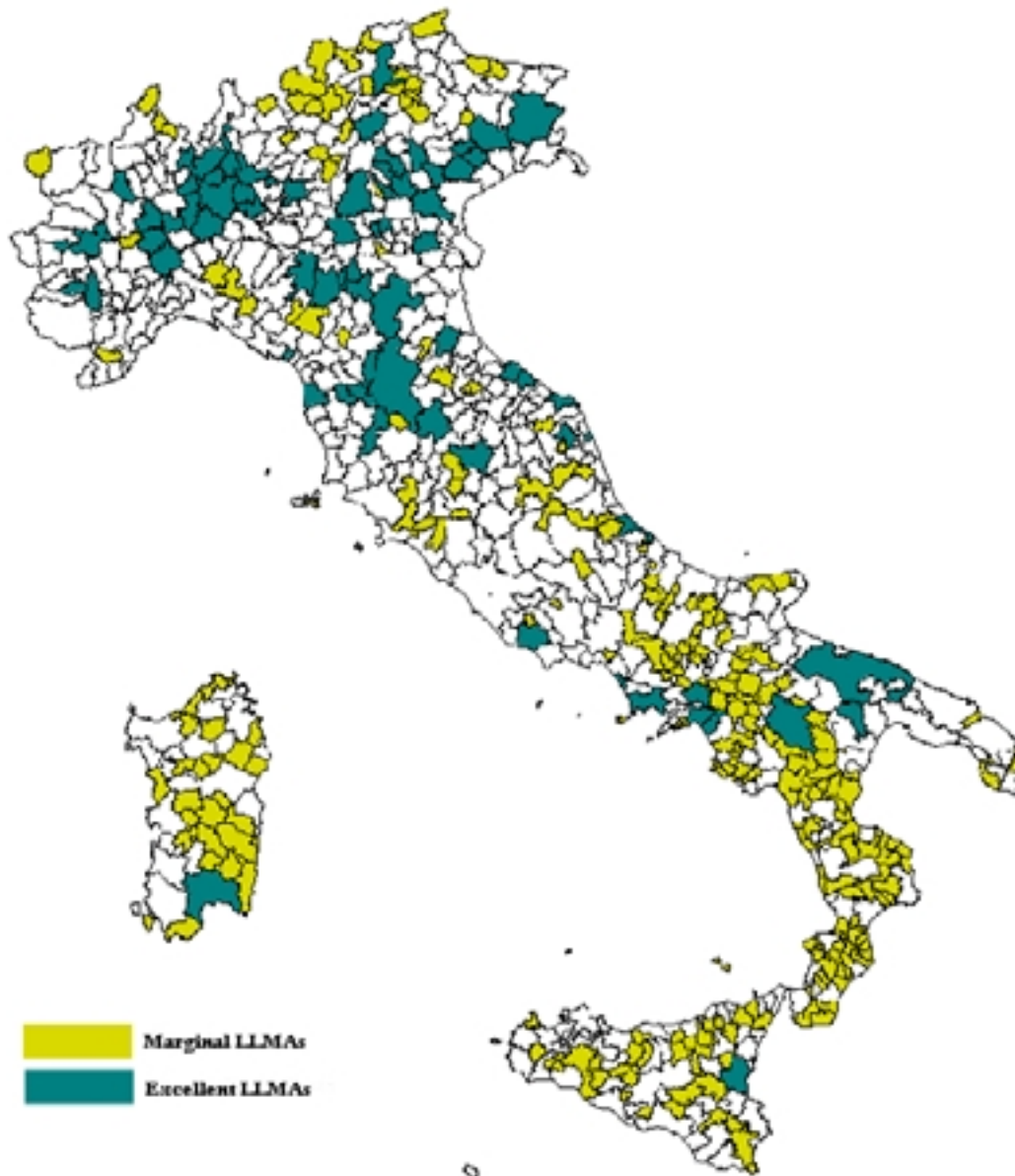
5. Integration of services to production and network services

An important factor for economic success is the availability of an integrated production fabric, coupled with a wide range of services supplied within the area. Even if the provision of some type of services is not necessarily related to their being available on site, it is certain that an integrated and available supply represents an advantage for firms. This is why we tried to analyse the provision of services to production jointly with network services, focusing on those local situations at the extremes (strong and weak areas in one or the other), neglecting services to families, despite their importance, as they are not directly related to production.

The picture we outlined shows a great prevalence of marginal areas in terms of overall services to firms (Figure 1). Nearly one third of LLMA shows low specialisation both at sector and territorial level, both in services to production and network services (Table 7). These areas are mainly located in the Mezzogiorno (nearly 77% of them). But also in the area of small and medium-sized firms in the North-East we notice 26 marginal LLMA (on a total of 140), corresponding to 10.2% of the total.

In terms of type of manufacturing, these LLMA are mainly non specialised, i.e. areas where no specific production factors emerged. These 156 LLMA account for over 60% of the total. Some significant concentrations are found also in tourism LLMA (36 out of 71) and in “made in Italy” ones. The share of the latter ones is quite high: 42 LLMA show a weakness in services and correspond to a 16.5% share of the total of this type of services.

Figure 1 – LLMA by sector and territorial specialisation in services to production and network services (a). Year 1996



Source: Istat, Intermediate census of manufacturing and services 1996

(a) Marginal LLMA: "weak" LLMA in both sectors

Excellent LLMA: "strong" LLMA in both sectors considered

Leaving aside LLMAAs characterised by intermediate combinations of specialisation, and focusing on the conditions of excellence, we see that the total number of LLMAAs in this group is not high (72, or 9.2%), but is characterised by the presence of metropolitan areas and larger cities, which include over 22 million residents, or over 38% of total Italian population in 1999.

Table 7 - LLMAAs by sector and territorial specialisation in services to production and network services (a), cluster of LLMAAs and geographic area. Year 1996 (absolute values and percent share)

CLUSTERS OF LLMAAs GEOGRAPHICAL AREAS	LLMAAs				Percent shares			
	Marginal LLMAAs	Intermediate specialisation levels	Excellent LLMAAs	Total	Marginal LLMAAs	Intermediate specialisation levels	Excellent LLMAAs	Total
CLUSTERS OF LLMAAs								
Non-specialised LLMAAs	156	144	11	311	61.2	31.5	15.3	39.7
Non-manufacturing LLMAAs	39	66	8	113	15.3	14.4	11.1	14.4
Urban	1	30	8	39	0.4	6.6	11.1	5.0
Mining and quarrying	2	1	-	3	0.8	0.2		0.4
Tourism	36	35	-	71	14.1	7.7		9.1
Manufacturing LLMAAs	60	247	53	360	23.5	54.0	73.6	45.9
<i>Light manufacturing</i>	<i>49</i>	<i>177</i>	<i>40</i>	<i>266</i>	<i>19.2</i>	<i>38.7</i>	<i>55.6</i>	<i>33.9</i>
<i>"made in Italy"</i>	42	138	32	212	16.5	30.2	44.4	27.0
Textiles	-	5	2	7		1.1	2.8	0.9
Leather and leather goods	5	31	6	42	2.0	6.8	8.3	5.4
Eyewear	2	3	-	5	0.8	0.7		0.6
<i>Other manufacturing LLMAAs</i>	<i>11</i>	<i>70</i>	<i>13</i>	<i>94</i>	<i>4.3</i>	<i>15.3</i>	<i>18.1</i>	<i>12.0</i>
Building materials	9	53	10	72	3.5	11.6	13.9	9.2
Transport facilities	1	10	2	13	0.4	2.2	2.8	1.7
Television apparatus	1	7	1	9	0.4	1.5	1.4	1.1
GEOGRAPHICAL AREAS								
North-Wst	15	103	22	140	5.9	22.5	30.6	17.9
North-East	26	90	24	140	10.2	19.7	33.3	17.9
Centre	19	102	15	136	7.5	22.3	20.8	17.3
Mezzogiorno	195	162	11	368	76.5	35.4	15.3	46.9
Italy	255	457	72	784	100.0	100.0	100.0	100.0

Source: Istat, Intermediate census of manufacturing and services 1996

(a) Marginal LLMAAs: "weak" LLMAAs in both sectors considered

Excellent LLMAAs: "strong" LLMAAs in both sectors considered

Also other smaller areas can be referred to mature situations, in terms of prevailing production specialisation and availability of integrated services. Among these, the Carpi, Biella, Prato, Santa Croce sull'Arno LLMAAs are worth mentioning.

Two thirds of this type of LLMAAs are located in the North, 20% in the Centre and about 15% in the Mezzogiorno. The latter are only LLMAAs located in towns that are also province capitals. The highest concentration of these LLMAAs is found in the "made in Italy" cluster (44.4%), in building materials (13.9%) and urban LLMAAs (11.1%).

6. Strengthening and weakening dynamics

The process that led to the situation we described is the outcome of many causes, among which a relevant role was played by the territory, as we shall see in depth later. Between the 1981 census and the intermediate 1996 census of manufacturing and services the importance of market services in the Italian economy increased from 6.3 million employed persons in 1981 to over 7.3 million employed persons in 1996, which corresponds to an increase of one million employed persons or 13.4%.

This sharp increase was not uniform over the various types of LLMAAs described nor among the geographic areas. In particular, the share of non specialised and non manufacturing LLMAAs on the overall employment in market services declined, with the sharpest decrease in urban LLMAAs (Table 8). All the other LLMAAs showed an increase, although in different degrees. The ones that increased most are the so-called “made in Italy” LLMAAs, with a 1.2 percentage points increase.

In geographical terms, the Mezzogiorno shows a 1.6 percentage point decrease, while Northern regions show a marked increase and Central areas a modest increase. It should be stressed, however, that all LLMAAs and geographic areas show an increase in employed persons in absolute terms, but the increases are varied and introduced changes in the national distribution of this sector.

In order to better identify the changes in the composition by clusters and geographic areas of total employed persons in market services, we applied a shift-share analysis⁹ and broke it down into two components: that due to the changes in employment from one sector to another, related to the trend in the composition of supply (between effect) and that deriving from the changes in the geographic mix within each sector, as a result of agglomeration economies and competitive ability of LLMAAs (within effect). In the whole period examined, the overall structure did not change, in particular as concerns the classification of LLMAAs’ types. If we consider the changes, however, the share of the two effects was different and provides interesting clues to the understanding of their dynamics.

Table 8 - Shift-share Analysis by group of LLMA and geographic areas. Changes 1981-96 (a)
(percent shares and decomposition of changes)

CLUSTERS OF LLMA GEOGRAPHICAL AREAS	Percent shares of employed persons in market services by group				Breakdown of change		
	1981	1991	1996	1981-96 change	Structural component (between)	Territorial component (within)	Total
CLUSTERS OF LLMA							
Non-specialised LLMA	17.2	17.0	16.3	-0.9	-0.751	-0.101	-0.852
Non-manufacturing LLMA	41.4	40.0	40.2	-1.2	0.823	-1.991	-1.168
Urban	37.8	36.7	36.7	-1.1	1.005	-2.084	-1.080
Mining and quarrying	0.1	0.1	0.1	0.0	-0.016	-0.009	-0.024
Tourism	3.4	3.1	3.4	-0.1	-0.166	0.102	-0.064
Manufacturing LLMA	41.5	43.0	43.5	2.0	-0.072	2.092	2.021
<i>Light manufacturing</i>	<i>26.7</i>	<i>28.0</i>	<i>28.4</i>	<i>1.6</i>	<i>-0.146</i>	<i>1.760</i>	<i>1.614</i>
"made in Italy"	19.5	20.5	20.8	1.2	-0.142	1.385	1.243
Textiles	1.0	1.0	1.1	0.1	0.023	0.045	0.068
Leather and leather goods	6.2	6.4	6.5	0.3	-0.027	0.329	0.303
Eyewear	0.3	0.3	0.3	0.0	-0.009	0.031	0.022
<i>Other manufacturing LLMA</i>	<i>14.7</i>	<i>15.1</i>	<i>15.1</i>	<i>0.4</i>	<i>0.075</i>	<i>0.332</i>	<i>0.407</i>
Building materials	8.6	8.8	8.8	0.3	-0.053	0.310	0.257
Transport facilities	4.6	4.6	4.6	0.1	0.206	-0.153	0.053
Television apparatus	1.3	1.4	1.4	0.1	-0.069	0.144	0.075
GEOGRAPHICAL AREAS							
North-West	31.5	31.3	32.1	0.6	1.125	-0.518	0.607
North-East	21.7	21.6	22.4	0.7	0.068	0.668	0.735
Centre	21.4	21.8	21.7	0.3	-0.015	0.313	0.299
Mezzogiorno	25.4	25.3	23.7	-1.6	-1.178	-0.463	-1.641
Italy	100.0	100.0	100.0	-	-	-	-

Source: Istat, Intermediate census of manufacturing and services 1996; Census of firms, institutions and local units of 1981 and 1991

(a) The comparison is made on homogeneous observation fields

We can say, in general, that the structural component played a negative effect, except for some specific cases. Increase in employment is to be attributed almost entirely to the within component, i.e. the localisation choices of firms as a consequence of increased demand from LLMA. In particular three trends emerge:

- in urban LLMA, a decrease in importance was registered (-1.1), the between component played a positive role on this change, but was offset by the within component. In other words this means that urban centres are progressively losing appeal in firms' localisation choices;
- the dynamics of manufacturing LLMA, in particular "made in Italy", is completely opposed. In these cases, in fact, the structural component (between effect) played a limited role, while the geographical one was quite relevant (over two percentage points). This trend was shared by all manufacturing LLMA, but was sharper in the "made in Italy" LLMA (1.4);
- an analysis by geographic areas, despite being too aggregated, shows complex dynamics. In the North-West the structural component is positive, while the geographical one is negative, as explained in the case of urban LLMA; in the North East the within component was the most important; in the

Centre the between effect was negative, but low, while the geographical component had a positive effect; in the Mezzogiorno there was an overall negative effect attributable for two thirds to the structural component and for one third to the geographical one.

Summarising, we can say that the localisation dynamics of market services tend to favour the typical district LLMA with a prevalence of small and medium-sized firms, with a change from the traditional trend privileging urban areas. An explanation of this phenomenon can be found in a new and growing demand for services from manufacturing firms and in the existence of agglomeration diseconomies, even congestion, that presses to change the localisation of service activities. Torn between these two dynamics the Mezzogiorno does not seem able to cope with competition, due to a still very traditional structural set-up and to a weak demand from firms.

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¹ LLMAAs were identified through a methodology jointly developed by Istat, Irpet, University of Newcastle and University of Leeds, which aggregated the 8,100 Italian municipalities based on the data of daily population movements for work purposes (commuting) collected in the 1991 general population census applying a flow "self-containment" algorithm. As LLMAAs are identified independent from administrative boundaries of a level higher than municipalities, in a few instances municipalities forming an LLMA belong to different regions. For the present purposes, these LLMAAs were attributed to one region according to the region of the centroid municipality and to the region of prevalence (in terms of inhabitants and number of municipalities).

² See Chapter 4 of Istat's 1999 Annual Report (200).

³ The 1996 intermediate census concerned firms operating in manufacturing (sections C-F of Ateco91 classification) and services (sections G-K and O), as well as profit organisations, such as co-operatives,

consortia, professionals and autonomous workers at December 31, 1996. Data were not collected from firms operating in agriculture (sections A-B), health (Section M) and education (section N), as well as non profit organisations. Local economic units outside the fields mentioned were included if they belonged to a larger firm operating in the surveyed field (e.g. local agricultural or health units belonging to manufacturing, trading or other service firms surveyed). Data concerning the latter ones are neither included in tables nor commented in the present text. The analysis of services thus focused only on market services, since the intermediate census excluded collective services from its field. For the Ateco classification see Istat, *Classificazione delle attività economiche*, Metodi e norme, Serie C, n. 11, Rome, 1991;

⁴ Our tables and comments focus on “local units” and “persons employed in local units” although we adopted the size classes suggested by the European Commission and included in Italian laws: “micro-firms” (1-9 employed persons), “small firms” (10-49 employed persons), “medium firms” (50-249 employed persons), “large firms” (over 249 employed persons). In some cases large firms are those with 250-449 employed firms and very large firms those with over 500 employed persons.

⁵ The technique adopted here was a mixed cluster analysis that combines hierarchical and non hierarchical techniques and represents the optimal solution in the case of matrices with a high number of units. In order to obtain homogeneous and well characterised clusters we repeated the procedure (a sequence of correspondence and cluster analysis), in turn eliminating already classified highly specialised LLMA, trying to highlight the features of less specialised ones. Some LLMA in fact have such a specific production specialisation (e.g. mining and quarrying or vehicle construction or the cluster of large cities) that they do not show the specialisation of other LLMA when classification is performed in one step only.

⁶ The classification adopted here satisfies different and wider requirements than the one used in preceding Annual Reports that led to the identification of 199 “industrial districts”. These are defined as systems where specialisation coefficients of manufacturing units and local units up to 249 employed persons where higher than 1 in 1991. The groups identified through cluster analysis, instead, reflect the prevailing sectoral characterisations.

⁷ A localisation coefficient is the ratio of the share of employed persons in each sector of that specific area and the corresponding share at national level. Values higher than 1 thus indicate a specialisation higher than the national average, while values between 0 and 1 show a specialisation lower than the national average.

⁸ The specialisation index is defined by the following formula:

$$S_i = \frac{1}{2} \sum_h \left| \frac{A_{ih}}{A_{i0}} - \frac{A_{0h}}{A_{00}} \right|$$

which represents the dissimilarity measure. In this case A_{ih} are the employed persons in the i th LLMA and the h th activity sector. The index is equal to 0 when the area shows a composition identical to that of the whole country and higher values, tending to 1, the more the phenomenon is concentrated in one sector.

⁹ The shift-share analysis type we adopted allowed to break down the change in the composition of

employed persons into two components that take into account a) the effect of a higher or lower presence of the fastest changing sectors of Italian economy in clusters of LLMA's or geographic areas in 1981 (structural component or between effects); b) the residual effect to be attributed to the higher or lower presence of localisation or competitiveness factors clusters of LLMA's or geographic areas (regional component or within effect).