

Business groups in industrial districts

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1. Introduction

One of the main peculiarities of the Italian industrial system is the presence of small and medium firms (SMEs) located in industrial districts (Brusco, 1982; Becattini, 1989 e 1998). Within these local systems, firms can benefit from several competitive advantages linked to the so-called “external economies” of agglomeration, which are based on the transfer of ideas, information and knowledge between firms belonging to local systems (the so-called spillover of knowledge), on the presence of a network of specialized suppliers and on local labour markets which tend to promote the matching processes between demand and local supply.

Since the second half of the years '90, this debate has overlapped the importance of business groups not only among large (listed and non-traded) companies, but also among small and medium-sized enterprises (SMEs). Studies carried out by the Banca d'Italia (Barca *et al.*, 1994), by the Central Mediocredito (Barbetta *et al.*, 1996) and by other researchers (Balloni e Iacobucci, 1997; Iacobucci, 2004; Iacobucci e Rose, 2011) have in fact highlighted the propensity of Italian SMEs to aggregate in the group form and this to handle with both the changes in competitive arrangements, especially at international level, and strategies connected with the expansion of the corporate size (Cainelli e Iacobucci, 2007a e 2007b; Cainelli e Iacobucci, 2011).

The interaction between the research strand on industrial districts (e.g. Brusco, 1982; Becattini, 1989 e 1998; Dei Ottati, 1996; Whitford, 2001; Cainelli, 2008) and that on business groups (Barca *et al.*, 1994; Barbetta *et al.*, 1996; Balloni e Iacobucci, 1997) led to analyse the presence of business groups in district contexts, thus identifying a new type of group called *district group* (Bianchi *et al.*, 1999; Brioschi e Cainelli, 2001; Brioschi *et al.*, 2002 e 2004; Cainelli *et al.*, 2006; Cainelli e Iacobucci, 2007).

The latter has been defined as an organizational structure consisting of a set of companies (legal) with registered offices in the district area and operating in one of the different stages of the district's production chain (Cainelli e Iacobucci, 2005).

The reflection on this new type of group – that is the district groups – was born from the work of Francesco Brioschi on the nature and the changes in local Italian capitalism. In these works, it is observed how district environments can influence the presence of business groups both in terms of their diffusion within these local systems and in terms of their specific organizational characteristics. With regard to the first aspect, the works of Brioschi and others who followed this analysis approach showed that the business groups are more widespread in industrial districts than in no district areas (Bianchi *et al.*, 1999; Brioschi *et al.*, 2002 e 2004; Cainelli e Iacobucci, 2005; Cainelli *et al.*, 2006). This evidence is explained on the basis of the assumption that for companies located in an industrial district it is easier and more convenient to proceed to the acquisition of other companies belonging to the same local system. The spatial proximity would tend to encourage the sharing of information about the characteristics of companies and thereby reduce the costs of their acquisition. In relation to the second aspect, Brioschi's works have always shown that groups located in districts have “specific” organizational characteristics compared to no district groups. District groups would be characterized by a lower productive diversification: firms belonging to a district group may tend to operate in the same production chain. Also, the district groups would seem to be connoted for a greater spatial concentration: the head of the group is generally located in the same local system.

Specifically, this research stream of literature shows how district groups are characterized by an increased production specialization and a greater spatial concentration than no district ones.

The analysis on district groups played a significant role also in the interpretations related to the evolution of the Italian industrial districts. In particular, in relation to the consequences that the diffusion of the groups in the districts had on the governance and agglomeration economies in local Italian systems (Whitford, 2001; Cainelli *et al.*, 2005). The diffusion of business groups within Italian industrial districts may have produced an effect both of hierarchization of these productive structures and of the productive concentration of these local systems. In other words, the spread of district groups would represent both an element that changed the traditional characteristics of the Italian industrial districts, increasing the degree of hierarchization and modifying the agglomeration structures, and an element of continuity in terms of growth and development of companies located within these productive structures (Brioschi *et al.*, 2002).

The main aim of this paper is to put itself in this perspective of analysis focusing on two aspects of these phenomena. The first refers to the problem of the spread of business groups: that is, it is intended to verify whether the weight of district groups has been increasing over the last decade,

either as a result of mechanisms operating within industrial districts, or as a result of the financial crisis. The second aspect refers to the characteristics of district groups: that is, it is intended to check (i) whether district groups are less diversified than no district groups and (ii) whether the groups whose head is located in a district area are more geographically concentrated.

These analyses are carried out using a new dataset on Italian business groups obtained on the basis of the information of the Bureau Van Dijk AIDA database.

The structure of the paper is as follows. Section 2 presents the literature background on business groups and the industrial districts. Section 3 shows the sample used and the methodology adopted. The main empirical results are presented and discussed in section 4. Section 5 concludes the work.

2. Literature background and research hypotheses

The presence of district groups is a consequence of the growth of firms belonging to industrial districts in order to respond to changes in international markets, where high competition had negative repercussions on the chances of success of smaller companies (Brioschi et al., 2002). This development takes the form of the establishment and acquisition of new companies. The district group is defined as an organizational structure "made up of a set of (legal) companies with registered offices in the district area and operating in one of the different stages of the district's production chain" (Cainelli & Iacobucci, 2005). It would present some differences with respect to business groups located outside industrial districts. In fact, the district group would show a greater degree of specialization and a greater spatial concentration. However, they are further aspects to be explored, in particular the spatial concentration that is very high for both types of group (Cainelli & Iacobucci, 2005). The ability with which firms belonging to industrial districts adapt to market changes and exchange information seems to have a greater influence on their degree of specialization than their degree of spatial concentration. Some previous works have shown that groups are more widespread in the district areas than in no district areas (among others Brioschi et al., 2002; Cainelli & Iacobucci, 2005). This evidence is explained by the hypothesis that it is simpler and more convenient for firms in a district to acquire other companies belonging to the same district: spatial proximity may favour both the sharing of information and the reduction of acquisition costs. At the same time, the growth and the development of new groups within districts would change their key characteristics such as the governance structure and the external agglomeration economies (Whitford, 2001; Cainelli et al., 2005). More generally, the diffusion of district groups represents both an element that modifies traditional characteristics of the industrial district and an element of continuity in terms of growth and development of firms located within industrial districts (Brioschi et al., 2002).

The weight of business groups (in terms of number of companies and employees) has increased during the recession in the overall economy in Italy.

However, in the case of groups located in industrial districts this could not be the case for several reasons: (i) there can be a substitution effect (rather than a complementary effect) between the two forms of networking and (ii) groups within industrial districts are expected to show specific features (diversification, hierarchical structure, etc) that may reduce their ability to face external shocks

Given these premises, the empirical analysis of this paper proposes to verify the following hypotheses.

The weight of business groups within industrial districts as compared with non-district areas depends on whether these two networking forms are substitute or complementary.

These effects can be analysed in a static way (comparing the weight in district and non district areas in a specific period) or in a dynamic way (comparing the evolution of the weights during a period).

The second set of hypotheses refers to the characteristics of district groups compared to non district groups. In particular, we expect that:

H_{2a}: district groups are less diversified than non district groups;

H_{2b}: business groups with their head located in an industrial are expected to be more spatially concentrated than business groups with the head located outside industrial districts.

H_{2c}: district groups are expected to be more hierarchized in terms of employees than non district groups and hybrid groups.

3. Data and methodology

3.1 Data

We use a novel database of Italian business groups developed by using ownership information of companies provided by the AIDA database of BureauVan Dijk. Using this information, it was possible to rebuild the map of Italian business groups for the year 2015. From the AIDA database, we have also available economic and financial data of these companies belonging to and not belonging to a group for the years 2008-2015. Specifically, the final database considers a subsample of Italian business groups composed by at least one manufacturing firm¹ and by firms with available

¹ Based on NACE Rev. 2 classification.

information on revenues and employees². Consequently, we excluded foreign firms belonging to business groups and Italian firms with missing values on revenues and/or employees. We also excluded from the final dataset those companies which in the AIDA database under the heading "Type of enterprise" are referred to as "families or group of people" rather than "enterprises". Groups with the head as "families or group of people" have been maintained, therefore taking into account that in the final dataset there are groups where the head no longer appears but only its manufacturing controlled firms.

One feature of the database is that it allows us to know whether a firm belongs at the same time to a group and an industrial district, useful information to know the presence or not of so-called district groups. Our empirical analyses at firm level are based on manufacturing firms since the relevance of manufacturing firms in industrial districts. However, empirical analyses at group level take into account the specific characteristics of each group using the information not only of manufacturing firms but also of other non manufacturing controlled firms.

To identify the industrial districts we use the information on local Labour systems (LLS) defined by ISTAT using the flows on the daily shifts home/work – the so-called commuting – detected during the censuses of the population. For the 2011 ISTAT has identified 611 LLS. Among these ISTAT has identified 141 industrial districts. For our aim we refer to information on LLS and industrial districts at 2001.

The dataset is composed by about 18,338 manufacturing groups³ with approximately 21,000 affiliated firms in manufacturing sectors. Table 1 shows the sample used in our analysis, distinguishing whether a firm belongs to a group and/or an industrial district.

The most relevant sector in business groups remains the manufacturing sector. In fact, about 61% of business groups considered are composed by only manufacturing firms. About 74% of groups have a share higher than 50% of firms in manufacturing sectors.

Table 2 shows some data at the group level. For district groups we intend when all firms belonging to a group are also located within an industrial district. On the contrary, non district groups mean groups in which no firm in that group belongs to a district. For hybrid groups we mean a group in which some companies are located outside the district, while others are located inside.

It is interesting to note that when the head of the group is located within a district, in about 60% of cases the latter is the head of district groups.

² Specifically, information on revenues and employees in 2008 and 2015.

³ Business groups with at least one manufacturing firm.

Since 2008, the year of the Great Recession, the weight of district groups in Italy has increased, as shown in Table 3. In particular, the weight of district groups has been increased more than non district groups, whose weight has remained stable.

3.2 Methodology

To examine the weight of manufacturing business groups in industrial districts, we estimate the following equation:

$$Y_i = \beta_0 + \beta_1 \text{ district} + X\gamma + v$$

Where Y is the weight of business groups on the LLS based on employees in 2008 and 2015. Given that the dependent variable is bounded between 0 and 1, we use a logistic transformation⁴.

As explanatory variable, we use the dummy district, that takes value 1 if a firm is localized within the district; otherwise it is equal to 0.

X represents the vector of the controls and v the error term.

As control variables, we take into account different characteristics of manufacturing firms and industrial districts. Specifically, we control for regional dummies (North-East, North-West, Centre and South of Italy), firms' size in SLL (log of square of revenues in 2008), types of district (classified as mechanic, fashion and other) and urban district (districts with a population higher than 499,000).

To examine the impact that the presence of district groups exerts on the degree of production diversification of business group we estimate the following equations:

$$a) Y_i = F(\text{district group}, X_i)$$

$$b) Y_i = F(\text{hybrid}, X_i)$$

Where Y is the dependent variable that measures:

- total diversification (E4);
- unrelated diversification (E2);

⁴ A logistic transformation is: $\ln(Y/(1-Y))$, where Y is the variable logistically transformed.

To measure diversification at group level, we use the Entropy⁵ index based on the economic activity identified by the NACE codes.⁶

The index calculated at 4 digit NACE is a measure of overall diversification. This index is then decomposed into two components: (i) the first is related diversification (EW2), and (ii) the second is unrelated diversification (E2).

As an explanatory variable, as first (a) we used the variable "district group" that define whether a group is a district group (1) and not district (0). As second (b), we used the variable "hybrid" that define whether a group is a hybrid group (1) and a district group (0). X represents the vector of the controls and v the error term.

X represents the vector of the controls and v the error term. As control variables we use the group size in terms of revenues in 2015 (group's size variable), urban LLS₂₀₁₁, LLS₂₀₁₁ size (log of population in LLS₂₀₁₁), types of industrial districts (i.e. mechanic, fashion and others), industry dummies based on the main sector of the group (given by the highest share of employees in a specific sector, based on 2 digit Nace) and regional dummies (North-East, North-West, Centre and South of Italy), given by the localization of the head. It is useful to note that the estimates of this equation, as well as the others presented in this work, have no intention of identifying causal relationships between the variables being analysed.

To empirically analyse the spatial concentration of groups which have their head localized within an industrial district with respect to those groups with their head localized outside, we estimate the following equation:

$$Y_i = \beta_0 + \beta_1 \text{head_district} + X\gamma + v$$

Where Y is a measure of spatial concentration of business groups. This is measured using the Herfindahl-Hirschman⁷ (H) index referring to LLS. It measures for each group the concentration in terms of employees at the LLS level.

Given that the H index is bounded between 0 and 1, in the estimates we use the logistic transformation: $H_ln = \ln \frac{H}{1-H}$.

As an explanatory variable, the dummy "head_district" has been used, which defines whether a group has the head located within a district (1) or outside it (0). X represents the vector of the

⁵ $E4 = \sum_{i=1}^n q_i \ln_2 \frac{1}{q_i}$; where q_i is the share of revenues i on the total revenues of each group; $E4 = \sum_{j=1}^S \sum_S q_j (EW2) + E2$, where q_j is the share of revenues j in each group with the same 2 digit NACE.

⁶NACE Rev.2 is the statistical classification of economic activities in European countries.

⁷ $H = \sum_{i=1}^n (q_i)^2$

controls and v the error term. As control variables we use the group size in terms of revenues in 2015 (group's size variable), urban LLS_{2011} , LLS_{2011} size (log of population in LLS_{2011}), types of industrial districts (i.e. mechanic, fashion and others), industry dummies based on the main sector of the group (given by the highest share of employees in a specific sector, based on 2 digit Nace) and regional dummies (North-East, North-West, Centre and South of Italy), given by the localization of the head. This estimate tests the hypothesis that the localization of the head of the group in a district favours the spatial concentration of the other firms belonging to the same group.

As a further analysis, we analyze how district groups are "hierarchized" in terms of employees' concentrations with respect to non district groups and hybrid groups. For this reason, the share of employees concentrated in the head (variable called "head_employees") in 2015 was calculated for each group. We estimate the following equations:

$$a) Y_i = \beta_0 + \beta_1 \text{ district group} + X\gamma + v$$

$$b) Y_i = \beta_0 + \beta_1 \text{ hybrid} + X\gamma + v$$

Where Y is the dependent variable that measures the share of head employees for each group. This variable was calculated as the relationship between the employees of the head in 2015 and the total number of employees of the group. As an explanatory variable, as first (a) we used the variable "district group" that define whether a group is a district group (1) and non district (0). As second (b), we used the variable "hybrid" that define whether a group is a hybrid group (1) and a district group (0). X represents the vector of the controls and v the error term. As control variables we use the group size in terms of revenues in 2015 (group's size variable), urban LLS_{2011} , LLS_{2011} size (log of population in LLS_{2011}), types of industrial districts (i.e. mechanic, fashion and others), industry dummies based on the main sector of the group (given by the highest share of employees in a specific sector, based on 2 digit Nace) and regional dummies (North-East, North-West, Centre and South of Italy), given by the localization of the head.

4. Empirical results

4.1 The presence of business groups in industrial districts

Table 3 refers to the evolution of the weight of district and non district groups between 2008 and 2015. The period considered is interesting since it is characterised by the international financial crisis started from 2008 and by a subsequent domestic crisis, whose effects are still evident.

The descriptive analysis shows that in general the weight of the groups is increased but the substantial growth is relative to that of district groups compared to non district groups, although their weight is higher in absolute terms.

In the case of the presence of manufacturing groups in industrial districts (Table 4), we note that during the period of the crisis, there is a substitution effect between the presence of industrial districts and the presence of business groups. The weight of groups is lower in the presence of an industrial district. The analysis refers both at the beginning of the period, i.e. 2008, and at 2015. The negative relation between the presence of business groups and industrial districts exists in both cases.

4.2 Characteristics of district groups

Table 5 shows the analysis of the degree of diversification of district groups compared to non district groups and to hybrid groups. In the empirical analysis first, we refer to the total diversification of the group (E4), then to unrelated diversification (E2).

The analyses confirm the idea that district groups are less diversified and therefore more specialized at the productive level than non district groups. This result is confirmed for total and unrelated diversification. In fact, the Entropy indicators (i.e. E4 and E2) show a statistically significant and negative relationship with the variable “district group”.

In Table 6 still confirms the increased concentration of district groups. In fact, even when comparing district groups with hybrid groups, the degree of diversification is lower for district groups than groups that have some companies within the district and others outside.

Table 7 shows the spatial concentration analysis for the three different types of groups examined: district, non district and hybrid groups. The dependent variable is the concentration index

of Herfindahl-Hirschman, calculated on the share of the employees by LLS and subject to a logistic transformation.

Empirical analysis highlights a higher spatial concentration for groups with the head localized within an industrial district than groups which have their head localized outside an industrial district.

Finally, Tables 8 and 9 show the analysis of the degree of hierarchisation in the three types of group considered. The highest level of hierarchization is found in district groups that appear to be characterized by a greater share of employees in the head, unlike non district and hybrid groups in which there is a greater spread of employees among controlled firms.

5. Conclusions

The main aim of this paper is to provide not only an updated map of business groups in Italy in the period following the Great Recession of 2008, but also to offer a framework on the main characteristics of district groups than those located in not district areas. This analysis has exploited a new database of business groups that allows us to know whether or not a group belongs to an industrial district: in other words, it allows to locate the district groups.

The analysis carried out in this work shows that the weight of district groups, in terms of employees, increased in the period between 2008 and 2015. Conversely, the weight of no district groups remained substantially unchanged. Even though district groups have showed a better dynamic during the period considered, the weight of no district ones still remains predominant. This result applies to both the 2008 and the 2015. However, in both cases, groups with small and tiny firms prevail. In the case of the presence of manufacturing groups in industrial districts during the period of the crisis, there is a substitution effect between the presence of industrial districts and the presence of business groups.

As we expected and as suggested by previous studies on this subject, district groups are less diversified from a productive point of view than no district and hybrid groups. This is because firms belonging to district groups tend to operate in the same production chain. The spatial concentration is also greater for district groups, since their firms are located in the same geographic area, thus exploiting all the advantages related to spatial proximity.

Another feature studied is the level of hierarchization of district, no district and hybrid groups. The basic idea is that in the district groups there is a greater concentration of employees at the head level unlike the other two cases. Our empirical results confirm this trend. With the financial crisis the

increase in the weight of the groups and, in particular, of the district groups has strengthened the idea that the spatial agglomeration between firms represents an advantage during periods of turbulence.

It is also true that in comparison with no district and hybrid groups which can benefit from a more diversified macroeconomic environment with greater likelihood of growth and development, district groups may encounter more difficulties in the case of shock sector-specific. These organizational structures are in fact characterized by a less diversification in the portfolio of their productive activities. However, the increase in the weight of district groups during the years of the Great Recession would seem to confirm the idea that firms belonging to the same LLS had greater incentives to join in the form of group rather than remain isolated. In other words, the agglomeration benefits seem to have had, at least during the Great Recession, a greater weight than the risks associated with less productive diversification.

At this stage, this work presents some limitations. The dynamics of business groups is examined in relative terms (i.e. as opposed to standalone companies in their respective SLL).

At present we are not able to examine the relations between the features of business group (as influenced by their local context) and their ability to absorb and react to external shocks.

Regarding further developments, we are extending the analysis to the population of business group (and not the manufacturing ones).

We are going to make a more meaningful analysis of the dynamics of business groups by comparing the absolute and relative performance during the period.

We are going to find ways to provide a better link between the characteristics of business groups (and their location) and their performance during the financial crisis.

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Tables

Table 1. Number of manufacturing firms belonging to business groups and to industrial districts (2015)

group	Industrial district		Total
	no	yes	
no	37.7%	39.5%	13,323
yes	62.3 %	60.5%	21,766
Total	30,755	4,334	35,089

Table 2 – Types of manufacturing business groups in industrial districts

	N.	% sul tot. gruppi
Non District groups	15,602	85.1
District groups	1,053	5.7
Hybrid groups	1,683	9.2
Total groups	18,338	100.0

Table 3. Share of district groups and not by employees in manufacturing sectors (2008 e 2015)

	District groups %	Non District groups %
2008	12.0	61.3
2015	13.5	61.7

Table 4. Weight of business groups in SLL (2008 e 2015)

Dep. Variable:	Weight of business groups in SLL 2008 [OLS]	Weight of business groups in SLL 2008 [OLS]	Weight of business groups in SLL 2015 [OLS]	Weight of business groups in SLL 2015 [OLS]
District ₂₀₀₁	-0.505** [0.199]	-	-0.491** [0.179]	-
Urban SLL ₂₀₀₁	0.019 [0.327]	0.035 [0.325]	-0.038 [0.288]	0.008 [0.288]
SLL size ₂₀₀₁	-0.293** [0.125]	-0.292** [0.125]	-0.180 [0.110]	-0.195** [0.288]
Firms' size SLL ₂₀₀₁	0.174** [0.143]	0.175** [0.073]	0.096 [0.067]	0.098 [0.068]
Mechanic district ₂₀₀₁	-	-0.906*** [0.266]	-	-0.765** [0.287]
Fashion district ₂₀₀₁	-	-0.552** [0.246]	-	-0.330 [0.216]
Other districts ₂₀₀₁	-	-0.225 [0.264]	-	-0.534** [0.254]
Regional dummies	YES	YES	YES	YES
R ²	0.039	0.051	0.022	0.027
Mean Vif.	1.61	1.53	1.65	1.55
N. Obs.	469	469	547	547

*** significant at 99%; ** significant at 95%; * significant at 90%; standard errors are clustered.

Source: our elaborations from the AIDA database

Table 5. Degree of diversification in district groups (1) compared to non district groups (0)

Dep. Variable:	E4 [Tobit]	E2 [Tobit]	E4 [Tobit]	E2 [Tobit]
District group [0,1]	-0.198*** [0.058]	-0.246*** [0.059]	-0.484** [0.159]	-0.439** [0.156]
Group's size ₂₀₁₅	0.269*** [0.007]	0.241*** [0.007]	0.269*** [0.007]	0.241*** [0.007]
Urban SLL ₂₀₁₁	0.086* [0.049]	0.057 [0.048]	0.085* [0.049]	0.055 [0.048]
SLL size ₂₀₁₁	0.007** [0.003]	0.011*** [0.003]	0.006** [0.003]	0.010*** [0.003]
Mechanic district ₂₀₁₁	-	-	0.689*** [0.180]	0.582*** [0.179]
Fashion district ₂₀₁₁	-	-	0.125 [0.180]	0.007 [0.179]
Other districts ₂₀₁₁	-	-	0.004 [0.217]	-0.091 [0.219]
Industry dummies	YES	YES	YES	YES
Regional dummies	YES	YES	YES	YES
R ²	0.076	0.069	0.077	0.071
Mean Vif	1.66	1.66	2.29	2.29
N. Obs.	16,655	16,655	16,655	16,655

*** significant at 99%; ** significant at 95%; * significant at 90%; standard errors are clustered.
Source: our elaborations from the AIDA database

Table 6. Degree of diversification in district groups (0) compared to hybrid groups (1)

Dep. Variable:	E4 [Tobit]	E2 [Tobit]	E4 [Tobit]	E2 [Tobit]
Hybrid group [0,1]	0.463*** [0.063]	0.474*** [0.063]	0.404*** [0.062]	0.411*** [0.062]
Group's size ₂₀₁₅	0.294*** [0.017]	0.258*** [0.016]	0.280*** [0.017]	0.242*** [0.016]
Urban SLL ₂₀₁₁	0.378*** [0.087]	0.351*** [0.086]	0.210** [0.086]	0.176** [0.084]
SLL size ₂₀₁₁	-0.029*** [0.005]	-0.023*** [0.005]	0.002 [0.007]	0.010 [0.006]
Mechanic district ₂₀₁₁	-	-	-0.390*** [0.084]	-0.429*** [0.082]
Fashion district ₂₀₁₁	-	-	-0.609*** [0.087]	-0.647*** [0.085]
Other districts ₂₀₁₁	-	-	-0.584*** [0.100]	-0.581*** [0.085]
Industry dummies	YES	YES	YES	YES
Regional dummies	YES	YES	YES	YES
R ²	0.154	0.142	0.166	0.157
Mean Vif	1.86	1.86	2.11	2.11
N. Obs.	2,736	2,736	2,736	2,736

*** significant at 99%; ** significant at 95%; * significant at 90%; standard errors are clustered.
Source: our elaborations from the AIDA database

Table 7. Spatial concentration of groups with head localized in an industrial district (1) compared to groups with head not localized in an industrial district (0)

Dep. Variable:	H_log [OLS]	H_log [OLS]
Head_district [0,1]	0.768*** [0.093]	0.674*** [0.092]
Group's size ₂₀₁₅	-0.483*** [0.025]	-0.443*** [0.025]
Urban SLL ₂₀₁₁	-0.689*** [0.163]	-0.306** [0.164]
SLL size ₂₀₁₁	0.082*** [0.011]	0.022** [0.013]
Mechanic district ₂₀₁₁	-	0.988*** [0.013]
Fashion district ₂₀₁₁	-	1.226*** [0.130]
Other districts ₂₀₁₁	-	1.079*** [0.149]
Industry dummies	YES	YES
Regional dummies	YES	YES
R ²	0.213	0.241
Mean Vif	1.83	1.92
N. Obs.	2,736	2,736

*** significant at 99%; ** significant at 95%; * significant at 90%; standard errors are clustered.
Source: our elaborations from the AIDA database

Table 8. Hierarchy level in terms of employees in district groups (1) compared to those in non district groups (0) (2015)

Dep. Variable:	Share of employees in heads [OLS]	Share of employees in heads [OLS]
District group [0,1]	0.483*** [0.071]	0.576*** [0.123]
Group's size ₂₀₁₅	-0.385*** [0.015]	-0.385*** [0.015]
Urban SLL ₂₀₁₁	-0.213** [0.091]	-0.211** [0.091]
SLL size ₂₀₁₁	-0.023*** [0.005]	-0.022*** [0.005]
Mechanic district ₂₀₁₁	-	-0.359** [0.180]
Fashion district ₂₀₁₁	-	-0.029 [0.150]
Other districts ₂₀₁₁	-	0.074 [0.172]
Industry dummies	Yes	Yes
Regional dummies	Yes	Yes
R ²	0.089	0.090
Mean Vif	1.65	2.24
N. Obs.	16,655	16,655

*** significant at 99%; ** significant at 95%; * significant at 90%; standard errors are clustered.
Source: our elaborations from the AIDA database

Table 9. Hierarchy level in terms of employees in district groups (0) compared to those in hybrid groups (1) (2015)

Dep. Variable:	Share of employees in heads [OLS]	Share of employees in heads [OLS]
Hybrid group [0,1]	-1.953*** [0.153]	-1.841*** [0.151]
Group's size ₂₀₁₅	-0.349*** [0.040]	-0.333*** [0.040]
Urban SLL ₂₀₁₁	-0.551** [0.230]	-0.368* [0.224]
SLL size ₂₀₁₁	0.070*** [0.018]	0.009 [0.021]
Mechanic district ₂₀₁₁	-	0.818*** [0.228]
Fashion district ₂₀₁₁	-	1.120*** [0.217]
Other districts ₂₀₁₁	-	1.067*** [0.222]
Industry dummies	Yes	Yes
Regional dummies	Yes	Yes
R ²	0.300	0.315
Mean Vif	2.05	2.25
N. Obs.	2,736	2,736

*** significant at 99%; ** significant at 95%; * significant at 90%; standard errors are clustered.
Source: our elaborations from the AIDA database