Smart specialization, culture, creativity and tourism in Italian convergence regions

Luciana Lazzeretti and Niccolò Innocenti
Dept. of Economics and Management
University of Florence

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1. Introduction

In the recent years, the literature on Smart Specialization (SS) has growingly increased, starting from the concept of SS or Smart diversification, towards smart technologies, Key Enabling Technologies, smart cities, smart regions and so on (Foray et al. 2009; Bellini 2015; McCann 2015; Foray 2015). However, in this context, few studies have analyzed the role played by cultural and creative industries in contributing to the (smart) specialization and the development of regions and nations. Cultural and creative industries have been regarded as particularly important for countries such as Italy and also relevant for the development of transversal innovations and cross-fertilization among different sectors. This paper investigates whether cultural and creative industries may be considered a driving force also for the less developed regions in the South of Italy (the convergence regions 1) using a broad approach in their definition, which includes also the tourist filière (Lazzeretti and Capone 2015a).

The cultural and creative industries are capable of creating the conditions that foster both incremental and radical innovations, for the development of tranversality, as well as of finding new needs and technologies through cross-fertilization processes between related and unrelated sectors (Cooke 2012).

The concept of relatedness may be defined as a highly significant element for SS, as it is useful to derive some policy implications and could be used in a spatial perspective, suggesting a specialized diversification related to the existing and driving technologies of the region (Boschma 2014; McCann and Ortega-Argilés 2015). This approach suggests that a specialized diversification related to the existing and driving technologies of the region could foster employment growth through the rise of innovations.

In this context, it is important to emphasize how culture could be considered a strategic factor not only because it is capable of creating a creative environment thus promoting the development of cross-fertilization processes, but also because it could create new industries and market niches.

In the present work we aim to answer the following questions:

- What is the position of Italian convergence regions in creative and tourist industries?

- What is the role and impact of related variety and the clustering of creative and tourist industries on employment growth in less developed Italian provinces?

The analysis is conducted among the Italian convergence regions of Calabria, Campania, Puglia, Sicily and Basilicata using data from census 2001 and 2011.

In a first step, a mapping analysis is performed calculating two indicators for the clustering of employees respectively for cultural and creative sectors and for the tourist industry, through location quotients. This is to identify the strengths and weaknesses of different provinces and to evaluate how each province is specialized in these sectors.

Afterwards, an econometric analysis is conducted using location quotients of cultural, creative and tourist industries and the indicators of Related and Unrelated variety at provincial level. Here there is a twofold objective: the former is to identify whether there is a relationship between employment growth and different types of diversification of the area (Related and unrelated variety); the latter is to understand whether the clustering of employees in cultural, creative and tourism sectors is a driving force for employment growth in convergence regions.

1 Those regions are characterized by a GDP per capita lower than 75% of the European average, in Italy there are 5 regions Calabria, Campania, Puglia, Sicily and Basilicata.
The results show that the investigated regions (even if there are some interesting areas such as the ICT cluster in Calabria), when compared to the national context, have a minor endowment in terms of creative industries. Conversely, they have a good positioning in relation to the tourist sector. Therefore, policies should aim to integrate cultural and creative sectors with tourism into an enlarged and systemic view, integrating also other related sectors such as agro-food, environment and ICT.

2. Smart Specialisation and the strategic role of culture

In recent years, the topic of smart specialization (SS) has become increasingly important with an emerging number of research studies (Gomez-Ninez 2014). Although we do not aim to illustrate this debate, before starting our reflections, it is relevant to recall the attention to some of the pillars on which this approach is based and on the direction of its development, in order to highlight how culture and its economic and social enhancement may play a strategic role.

Mc Cann and Ortega (2015) underline that “The smart specialization concept is now a major driving force behind both the new ‘Innovation Union’ flagship program of the European Commission and also the EU cohesion policy reforms”.

Foray (2015) defines the “smart specialization strategy” as an ‘economic transformation agendas integrated and place-based’, characterized by five basic elements: being focused on certain priorities, being built from strengths, competitive advantages and potential of its reference region, being referred to a broad concept of innovation, involving the private sector, promoting the full involvement of stakeholders through open, participatory processes of ‘entrepreneurial discovery’, being evidence-based and making central monitoring systems and evaluation also as a learning tool”.

The debate is open and, at European level, there seems to emerge the twofold objective of jointly pursuing both the development of “competitiveness and innovation” and the search for a “cohesion policy”. Although these two aspects have been regarded as equally relevant by the literature, they are not easily integrated together.

However, it can be observed that a new approach shared by the innovation policy has emerged and it converges on two fundamental issues: a) the centrality of the relationship between innovation and the territory; b) the need for a broader approach for the concept of innovation.

There is a move towards overcoming a sectorial and technological view of innovation related to the so-called paradigm of the closed innovation, which is characterized by R&D internal to the large enterprise and based on patenting. Needs deriving from spatial contexts (cluster, districts, cities, regions, RIS, etc.), SME, innovators and social networks have become considerably relevant in order to stimulate and encourage new ideas, which may be attributable to the so-called open innovation (Chesbrough 2003).

The rediscovered krugmanian centrality related to the relationship between innovation and territory has been enriched with an economic and social component and aims to contribute to fostering not only product and process innovation (as we have learned from the literature on economics of innovation) but also services and social innovation (Chesbrough et al. 2014). According to a shared value approach, Porter and Kramer (2011) follow this direction and claim that companies could bring business and society back together and redefine their purpose in order to create shared value.

This paradigm shift causes significant changes in the directions of the innovative process, which are enriched with a new transversal perspective.

Economic, non-economic and institutional actors work to generate the conditions for the emergence of incremental or basic innovations, not only inside or outside the “enterprise”, but also through processes
of crossfertilisation between related or unrelated sectors.

The case study concerning the Conservation science developed within the technological district of cultural goods in Tuscany, in Italy, is revealing in this regard. This study analyses various types of transversal innovations including the laser, the nanotechnologies, the ICT and chemistry, which have originated from unrelated sectors such as the health sector or the oil industry and then have been applied to the area of cultural goods (Lazzeretti and Capone 2015b).

From a theoretical point of view, a relevant contribution to this new perspective derives from the “related variety approach” which has been regarded as one of the fundamental trajectories involved in the creation of a strategy of smart specialization. It refers to the theoretical approach of the *Evolutionary Economic Geography* (Boschma and Martin 2010), which is aimed to reinterpret and to integrate many economic theories related to the local development into an evolutionary perspective. For example, the theories linked to clusters, industrial districts, milieu innovateur, Learning region, RIS, etc. have been integrated with studies on proximity, resilience and related variety (Asheim et al. 2011).

In this scenario, it is relevant to emphasize how culture may be regarded as a strategic factor, as it is capable not only of generating creative environments that foster the development of crossfertilisation processes, but also of creating new sectors and market niches, such as the new emerging creative sector stimulated and promoted by the ICT (Lazzeretti 2009).

Culture can contribute to making boundaries between sectors increasingly porous, thus opening to the needs of contiguous sectors in terms of open innovation and fostering an harmonious and sustainable development, capable of combining the search for competitiveness and innovation with social cohesion, which represent the priority Community objectives of SS.

If culture, creativity and tourism constitute a significant area of study, from a theoretical point of view, it becomes increasingly relevant to work in order to integrate this aforementioned perspective with the contributions deriving from the field of cultural and creative economics as well as from the studies on tourism.

This is not a new topic and, in recent years, studies on cities, creative regions and cultural and creative industries have been integrated into the policies for SS. The so-called creative cities may be regarded as one of the key elements of the policies for the Smart Cities and technological districts, integrating and also overcoming the well-established concepts of cultural and creative districts as well as of art and cultural cities (Caragliu et al. 2011). The success of creative industries and of the creative class as well as the increasing importance of the development of regions based on the strategy of events, have contributed to the process of integration between tourism and cultural and creative activities, both at urban and rural level, forming a new axis realistically and virtually growingly systematic and synergetic.

There exist favorable and diverging arguments to these types of enhancement. However, it is undeniable that these activities have strongly developed both in European and non-European countries generating a lively debate (Jones et al. 2015; De Beukelaer 2014; Flew 2013). It has also been widely recognized that cultural and creative industries can make an important contribution to Europe in order to recover from the economic crisis (Bakhshi et al. 2008; Pratt and Hutton 2013) and to foster innovation, thus contributing to implementing strategies of Smart Specialization (S3).

There are at least three fundamental concepts associated with the related variety approach, namely the diversity, connectivity and relatedness, which need to be taken into account when addressing the areas of culture, creativity and tourism.

The term diversity refers to the diversity of the total material and immaterial resources constituting the heritage of the territory and represented by the variety of cultural products and localization (Lorenzen
and Frederiksen 2008). Connectivity is related both to the existing, potential or necessary capabilities to connect these resources between them or with other resources and to the capability of building relationships between actors who enhance them, such as the end-user innovations of the quadruple helix in creative sectors (Colapinto and Porlezza 2012). The capability of discovering unusual relatedness within related and unrelated sectors is called relatedness. It develops through processes of crossfertilization or serendipity, which can be fostered by entrepreneurial capabilities as well as by tacit and codified knowledge embedded in the territory (Lazzeretti 2009).

These three characteristics can be virtuously connected to the other features of cultural and creative sectors and of tourism, which represent important means for analysing the impact of the strategies of SS based on the theories of the related and unrelated variety on employment and growth of regions.

2.1 The evolution of Cultural and Creative industries

As we have already discussed, the cultural and creative sector has become one of the strategic sectors of the third millennium as it is strongly connected to ICT and it is endowed with high symbolic value, which, within the new era of global communications, is usually attributed to cultural products (Power and Nielsen 2010).

The definition of cultural and creative industries is highly relevant because it has been adopted by the subsequent supportive and financial policies issued by both national and European governments, and also includes and reflects the various characteristics of heritage and of the territory.

Below, we provide some of the main classifications, which have been developed over the years by the different national and international organizations (Fig. 1).

Figure 1: Classification cultural and creative industries various approaches

| Table 1.1 Classification systems for the creative industries derived from different models |
|-----------------------------------------------|--------------------------------------------------|-------------------|


Before the expansion of the creative economy (Florida 2002), in Italy, the cultural sector was equally relevant and the most significant cultural industries were related to the publishing industry, architecture,
the traditional craft sector, fairs and local markets. The traditional manufacturing of Made in Italy, which has long been characterized by the relevant component of design (e.g., fashion industry), was not included within the cultural and creative industries. The public sector was primarily connected to the enhancement of artistic and cultural heritage not included within cultural sectors and cultural tourism represented an important element of the Italian tourism sector. With the emergence of new technologies, a new scenario has thoroughly changed the focus from the heritage to the element of creativity. The new concepts of creative cities (Landry e Bianchini 1995), the creative class (Florida 2002) as well as talents have emerged and, at the same time, the so-called experience economy (Lorentzen 2009), which creates new products and market niches in the areas of museums and the rural tourism sector, has spread.

The DCMS (2001), which is an Anglo-Saxon and Australian model strongly technology driven and aimed to enhance primarily the immaterial resources, has become the European reference model. The term “cultural industries” has been included within the broader term of “creative industries”. Software applications, video games, design, performing arts have become sectors with the highest value added particularly spread in the North of Europe, through a new perception of the sector different from the one belonging to the traditional countries of the South, which are usually heritage driven, such as Italy, France or Spain. The different classifications that have been adopted reflect the various interpretations of the concept of cultural and creative industries and it becomes relevant to stress how the concept has evolved overtime by now including activities that were previously associated with the industrial sectors.

In 2010, the publication of the Green Paper (EC 2010) restored the distinction between cultural and creative industries together with a new broad vision that distinguishes the center from the periphery, which represents a signal of a re-discovery of the relationship between cultural industries and local communities aimed to preserve the national differences. The cultural activities have become the core activities, whereas in the periphery there have been emerged contiguous sectors such as those of the experience economy, wine and food, transversal technologies, ITC, green architecture, and of tourism (Fig. 2).

The boundaries of the creative sector have become porous, as expected by the new innovative paradigm of the open innovation and the conditions for the implementation of a strategy S3 primarily based on the preservation of the diversity and relatedness have been created.
The relationship between cultural and creative industries and the territory remains constant over time as shown by the clustering of cultural and creative industries, which have spread at European level and are mostly characterized by a concentration around large metropolitan cities. Countries in the North of Europe are generally technology driven, whereas countries in the South such as Italy, Spain and France, are primarily heritage driven (Lazzeretti 2013). Differently from other countries, Italy is notable for having a widespread creativity both at urban and rural level, although Rome and Milan remain two of the most significant cities. This indicates a high level of diversity, namely of artistic, cultural and environmental heritage inside and between regions, which are suitable for being enhanced through smart specialization strategies.

2.2 The evolution of tourism boundaries

In Italy, tourism has always been a core issue for the economic enhancement of culture through the so-called cultural tourism that is mainly linked to tourism in cities and art regions. However, in recent years, the concept of tourism has undergone a major transformation by including the cultural and creative activities as well as the experience economy under the umbrella of the creative tourism (Richards 2011; Smith and Richards 2013). The systemic approach and the new broad configurations of the tourism sector have made the concept of tourism more complex and integrated. Equally, the demand for tourism has become more complex and has multiplied including new forms linked to the application of new technologies and tourists themselves have become innovators being regarded as co-protagonists in the development of new forms of tourist destinations (Antonioli e Baggio 2010).

The trend towards enhancing environmental resources through the development of new tourist routes linked to the rural creativity, the food and wine sector (e.g., wine routes), and the organization of small
and large events (fairs and traditional exhibitions, festival of culture, creativity, science and so on) has developed, giving new impetus to the strategic role of the territory. Moreover, a new approach to the management of tourism related to the so-called *destination management* has spread, providing new tools for the strategic analysis of the competitiveness of destinations (Capone 2016). At the same time, the demand for an educational approach involving the tourist and the related intermediaries in a sustainable tourism experience aimed at the protection and conservation of heritage (Slow tourism) has grown.

The phenomenon of globalization has involved the tourism sector and new scenarios are likely to emerge in the future (Hjalager 2007). On the one hand, a relevant growth of tourist flows towards Asiatic destinations has been confirmed, on the other hand significant increases of tourists from extra-European countries are expected, especially Asian tourists towards European destinations and particularly Italy with differentiated consumption behavior. An interesting example derives from the case of the Chinese tourism in Florence, which emphasizes not only the artistic heritage but also the food and wine sector as well as shopping as factors of tourist attraction, thus identifying new related market segments such as tourism and the fashion industry (Bellini et al. 2012).

Also the boundaries of tourism are more porous and the logic of “sectorialization”, which does not facilitate the application of S3, seems to confirm the opportunity to develop an approach to tourism extended to (cognitively) contiguous sectors.

After this brief overview, in the next paragraphs some empirical analyses are presented, firstly related to the clustering of cultural and creative industries and then to that of tourism. Lastly, the impact of related variety and the clustering of cultural, creative and tourist industries on the employment growth in the Italian convergence regions is analyzed.

This is aimed to understand which of the three specialization strategy analyzed are important for less developed areas: if the clustering of cultural and creative industries that may be considered particularly relevant for the development of transversal innovation and cross-fertilization among different sectors. Or the clustering of tourism industries from a broader point of view, which is particularly important for countries such as Italy and is capable of generating synergies and agglomeration economies. Or the related variety (Frenken et al. 2007) capable to facilitate the exchange of ideas, interaction and cross-fertilization between sectors and promoting interactive learning among different industries that contribute to a higher capacity to absorb innovations from neighboring sectors.

3. Mapping analysis of cultural and creative and tourist industries

A well-established method, already applied in many studies and adjusted to the most recent contributions, was used to carry out a mapping analysis of the clustering of cultural and creative industries. This method allows us to identify what are the provinces with the highest concentration of employees in the cultural and creative industries. This analysis is performed according to a narrow approach that focuses on the core sectors to verify the real capacity of the creative sector (Lazzeretti and Capone 2015a).

The methodology applied allows us to map the 26 provinces using the Location Quotient (LQ), which indicates the concentration of workers in cultural and creative industries, identifying what are the areas with a higher concentration than the national average.

\[
LQ_{is} = \frac{E_{is}/E_s}{E_i/E}
\]
Whereas $E_i$ refers to the number of employees in the creative sectors in the given province and $E_l$ indicates the number of employees in the same sectors but for the whole country, $E_s$ shows the amount of workers in all the sectors in the considered province and $E$ corresponds to the total number of employees at national level.

A level of LQ higher than 1 means that the considered area has a specialization in creative sectors higher than the national average, conversely, a level of LQ lower than 1 means that the area has a lower concentration of creative workers than the country average.

The data used for this analysis are drawn from the Census industry and services 2011 (ISTAT 2011) and are related to the numbers of employees subdivided by NACE code, up to the 3-digit level of detail. The categories used for the analysis are those addressed by the DCMS (2013) and are reported in table 1.

### Table 1 Cultural and creative industries according to the DCMS (2013) (Nace codes)

<table>
<thead>
<tr>
<th>Advertising</th>
<th>Motion picture, video and tv</th>
</tr>
</thead>
<tbody>
<tr>
<td>73.1 Advertising</td>
<td>59.1 Motion picture, video and television program activities</td>
</tr>
<tr>
<td>Architecture</td>
<td>Photography</td>
</tr>
<tr>
<td>71.1 Architectural activities</td>
<td>74.2 Photographic activities</td>
</tr>
<tr>
<td>Arts and entertainment</td>
<td>Programming and broadcasting activities - tv and radio</td>
</tr>
<tr>
<td>90.0 Arts and entertainment activities</td>
<td>60.1 Radio broadcasting</td>
</tr>
<tr>
<td></td>
<td>60.2 Television programming and broadcasting activities</td>
</tr>
<tr>
<td>Computer programming</td>
<td>Publishing</td>
</tr>
<tr>
<td>62.0 Computer programming, consultancy and related activities</td>
<td>58.1 Publishing of books, periodicals and other publishing activities</td>
</tr>
<tr>
<td></td>
<td>58.2 Software publishing</td>
</tr>
<tr>
<td>Design activities</td>
<td>Sound recording and music</td>
</tr>
<tr>
<td>74.1 Specialized design activities</td>
<td>59.2 Sound recording &amp; music publishing activities</td>
</tr>
</tbody>
</table>

Source: Authors’ elaborations from DCMS (2013).
Figure 3: Cultural and creative industries concentrations in Italian convergence regions

A graphical representation of the clustering of cultural and creative industries is presented in Figure 3 through the LQ values. As we can see, no province has a value of employees in creative industries higher than the national average; only three provinces have values higher than 0.9, namely Palermo, Matera and Benevento. Most of the other provinces have values that vary between 0.7 and 0.9, while the lowest levels (slightly below 0.6) can be found in the provinces of Crotone, Caserta and Trapani.

These results indicate a low specialization in cultural and creative industries in the considered regions, with values very far from the national hotspots (Milan, Rome etc.).

3.1 Tourist industries in the convergence regions

The same analysis was carried out also for the tourist sectors, using the same Location Quotient method but taking into account the number of employees in tourist activities. In this case, are considered the NACE codes, which are reported in table 2, using a broader approach that incorporates, in addition to food and beverage, sports and other entertainment activities that some classifications consider among the creative activities.
<table>
<thead>
<tr>
<th><strong>Table 2 - Tourism filière (NACE codes).</strong></th>
<th><strong>Libraries, archives, museums and cultural activities</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accommodation</strong></td>
<td></td>
</tr>
<tr>
<td>55.1 Hotels and similar accommodation</td>
<td>91.01 Library and archives activities</td>
</tr>
<tr>
<td>55.2 Holiday and other short-stay accommodation</td>
<td>91.02 Museums activities</td>
</tr>
<tr>
<td>55.3 Camping grounds, recreational vehicle parks and trailer parks</td>
<td>91.03 Operation of historical sites and buildings and similar visitor attractions</td>
</tr>
<tr>
<td>55.9 Other accommodation</td>
<td>91.04 Botanical and zoological gardens and nature reserves activities</td>
</tr>
<tr>
<td><strong>Restaurant and food/beverage service activities</strong></td>
<td></td>
</tr>
<tr>
<td>56.1 Restaurants and mobile food service activities</td>
<td>Sports activities and amusement and recreation activities</td>
</tr>
<tr>
<td>56.2 Event catering and other food service activities</td>
<td>93.1 Sports activities</td>
</tr>
<tr>
<td>56.3 Beverage serving activities</td>
<td>93.2 Amusement and recreation activities</td>
</tr>
<tr>
<td><strong>Creative, arts and entertainment activities</strong></td>
<td></td>
</tr>
<tr>
<td>90.01 Performing arts</td>
<td>Travel agencies and tour operators</td>
</tr>
<tr>
<td>90.02 Support activities to performing arts</td>
<td>79.1 Travel agency and tour operator</td>
</tr>
<tr>
<td>90.03 Artistic creation</td>
<td>79.9 Other reservation service and related activities</td>
</tr>
<tr>
<td>90.04 Operation of arts facilities</td>
<td></td>
</tr>
</tbody>
</table>


Even in this case, after calculating the LQ for all the 26 provinces, results are reported in Figure 4. We can clearly see how, contrary to the results of the previous figure, there are many provinces with values higher than the national average, reaching in some cases values higher than 1.3, such as for the provinces of Vibo Valentia, Trapani and Brindisi. Among the 26 provinces considered, only six have a LQ value lower than 1 and only three (Caserta, Bari and Caltanissetta) reach values under 0.9.

Another observation concerns the environmental characteristics of the provinces. Those with the highest values have many kilometers of coastline and this fact suggests that the main component of tourist attractiveness may be the seaside summer activities.
3.2 **The positioning of the provinces in the creative and tourist sectors**

The analysis concludes with a brief comparison between the positioning of the provinces of the convergence regions and the concentration of workers in cultural, creative and tourist industries.

To do this, figure 5 shows a chart including the concentration values of tourism and creative activities in all the provinces of the convergence regions. The analysis was performed using the same data that we have already shown to build the previous figures (ISTAT 2011).

In this graph, the considerations that we have already made in the previous two sections are even more evident. In fact, no province is located in the right quadrant and almost all the provinces are positioned in the quadrant at the top left, showing again a significant weakness in the creative industries and a relative strength in the tourist areas with real points of excellence in line with the main Italian tourist destinations. These results, which occur despite rather limited infrastructure facilities available, show a significant potential of the area for the tourist activities. It is also relevant to take into account that the sector represents a considerable share of the employment in these regions, which for some provinces is a real key sector.
From these results can be drawn some conclusions that allow to give an answer to the first research question: *What is the position of Italian convergence regions in creative and tourist industries?*

Firstly, it is clearly shown a good positioning of the convergence regions in the tourist areas, whereas there is a significant weakness in the creative activities.

The sea tourism, which is integrated with other entertainment activities and the experience economy, seems to be the most important environmental and economic resource to be enhanced. In fact, the main areas of attraction of the considered provinces are mainly located in coastal areas.

**4. The determinants of employment growth: the related variety**

In the last part of this study, an econometric model is used to measure the impact of related variety and concentration of creative and tourism industries on employment growth in order to answer the second research question: *What is the role and impact of related variety and creative and the concentration of tourist industries on employment growth in less developed Italian provinces?*

Although the concept of related variety has been only recently applied to this type of sectors, we believe that the issue is of considerable importance. This is particularly due to their characteristics in terms of...
variety and diversity that are able to foster processes of crossfertilisation and innovation spillover in creative local systems (Lazzeretti et al. 2016; 2015; Berg and Hassink 2014; Sedita et al. 2014).

According to the related variety approach (Frenken and Boschma 2003; Frenken et al. 2007), related variety defines shared competences between different sectors, which are, in this view, related to each other but not too much (Boschma and Iammarino 2009). A certain degree of cognitive proximity gives rise to effective communication and interactive learning among different industries, which contribute to a higher capacity to absorb innovations from neighboring sectors through cross-fertilization.

In this context, related variety is supposed to promote creativity and innovation in local systems due to transversality and spillover processes of innovation in other sectors.

To build an econometric model to measure this phenomenon, the following approach was adopted:

The dependent variable is given by the growth rate of employment between 2001 and 2011, and was drawn up using data from the Italian Censuses of 2011 and 2001 (ISTAT 2001; 2011). All the variables are expressed for all the 26 provinces of the convergence regions and calculated for the year 2001.

The period 2001-2011 in Italy was characterized by a powerful growth of employment until 2007 and a period of recession after the 2008 financial crisis and the trend is confirmed also for the convergence regions. Unfortunately, yearly data at the level of detail required are not available to compute the variables of interest and the analysis uses the employment growth of the whole period, which results to be positive for most of the analyzed provinces.

Concerning variety, is used the entropy measures following the rules adopted in Frenken et al. (2007), Hartog et al. (2012) and Boschma and Iammarino (2009).

Variety is measured as the sum of the entropy at the chosen digit level and designates the variety in the industrial composition of the area. The value of this variables will be higher in areas characterized by a highly diversified industrial composition (Hartog et al. 2012).

Then, the variety is broken down in two different indicators. The unrelated variety is measured as the total amount of entropy at 2-digit level assuming that the sectors not sharing the same 2-digits are unrelated to each other. As a result, the higher this value is, the more the area will be composed of industrial sectors that do not share competencies, where high levels of this variable are associated with low knowledge spillovers (Frenken et al. 2007).

The second part of the variety is the Related Variety. It is the weighted sum of the entropy within each 2-digit sector.

The other variables of interest are those already analyzed in the previous paragraphs and represent the Lq both of tourist and creative sectors, calculated for the 2001 year at provincial level.

In addition, the variable human capital is calculated as the percentage of residents with higher education level. The method of measuring the level of education of an area is in line with most of the literature on human capital in regional growth studies (Boschma et al. 2012; Hartog et al. 2012).

A variable patent, related to innovation in each province, was added and computed as the number of patents per million of inhabitants. This variable is useful for the assessment of the innovation capability of a territory.

In this work, according to other studies on employment growth and related variety (Freken et al. 2007; Boschma and Iammarino 2009) or location quotient (Bishop and Gripaios 2010; De Vor and De Groot 2010), an Ordinary least squares baseline model is used to compute the multiple linear regressions.
Table 1: Estimation results multiple linear regression

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th></th>
<th></th>
<th>Model 2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Variety</td>
<td>0.0320</td>
<td>0.0361</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rel. Var.</td>
<td>0.1285*</td>
<td>0.0695</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrel. Var</td>
<td>-0.0239</td>
<td>0.0377</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LQ Creat.</td>
<td>-0.4843**</td>
<td>0.1646</td>
<td>0.0366</td>
<td>-0.4084*</td>
<td>0.1689</td>
<td>0.0541</td>
</tr>
<tr>
<td>LQ Tur.</td>
<td>-0.0066</td>
<td>0.0368</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Cap.</td>
<td>3.1391</td>
<td>1.8387</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patent</td>
<td>0.0031</td>
<td>0.0152</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.1067</td>
<td>0.2232</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.401</td>
<td>0.511</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>N. of Cases</td>
<td>26</td>
<td>26</td>
<td></td>
<td></td>
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</table>

Significant at: *p<0.1, **p<0.01, ***p<0.001.

Source: Authors’ elaboration.

Table 1 shows the results of the regressions. The first model includes the variables of the Variety and the two Location Quotients. The results do not reveal significant values for the variety index, underlying how there is no relation among the variety of the area and the employment growth as well as how variety per se is not a driver of development for Italian convergence regions. In addition, the model shows an unexpected result; no significance is found among Lq of tourism workers and employment growth, meaning that also concentrations of workers in the tourism field do not significantly increase the growth capacity of the territory.

A surprising result concerns the last variable of interest, Lq of Creative workers, which shows significant results but with a negative sign. Having a higher level of creative workers in a province in the 2001 does not help the employment growth in the following decade, which grows less in those provinces characterized by a higher concentrations of creative workers. In this case, however, it is important to take into account the specific period under investigation that was characterized by the economic crisis. The control variables do not show any significant result in the model 1.

In the model 2, the variable variety was replaced by its two components, namely the related and the unrelated part. It is not possible to use the three variables together in the same model due to their high correlations that would have caused multicollinearity problems. The results show a significant and positive effect of the related variety variable on employment growth underlying how the presence in a province of a set of industries operating in related fields could be an important driver for employment growth, even in a period of recession. The other variables retain the same sign and significance of the previous model, with the exception of the variable Human capital, which becomes significant with a positive sign showing an influence of education levels on job creation of the area.

This is a first attempt to measure the driver for competitiveness of less developed Italian regions, however, the results need to be handled carefully and take into account the specific period under analysis, which was also characterized by a strong economic crisis from 2008 onwards.
To conclude, on the basis of these first results, can be observed that the presence of a high related variety between industrial sectors promotes growth and occupation, although it does not occur if we take into account the clustering of cultural, creative and tourist industries. In fact, these sectors, if considered isolated, do not seem to be a flywheel of economic development able to stimulate employment growth in other sectors.

It is not clear if this is because the overall sectors (culture, creativity, tourism) do not reach a sufficient critical mass and further researches would be needed. We are currently only able to conclude that becomes fundamental to integrate these sectors into other multi-sectoral activities in order to benefit from the effects of cross-fertilization and transversality and from possible policies of SS so as to achieve positive results in terms of employment growth.
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