The evolution of SMEs clusters: some insight from Italy

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Abstract. Clusters that emerged in the past have changed over time, so that today the research challenge in economic geography is on their evolution over time. If the attention moves from patterns of clustering to the evolution of spatial concentration, than the "Porter diamond" and the vast literature focused on the advantage of clustering cannot be helpful. Since late '90's many evolutionary studies on cluster have been based on the idea of cluster life cycle and, a minority, on the adaptive cycle model. The aim of this paper is to update on the evolutionary path of SMEs Italian clusters, which faced with the economic crisis are undergoing a process of vertical integration into business groups, usually shaped around a leading firms, able to connect local resources (and firms) to global markets and eventually even to other clusters. We argue that SMEs clusters, leaded by one or more global business groups located inside it are more resilient, and that others firms in the cluster may coevolve with those leading firms over time. To empirically verify these hypotheses both qualitative and quantitative analysis will be carried out.

1. Introduction

Since Michael Porter argued on the competitive advantage of spatial agglomeration (1990), clusters have become a relevant topic in economic geography and in all those other disciplines studying the relation between firms and territory. In fact, even in the 1970s, scholars have pointed to the spectacular growth of agglomerated systems of small and medium size enterprises (SMEs) that Becattini (1979) referred to Marshall's (1896) ideas of agglomeration externalities with a common regional labour system, many specialised suppliers, shared infrastructures and knowledge spillovers.

According to Malmberg and Maskell (2002), previous research on spatial clustering can be categorized on the basis of two main types of advantage which explain clustering: cost reductions and knowledge spillover. Cost reductions derive from locally available collective resources, specialized labour, and various transaction efficiencies. Knowledge spillover refers to the flow of industry-related information and knowledge between firms in the same or related industries. Those studies have been focused on the advantages of agglomeration but didn't offer any insight on the different shapes of clusters and afterwards on their evolution over time.

Markusen (1996), in order to address the increasing complexity and variety of cluster worldwide, through inductive observation, broadened the picture by introducing additional models of clusters. Besides the Marshallian formulation, three additional models of clusters were proposed: "hub-and-spoke", "satellite platform", and "state-centered".

Even such a sophisticated modelling approach could not explain the large variety of clusters. Furthermore, clusters that emerged in the early stage have changed over time, some of them disappeared or underwent reinvention and transformation, others reinforced their competitiveness and are still competing on global markets, others are undergoing a deep crisis so that today the research challenge in economic geography is on their evolution over time. If the attention moves from patterns of clustering to the evolution of spatial concentration, than the "Porter diamond" and the vast literature focused on the advantage of clustering cannot be helpful. In recent years, many economic geographers have focused on constructing a theory of cluster evolution (Boschma and Frenken, 2006; Martin and Sunley, 2006; Boschma and Martin, 2007; Boschma and Martin, 2010) with the aim of helping to understand how the economic landscape, including clusters, evolves over time. A decade of both theoretical and empirical studies has provided new insights on clustering and agglomeration externalities (Boschma and Frenken, 2011). In section 2 a review of this literature will be provided.

Recent work on clusters seems to support the idea that there is not a dominant dynamic in determining the evolution of clusters. New diversified and "idiosyncratic" patterns of growth have been observed, sometimes even within the same cluster. Unidirectional development patterns have not proved valid anymore, and different paths have been followed to cope with the new competitive challenges posed by globalisation of markets and technologies. On this perspective, the evolutionary path

taken by a cluster is unpredictable and of course a universal explicative model doesn't exist. Indeed, cluster evolution has to be considered not simply in terms of development of the cluster in isolation, but in the context of its co-evolution with the global industry of which it is itself part, and other similar clusters elsewhere with which it is in competition (Martin and Sunley, 2012). Further, the evolution is not a linear process and periods of stability can follow rapid changes and transitions.

On this line, the aim of this paper is to update on the evolutionary path of SMEs Italian clusters (section 3), which faced with the economic crisis are undergoing a process of concentration into business groups, usually shaped around a leading firms, able to connect local resources (and firms) to global markets and eventually even to other clusters. Through such an evolutionary pattern, a cluster would be renewing its sources of competitiveness, initially based on lower input costs, some (limited) horizontal linkages with a blend of competition and collaboration between firms (Guerrieri e Pietrobelli, 2004).

In section 4, we test two hypothesis: first if SMEs clusters, lead by some global business groups are more resilient; second, if others firms in the cluster may coevolve with those leading firms over time. To empirically verify those hypotheses both qualitative and quantitative analysis will be carried out.

2. The theoretical framework

The literature on spatial clustering is very developed and usually scholars have focused on two main types of advantage, which explain clustering: cost reductions and knowledge spillover. Some scholars do not agree with that explanation (Malmberg and Maskell, 2002; Boschma and Ledder, 2010; Oinas and Marchionni, 2010) and they argue that empirical evidence does not confirm the assumption of a higher degree of interaction among clustered firms compared with non clustered firms. In other words it is not clear that clusters exist because they reduce the costs of interaction and according to them the key advantage that clustering provides relates to enhanced knowledge creation among clustered firms.

Since the early stages of the literature on spatial agglomeration, the Italian variant of Marshallian clusters has been overlooked. Based on many research findings, Markusen (1996) developed three schematic alternatives to the (1) Italian Marshallian cluster: (2) the hub-and-spoke cluster, where a regional structure evolves around one

or several major corporations in one related specialized sector (3) the satellite industrial platform, comprised chiefly of branch plants of absent multinational corporations - this type of cluster may either be comprised of high-tech branch plants or consist chiefly of low-wage, low-tax, publicly subsidized establishments; and (4) the state-centred cluster, a more eclectic category, where a major government tenant anchors the regional economy (a capital city, key military or research facility, public corporation) (Markusen, 1996, p.296). In this paper we argue that even the Italian Marshallian clusters[1] have evolved and transformed over the last two decades (Paniccia, 1998; Corò and Grandinetti, 1999; Belussi et al, 2003; Cainelli and Zoboli, 2004; Guerrieri and Pietrobelli, 2004; Iammarino and McCann, 2006) and even such a sophisticated modelling approach cannot explain the large variety of clusters worldwide. Markusen has the merit of having approached a new research path that could be developed in the future, in the light of many empirical cases on clusters published in recent years (Boschma and Frenken, 2011). Anyway, the vast literature on spatial clustering doesn't help us to understand how clusters evolve over time: an evolutionary perspective is needed. Since the late '90's many evolutionary studies on clusters have been based on the idea of cluster life cycle, related to the technology life cycle model of Utterback and Abernathy's (1975) and to the industry life cycle of Klepper (1996).

The industry life cycle evolves over time in four distinct phases: emergence or birth, growth, maturity and then a crisis that leads to a decline or a renewal. Malmberg and Maskell (2002) have summarized the typical development of a cluster: a single enterprise is located in a region (usually the place of residence of the entrepreneur); as the enterprise grows, spinoffs and imitators are founded in the local milieu (phase of emergence or birth); as Marshallian economies set in, the cluster move on like a snowball and it grows and attracts more firms, capital and specialized labour; employment rises and local institutions develop to meet the needs of the growing cluster; and a distinct local industry culture develops (phase of growth and then maturity of the cluster); finally, new technological and market developments require the cluster to rapidly, often radically, restructure. At this point the cluster either

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[1] Some scholars (Cainelli, 2010) argue that even in the beginning of the crystallisation of the "district paradigm" the Marshallian cluster model did not fit with all Italian Marshallian clusters.

reinvents itself, triggering a new growth phase; or it stagnates, eventually losing its competitive advantage.

Although such evolutionary paths may differ regionally, with respect to the first three phases, most existing clusters appear to follow a similar cycle of birth, growth and stability. Less relevance in the model has been paid to the fact that not all firms within a cluster necessarily experience the life cycle synchronously (Bergman, 2008) and the asymmetric distribution of power, knowledge and marketing among firms might differ over time so as to have within the same specialised clusters, and even within the same cluster, a plethora of different paths. In other words some firms disappear, others become leading firms and not necessarily the later entrant firms will have the same path: it is also possible that the firms that eventually dominate the industry may not come from the earliest cohort of entrants, although some empirical studies seem to confirm this hypothesis (Boschma and Ledder, 2010). Furthermore, the industry life cycle assumes that a negative balance between firm entrants and exits appears in the fourth phase that of "decline". According to us, it does not follow that although the local industry may ultimately begin to shrink in terms of the number of firms, it has stopped evolving. Indeed, there are numerous examples of mature or shrinking clusters in which the firms that survive are precisely those that are the more innovative and competitive (Martin, 2010).

Even Klepper (1996, p. 581) recognizes that "the starkness of the model precludes any departure from his evolutionary pattern". According to him this can be remedied by allowing for random events that alter the relative standing of incumbents and potential entrant. We point out that doing so the model will be misread and it will lose its attractiveness, which is largely due to its simple and clear explanation of industrial cluster life cycle.

Recently, Potter and Watts (2011) argue that industry life-cycle theories, when used in conjunction with agglomeration theories, can help to explain the development of cities and regions over time and geographical space in a manner that represents an Evolutionary Agglomeration Theory. They then developed a theoretical model, which they called the Agglomeration Life Cycle Model that illustrates how the incentives to agglomerate and disperse evolve over time, and how the industry life cycle changes the relationship between Marshall's agglomeration economies and economic performance. Their results offer some positive insight on agglomeration economies that, according to them, create greater economic performance and increasing returns

during the early stages of the industry life cycle, but decreasing economic performance and diminishing returns during the later stages of the industry life cycle, although their Agglomeration Life Cycle doesn't move away from the industry life cycle model.

Recently, Martin and Sunley (2012) argued that the emerging synthesis around cluster life cycles needs a rethink. They argue that clusters can be considered as complex systems and that the adaptive cycle model can offer some positive insight in the understanding of cluster evolution. The adaptive cycle model tends to focus primarily on local and regional ecosystems and how these evolve by adapting to the impact of change occurring at a variety of scales. The key concept is that of "resilience" to external change and shocks, and how resilience itself changes as the system evolves. Resilience is defined in terms of the adaptability of the system to changes occurring at a variety of scales: smaller and faster changes at local scale levels, as well as larger and slower changes at regional, supra-regional and global level. The adaptive cycle model has four phases: in the first phase ("exploitation") the growth and development of a cluster is fundamentally about the accumulation of resources: specialised productive capital, specialised knowledge, and supporting institutions. The model suggests that, as the accumulation of resources grow, the degree of connectedness increases. In this phase the cluster develops the typical internal interdependencies, material (interrelated supply chain) and immaterial (mutual trust, knowledge spillover). In the second phase ("conservation") the model suggests that the degree of this interdependence may eventually reach a point where it can affect the resilience of the firms in the cluster. Since the firms in the cluster will be competing in global markets, what matters is how they respond and adapt to shocks. Thereby, the more rigid and inflexible are the firms in the cluster and less resilient is the cluster. If the resilience is low the cluster will move into a third phase ("release"), in which firms close and a general contraction in the scale of the cluster take place. A "reorganisation" (fourth phase) is possible but only after a period of experimentation and restructuring that allows the cluster to increase again its resilience and capacity to adapt.

The adaptive cycle model has the advantage of not describing a rigid, predetermined path and cluster evolution is conceived as a continuum of change and stability, although, due to the heterogeneity of firms, change (disorder) and stability (order) co-exist in a cluster so that its evolutionary path is unpredictable. In addition the adaptive

model has been conceived for ecological systems so that is not clear why a strong internal connectedness should decrease the resilience of firms. Clusters can grow on internal connectedness and remain competitive if they are able to connect local resources with global innovation networks. As the industry life cycle, "the adaptive cycle model is not unproblematic" (Martin and Sunley, 2012), although it offers some positive insight for understanding cluster evolution but it cannot be taken as an universal model.

In such a evolutionary scenario, on what researches studying the evolution of clusters should be then focused? Ferrucci and Varaldo (2004) suggest that the appropriate unit of analysis of a cluster is the firm and the strategies followed by cluster firms are the key variables in an analysis of cluster evolution. This doesn't mean that the cluster as a system doesn't matter, on the contrary the cluster promotes a favourable environment stimulating the formation and development of the firm (Cainelli, 2008). The point is that firms have different absorptive capacity and consequently a different "life cycle". On this line, Ter Wal and Boschma (2010), although far from rejecting the industry life cycle, argue that if we are to understand cluster evolution we have to pay careful attention to the heterogeneity of firms within clusters and unfold the complex coevolution of firms, networks and industries. Firms within clusters might differ in terms of internal capabilities and the absorptive capacity – conceptualized as a dynamic capability that captures the cognitive and organizational dimensions of absorbing external knowledge effectively – is an important dimension of this heterogeneity. The dynamics of cluster are not so much ruled by a systemic internal logic but are described in terms of changing organizational strategies and the unequal capacity of local agents to take advantage of externalities. Even Markusen (1996) suggested that a crucial factor determining the typology of a cluster is the asymmetries between cluster members in their roles of supporting the regional cluster and "many clusters (e.g. Detroit, Colorado Springs), due to the domination of one or a few leading companies, made the transition from a Marshallian to a hub-and spoke cluster" (Markusen, 1996, p.308), and a few new economic geographers (Ottaviano, 2011; Baldwin and Okubo, 2006) argue that "future research should look more deeply into finer micro-heterogeneity across people and firms, shedding light on how the interactions between the two levels of heterogeneity affect the existence and the intensity of agglomeration economies" (Ottaviano, 2011, pp. 237-238).

In conclusion, we argue that if we are to understand cluster evolution we have to pay careful attention to the heterogeneity of firms, and that cluster evolution leans on the successful path of their firms, particularly those leading firms that over time accumulated power, knowledge and market share, so as to become predominant and to be able to influence the evolution of the entire cluster. This is particularly true in SMEs clusters. In this paper we will report on Italian SMEs clusters recent evolution, both through the literature review and an empirical study. A vast part of this literature points out that the Italian SMEs are undergoing a process of vertical integration into business groups, mainly due to some leading firms which grow over time through acquisitions of SMEs. We will assess only Italian SMEs cluster evolution although some scholars have pointed out the relevance of business groups within SMEs cluster in India (Bertrand et al., 2002; Ghemawat and Khanna, 1998), Chile (Khanna and Palepu 2000), China (Keister, 1998), Taiwan (Hsieh et al., 2010) as well as Japan and Korea (Lee et al., 2008), where the SMEs clusters (keiretsu and chaebols), have been symbols of economic growth[2]. Indeed, according to the Banque de France, the number of French firms affiliated with business groups has doubled over the last decade, and represent one-third of the SMEs in the country (Cayssialis et al., 2007; Nahmias, 2007; Hamelin, 2011). Structuring control using a business group, rather than developing the initial business in a standalone firm is a specific growth strategy in France.

The comparison between different SMEs worldwide may appear hazardous, but this is only apparent at first sight. In reality, in many countries SMEs represent the bulk of industrial structures and all of them are fully integrated into the current processes of internationalisation and globalisation. To point out regularities in evolution among SMEs clusters worldwide there is a need for more researches although some pioneer studies emerge from current literature. Guerrieri and Pietrobelli (2004) argue that Italian and Taiwanese SMEs are today both post-Marshallian, in other words, less locally confined and less vertically disintegrated. Among different forms of linkage creation that of "business groups centred on a holding company, and creating a federation of loosely connected companies united by four factors: access to common core technologies; access to the holding company's financial resources; access to its knowledge base, market intelligence and technology scanning capabilities; and a

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[2] For a survey of the vast literature on business group world wide (Khanna and Yishay, 2007; Lee et al., 2010)

common brand name" (Guerrieri and Pietrobelli, p. 909), is the most popular. Others (Franks et al., 2008) reach the same conclusions comparing SMEs cluster in Italy, France and Germany. Far from being a new model in between the Marshallian cluster and the hub-and-spoke cluster (Markusen, 1996), the business groups are gaining relevance in SMEs clusters worldwide.

3. The business group: competition versus cooperation

If we look at statistics, the Italian clusters seem to be very fragmented with 2,172,491 employees distributed in 239,305 firms and an average of 9.07 employees per firm (ISTAT, 1996). The problem with these statistics is that they are not able to recognise business groups and their acquisitions, so they don't tell us anything about their relevance.

Business groups are a specific form of business model distinct from the traditional enterprise. As compared to a typical large corporation, a business group consists of a collection of legally independent corporate entities that are established under the same control and ownership, each not only sustaining independent firm objectives, but also acting to meet the shared goals of the business group (Hsieh et al., 2010).

Recently, thanks to a new dataset at the business group level developed by ISTAT (2009), the so-called "Archivio statistico sui gruppi d'impresa" (Italian Statistical Register on Business Groups), Boschma and Randelli (2012) have shown that the presence of business groups is conditioned by geography in Italy. In fact, high numbers of firms belonging to a business group are concentrated in the North-Western regions, immediately followed by regions in the North-East of the country. In the South of Italy, the presence of business groups is not a significant phenomenon. This might suggest that the presence of business groups correlates with the development stage attained by local production systems. The relevance of those statistics is that, even within regions with many SMEs clusters, the so called Third Italy (Veneto, Emilia-Romagna, Toscana, Marche and Friuli), half of the employees in manufacturing is within a business group, and this share is increasing more than in the rest of the Northern regions. Other studies (Guerrieri and Pietrobelli, 2004; Cainelli *et al.*, 2006) confirm that business groups are more widespread in SMEs clusters than in non-cluster areas.

In this paper we argue that if we are to understand cluster evolution we have to pay careful attention to the heterogeneity of firms. This is particularly true for Italian SMEs clusters, where the distribution of power and knowledge has been asymmetric over time. The asymmetry is due to differences in the absorptive capacity of firms that, over time, leads to different capabilities, strategies, and routines among firms. For instance, opposite paths within cluster firms are observable: some of them grow, some survive and some decline. This is in line with recent survival studies showing that clusters in general are a hard place to survive for firms, instead of a place that offers positive externalities almost by definition (Klepper, 2007; Boschma and Ledder, 2010; Potter and Watts, 2011). Some firms grew over time through acquisitions of other districts firms and, eventually, these firms became predominant and were able to influence the evolution of the entire local system. Some scholars (Dei Ottati, 1996; Brusco et al., 1996; Cainelli and Nuti, 1996) argued that the reasons why entrepreneurs prefer to buy out new companies rather than new business units within the existing one can be linked to some advantages of the group form, both in the development and in the management of the new ventures. This preliminary work shines a light on the relevance of business groups within SMEs Italian clusters.

In the last decade others studies focused on the characteristics of business groups, their role within the cluster and their evolution over time, although their work was specific on some areas. Brioschi et al. (2002, 2004), used an extensive survey on SMEs cluster in Emilia-Romagna, one of the Italian regions. The result was that in 211 groups identified, 112 were bounded in the cluster, and the specific reason was that due to their deep familiarity with other firms in the cluster (competitors, suppliers and customers), cluster entrepreneurs were able to acquire others firms with confidence, well informed on their knowledge and on their strong and weak points, with no need for the intervention of an investment bank.

On this line, Aganin and Volpin (2005) describe the evolution of the Pesenti group in Italy, and show that it was created by adding new subsidiaries to the firms the Pesenti family already owned. One of their conclusions is that, in Italy, business groups expand through acquisitions when they are large and have significant cash resources. In this sense the transition into a business group over a critical mass, is a self-reinforcing process. As a consequence of the results developed in this recent literature (Iacubucci, 2002; Iacobucci and Rosa, 2005; Cainelli, 2008; Boschma and Randelli, 2012) is possible to argue that, due to their "bounded rationality" and on the

lower costs of collecting information on the characteristics of competitors and suppliers, cluster firms in a growing trend and with significant cash resources, tend to evolve into a business group acquiring other cluster firms.

Why are the Italian SMEs clusters undergoing a process of vertical integration into business groups? Two new major features of the social and economic systems are emerging and have characterised the last two decades. On the one hand, technology increasingly plays a central role in all economic activities and the pace of technological change is becoming more and more rapid, so that learning mechanisms became more crucial (Coró and Grandinetti, 2001; Cainelli *et al.*, 2006). On the other hand, the scope of all economic and firms activities has become global. In both cases, the result was a window of opportunity for leading firms and business groups. Those leading-firms had particular characteristics such as a global orientation, upgraded routines (including marketing, logistic, R&D, finance), high management quality (especially with respect to managing networks), and strong connections with the banking sector. Those leading firms linked the cluster's resources to global networks, which led to the transformation of a relatively closed system of exchange at the local level and starting the internationalization of the manufacturing processes. Faced with globalisation some leading firms started to develop into a business group in which previous collaborations with other cluster firms[3] became included in the boundary of the group through acquisitions. First, the focus was on finding cheaper suppliers abroad, but then these firms also developed supplier evaluation processes and adopted criteria for supplier selection on the basis of quality, trust and services. This is one of the reasons that prompted the leading firm to acquire a subcontractor and control it formally, in particular when the subcontractor was confronted with financial problems or difficulties concerning the succession of the founder of the firm (Boschma and Randelli, 2012). This approach led to a process of supply chain qualification, even at the local level, with positive impacts on cluster suppliers (Coró and Grandinetti, 1999). Leading firms also operated internationally through a growing demand for services not available at the local level, such as marketing, design and technological innovation (Chiarvesio *et al.*, 2004). Those activities had often not received attention from cluster firms. As a consequence, the cluster was often not able to develop and

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[3] As much as possible, they prefer to acquire firms from the same area but this is not the main task, as they usually acquire firms even from other specialised clusters.

offer high-quality services in those domains, although there were exceptions (Chiarvesio *et al*., 2010).

Faced with global findings, business groups seem to be more resilient compared to the stand alone cluster organisation, as they facilitate interfirm resource exchanges and further they enhance knowledge spillover. In a certain point of view, they become a "cluster" in the cluster so as to benefit of the same type of advantage of spatial agglomeration: cost reduction and knowledge spillover. The findings imply that an unaffiliated firm may consider undertaking a grouping strategy for taking advantage of leveraging benefits of business groups when they intend to expand their business domains. However, if an unaffiliated firm is unable to develop a business group, it may consider establishing partnerships with other firms to form a network, such as a visual business group[4]. Both groupings and partnerships comprise a type of inter-firm cooperation that will enhance a firm's capabilities to innovate (Hsieh et al., 2010).

4. Results of the empirical study

The Italian SMEs clusters are undergoing a period of restructuring that in many cases leads to a decline in the number of firms, employees, innovation and profitability. In other words, either to the fourth phase (decline) in the industry life cycle or the third phase (release) in the adaptive cycle model. Even in Prato, in the extensively studied case of the textile cluster, the number of firms registered fell from 7,645 in 1995 to 3,094 in 2011.

In this section we will test two hypotheses: first, the SMEs cluster with a business group leads by global firms located inside it, are more resilient over time; second, the others firms in those clusters (affiliated and unaffiliated) coevolve with the leading firms over time.

Hypothesis 1: SMEs cluster with a business group lead by a global firm located inside it, are more resilient over time.

To test this hypothesis we analyse the evolution of all Italian clusters specialised in a traditional sector such as leather products. In a typical evolutionary perspective, we

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[4] A visual business group can be considered as a cooperating group of firms, which is not own by a leading firm.

analyse clusters by tracing firm entry and exit flows over time. The data for this study was collected in may 2011 (source: Unioncamere), and it shows the total firms registered, the number of entries and exits for every quarter year in the period 1995-2011. Unfortunately the data set doesn't tell us anything about entry and exit patterns. The analysis of period 1995-2011 enables us also to verify for each cluster their responses to the world economic crisis, which started approximately in the 2007. In line with the industry life cycle we will consider the firm birth rate and the firm death rate as a measure of cluster resilience over time.

Since the industrial clusters became a subject in the formulation of Italian industrial development policies (national law n. 317/91 and later on n. 140/99), ISTAT provided for their identification[5]. According to these criteria, the total number of industrial cluster specialized (see fig. 2) in the production of leather products (handbags, shoes, belts and other related products) was widespread in Veneto (Vicenza and Treviso), Emilia-Romagna (Forlì), Toscana (Pisa, Pistoia, Firenze and Arezzo), Marche (Macerata, Fermo[6] and Ascoli Piceno), Campania (Avellino) and Puglia (Bari). Within those 11 clusters only Florence (Firenze) has global fashion leather companies (Gucci, Prada and Ferragamo) located on its territory. Fermo-Ascoli has the Tod's group, but with a totally different critical mass then compared with Gucci and Prada[7].

Founded in Florence in 1921 by Guccio Gucci (1881–1953), the Gucci group has become today one of the world's most successful manufacturers of high-end leather goods, clothing, and other fashion products. After a long period of prosperity, the 1980s were marked by internal family disputes that brought Gucci to the brink of disaster. This dark period ended in the 1994, when Gucci lost definitively the feature of family-owned company and it started to be controlled by Investcorp, a Bahrain-based company. Six months later the Gucci group went public and had its first initial public offering on the New York and Amsterdam stock exchange. In two years the Gucci group had a massive growth and, in order differentiate their assets, they acquired other global fashion brands as Yves Saint Laurent Rive Gauche, Bottega Veneta, Boucheron, Sergio Rossi, and, in part-ownership with Stella McCartney, Alexander McQueen and Balenciaga.

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[5] For the criteria used to draw clusters see (Boschma and Randelli, 2012)
[6] As Fermo is an independent province since 2009 and was created separating a part of Ascoli Piceno province, to allow a view of the evolution in the period 1995-2011, this paper consider those two provinces as one and we will call it Fermo-Ascoli.
[7] In the 2010 Tod's reached a revenue peak of 806 million Euro, Prada 996 million and Gucci 4.2 billion.

In 1998, in order to enlarge their production and to strengthen their control on the supply chain, they founded two tannery firms in the cluster of Santa Croce sull'Arno (Pisa): Caravel and Bluetonic. Today, both of them they supply worldwide, including Louis Vitton, the main competitor of Gucci. From 1998, Gucci started to manufacture in the Florence cluster even for the other companies in the group. At the same time they started to sign special agreements with their local suppliers (metal accessories and final products), mainly in sole agent agreements, in order to reinforce their local links in the leather cluster of Florence. The entire sample of Gucci manager who were interviewed, emphasized the relevance of skilled SMEs specialised in the Florentine leather crafts, which are not available in other italian leather clusters. This is the main reason why Gucci didn't change its location over time and today produce 80% of their entire final products (over 4 million items per year) in the Florence cluster. The rest is produced in Umbria and Campania. Gucci has today a network of 55 suppliers and 600 sub-suppliers. Finally, in 2010, they acquired three subcontractors (Toscoval, Pelletterie Ambra and Arte e Pelle), to apply an innovative production process (agile production[8]) and to improve their control on the sub-supplier network. In conclusion Gucci seem to be developing into a business group in order to better control the market and strategic suppliers (tannery and sub-suppliers) and to introduce an innovative production system. The bulk of the other 600 suppliers are controlled through the signing of special agreements governing the supply and the fixing of the quality standards.

Figure 1 Growth and decline of SMEs Italian leather manufacturing clusters 1995-2011 (number of firms)
Source: Unioncamere

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[8] A different organization in the manufacturing process enabling Gucci to respond quickly to customer needs and market changes while still controlling costs and quality.
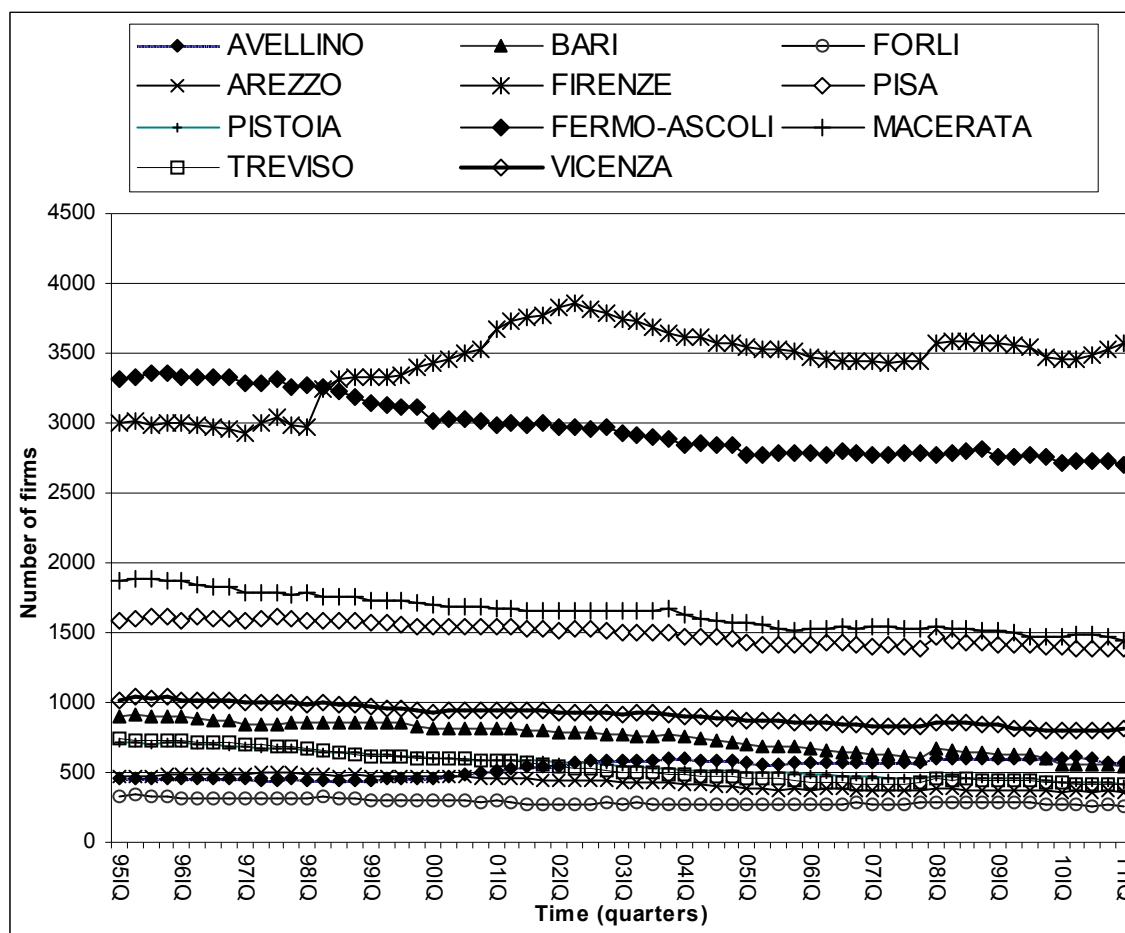
The results of the empirical analysis shows clearly that the majority of Italian leather clusters are declining in terms of the number of firms. Even Fermo-Ascoli, which was in 1995 the biggest cluster, has slowly decreased losing over 600 firms in fifteen years. As entry rates are highly dependent on the number of incumbent firms in a region (Boschma and Frenken, 2011), than the Fermo-Ascoli cluster should have had the higher potentiality for growth. On the contrary, since 1995, only the clusters of Florence and Avellino (only about 500 firms) have increased the number of firms.

Figure 2 The clusters specialized in the production of leather products.
Source: Unioncamere
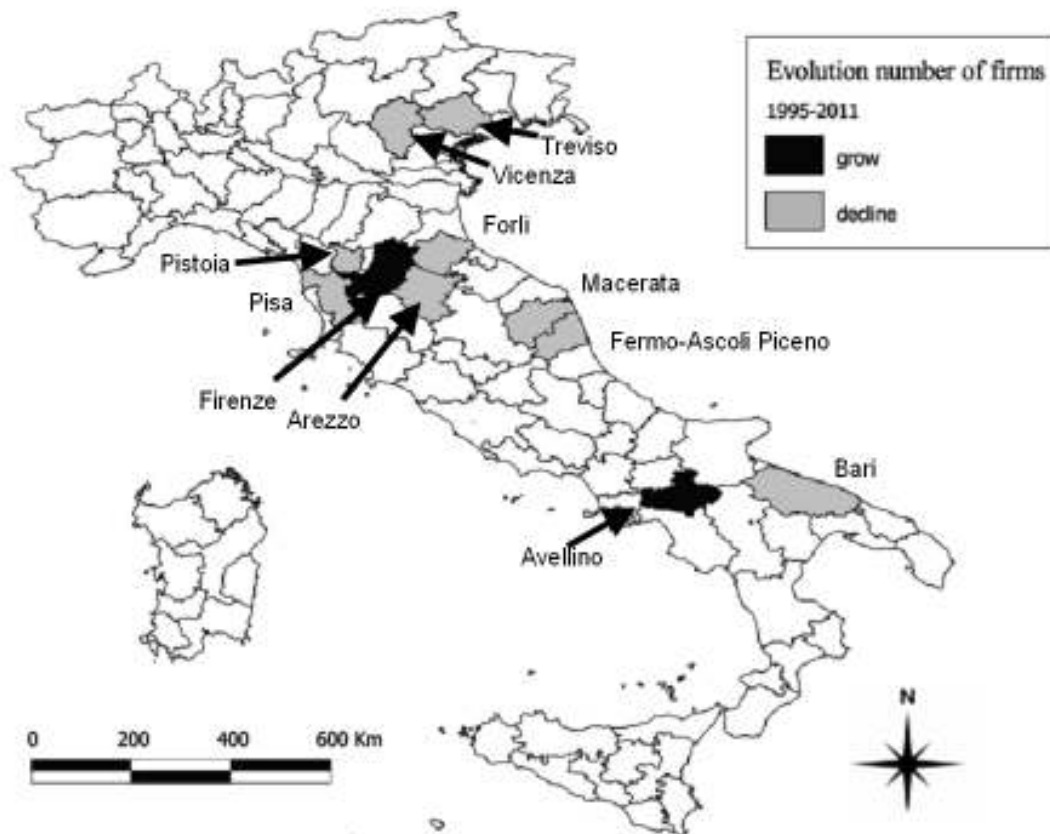
Some evidence can be drawn if we compare the results with the history of the Gucci group. In 1998, due to several acquisitions of other fashion brands, Gucci decided to enlarge their manufacturing capacity and to produce in Florence final products from the other companies in the group as well. In the same year, they founded two tannery firms within the specialised cluster of Santa Croce sull'Arno (Pisa). As a matter of fact, in 1998 (I and II Quarter), a wave of new firms entered in the cluster (see fig. 3). The interviews confirm the relevance of spinoffs within the cluster not only from Gucci. Furthermore, since the beginning of the global crisis in 2007, the Florence cluster continued to grow[9] in terms of numbers of firms, in particular in 2010 and beginning 2011. Although the correlation between cluster performance and relevance of leading firms can not be drawn with such a data set, we feel that the answers to our hypothesis 1 were quite consistent.

Figure 3 Number of entries and exits in the Florence cluster 1995-2011

Source: Unioncamere

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[9] In first quarter 2008 the number of firms grew due to, not as much a positive firm entry rate, but rather a number of already registered firms that turned from inactive to active.
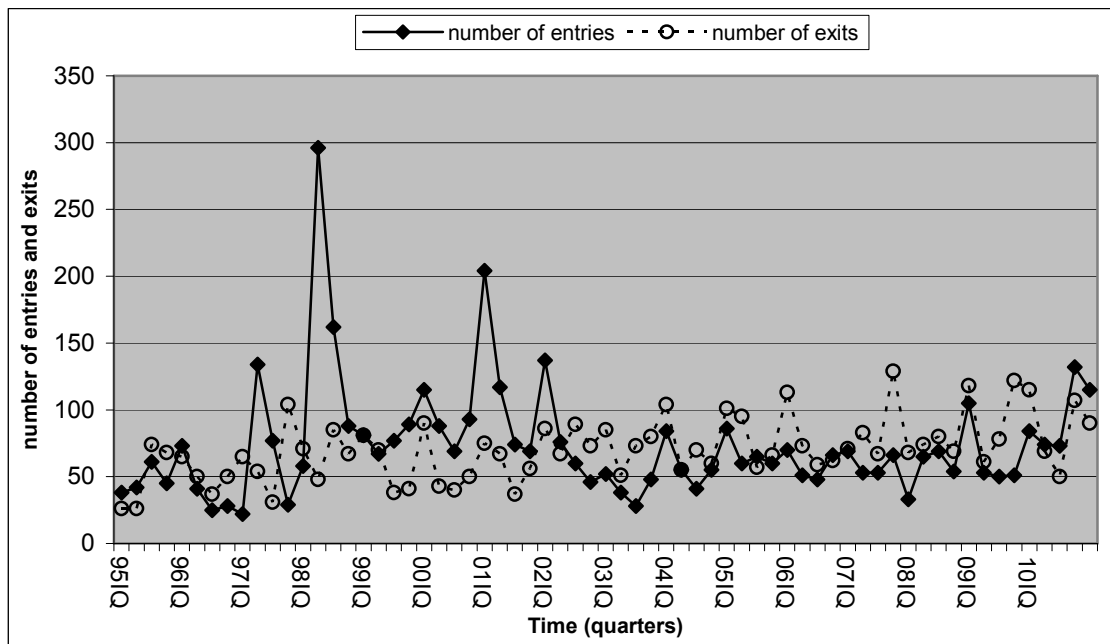
Hypothesis 2: the firms in a cluster (affiliated and unaffiliated) coevolve with the leading firms over time.

To assess if, and eventually how, firms coevolve together with the leading firms located in the same cluster, we have conducted 10 in-depth semi-structured interviews with managers of Gucci (in total 3 interviews) and with affiliated (3 interviews) and unaffiliated (4 interviews). Gucci has affiliated and unaffiliated suppliers as well in other clusters, although the geographical concentration of their network is very high. For instance, in about 600 Gucci suppliers, 80% of them are in the same cluster. The interviews were held in 2011. The sample is not large enough to present quantitative results applying statistical tools. Nonetheless, the answers were very similar, both from the managers and the supplier, so we are quite confident that we have identified some regularity, which we report below.

The interrelations between the leading firm and the supplier are basically face-to-face and of course, the geographical proximity helps to build up relationships based on mutual trust and low costs of transaction, although the same interrelation model has been set up as well with suppliers located in other clusters. In the case of Gucci it means in Umbria and Campania, where they provide the rest (20%) of their supplies. The daily networking between the leading firms and the other cluster firms is ensured by several specialised technicians, usually recruited in the local small firms. Gucci has

8 technicians specialised in tanning, 8 in accessories[10] and 15 in final leather products. At least every two days, each of them visits a group of 6 to 8 firms, which is quite stable over time. Through an intensive and regular attendance within supplier industrial plants, a mutual trust between the leading firms, represented by technicians, and the supplier is build up. The suppliers, even not affiliated, do not consider those technicians as simple supervisors, as they play an active part in: (i) allowing them to achieve the Gucci standards, (ii) carrying forward an innovation process.

As a matter of fact, the technicians, jumping from one firm to another, "pollinate" the network with smart solutions to daily process hitches. By doing so, they allow intense interfirm knowledge spillover and the imitation of Gucci routines in manufacturing. Those suppliers with a higher absorptive capacity have learned over time the features and needs of a global fashion company and this allows them to supply other companies worldwide. For instance, many of them today supply Louis Vitton, which is the main competitor of Gucci.

The coevolution of cluster firms takes place as well through spinoffs of Gucci. Unfortunately, the data set we used doesn't provide any information on the background of entrant entrepreneurs, although we know from interviews that 10 out of 55 main suppliers are spinoffs of Gucci.

Other strategic activities as R&D, marketing and finance are ruled by the leading firms, with economies of scale that a SMEs cluster of stand alone firms could never benefit. In this sense more connectedness allows more resilience, out of line with the adaptive cycle model, in so far the global perspective is ensured by the Gucci group. Regarding knowledge spillover, some scholars argue that knowledge is more likely to spill over between agents when their cognitive distance is neither too large, as some degree of cognitive proximity is required to ensure effective learning, nor too small, as agents with the same knowledge will have little to learn from each other (Boschma and Frenken, 2011). On this line, we argue that those technicians operate as a bridge between Gucci and their 55 suppliers, at the same time Gucci decided to acquire three of them, to reduce the cognitive distance with the subsupplier network.

Gucci, starting from 2010, has included in the supplier's agreement a clause to provide them an indirect financial support. Every year they fix a minimum value of

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[10] In this paper we study only the evolution of the leather manufacturing clusters, although it is clear that a leading firm may support also some other related sector, as in the case of Gucci, that of accessories, mainly made in brass.

supply which means a minimum revenue for the supplier. Doing so the supplier has a document which may allow them to get higher bank credit. Gucci supports cluster firms, even unaffiliated ones, as they want to preserve the advantages of being located in a cluster with many specialised supplier, which enable a flexible and fast supply. In this perspective those agreements have to be conceived as a defensive strategy. As fashion items have a very short life cycle, usually no more than one year, they need a great number of highly skilled firms, to set up a very flexible manufacturing process. In such a process proximity of firms matters, so as to enhance flexibility and supply chain quality controls.

5. Conclusions

In this paper, we approached the study of cluster evolution with a focus on Italian SMEs clusters. The review of the literature has given us many positive insights into both the industry life cycle and the adaptive cycle model. Besides that, we argue that if we are to understand cluster evolution we have to pay careful attention to the heterogeneity of firms. Our study suggests the evolution of SMEs clusters depend on the capabilities of cluster firms to connect local resources, accumulated over time, to global networks. Few leading firms have emerged over time, acting as "gatekeepers" of the cluster. Due to the critical mass they reach, those global firms are able to affect hundreds of SMEs cluster firms. To better control the quality processes upstream and downstream in their supply chain, those leading firms tend to organise in business groups, with a growing number of affiliates.

The empirical study, carried out on the Italian SMEs leather clusters, suggests that clusters with some leading firms located inside it, are more resilient over time. The Florence fashion leather cluster, lead by global firms as Gucci, Prada and Ferragamo, continue to have a positive rate of new firms, even faced with the global crisis. All the others clusters, with no leading firms located inside them, are undergoing a decline in the number of firms. Although the correlation between cluster performance and the relevance of leading firms can not be drawn from such a data set, we feel that the answers on our first hypothesis that SMEs cluster with a business group lead by a global firm located inside it, are more resilient over time, were quite consistent.

The analysis in depth of Gucci business group has been drawn on the results of 10 in-depth interviews with firms in their supply chain. Our case study suggests that cluster

firms may coevolve with the leading company, due to an intense knowledge spillover. The results of our interviews also suggest that coevolution depends on the absorptive capacity of cluster firms. The key feature of such an evolutive process is the role of several specialised technicians, usually recruited in the local small firms, that jumping from one firm to another "pollinate" the network with smart solutions to daily process hitches. These interrelations are basically face-to-face and the geographical proximity matters, so as to enhance flexibility and quality check systems. Other strategic activities such as R&D, marketing and finance are managed by the business group, with economies of scale that a SMEs cluster of stand alone firms could never benefit from.

Due to the limits of this empirical study, there are, of course, many questions that future research should taken up. We briefly mention some of them. In order to give a wider account of the benefits of leading firms within SMEs clusters, it is necessary to compare other evolutionary paths. In this sense the global crisis might be considered as a shock to test cluster resilience worldwide. It goes without saying that this requires high-quality data at the regional level.

Another challenge is to investigate in depth other business groups, so as to reveal differences and/or regularities in organisation. The Gucci group is particularly embedded to the cluster territory, with positive effects in terms of innovation, knowledge spillover and financial support to local firms. Other business groups, even bigger in shape, could be less embedded so do not drive cluster coevolution. Furthermore, the Gucci group produces within the cluster about 80% of its total items (more than 4 million per year) although other business groups are more geographically dispersed.

Furthermore, some comparison studies within SMEs clusters worldwide should be carried out. The comparison between different SMEs worldwide may appear hazardous, but this is only apparent at first sight. To point out regularities in their shape we need more research but some pioneer studies emerge from current literature (Guerrieri and Pietrobelli, 2004; Franks et al., 2008).

To conclude, although further research is necessary, the advantages of grouping, particularly within SMEs cluster, seems to be clear. The main problem within SMEs clusters is the massive disintegration of stand alone firms that doesn't allow them to reach a critical mass in terms of marketing, finance and R&D. The future challenge of SMEs clusters seems to be "grouping", in a business group as well as in a visual

group, in order to: (i) share the same innovation processes so as to enhance knowledge spillover, (ii) offer on a global market a full range of specialised output within a single brand, (iii) reach a critical mass in terms of financial power.

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