

Il Capitale Territoriale: scenari quali-quantitativi di superamento della crisi economica e finanziaria per le province italiane



Territorial Identity in Italian NUTS-3 Regions

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1. Introduction

Globalization has deeply changed the way territories compete in the international arena. In this respect, recent theories argue that territories compete on the base of absolute advantages rather than on the base of comparative advantages (Camagni, 2002). In order to succeed, regions and territories should exploit the potential of a complex set of locally-based factors that may be enclosed under the label of 'territorial capital' (Camagni, 2009). From a theoretical point of view, the territorial capital factors should be added to the other traditional factors of production (e.g. labour and capital) that in supply-oriented approaches to economic growth are usually taken into account.

The aim of this work is to analyse – both conceptually and empirically – the territorial identity of Italian NUTS-3 regions (provinces), where the latter is conceptualised as a specific component of the broader concept of territorial capital. First, the concept of territorial identity has been discussed and four main elements with which to articulate this concept have been identified. More specifically, these four elements include the socio-cultural spatial identity that characterise each territory, the spatial organization of activities, the spatial organization of the policy-making process and social capital. All these elements have been discussed within the theoretical background of territorial capital, hence in a perspective devoted to understand locally-based elements upon which building a potential for development.

In autopoietic systems like cities and regions, the origin of territorial identity is on self organization processes (Governa, 1997). The spatial organization of activities is one of the most relevant manifestation of these processes, since it expresses the physical configuration of socio-economic relations that take place in a given territory. On the other hand, the way in which socio-cultural identities are shaped within each region – the strength of local culture – is also the result of past and long processes of social and territorial auto-organization. Similarly, the presence of social capital represents another immaterial element that boosts relations among individuals and it is related with social cohesion. Finally, the spatial organization of governance gives insights on the capacity of territories to share visions, ideas and plans for future development. From this perspective, a territory with a strong identity is able to define – and to put in practice – a successful strategy by means of an effective collective action.

In order to give a first and straightforward idea of territorial identity, the latter can be defined as those factors with which a set of agents – a community – identifies itself in a "lived space", a space in which the physical and the relational dimension of space integrate in the concept of territory (Caldo, 1996; Pollice, 2003). Hence, territorial identity is a dynamic concept since it is at the same time the cause and the result of a reiterate interaction of individuals with their space of action and of relations. In this light, one of the reasons of the role of territorial identity for the performance and potential of territories is that it influences local evolutionary processes, shaping the potential of endogenous development of territories.

This work is organised as follows. Section 2 gives a theoretical contribution by defining the concept of territorial identity and by highlighting the mechanisms with which it can play a role for regional economic development (Section 2). Section 3 discussed data and sources, while Section 4 proposes indicators and proxies with which to measure the elements of territorial identity discussed in previous sections. In Section 5 a descriptive analysis on territorial identity in Italian NUTS-3 regions has been



carried out and these elements have been geographically and quantitatively represented through maps and tables, in order to allow for a better interpretation of the results. Finally, Section 6 concludes and ends with a discussion of potential future research on this topic.

2. Description of the territorial capital elements to be analyzed: measurement problems

Trying to define and measure the concept of territorial identity is a challenging task. However, by focusing on the elements of territorial identity that are considered in this work – socio-cultural identities, social capital, spatial organization of activities and of governance – it is possible to interpret such elements within the framework of territorial capital and fitting them in the theoretical taxonomy proposed by Camagni (2009). Territorial identity includes several factors, both material and immaterial, consisting in goods (in the form of private, public and club goods) and abilities. According to Camagni (2006), these factors include the preservation of local specificities and productive vocations, the preservation of environmental and landscape assets, the capacity to take collective action and to build shared visions about future development, the capacity to strengthen each territory's competitive advantage by means of 'milieu effects' and territorial loyalty and, finally, elements of social capital.

Socio-cultural identities

The first and more intuitive characterization of territorial identity regards the socio-cultural relations that agents located in a given community share with their territories. Differently from social capital, this element represents the strength of local culture, the intensity of the relationships that take place between individuals and the territory where they are located, instead of only among individuals. Taken from this perspective, the strength of territorial identity can play a significant role for economic development. In fact, as a part of territorial capital, it represents a locally-based asset on the base of which it is possible to build an absolute advantage in the international division of labour. In the case of socio-cultural identity, this asset can be conceptualised, using the taxonomy proposed by Camagni (2009), as an impure public good with a semi-material nature. Hence, it belongs to the less investigated components of territorial capital, those that are different in nature from traditionally purely material or purely immaterial goods and with a partial rivalry. This kind of asset is strongly immobile, nested in each territory and promises to be a relevant innovative factors in explaining local development.

Social capital

As argued by Camagni (2006), social capital is another component of territorial identity. This wide concept has been defined in many ways and it has been related to very different spatial contexts, from a neighbourhood level to a worldwide and a-spatial one. Following a standard definition in the literature, social capital can be defined as the set of actual or potential resources related to a long lasting network of relationships among a set of individuals (Bourdieu, 1980). Starting from this definition, social capital assumes the nature of a public good. In fact, it is non-rival – since the use by an individual does not limit the use by other individuals – and non-excludable, since no individual can be



excluded from its use. Another relevant characteristic that distinguished social capital from other forms of capital is that its supply does not decrease with use, rather it increases (Hirschman, 1987).

Social capital has been object of a wide set of studies, also for the Italian case (e.g. Cartocci, 2007; Lasagni and Seravalli, 2003; Sabatini, 2009) and the set of proxies that can be used in order to measure it is increasing over time. In this work social capital has been conceptualised as a specific component of territorial capital and, more specifically, as an element of territorial identity. The hypothesis advanced in most of the literature is that social capital, at least in some of its components, enhances the potential for economic performances of firms and territories.

Spatial organization of activities

Regarding the spatial organization of activities, it is possible to interpret this territorial characteristic as a feature of both physical and – though to a lesser extent – cognitive component of territorial capital. In fact, the morphological and functional structure of the territory, the extent to which activities are spatially clustered or dispersed and the hierarchical distribution of functions characterize the space both from a pure physical and from a relational point of view. It is for this reason that these elements are part of territorial capital: they identify a relational space, where cognitive, institutional and spatial proximity intersect (Boschma, 2005).

Spatial organization of activities is one of the characteristics allowing a territory to be recognised in its peculiar identity. The dispersion of activity in space, for example, can deteriorate previous identities, reducing proximities among agents and favouring a "banalisation" of the landscape and a blurring of the urban form. Conversely, the role of spatial organization is important to inject a sense of belonging to a community, which should be preserved from dissolution. On the rationality of urban dispersion in terms of economic and environmental costs there is a conspicuous amount of literature (Camagni et al., 2002; Muñiz et al., 2006; Cirilli and Veneri, 2010). However, this work analyzed the different patterns of spatial organization of activities in terms of their implications for the territorial potential for local development. Within this framework, the process of dispersion of activities throughout the space can be associated with a decrease in the intensity of agglomeration economies. In fact, in the light of this idea, several works demonstrate that compact and densely-settled areas are associated with higher rates of economic growth and higher level of labour productivity (Ciccone and Hall, 1996; Glaeser, 2000). At the base of this relation there is the hypothesis that physical proximity among economic agents increases interactions, enhancing in turn knowledge spillovers and learning processes.

Regional and urban spatial organization can be qualified not only on the base of the overall degree of dispersion or concentration of activities (jobs or population). Another important characteristic that has currently been debating in scientific literature and in policy documents is the degree of polycentricity (Davoudi, 2003; Meijers, 2008). Trying to give a straightforward definition of this concept, it is possible to define a region as polycentric if it is characterised by the presence of two or more centres (Riguelle et al., 2007). From a morphological point of view, polycentric regions are also seen as regions characterised by a pattern of spatial organisation that could be called "decentralized concentration", a spatial structure midway between compactness and dispersion (Camagni et al., 2002 – p. 52). From this perspective, polycentric spatial organisation allows benefiting from agglomeration economies without incurring in the diseconomies of congestion and of higher land prices arising in fully monocentric (and compact) areas. However, theory helps us finding another advantage of



polycentricity, other than traditional agglomeration externalities from physical proximity. In fact, connections, synergies and complementarities among different centres in polycentric regions can lead to network externalities. In this sense, some authors have recently argued that agglomeration externalities are regionalising, hence they occur from connection among centres of activity located in a given region (Meijers and Burger, 2010). Polycentricity or monocentricity can also be the result of long-run processes of territorial coalescence (Calafati, 2002), where previous independent urban nodes began to integrate – only relationally or also physically – in one single node or in several stronger nodes. In other words, different coalescence processes can yield to different territorial identities.

Spatial organization of governance

The spatial organization of governance can be considered as an important element of territorial capital. More specifically, it is connected with the concept of institutional proximity, where institutions are conceptualised as those local authorities to which it is demanded the provision of locally differentiated public goods and club goods. These are part of territorial capital and favour local development processes. According to the synthetic taxonomy proposed by Camagni, the spatial organization of governance is related to the cognitive dimension of territorial capital. In fact, the extent to which the actions taken by local policy makers is able to generate novelty, shared strategies and innovative visions for local development can be considered as a relevant component of territorial capital that can be filled in the "innovative cross" proposed by Camagni (2009).

In the case of Italy, the spatial organization of governance is currently a central issue for the potentialities of local development (Calafati, 2004). In fact, Italy has a peculiar organization of the policy-making process that has its origin in the XIX Century, when municipal boundaries were defined. Since then, very few changes occurred to such boundaries and, consequently, to the spatial organization of the policy making process (Ferlaino and Molinari, 2009). However, since 1950s, Italy has experimented a deep change in the spatial organization of the economic process, driven by the phenomenon of territorial coalescence (Calafati, 2009). As a consequence, there is now a quite deep discrepancy between the economic and the institutional organization of territory in Italy. From this perspective, the issue of territorial identity assumes a particular relevance, especially with respect to the boundaries of the new cities *de facto* and to the pertinent spatial level at which to implement local policies (Calafati and Veneri, 2010). In the light of this perspective, the degree of fragmentation of the local policy-making process and the capacity to build shared strategies and actions to drive local development trajectories are important aspects to be considered and measured in this work as elements of territorial identity.

3. Data and sources

Most of data that have been used in this work in order to obtain the territorial identity indicators are supplied by the Italian National Statistical Institute (Istat). More specifically, all data about resident population, land area and settlements structure comes from 2001 Istat Population Census. Data about employment comes from 2001 Istat Industry Census, while commuting flows are provided by Istat data on commuting, 2001. On the other hand, distances among municipalities have been computed as point-to-point kilometric distance between each municipal central point, by using Universal Transverse Mercator (UTM) coordinates. Regarding data about the spatial organization of governance,



several dummy variables have been computed on the base of data provided by the "Rete delle città strategiche" association (ReCS), by Agenda21, on its Italian site,¹ and by Formez. Data on social capital and on socio-cultural identity have been provided by the Italian Ministry of Interior, ISL database², Istat and Cartocci (2007).

4. Indicators and proxies for territorial capital elements

This section proposes a set of indicators and proxies aimed at measuring the characteristics of territorial capital that relate with the territorial identity of Italian NUTS-3 regions. More specifically, for each of the four components of territorial identity that have been discussed in previous sections – social capital, socio-cultural identity, spatial organization of activities and spatial organization of governance – a set of indicators are presented.

4.1 Social capital

As it has been argued in previous sections, the presence of social capital is an important component of territorial identity. However, given also the fully immaterial nature of social capital, almost every attempt of measuring this asset could be considered arbitrary. The proxies that are proposed in this work follow previous works on this topic and consider the constraints in data availability.

The first indicator that has been considered is the number of voters at the 1999 European elections over total population having the right to vote (*vote_share*). The extent to which regional population participate at the election can reflect the involvement of people in society. This indicator is supplied by the Italian Minister of Interior. The second indicator of social capital is a composite index of association (*association*), which is provided by ISL dataset and it is computed using data about associations among firms and among individuals. This variable refers to the period between 1990 and 1999. The extent to which people and firm associate represent a powerful measure of social capital, since it catches the formal links that take place among agents that share a common objective. The third indicator is provided by Istat and consists in the number of protests on bills and checks every 1000 inhabitants in 1998 (*insolv98*). This variable can be interpreted as an inverse measure of trust in Italian provinces and it is directly related to the local economic environment. Finally, the last proxy of social capital consists, for each region, in the total number of crimes over total regional population in 2003 (*crime*). This variable is supplied by Istat³ and, similarly to the relative number of protests, it represents an inverse measure of trust, though more focused on the social environment.

4.2 Socio-cultural identity

¹ <u>http://www.a21italy.it/</u>

² ISL stands for "Istituzioni e Sviluppo Locale". ISL database is a set of data at provincial level collected by several researchers at the University of Parma.

³ Istat, Statistiche Giudiziarie e Penali. Anno 2003.



Trying to quantify territorial identity in its purest definition is a challenging task, given also the limited availability of data. Socio-cultural identity is conceptualized in this work as a fundamental component of territorial identity, since it directly refers to the strength of the relationships between a given community of people and the territory where they are located. The first proxy that has been used is the number of people that did not born in the province of residence over total provincial residents in 2004 (*out_born*). This variable is provided by Istat and represents an inverse measure of the extent to which provincial residents have their cultural and familiar roots on the province where they live. The lower this indicator, the stronger the cultural identity of a given province. The second indicator that has been used is the number of members of sport promotional organizations every 1,000 inhabitants in 2001 (iscr_edp). This variable is provided by Cartocci (2007) and can approximate the extent to which each province promotes its sport activities, which are a relevant part of local culture. The higher this variable, the stronger the will to promote and carry out local sport activities. Finally, another proxy for the socio-cultural identity of regions is the share of people that speak local dialect within their household in 2006 (*dialect*). This variable is provided by Istat and reflects the strength of local culture. Unfortunately, this variable is only available at NUTS-2 territorial level and cannot be easily disaggregated. However, even at a wider territorial level, it can help describing the patterns of territorial identity throughout the Italian space.

4.3 Spatial organization of activities

As it has been argued in previous sections, territorial identity has its roots in the auto-organization processes that take place within regions. When the physical and the relational dimensions of this processes are both taken into account, the attention should be focused on the spatial organization of activities, which can reveal relevant aspects related to territorial identity. More specifically, the deep change in the spatial distribution of population and employment and the related processes of territorial coalescence (Calafati, 2002) that occurred in Italy during the last five or six decades, affected the spatial structure of cities and regions and, as a consequence, it had an effect on their territorial identity. In this respect, regions can be characterized by a prominent identity of the largest city, or by a rural character where activities are dispersed throughout the territory or, also, by a polycentric identity given by the presence of several centers that are functional interconnected but physically separated.

Several indicators make it possible to catch some features of spatial structure. More specifically, four main dimensions could be considered in order to quantitatively characterize the pattern of spatial organization of Italian provinces. These dimensions are dispersion, concentration, centralization and polycentricity.

Dispersion

Regarding the dispersion of activities, the first and probably the most straightforward indicator that can be considered is the province's overall density of population or employment. Density is at the same time the most simple and the most used measure of dispersion and it gives a first insight on the intensity with which activities locate in a given territory. In the analysis of the spatial structure of Italian provinces, which are very heterogeneous – varying from practically rural territories to big



metropolitan areas like Milan or Rome – the overall density allows a first important distinction between the provinces under analysis.

A second indicator of dispersion is built by looking more deeply at the typology of residential localizations. More specifically, this indicator, which we call *res_disp*, is another possible measure of sprawl and is calculated as in formula [1].

$$res_disp = \frac{(isol_houses + group_houses)}{centres}$$
(1)

where *isol_houses*, *group_houses* and *centres* are resident people in isolated houses, in group of houses and in urban centers, respectively. The indicator range from 0 to ∞ , where higher values indicate higher levels of dispersion.

Concentration

The second dimension that has been considered in the characterization of provinces' spatial organization is the degree of concentration of activities. Analyzing the degree of activities' concentration means to verify to what extent people and jobs cluster or scatter in space (Galster et al., 2001). Differently from density, which gives only an average value for the intensity of the activities' localization, measures of concentration focus on how much uneven is the spatial localization pattern within each province: is there a uniform settlement structure throughout the territory or a strongly differentiated one, with a clear clustering of activities in some sub-areas?

The first indicator of concentration is the *delta* index, which, according to the literature (Galster et al., 2001; Massey and Denton, 1988; Lee, 2007) can be calculated as follows:

$$jdelta_h = \frac{1}{2} \left| \frac{e_i}{E} - \frac{a_i}{A} \right|,\tag{2}$$

where e_i and a_i are the employment and the area, respectively, of the the *i*-th municipality for each *h*-th province; *E* is the total provincial employment and *A* is the total provincial area. The indicator ranges from 0 to 1 where 0 indicates a perfectly even distribution of activities, while 1 indicates a perfectly clustering of activities in only one municipality. The same indicator can be calculated using resident population instead of employment (*pdelta*), almost without any change in the meaning.

The degree of concentration can be quantified also by employing an entropy measure (Tsai, 2005; Limtanakool et al. 2007). Differently from other indicators of concentration, entropy measures are not influenced from the number of sub-areas within each province, which are very heterogeneous from this respect. The entropy index proposed here (*j_entr*) is derived from Theil index and it is corrected in order to have a range between 0 and 1. This indicator can be calculated as follows:



$$j_entr = \sum_{i=1}^{N} PDEN_i * \log\left(\frac{1}{PDEN_i}\right) / \log(N)$$
(3)

with

$$PDEN_{i} = DEN_{i} / \sum_{i=1}^{N} DEN_{i}$$
(4)

where DEN_i is the job density of the *i*-th municipality within each province. *N* is the number of municipalities within each province. The index ranges from 0 to 1 and higher values indicate lower concentration. Another version of the same index can be calculated using resident population instead of jobs (*p_entr*).

Centralization

The third dimension of spatial organization is the degree of centralization of activities. Centralization is different from concentration, since it considers the distance between clusters. More specifically, while concentration measures the degree of clustering of activities, centralization measures to what extent population or employment are localized near the main center, or Central Business District (CBD). Hence, by assessing the degree of centralization it is possible to shed a first light on the level of monocentricity of the areas under analysis.

The first centralization index is the Modified Wheaton Index (*j_mwi*) (Wheaton, 2004; Lee, 2007), which can be computed as in [5]:

$$j_{mwi} = \left(\sum_{i=1}^{N} E_{i-1} DCBD_{i} - \sum_{i=1}^{N} E_{i} DCBD_{i-1}\right) / DCBD^{*}$$
(5)

where E_i is the cumulative proportion of employment in the *i*-th municipality within a given province; $DCBD_i$ is the distance of the *i*-th municipality from the CBD; $DCBD^*$ approximates the radius of an ideally circular province and it is calculated as the distance of the outermost municipality from CBD. All municipalities must be sorted in ascending order by the distance from CBD. This indicator ranges from -1 to 1, with 1 indicating perfect centralization. As usual, the same index can be calculated using population instead than employment (p_mwi).

Another measure of centralization is the average distance from the CBD (j_adc) (Galster et al., 2001; Lee, 2007), which can be computed as in [6]:

$$adc = \sum_{i=1}^{N} e_i DCBD_i / E$$
(6)

where e_i is the number of jobs in the *i*-th municipality; $DCBD_i$ is the distance of the *i*-th municipality from the CBD; *E* is the total number of jobs in the province. As in the other cases, this index can be



computed also using resident population instead of employment (p_adc). The j_adc index ranges from 0 to ∞ , with 0 indicating perfect centralization.

Another really straightforward centralization measure consists in the number of jobs (population) located in the main municipality over the total number of provincial jobs (population). The higher this indicator (*pivot_job* or *pivot_pop*) the more the province presents a centralized organization of activities and a territorial identity mainly based on the main municipality.

Finally, centralization can be also conceptualized from a functional perspective, hence trying to account for territorial coalescence processes. This means that the provincial territory should be considered also as a space of flows instead that only as a space of places (Castells, 1996) and interpreted as a network of nodes (municipalities) connected by commuting flows. In order to obtain a functional centralization index, we start from a binary matrix of commuting for each province, where links between municipalities take value 1 for the four nearest neighbor municipalities to each municipality within each province. Then, it is necessary to compute the degree centrality of each node, where the degree centrality is the number of links to each municipality. Once obtained the nodal indegree, network degree centralization index can be calculated as in [7]:

$$net_centr = \left(\sum_{i=1}^{N} (c_{\max} - c(v_i))\right) / c_{\max}$$
(7)

where c_{max} is the maximum degree centrality in the province; $c(v_i)$ is the degree centrality of vertex v_i ; N is the number of nodes (municipalities) in each network (province).

Polycentricity

The last dimension of spatial organization that has been considered in this work is the degree of polycentricity of the provinces under study. According to the literature, polycentricity is not a dichotomous concept, since areas should be classified in a range that ideally goes from fully monocentric to fully polycentric (Meijers and Sandberg, 2008 – p. 78). The share of population or employment located in the pivot municipality that has introduced above (*pivot_job* or *pivot_pop*) could be viewed as a first and rough measure in this sense. However, another more appropriate indicator can be derived looking at the size distribution of cities in each province. This can be done, by estimating the *beta* coefficients of the following equation:

$$\ln(pop) = \alpha + \beta \ln(rank)$$
[8]

where [8] is the rank-size equation in the Lotka form (Parr, 1985); *pop* is the population of each municipality within a given province; *rank* is the rank of municipalities by considering their population. The slope of the line, given by the estimated β , indicates the level of hierarchy, and thus the level of polycentricity within a region: the higher the value of β , the higher the level of polycentricity. Many studies, both purely academic and policy-oriented ones, use β coefficients from rank-size to understand the spatial distribution of economic activity, evaluating the degree of polycentricity at regional or even national levels (Gabaix and Ioannides, 2004; Nordregio, 2004).

Rank-size coefficients represent a good and widely used measure of polycentricity, where the latter is conceptualised from a morphological perspective. However, an increasing number of studies deal with



polycentricity from a functional perspective (Van der Laan, 1998; Veneri, 2010), using interactionbased indicators and adopting a network approach to conceptualize the territory (Camagni and Salone, 1993). A specific indicator of functional polycentricity has been recently introduced by Green (2007) and it is called "ordinary polycentricity" (*op*). This indicator can be computed as in [9]:

$$op = 1 - \sigma_F / \sigma_{Fmax}$$
[9]

where σ_F is the standard deviation of the nodal in-degree being measured; σ_F max is the standard deviation of a 2-node network where in-degree n_1 =0 and in-degree n_2 =in-degree of the node with the highest in-degree value in the network (Green, 2007 – p. 2084). *op* ranges from 0 to 1, where 1 indicates perfect polycentricity.

Notwithstanding the differences between functional and morphological approaches, the two indicators should be consistently correlated (Veneri and Burgalassi, 2010). In other words, a functionally polycentric region should not be at the same time strongly morphologically monocentric. In the case of Italian provinces, this requirement holds, since β rank-size coefficients and *op* values are positively and significantly correlated (Pearson's coefficient is 0.58).

4.4 The spatial organization of governance

As a last step, territorial identity can be approached looking at the way in which policy making processes are spatially organized. For this purpose, a first characteristic that should be observed from a territorial capital perspective is the degree of fragmentation of the policy-making process. An administratively fragmented region is a signal of a weak territorial identity and could not have the strength to influence local development trajectories. In order to provide a first and straightforward measure of the spatial organization of the policy making process, a possible indicator is the number of municipalities every 10,000 inhabitants. This indicator is computed as in [10]:

$$admin_frag = (n_mun * 10,000) / res_pop$$
 [10]

where *n_mun* is the number of municipalities in each province and *res_pop* is the total provincial population. The higher the indicator, the higher the degree of administrative fragmentation.

As it has been already argued in Section 2, the spatial organization of the policy-making process in Italy dates back to the early XIX century. However, the territorial coalescence that has taken place since 1950s has not been followed by an institutional coalescence (Calafati and Veneri, 2010). However, the discrepancy between the functional and the institutional organization of the territory could be compensated, though only partially, by formal agreements for government at the supramunicipal level. In this respect, the elements of territorial capital that may be at work for the improvement of the territorial collective action could be the capacity to build visions and strategic thinking about future regional trajectories. This ability could be call community visioning and it is far from easy to measure. However, some qualitative indicators can help improving our knowledge on this issue.

The first indicator of community visioning at the provincial level is a dichotomous variable (*recs*) that takes 1 value if, within the province under study, there is a city or a group of cities that implemented a strategic plan and that is involved in the Network of Strategic Cities (*Rete delle Città Strategiche*). The



latter is an Italian association of cities and territories that have chosen strategic planning as a key instrument to drive local development trajectories and that have decided to share experiences and best practices. This variable takes 0 value for provinces that have not had any strategic planning experience or that are not involved in the above mentioned network.

Variable name	Conceptual dimension	Year	Source	Descriptiv	statistics	
				mean	std. var.	
vote_share	social capital	1999	Minister of Interior	0.72	0.07	
association	social capital	1990-9	ISL	0.0001	0.97	
insolv98	social capital	1998	Istat	42.97	23.03	
crime	social capital	2003	Istat	0.04	0.02	
out_born	socio-cultural identity	2004	Istat	0.54	0.13	
iscr_edp	socio-cultural identity	2001	Cartocci (2007)	70.70	39.49	
dialect	socio-cultural identity	2006	Istat	0.47	0.21	
j_density	dispersion	2001	Istat Census	83.49	116.76	
p_density	dispersion	2001	Istat Census	241.50	328.33	
res_disp	dispersion	2001	Istat Census	0.14	0.10	
pdelta	concentration	2001	Istat Census	0.40	0.10	
jdelta	concentration	2001	Istat Census	0.49	0.10	
j_entr	concentration	2001	Istat Census	0.83	0.07	
p_entr	concentration	2001	Istat Census	0.88	0.07	
j_mwi	centralization	2001	Istat Census	0.43	0.18	
p_mwi	centralization	2001	Istat Census	0.35	0.18	
j_adc	centralization	2001	Istat Census	16.27	6.71	
p_adc	centralization	2001	Istat Census	18.33	7.03	
pivot_job	centralization	2001	Istat Census	0.35	0.14	
pivot_pop	centralization	2001	Istat Census	0.26	0.14	
net_centr	centralization	2001	Istat Census	0.13	0.08	
ор	polycentricity (functional)	2001	Istat Census	0.79	0.08	
rank_size	(morphological)	2001	Istat Census	-1.15	0.26	
admin_frag	administrative fragmentation	2001	Istat Census	19.70	14.33	
			Rete delle città			
recs	community visioning (dummy)	2009	strategiche	0.27	0.45	
ag21	community visioning (dummy)	2004	Agenda21	0.35	0.48	
ag_formez	community visioning (dummy)	2010	Formez	0.52	0.50	

Tahlo 1	Indicator	of spatial	organization	of activities ar	nd anvørnancø
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The second indicator of community visioning is a dichotomous variable (*ag21*) that takes 1 value if, within the province under study, there is a city, a grout of city or the province itself that had an experience in a "local" Agenda21 project before 2004. Agenda21 is a program of the United Nations (UN) aimed at implementing actions, both globally and locally, that relate to a sustainable development. The choice of this measure is motivated by the fact that it seems reasonable to think that participating in local Agenda21 actions is a signal that a territory is doing efforts to stay in a network and to design policies aimed at pursuing a strategic objective. In addition, among the fundamental aspects of sustainability within Agenda21 framework, the preservation of identity values plays a fundamental role (Pollice, 2003). For the provinces that are not involved in any agenda21 program, the *ag21* variable takes zero value.



The last dummy of community visioning (*ag_formez*) takes 1 value if, within the province, there is at least a local development agency following the list by Formez⁴. A local development agency is a public or private organization – operating at the sub-regional level – with the aim of promoting local development by contributing to the enhancement of social capital and to the provision of public (or club) goods and by lowering transaction costs and other obstacles that firms have to face while carrying out their activities. Comparing with the other measures of community visioning that have been proposed here, *ag_formez* focuses more on entrepreneurial activities that can be generated locally. Table 1 summarizes all the indicators that have been presented in this section, showing, for each indicator, the year of reference, the sources of data and basic descriptive statistics.

5. Geographical representation of territorial capital indicators: a critical description

This section aims at describing the characteristics of territorial identity of Italian NUTS-3 regions, through quantitative explorations and visual representations.

5.1 Social capital

Social capital has been measured in the previous section with four different variables, which, as it is shown in Table A1 in the Appendix, are all correlated with the expected signs. Hence, in order to visually represent this component of territorial identity, it seems worth reducing these variables to a single indicator by means of principal component analysis (PCA). Taking the first component, which explains about 50% of total variance, a composite proxy of social capital has been obtained and represented in Figure 1. As for the other maps that follow, indicators' values are divided in five classes by natural breaks, where such breaks are identified following Jenk's optimization. From Figure 1 it emerges that, on average, Southern regions have a smaller level of social capital than Northern and Central ones. The North presents clearly the higher level of social capital, particularly in Eastern regions and in some of the provinces located in Piedmont. Many provinces of Emilia Romagna and Pisa in Tuscany also show high levels of social capital. Among the provinces with the lowest levels of social capital it is worth mentioning Naples, Salerno, Latina and Frosinone, all located in Southern Italy.

⁴ See the following site: <u>http://db.formez.it/attori.nsf/AgenzieDiSviluppo?OpenView</u>



Figure 1 Social capital in the Italian NUTS-3 regions



5.2 Socio-cultural identity

In order to give a quantitative and visual representation of socio-cultural identity in Italian provinces, three variables have been introduces in Section 4. The first is the share of people that were born outside the province of residence (*out_born*). This variable is represented in Figure 2 and shows that North-Eastern provinces, as well as those located in Calabria region, present the lowest share of non-born residents, hence the higher territorial identity. The same can be said for the provinces of Aosta, Pisa and Cagliari. On the other hand, the provinces of Caltanissetta (Sicily), Rome and Rieti (Lazio), Prato and Massa Carrara (Tuscany) show the highest share of non-locally-born residents. In the case of Trieste, the high value may depend on the fact that the province is very small and located very close to the boundary with Slovenia. On the whole, all Sicilian provinces show a relatively high share of non-locally-born residents with respect to the other regions.





Figure 2 Share of people that were born outside the province of residence

Another variable of socio-cultural identity is the number of members of sport promotional organizations every 1,000 inhabitants (*iscr_edp*). This variable is represented in Figure 3, which shows that provinces with the highest share of members are those located in Western Tuscany and Northern Emilia Romagna. This part of Italy confirms its peculiar territorial identity that has been found with social capital. Regarding the rest of Italy, the Northern provinces of Aosta, Cuneo and Pordenone show high values of this variable, as well as Rieti in the Centre and Matera in the South. On the whole, it is easily recognizable that Southern provinces are promoting local sport activities with less intensity than in the rest of Italy. It is also worth highlighting the low values of this variable in the North-Eastern provinces, those that showed the highest values of social capital and locally-born residents. For these provinces, the promotion of local sport activities does not confirm the results that were found for the other variables.



Figure 3 Number of members of sport promotional organizations every 1000 inhabitants, 2001



Finally, the last proxy for socio-cultural identity is the share of people who speak dialect within their household. This variable is referred at the NUTS-2 territorial level and it is represented in Figure 4. From the figure it is easily recognizable that Veneto and all the Southern regions, including Sicily, show the highest values of dialect speakers. The Central-Eastern regions – e.g. Marche, Abruzzo and Umbria – show high values as well, while Lazio and all the Northern regions – excluding Veneto and Friuli-Venezia Giulia – present the closest values to the national average. Obviously, Tuscany shows the lowest value since it represents a benchmark for the correct Italian language. The most unexpected result regards Sardinia, whose share of dialect speakers is lower than the Italian average.



Figure 4 Number of people that speak dialect within the household over total resident population (variable at NUTS-2 level)



5.3 Spatial organization of activities

The spatial organization of activities in the Italian provinces has been considered in the four dimensions described in previous sections: dispersion, concentration, centralization and polycentricity. Given the large number of indicators that has been taken into account for each of these dimensions, it has been decided to employ a data reduction technique in order to synthesize all the information and to produce few but communicative maps. Hence, all the indicators relating to the spatial organization of activities which are represented in Table 1 have been "reduced" by means of a PCA. More specifically, for each dimension of spatial structure (as reported in the second column of Table 1) a PCA has been performed after having standardized all indicators with zero mean and unit variance. In this way, it is possible to build a single indicator for each dimension of spatial organization of activities. These indicators have been computed by taking, for each PCA relating to each spatial dimension, the loadings associated to the first component. This choice is motivated by the fact that the



first component is always accounting for a really large amount of total variance, ranging from 62% to 79% (tab.2).

Table 2 Proportion of variance explained by the first component of ACPs for the four spatial dimensions

Component	Eigenvalue	Share of expl. variance	n. of variables in ACP
dispersion	2.101	0.701	3
concentration	3.130	0.783	4
centralization	4.344	0.621	7
polycentricity	1.579	0.790	2

Figure 5 The degree of spatial dispersion of activities of Italian provinces



Figure 5 represents Italian provinces on the base of their degree of dispersion, separating – though in a very aggregate way – provinces that are characterized by a more compact spatial structure from those with a more dispersed spatial structure. As it was expected, figure 5 shows that the more compact



provinces are those related to the major Italian cities. In fact, the provinces of Naples and Milan present the lowest values of dispersion. Low values are also found for Genoa and Rome, with the latter includes contiguous provinces of the same metropolitan region. Prato is also characterized by a high-density and high-compactness settlement structure, but in this case it may also depend on the small size of the province, which has only a little share of rural and other non-urbanized territories. Conversely, provinces of central Italy, especially those located far from the coast – where less demographic and urbanization pressures occurred in the last decades – are characterized by the highest patterns of dispersion. The same happens for some provinces in the Alps and for Sardinia, except from Cagliari.

Figure 6 The degree of spatial concentration of activities in the Italian provinces



Regarding the dimension of spatial concentration of activities, figure 6 highlights that the provinces where jobs and population are more evenly distributed throughout the territory – hence less concentrated – are located in Veneto, Lazio (Rovigo and Treviso), Puglia (Lecce and Brindisi) and Sicily (Trapani and Ragusa). Low levels of concentration indicate that population is distributed quite evenly throughout the territory, but it does not matter if the pattern of location is uniformly densely or dispersed. It is for this reason that some metropolitan provinces like those of Milan, Turin, Bari and Venice take low values like some provinces in Sardinia and in central Italy. Among the provinces with



the highest level of concentration it is worth mentioning some metropolitan ones, such as Palermo, Cagliari, Florence and Genoa. In these provinces activities are relatively highly concentrated in cities than in the rest of the provincial territory, which in these cases is remarkably larger than that of the urbanized area.

As far as the centralization dimension is concerned, it is possible to note from figure 7 that the most centralized provinces are the metropolitan regions of Rome and Genoa. Other important metropolitan provinces, like Palermo, Naples, Turin, Milan and those located in the Via Emilia present high values of centralization. In these provinces, in other words, a relatively larger share of activities is located in the pivot municipalities or in the other contiguous ones. Conversely, the less centralized provinces are located in the Alps, in Central Italy (including Apennines) – especially far from the coast and in the more rural areas of Sardinia and Southern Italy.



Figure 7 The degree of spatial centralization of activities in the Italian provinces

The last dimension of spatial organization is polycentricity. Notwithstanding the difficulties that arise in measuring this complex characteristic of spatial organization, it seems that by considering both the



rank-size coefficients and the distribution of flows within provinces it is possible to catch at least some of the extent to which provinces are characterized by a balanced pattern of development. Figure 8 maps Italian provinces on the base of their degree of polycentricity. Looking at the figure, it is easy to note that almost all the provinces located in the Northern regions of Lombardy, Trentino, Veneto and Piedmont are characterized by the highest levels of polycentricity. In these provinces, there is a more equilibrate distribution of centers and a denser connection among them. Provinces located in Basilicata and Calabria also show high values of polycentricity, as well as the provinces of Nuoro (Sardinia) and Lecce (Apulia). On the other hand, provinces located in Liguria and in the coast of Tuscany are characterized by a low degree of polycentricity, as well as a group of provinces in the southern part of Sicily.

Figure 8 The degree of polycentricity of Italian provinces



Spatial organization of Governance

The spatial organization of Governance in the Italian provinces has been evaluated on the base of two dimensions. The first is the degree of administrative fragmentation within each province, while the second one is the capacity to quit from a purely sectorial and municipal planning to get to a



territorially integrated planning. As explained in Section 4, administrative fragmentation has been measured through the number of municipality every 10,000 resident people. Figure 9 maps Italian provinces on the base of this indicator. The figure shows that the most administratively fragmented provinces are those located in the Northern part of Italy, close to the Alps plus two other provinces in the central-south Italy, like Isernia and Rieti. In addition, it appears quite clearly that almost all the metropolitan provinces – excluding only Turin – show the lowest levels of fragmentation, as it could be expected given the large dimension of the pivotal municipality. It seems worth noting that almost all provinces located in Sicily, Emilia Romagna, Tuscany and Puglia show low levels of fragmentation, with only very few exceptions. Provinces with intermediate levels of fragmentation are instead located quite evenly across all national territory.

Figure 9 The degree of administrative fragmentation in Italian provinces



Regarding the capacity of the province to make an integrated and inter-municipal planning (community visioning), figure 10 represents in darker color those provinces that have experimented strategic planning and that have joined – through one or more cities located within the province – the Network of Strategic Cities (ReCS). The figure shows that provinces with strategic planning experiences within ReCS are quite evenly distributed throughout Italian territory. Among the other



regions, Umbria, Sardinia and Puglia are those in which these kind of planning experiences are more frequent.

Figure 10 The provinces with strategic planning experiences within the "Network of Strategic Cities" (ReCS)



Another indicator of community visioning is the involvement in Agenda21 projects. Figure 11 shows that, except from Sicily and regions located in the North-east of Italy, provinces that are involved in Agenda21 project are quite evenly spread throughout Italian territory. It appears quite clearly that the most "active" region in terms of Agenda21 projecting is Emilia Romagna, since almost all its provinces are involved in this kind of development project. On the whole, 36 provinces in Italy had at least one Agenda21 experience.







The last indicator that have been taken into account is the presence of one or more local development agencies that manage projects at a sub-regional level (ag_dev). Across Italy, 54 provinces over the total number of 103 are provided with at least one of this kind of agencies. Figure 12 shows that almost all the Southern provinces, including the two islands, are provided with at least one of these agencies. Agencies are also present in a group of provinces located in the center of Italy, in an area between Lazio, Marche and Umbria and in Emilia Romagna. Some provinces in Northern Italy – including Milan, Turin and Trento – are also provided with at least a development agency.





Figure 12 The provinces with at least a local development agency, as listed by Formez

6. Conclusions

This work has tried to explore the territorial identity of Italian provinces, where the latter has been conceptualized as a particular element of the broader concept of territorial capital. In order to disentangle such an element both conceptually and empirically, territorial identity has been articulated in four main components: social capital, socio-cultural identity, spatial organization of



activities and governance structure. A large set of indicators has been presented in order to quantify these four aspects, which have also been represented through maps and tables. The descriptive analysis proposed here shows that Italian territory is very diversified in terms of territorial identity. On the whole, it does not appear to exist a clear north-south pattern in the indicators that have been considered, except for those related to social capital. Instead, each dimension should be explored separately, since they tell us specific information on the territorial identity characteristics. A natural step ahead for this work consists in investigating the role of the analysed dimensions of territorial identity on economic performance of Italian provinces.

Further explorative research should be devoted to the analysis of the discrepancy between the actual organization of the territory and the spatial organization of the policy making process. In fact, since several decades, Italy seems to be characterised by a government structure that does not correspond anymore to the actual organization of the economic process. This discrepancy could represent a key issue for the capacity of territories to drive their development trajectories within the contemporary globalized competitive arena. As a matter of fact, this topic promises to have much potential for further investigation.

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Appendix

Table A1 Pearson correlation coefficients among variables and proxies of territorial identity

	vote	assoc	insolv	crime	out- born	iscr- edp	dialect	p dens	res disp	p delta	i entr	i mwi	i adc	piv job	op	net- centr	rank- size	frag
						P		P	P	P)))	P)2	- P			
vote_share	1																	
association	0.50	1.00																
insolv98	-0.33	-0.53	1.00															
crime	-0.14	-0.18	0.05	1.00														
out_born	-0.18	0.02	0.09	0.19	1.00													
iscr_edp	0.31	0.34	-0.21	-0.12	0.05	1.00												
dialect	-0.44	-0.26	0.24	-0.19	-0.08	-0.41	1.00											
p_density	-0.19	-0.09	0.27	0.26	0.06	-0.15	0.01	1.00										
res_disp	0.40	0.10	0.01	-0.17	-0.14	0.18	0.02	-0.32	1.00									
p_delta	-0.25	-0.49	0.27	-0.15	-0.31	-0.30	0.33	-0.16	0.07	1.00								
j_entropy	0.27	0.13	0.06	-0.14	-0.10	-0.11	0.25	0.11	0.06	0.00	1.00							
j_mwi	-0.20	0.08	-0.02	0.23	0.29	0.09	-0.09	0.23	-0.30	-0.25	-0.26	1.00						
j_adc	-0.01	-0.15	0.17	-0.23	-0.25	-0.09	0.18	-0.37	0.15	0.30	0.20	-0.52	1.00					
pivot_job	-0.27	0.03	0.01	0.32	0.61	0.05	-0.11	0.30	-0.25	-0.22	-0.34	0.65	-0.53	1.00				
ор	0.15	-0.27	0.00	0.08	-0.60	-0.21	0.16	0.02	0.09	0.45	0.20	-0.11	0.26	-0.35	1.00			
net_centr	-0.07	0.20	-0.01	-0.14	0.39	-0.07	0.03	0.18	-0.18	-0.22	0.05	0.24	-0.44	0.49	-0.54	1.00		
rank_size	0.13	-0.08	0.06	-0.19	-0.56	-0.26	0.37	-0.20	0.19	0.51	0.46	-0.35	0.29	-0.48	0.58	-0.20	1.00	
admin_frag	0.19	-0.17	-0.26	-0.07	-0.27	-0.02	-0.09	-0.33	0.24	0.48	-0.14	-0.34	0.18	-0.35	0.42	-0.43	0.25	1