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Local resources and territorial performance. measures of natural, cultural and human capital

LOCAL RESOURCES AND TERRITORIAL PERFORMANCE. MEASURES OF NATURAL, CULTURAL AND HUMAN CAPITAL

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1. Introduction

Territorial capital plays an important role in the economic field since it affects regional growth. In literature a wide range of essays was and is being dedicated to this subject (Lucas, 1988; Aighon & Howitt, 1996; Becattini, 1979; Camagni, 1995). Regional growth depends both on local and global processes. To grow, regions must be endowed with lots of resources. These refer to territorial capital, fixed capital, public and private capital and human capital as well as to social, cultural and natural heritage, productive vocations, agglomeration economies and internal organization of the territorial system.

Despite the endowment of territorial capital, Europe shows a slowdown in growth rates and lack of regional convergence. Empirical analyzes point out that the territorial capital is a constraint which affects the process of regional growth and convergence among regions. However little attention is paid to traditional local resources, in particular the local natural and cultural heritage. One must also consider that heritage doesn't development for itself: only a good exploitation of human capital allows a return on heritage, by converting it into export capacity and, then, into actual growth (GDP) and development, i.e. quality of life. In particular, the cultural and natural heritage acquires economic relevance through the human capital operating in tourism and recreational-cultural assets, which are reckoned as most dynamic economic activities (World Tourism Organisation, 2006, 2009, 2011, 2014), mainly in Europe (European Commission, 2003; Eurostat, 2006, 2008, 2010; Eurofutures, 2007). In Italy, however, the tourism industry loses market share to the fragmentation of the supply and the lack of ability to "system" (Confindustria, 2007; Birtwistle, 1996). Also in export sectors, tourism contributes to economic growth and creation of jobs, but in literature the theoretical and empirical contributions rarely studied tourism or extend the results to it (Bentley, 1996) (Buhalis, 1998; Lee & Kang, 1998; Barros & Santos, 2007; Faggio, Salvanes, & Van Reenen, 2007; Skaple, 2007).

In addition, tourism is a market activity which encourages more polycentrism in Europe, so it appears to be a bearer of greater equity and territorial cohesion (Requena & Aviles, 1993; Dallari, 2004). However, the development of heritage in response to the demand for tourism services and leisure facilities has negative effects on development (congestion). It also impacts on environmental quality and on the consumption of natural and cultural resources. These effects partially cancel the strictly economic benefits and over time undermine the attractiveness of the destination and the welfare of residents. Therefore, productivity and employment - two components of GDP – go along with other measures of life quality (UNDP, 1990) based on sustainability. Finally, several recent surveys including the MASST project, showed that each region grows not as an island, but because it has positive and negative interrelations with other regions (Jehiel, 1991). Space interdependencies, generated by the enhancement of cultural and natural heritage, are not possible.

The aim of the paper is twofold. On the one hand, it means to help developing of theoretical framework on the issue of territorial capital. In particular, it takes into account the role of localized resources in local economic growth as well as its territorial differences, labour and human capital in the development of other resources.

On the other hand, the paper aims to help building a national database for the territorial capital of 103 Italian NUTS3 provinces through the collection of data and the construction of synthetic indicators related to the following topics:

- human capital endowment,
- natural, landscape, monumental and cultural heritage endowment
- structure and territorial distribution of tourism industry and recreational–cultural activities.

The paper consists of the following sections. Section 2 gives a brief review of the measures used to evaluate natural, cultural and human capital. Section 3 deals with the explanation of the data used for the building up of the indicators, as shown in Section 4 and their sources. Sections 5 and 6 include critical analysis of these indicators. In Section 7 conclusions are drawn up.

2. Artistic – cultural – natural heritage and human capital: description and measurement problems

Studies carried out on territory capital show how the specific structural features are limits/ opportunities for growth processes of regional and inter-regional convergence, even though they may be less attentive to localized resources, particularly with reference to natural and cultural heritage. This capital is not exploited in itself but it is only the application of human capital which allows you to make income. The cultural and natural heritage takes economic relevance

through the human capital operating in economic activities, such as tourism and entertainment-cultural activities.

2.1   Natural and cultural capital

Elements of territorial capital, of naturalistic and cultural kind, can be analyzed in relation to tourism. Tourism, in fact, is one of the ways in which a territory can grant value and export its culture. It should be noted that the structure and distribution of tourism and recreational-cultural industry are not a real element of territorial capital. Actually, they are the result of a creative process that leads to development/enjoyment of the artistic-cultural-natural heritage, namely they generate tourism appeal.

Before examining in detail the possible measures of these items, we are carefully proposing a classification of assets and cultural activities that can be defined according to the following categories: architectural, archaeological and environment goods; chattels and artistic-historical, artistic and architectural; archival and library heritage; musical heritage; shows and media. Object of this analysis are the cultural resources1, represented by the cultural and landscape heritage2, whose services are produced and conveyed to society by institutions and public and private institutional mechanisms. The economic analysis of these resources aims to define the economic and cultural object and provide an adequate description and evaluation of the economic results associated with it. In particular, we need to identify the benefits in terms of employment and income, by taking into account the importance of tourism - tourism expenditure, contribution to GDP, .., (Bariletti & Causi, 1998; Causi, 1998) so as to define a more clear and workable space for economic analysis, both theoretically and at a practical level with reference to the tools used in the applied analysis. In literature, however, the measurement of these elements of territorial capital is not treated at the same detailed level as it is with human capital.

Some ideas for the building up of indicators apt to measure the endowment of cultural and natural capital can be obtained from the monitoring system of tourism of Lombardy Region (Unioncamere Lombardia, 2010) which proposes a set of indicators organized in a pyramidal structure in increasing levels. At the basis of the pyramid there are basic indicators, obtained from combinations of variables directly measured on observable phenomena in nature. These indicators, then, are aggregated by the logic of the main components to create composite indicators of increasing level, i.e. by indicators based on indicators of third level. Within this set of indicators there are measures of the endowment of natural and cultural heritage. In this way we try to quantify the level of endowment and heritage of tangible area assets which can be exploited to enhance the ability to attract tourism flows and profits and, thus, generating

employment and income. The attractive areas considered by the statistical Monitor (Unioncamere Lombardia, 2010) are: artistic-cultural, natural environment, recreational sports, and other resources. The goal is to combine information to quantify the allocation of assets in the strict sense: i.e. number of parks, monuments number, etc., with information approximating their relevance, as they allow understanding of the impact of business and employment.

In the artistic- cultural block, we built up indicators for the number of workers in "show, entertainment and recreation activities" (Ateco 92.3) and "Libraries, archives, museums and other cultural activities" (Ateco 92.5) per 1,000 inhabitants. We also constructed indicators that take into account the number of local units of sectors "Activities for show, entertainment and recreation" (Ateco 92.3) and "Libraries, archives, museums and other cultural activities" (Ateco 92.5) per square kilometer, representing the concentration of the phenomenon at issue (Unioncamere Lombardia, 2010).

For the naturalistic-environmental subset the collected information is: the amount of assets in protected areas per square kilometer, i.e. parks, local parks of supra-municipal interest, natural reserves, Sites of Community Interest (SCI), Special Protection Areas (SPA) and natural monuments and workers in "Managing botanical gardens, national parks, natural heritage" (Ateco 92.53), "Cleaning of public areas, decontamination, environmental clean-up" (Ateco 90.03), "Business services related to agriculture, creation and maintenance of gardens, flower beds, green spaces "(Ateco 01:41) per 1,000 inhabitants.

The monitor consists also of two more indicators to measure the allocation of recreational and sports assets and includes: number of workers in the "production and distribution of film and video" (Ateco 92.1), "Radio and television activities" (Ateco 92.2), Sport Activities (Ateco 92.6) and "Recreational activities" (Ateco 92.7) per 1,000 inhabitants and number of sports facilities plus number of recreational and sports enterprises per square kilometer (Unioncamere Lombardia, 2010).

As mentioned above, aspects of tourism are closely related to the allocation of natural and cultural capital. The tourism industry consists of all those enterprises, organizations and structures to meet the specific and peculiar demands from tourists (Leiper, 1979). In literature, the basic indicators are used to describe aspects of tourism that can be divided into two groups: demand side and supply side indicators. Basic indicators on the supply side relate to the accommodation capacity (number of firms, number of bedrooms, and number of beds) and complementary accommodation (camping, cottages, holiday homes, B & B). Starting from these basic variables can be derived indicators to express: the average hotel size (beds/number of firms) to express the business size; the density of accommodation (bed/population), to have the weight of the accommodation; use of gross hotel ((presences/beds)*365), to give the

utilization degree of facilities; net hotel ((presences/beds)*gg opening). Among the basic indicators of demand the most common are: arrivals (those who arrive in a country, regardless of time of stay and highlights of turnover) and presences (the number of nights highlighting the use of facilities). Starting from these basic indicators it is possible to build up derivative indicators and among these the most prevalent are: average length of stay (presences / arrivals), which indicates the average length of stay and allows understanding of the type of tourism and tourist density (presences / population) showing the impact of tourism on local economy.

In the statistic monitoring of tourism (Lombardy Region) we can find other useful indicators to measure the tourism attractiveness of an area. Among the basic indicators there are measures of tourism entrepreneurship, whose aim is to estimate the relative ability of each region to generate entrepreneurship in tourism. This concept can be evaluated in three ways: size (basic variables are proportional to population), concentration (a measure of spatial distribution) and incidence (to understand how heavy the phenomenon is on total economy). Examples of indicators are: number of employees in the tourism sector per 1,000 inhabitants; number of employees in the tourism sector per square kilometer; number of firms per square kilometer, amplitude billed per square kilometer; number of employees to total employees tourism economy and number of tourism firms compared with the total number of economy firms. (Unioncamere Lombardia, 2010).

The second evaluated aspect relates to the endowment of accommodation characterizing each territory and representing a proxy of the accommodation capacity. Indicators included in monitoring are: beds per 1,000 inhabitants (endowment); total beds per square kilometre; number of accommodation facilities per 1,000 inhabitants and number of accommodation facilities per square kilometer. In addition, indicators can also be set up on the vacation rentals for example by calculating the percentage of secondary residences of total housing, relationship between ICI and the resident population.

The third aspect investigated relates to the size of tourism accommodation in order to have a complete picture of absorption capacity in a territory and highlights of facilities in the strict sense (hotels and not), those associated with restaurants and the like and second homes. The proposed indicators are: number of beds per room, average number of employees, average turnover. Accommodation facilities, however, can also be evaluated from the point of view of the quality and type of building indicators which measure the impact of total accommodation capacity of available facilities (number of beds in hotels / accommodations total number of beds), and the relevance of first class hotels (Unioncamere Lombardia, 2010).

In order to obtain a representation of the territory attractiveness, i.e. to understand what is the ability of a territory to attract incoming tourists and convert them into presences indicators were

built up on the basis of data flow: total arrivals per 1,000 inhabitants; total presences for every 1,000 inhabitants and total presences / total arrivals.

In the monitoring system on tourism, through the logic of the main basic components, indicators were re-aggregated into higher-level composite indices. Some basic indicators were aggregated in such a way as to generate a composite indicator which expresses tourism entrepreneurship. In turn, the composite tourism indicator of tourism entrepreneurship combined with the composite indicator of allocation of facilities, of tourist attractiveness and infrastructure indicators and of the average size of accommodation leads to the building up of a composite indicator: the "guidance to tourism," which provides an estimate of how the area is ready to the development of this phenomenon. In fact, this composite indicator is based on basic indicators to measure the propensity to tourism. The quality and type of accommodation combined with ability to attract, intensity of use of accommodation facilities, productivity and the incidence of foreigners generate a composite indicator called "quality and positioning of tourism" that influence the perception of consumers (Unioncamere Lombardia, 2010).

2.2   Human capital

Human capital, as defined by the OECD (OECD, 2001), is the set of knowledge, skills, competencies and personal attributes that help in personal, social and economic well-being. This definition shows that the human capital derives from a different set of intangible contributions which produces outstanding results not only from the economic point of view and the labour market. Indeed, greater human capital endowment also allows an improvement in general living conditions. All this happens because human capital is most significant and it is increased by formal education and training, as well as by other forms of learning resulting from social networks. Education is the main factor which affects the human capital. Besides there are other specific factors and contexts that may influence the development of human capital both individually and socially. These factors include local economic development level which can affect the ability development of human capital in people living in their specific territory. All this reveals the existence of a reciprocal relationship between human capital and social capital, understood as the provision of relational goods, i.e. the set of networks and social relations.

In literature the social capital is different from human and physical capital because it is relational and a non-exclusive property of someone and because its use increases it in size rather than decreasing it. Also unlike physical capital, social capital does not have a rate of return that can be measured.

In economy literature, human capital involves measurement problems that are dealt with in different ways, both theoretically and methodologically, to get an assessment of individual and

collective human capital endowment. The intense debate on human capital developed over the last few years has prompted a critical analysis of the theoretical and technical aspects of measurement of human capital. This resource, in fact, has become a topic of investigation and debate among economists not so much to become the absolute best measure among the available options, but with the purpose of reaching a better understanding of the characteristics and potentiality of each measure. Reviews written in the last few years have shown that the measurement of human capital in the past was linked to the need to identify variables to be used in models of growth analysis or in the analysis of efficiency of education and training.

However nowadays, it is believed that the knowledge of measures of human capital is important not only to understand the economic dynamics but also to improve the direct knowledge of the nature of human capital and the dynamics of learning (OECD, 1998; Stroombergen, Rose, & Nana, 2002; Le, Gibson, & Oxley, 2005; Woessmann, 2003).). Human capital, from Adam Smith until today, has been the object of numerous studies in the economic field and every branch of research has focused on some specific element. The fundamental element of human capital is the skills and abilities that allow those who possess them to act / work in a most innovative and efficient way. In general terms, human capital includes the knowledge, skills and competencies which improve not only methods of work, but also social conditions, and both in economic terms of overall well-being (OECD, 2001). These definitions highlight how human capital derives from a different set of intangible contents with significant effects not only for the economic implications and the labour market, which are the key objectives for the measurement of human capital. A higher level of human capital also allows an improvement of the general conditions of life, participation in democratic processes, involvement in activities that do not have a direct economic return, such as voluntary work in family and community engagement (OECD, 1998). Human capital also includes non-cognitive skills - motivational aspects, open mind to new ideas, ability to work in team – that are often instrumental to success in school performances (Heckman, Stixrud, & Urzua, 2006). Basic indicators, as proposed and used in literature, can be grouped into five homogeneous families.

The first family includes the indicators defined as "stock" of a measure in quantitative terms relevant to schools management and the general level of education achieved in a given geographical area. Among the main indicators we rate enrolment/participation, years of schooling, rate of education, drop-out rates and rate of grade repetition. Indicators are more direct and self-explanatory for the measure of the stock of human capital and therefore are often used in the analysis (Antonelli, Leoncini, & Nosvelli, 1998; Checchi, 2003). The main problems with these measures are related to the difficulties in international comparisons due to the different organization of education systems in particular. Anyway it should be kept in mind that

they are a quantitative measure which is not always possible to associate with a qualitative content.

The second group shows input indicators of the education system. It collects all the measures relating to the amount of public and private resources used in the creation of human capital, such as a share of GDP for education, public spending education, household spending on education, business expenditure on education, expenditure per student, and total wages for teachers. In many studies the indicators measuring investment in education and training are seen as a proxy for human capital, by assuming the existence of a direct correlation between the amount invested and human capital produced. These measures are useful because they allow you to give a monetary valuation of capital stock, overcoming the differences among education systems. But they can have their own limitations. The first limitation is related to the basic hypothesis that correlates investments in human capital. Some studies show that the increase in spending has no impact on increasing the level of human capital (Hanushek, 1996). A second limitation is the fact that is not always possible to determine which types of human capital investment are allocated to (Machlup, 1984). Another limitation is related to the fact that the costs of education are derived from national accounts, which classify them as current expenses.

The third family deals with one of the indicators of education organization and training system. At its core is the idea of a positive correlation between the functioning of school and efficient use of resources by the school and the increase of human capital available. In this group of indicators we can also included data relating to school structures and equipment. Examples of indicators used in literature are: student/teacher, student/class, school year terms, Pc/students, teacher's characteristics. This group of indicators makes it possible to assess the degree of schools efficiency and it is important for school governance. The limits of these measures are: first, doubts about the relationship between efficient and effective use of school inputs and outcomes in terms of the creation of the stock of human capital. Some works deny the existence of a positive correlation between the ratio of students /teachers and the performance of the students (Hanushek, Rivkin, & Taylor, Aggregation and the Estimated Effects of School Resources, 1997; Hoxby, 2000); secondly, the data are not uniformly available for all countries and sometimes even within each country.

The fourth group includes output indicators used in literature to measure the output. The basic idea is that human capital can be measured by the actual results achieved in the education system. So it is a mixed battery of indicators that concern the content of human capital transferred, measured by literacy and level of learning of particular disciplines, and the results in terms of income. Some stock data such as rates of achievement, repetition and delay could rightfully be included in this group. The main output indicators are: degree of learning, levels of

literacy, education-related wage differentials, rate of return of education. The indicators of literacy and learning provide relevant information on human capital because they allow you to measure the skills and knowledge available to individuals irrespective of route of study undertaken and quantitative factors related to it: i.e. years of study. Indicators measuring human capital are based on the actualization of future wages and suggest that wage differentials correspond to differential marginal productivity of labour. The limits are intrinsic to the indicators. In fact, these indicators are influenced by institutional/social conditions and in every country have an impact on the results in the learning process.

Finally, there are indicators to measure the skills used to highlight abilities and skills shown by employees, not only in school or in professional education, including job training or other learning opportunities that each individual was able to seize (Colecchia & Papaconstantinou, 1996; LSC, 2005; OECD, 2005; Frinking, Ligtvoet, Lundin, & Oortwijn, 2005; LEITCH, 2006). These indicators were built because it is increasingly important to know all the human capital available to a worker, as it is with components less abstract and more directly usable in employment. Literature highlights the need to consider at least the following three indicators: workers relating to professional for specific sectors or levels of classification/total workers, availability of specific types of skills, demand for workers with specific skills/total labour demand.

3. Data and sources

The data used and their sources can be found in this section. With regards to the creation of a database, the data collection was subject to some technical and statistic specifications. On the one hand, it was necessary to delimit the set of information to variables available at the provincial level, measured homogeneously throughout the national territory. As additional selection criteria we chose data provided by institutional sources certified to ensure a level of reliability and adequate statistical quality. The data considered refer to the 103 Italian provinces (NUTS 3) and the frequency of data collection is annual. A remark must be made on sector classifications. This scheme used to encode and identify activities with respect to the sectors is the classification Ateco 2002. The more recent Ateco 2007 was not taken into account. This choice was first suggested by the nature of the data used which are largely related to the period before 2007 and then again coded according to Ateco 2002 classification.

The raw values used in the construction of the indicators, shown in the following section, can be grouped into five families. The data on the resident population on December 31st, in the 103 Italian provinces and in on land areas are used in the construction of most indicators. The data are from ISTAT annual frequency and detail in provinces or regions, where applicable.

3.1 Historical, artistic and cultural heritage

The first group of raw variables is related to the historical, artistic and cultural heritage. To analyze this element of territorial capital we used, as variables, the number of museums, monuments and archaeological sites, the number of theatrical shows and the number of public libraries. All these data are from ISTAT - Statistical Atlas of Regional Infrastructure (Asti), Istat - Statistical Atlas of Municipalities (ASC) and the Ministry of Cultural Heritage. The frequency of detection is annual. The reference period for the number of museums, monuments and archaeological sites is between 1996 and 2007, while for theatre and for public libraries the data are between 1996 and 2005. In addition to these variables we took into account the number of local units and employees of local units of the "Activities of the show, entertainment and recreation" (Ateco 92.3) and the number of local units and employees in local units of "libraries, archives, museums and other cultural activities "(Ateco 92.5). The data on local units and employees refer to 1981, 1991 and 2001 - the years of the general census of industry and services.

The second set of variables concerns the description of the natural heritage we are going to describe by using data on: surface of a Special Protection Areas (SPA), surface of Sites of Community Interest (SCI), mountainous areas, coastline length and farming areas (SAU). The data on SPA and SIC at the regional scale and relate to 2000, 2003, 2006. The data on mountain surface affect 2005 only; the length of the coast is limited to 2006 while SAU is available for 1990 and 2000 - census years. These three variables are available at provincial level. Raw data are from ISTAT - Asti, Istat - ASC and the Ministry of Environment.

The third group of raw data relates to tourism industry. The variables we examined include number of hotels and complementary firms with number of beds. The data are the provincial annual basis, for the period between 1996 and 2006. The data source is Istat - Asti and Istat - ASC. We also examined data on the number of local units and the number of employees in local units with activities of hotel accommodation for sectors Ateco 55.1 and 55.3. The data are from the census years 1971, 1981, 1991 and 2001, from 1996 and 2004: inter-census years. The data source is Istat - ASC and Istat – Asia, (Asia is the Statistical Register for local units of enterprises).

3.2 Education and training

Since human capital is an important component of territorial capital, it can be evaluated by considering two aspects: on the one hand, education and training and on the other side the labour market.

Education can be divided into upper secondary level and university. We chose to measure upper secondary education by considering raw data on the number of students enrolled in the first and fifth year of public high school and the not on the population aged3from 15 to 19. The three variables are from Istat - Asti. The reported period covers years 1996 to 1998 and from 2004 to 2005. University education is analyzed according to the following variables: number of students enrolled in degree courses4, number of students graduates of the resident population aged from 20 to 24. As for upper secondary education, even in this case data are annual, Istat – Asti, while the reference period is between 1996 and 2006. Also the data on the resident population aged 20-24 are from Istat - Asti and the period from 1996 to 2006. Data on professions complete this set of variables and are taken from the 1991 population Census. In particular, the variable taken into consideration concerns resident active population divided according to occupation5 in the following groups: 1) Legislators, executives, entrepreneurs; 2) Intellectual, scientific and highly specialized; 3) Technical professions; 5.2) Professions in tourism and hotels; 6.2 and 6.3) and similar craftsmen and metal workers, artisans and skilled workers in mechanics, artistic handicraft, printing and related workers; 6.5) Artisans and workers in food processing, wood, textile, clothing, skins, leather and similar.

The variables describing aspects of the labour market are shown in the Labour Force Survey by ISTAT. The time series covers the years from 1992 to of 2007. The variables used are: number of employees, labour force, people in search of a job and population aged 15 and over, divided by gender. As defined by Istat employed people include workers aged 15 and over who during the reference week did at least one hour of work while the labour force includes the employed people and people seeking a job - unemployed. The latter refers to unemployed people aged between 15 and 74, who had at least been in search for a job in the month before the interview and were available for work within two weeks after the interview or ready to start working within three months from the interwiev date or within two weeks after the interview, if a job could be attained in advance. The last variable relates to the population aged 15 and over, who represents the working population.

4. Measures of territorial capital

The basic logic of construction of indicators approximating the elements of territorial capital here analysed, namely human, natural and cultural heritage, is divided into several phases. The first phase deals with the definition of the information set, namely the construction of a battery of basic economic indicators which, taken together, provide a comprehensive picture of the situation of localized resources, allowing you to distinguish between the areas – provinces - which are in a state of relative difficulty and those that are in a good state of health. The second

phase is made up by the alignment of data, and it aims to making homogeneous measurements since each indicator has its own metric measurement. To this, only relative magnitudes - normalized population, number of employees, territorial surface, etc - or percentage changes% were defined. Finally, the third phase is related to the construction of index numbers, which consists in transforming all indicators in index numbers to set up lists of the provinces.

Basic indicators built up for the different types of territorial capital, as analyzed in this paper are shown in the tables including code6, name and formula of the indicator used to obtain it, the reference period(k is the temporal frequency), and territorial level.

4.1   Historical, artistic and cultural capital

The first group of basic economic indicators, summarized in Tables 4.1 and 4.2, is related to the historical, artistic and cultural heritage. Through it we intended to quantify, in relative terms, the endowment and heritage of tangible assets on which a territory can rely on to enhance its attractiveness. The logic adopted was to combine information to quantify the allocation of assets in the strict sense - number of monuments, of museums, etc. – as well as information to approximate their relevance, since they allow understanding of business and employment results induced by the heritage of the considered attractiveness.

On the basis of official documents from institutional statistical sites, in the artistic - cultural block we built indicators for the number of workers in the "Activities of show, entertainment and fun" (92.3), "Libraries, archives, museums and other cultural activities (Ateco 92.5), "the number of museums, monuments, archaeological sites, plays"7 for 1,000,000 inhabitants. The indicators relate to the resident population and allow understanding the size of the phenomenon: the greater the value of the indicator the greater the size of the phenomenon.

Table 4.1: Historical, artistic and cultural capital indicators: measures of endowment of capital

Code	KC01	KC02	KC03	KC04	KC05
Name	Museums	Monuments	Archaeological area	Events	Libraries
Formula	Museums per 1.000.000 inhabitants	Monuments per 1.000.000 inhabitants	Archaeological areas per 1.000.000 inhabitants	Theatrical and Musical Performances per 1.000.000 inhabitants	Public Libraries per 10.000 sq Km
Time series	1996 – 2007	1996 – 2007	1996 – 2007	1996-1999, 2006 (2000-2005 regional)	1996 – 2005
Frequency	Annual				
Territorial level	Province				

Indicators of local units number were also built for the sectors' activities of show, entertainment and recreation "(Ateco 92.3)," Libraries, archives, museums and other cultural activities" (Ateco 92.5) "and number of public libraries to 10,000 square kilometers representing the concentration of the phenomenon analysed here. Even in this case, when the indicator assumes a high value, it means that the phenomenon has a high concentration within the province.

Table 4.2: Historical, artistic and cultural capital indicators: local units and workers local units

Code	KC06	KC07	KC08	KC09
Name	Shows Local Units	Workers Local Units	Culture Local Units	Workers Local Units
Formula	Local Units of showing, entrateniment and fun (Ateco 92.3) per 10.000 sq Km	Workers in local units of showing, entrateniment and fun (Ateco 92.3) per 1.000.000 inhabitants	Local Units of libraries, archives, museums and other cultural activities (Ateco 92.5) per 10.000 sq Km	Workers in local units of libraries, archives, museums and other cultural activities (Ateco 92.5) per 1.000.000 inhabitants
Time series	1971-81-91-01	1971-81-91-01	1981-91-01	1981-91-01
Frequency	Annual			
Territorial level	Province			

4.2 Naturalistic and environmental capital

As to naturalistic–environmental sub-family, information collected include: size of assets in protected areas (SCI and SPA) per 100 square kilometers; mountainous surface size, coastline length and the farming areas (UAA) per 100 square kilometers

Table 4.3: Natural heritage indicators

Code	KA01	KA02	KA03	KA04	KA05
Name	Special Protection Areas (SPA)	Sites of Importance Community (SIC)	Surface Mountain	Coastline Length	Agricultural Area (AA)
Formula	Ratio of surface of an SPA (sq Km) and land area (sq Km) per 100	Ratio of surface of the SIC (sq Km) and land area (sq Km) per 100	Ratio of surface mountains (sq Km) and land area (sq Km) per 100	Ratio of coastline length (Km) and land area (sq Km) per 100	Ratio of land use in agricultural (sq Km) and land area (sq Km) per 100
Time series	2000	2000	2005	2006*	1990, 2000
Frequency	Annual				
Territorial level	Region	Region	Province	Province	Province

The five indicators in Table 4.3 measure the percentage of land area which was classified as a protected area, the percentage of mountain surface, coastlines length and utilized agricultural areas. In this case, the greater the value of indicator is the greater protected areas surface, mountain surface, agricultural lands, and coasts length is.

4.3   Tourism industry

In the group of indicators related to tourism industry (Table 4.4) you can find two subfamilies representing accommodation endowment (IT01 to IT04) and tourism entrepreneurship (IT01 to IT05). Through it we meant to measure the relative ability of each area to attract and develop tourism entrepreneurship. As done with previous indicators families, in this case to build up indicators we followed the instructions given in the official documents produced by official statistic sources.

The first sub-indicators (from IT01 to IT04) relate to accommodation endowment which characterizes each territory and represents a first approximation for the reception capacity of the latter. As to hotel facilities and complementary firms, we calculated the ratio between the number of total land area beds (100 square kilometers) to measure the impact of tourism on the area and the ratio between number of accommodation establishments and resident population (per 1,000,000 inhabitants) to understand the degree of entrepreneurship in the area.

Table 4.4: Tourism industry indicators

Code	IT01	IT02	IT03	IT04	IT05	IT06	IT07	IT08
Name	Hotels	Beds in hotels	Complementary accommodation	Beds in Complementary accommodation	Hotels Local Units	Workers in local units (hotels)	Restaurant Local Units	Workers in local units (restaurants)
Formula	Hotels per 1.000.000 inhabitants	Beds in hotels per 100 sq Km	Complementary accommodation per 1.000.000 inhabitants	Beds in complementary accommodation per 100 sq Km	Local Units Ateco 55.1 - Hotels/ per 10.000 sq Km	Workers in LU Ateco 55.1 - Hotels per 1.000.000 inhabitants	Local Units Ateco 55.3 - Restaurant per 10.000 sq Km	Workers in LU Ateco 55.3 - Restaurant per 1.000.000 inhabitants
Time series	1996 -2006	1996 -2006	1996 -2006	1996 -2006	census + 1996 + 2004	census + 1996 + 2004	census + 1996 + 2004	census + 1996 + 2004
Frequency	Annual							
Territorial level	Province							

The second subfamily includes indicators on tourism entrepreneurship (from an IT05 to IT08). In this group two types of measures can be found: indicators IT05 and IT07 were constructed to relate the extent of the phenomenon to the population (number of employees in local units with activities Ateco 55.3 Ateco 55.1 per 1,000,000 inhabitants), while indicators IT06 and IT07 (number of local activities units Ateco 55.3 55.1 per 10,000 square km) are two measures for the concentration of these activities to highlight distribution of tourism entrepreneurship in the area.

4.4   Human capital

To measure human capital we used the indicators as commonly proposed in literature and which are reported in Table 4.5. Specifically, we decided to measure this resource through indicators related to upper secondary education and university. The reference indicators are indicators of stock that allow you to assess the general education level attained in a given geographical area. The first indicator (KU01) measures the rate of change in degree programs and increasing value, especially within university. The turnover rate, unlike other indicators in this group, is a flow measure is used as a proxy of the average quality of the stock of human capital. The second indicator (KU02) shows the disposition to study in a given geographic area (province). Besides, in this case, a higher value of the indicator detects a greater propensity of the population in studying. The indicators relating to upper secondary education are built up in such a way as to represent the same phenomena as in higher education: the first, KU03, shows the propensity to study or level of schooling for people aged 15-19, while the second, KU04, accounts for the average number of pupils enrolled in secondary schools. In both cases, increasing values of the indicator correspond to a higher level of schooling and a higher mean number of subscribers.

Table 4.5: Education indicators

Code	KU01	KU02	KU03	KU04
Name	Turnover rate in degree courses	Propensity to study	Schooling rate	Averaged number of student
Formula	Ratio of graduate student and students enrolled in degree course per 100	Ratio of students enrolled in degree course and population aged 19-24 per 100	Ratio of students enrolled 1st year of secondary schools and population aged 15 – 19 per 100	Ratio of students enrolled in 5th year of the upper secondary schools and students enrolled in the 1st year of upper secondary schools per 100
Time series	1996, 2001, 2006	1996, 2001, 2006	1996, 2005	1996, 2005
Frequency	Annual			
Territorial level	Province			

The second group of basic economic indicators relating to human capital includes the standard indicators of the labor market.

Table 4.6: Labour market indicators

Code	KL01	KL02	KL03	KL04	KL05	KL06
Name	Employment rate	Unemployment rate	Total activity rate	Female activity rate	Youth activity rate	Activity rate over 55 years
Formula	Ratio of employee and active population (15-64 years)	Ratio of (Labour Force – Employee) and Labour Force	Ratio of Labour force and Active population (15-64 years)	Ratio of Female Labour Force and Female Active Population	Ratio of Labour Force (15-29) and Active Population (15-29)	Ratio of Labour Force over 55 years and Active Population over 55 Years
Time series	1993 – 2009	1993 - 2009	2001 - 2009	2001 – 2009	2001 - 2009	2001 – 2009
Frequency	Annual					
Territorial level	Province					

The employment rate (KL01) is a statistical indicator that quantifies the impact of working population on total population aged more than 15 and less than 64. The unemployment rate (KL02) is a statistical indicator of the labor market measuring tension in the labor market related to an excess of labor supply in relation to demand. The rate of total activity (KL03) refers to the population aged 15-64. This indicator is a measure of labor supply and can be calculated by age groups. It allows us to understand the evolution of the overall rate compared to the evolution of the population demographic structure. Specifically, we calculated the rate of women (KL04), young workers (KL05) and the population over 55 years (KL06). The higher the value of activity rate and the greater the supply of labor. In particular, a higher rate of female activity indicates a greater participation of women, a higher rate of young people activity detects an increased participation of the population aged 15-24; a higher rate of activity over 55 indicates an increased labor supply of people who are more than 55 years old.

5. Critical analysis of the territorial capital indicators: the natural and cultural heritage

In this section some statistics are shown as calculated for the indicators included in the previous section. As a first step, we calculated the arithmetic average (not weighted), median, standard deviation, and the percentage variations for the first and the last available year of the

103 Italian provinces. Step two was to calculate the index numbers by giving value 100 to Italy in order to build up a list of Italian provinces and give a first interpretation of the data

5.1 Artistic, historical and cultural heritage

With regards to artistic, historical and cultural capital, reference indicators are given by the ratio between number of museums, monuments and archaeological sites - which on the whole can be defined as institutions of antiquity and art - and the resident population.

As we can see from Table 5.1, Museums Indicators (KC01) and Archaeological Areas (KC03) have an average of 04.03 museums/archaeological sites per million inhabitants. The Monuments Indicator (KC02) has an average value of 3 monuments per million inhabitants. In the case of the first two indicators, the average is greater than the median and it is reasonable to think that the phenomenon has a high concentration in some poles. Looking at the value of the standard deviation8 compared to the average of these three measures, we noticed that spatial distribution of antiquity and art institutes has remained fairly constant over time, while art and antiquities institutions have increased. For example, from 1996 to 2007, the archaeological sites recorded an increase a 30% higher than the percentage change in GDP growth.

The list of provinces (table 5.1) set up with the construction of index numbers shows that more than 30% of the provinces have indicator values greater than the national average (31% for museums, 34% for monuments and 30% for archaeological sites). Further evidence comes out from analysis of the data. i.e. the fact that over the years in the top positions we find the same cities, although with a different sort order and concentrated in central Italy, in particular in: Lazio, Abruzzo, Tuscany, Umbria and Molise.

Table 5.1: Artistic, historical and cultural heritage indicators

Code	KC01		KC02		KC03		KC04		KC06	
Indicator	**Museums**		**Monuments**		**Archaeological areas**		**Theatrical and musical performance**		**Public Libraries**	
Years	**1996**	**2007**	**1996**	**2007**	**1996**	**2007**	**1996**	**2006**	**1996**	**2005**
ITALY	2.99	3.42	1.59	1.85	1.99	2.53	2162	3438	1.56	1.53
Mean	3.08	3.63	3.15	3.34	3.26	3.55	1867.8	3216.88	2.09	2.07
Median	2.06	2.20	2.80	3.34	3.27	3.92	1680	2944	3.68	3.73
Std Dev	4.13	4.78	1.76	1.81	1.64	1.55	998.72	1670	6.25	6.25
Std Dev/mean	1.34	1.32	1.59	1.85	1.99	2.53	0.53	0.52	2.99	3.02
Variation %	17.8		16.57		29.97		72.2		-1.30	

Indicators KC04 and KC05 refer to theatre and music performances as well as libraries considered from the point of view of concentration (number of libraries in land area, KC05). The average number of shows per inhabitant has undergone a significant increase (+ 72%) over time, and the variability from the territorial point of view is lower than the one given for the first three indicators (standard deviation/mean in 2006 is equal to 0:52) to point out that the phenomenon has a more even distribution throughout the country. The data also show that 36% of the provinces indicator takes a value greater than the Italian average. As to territorial provinces in the first quartile, they belong to regions of different geographical areas. With reference to Libraries Indicator (KC06), the ratio between the number of libraries and land surface shows an average value of 4 libraries per million inhabitants. Besides libraries are distributed in a relatively more diversified way in the area (standard deviation on average higher than the first three indicators) when compared to art institutions and antiquities. So the percentage change shows that the average number of libraries kept constant between 1996 and 2005.

The analysis of local units and employees in the reference sectors (Ateco 92.3 and Ateco 92.5) was made by setting up KC06 to KC09 indicators. Entertainment indicators, UL (KC06) and UL culture (KC08) - local units to land area – are meant to measure the concentration of the phenomenon. By analysing these measures we see a concentration increase in show activities, entertainment and fun (+ 26% from 1991 to 2001) and in the activities of libraries, archives, museums (up 16% from 1991 to 2001). However, the relationship between mean and standard deviation shows such activities Ateco 92.3 (KC06). Regional differences remain almost unchanged over time while activities Ateco 92.5 (KC08) - spatial variability recorded in 1991 - tend to fade over time (by reducing differences between provinces).

Table 5.2: Artistic, historical and cultural heritage indicators

Code	KC06		KC07		KC08		KC09	
Indicator	LU showing		Workers of showing		LU of cultural activities		Workers of cultural activities	
Years	1991	2001	1991	2001	1991	2001	1991	2001
ITALY	646	858	816	993	15	24	555	683
Mean	850	1086	917	992	23	27	519	599
Median	560	545	814	848	11	18	503	495
Std Dev	992	2016	581	804	72	29	272	343
Std Dev/mean	1.17	1.86	0.63	0.81	3.15	1.08	0.52	0.57
Variation %	27.84		8.15		16.36		15.51	

The indicators relating to the number of employees show greater growth (+ 16%) in the culture sector (Ateco 92.5) than that the entertainment (Ateco 92.3) throughout the years. From the point of view of geographical distribution you can see values of the ratio standard deviation on mean lower than other indicators. This should prove a more even geographical distribution of workers. Besides, the analysis of index numbers shows that the percentage of provinces, having indicator value higher than average, is constant (33% to Ateco 92.3 and 38% for Ateco 92.5).

With regard to Ateco activities, the analysis of index numbers shows that a 92.3 percentage of the value of provinces - with KC06 above the national average - decreases from 31% to 24%, while for Ateco 92.5 (KC08) activities, the percentage goes up from 32% to 47%, between 1991 and 2001. For show, entertainment and fun activities, the provinces in the first quartile are the same over the years, although there is evidence of a place change in the ranking. Other activities - libraries, archives, museums and other cultural assets – underwent a change from province to province in the first quartile.

5.2   Natural Capital

The indicators KA01 and KA02 refer to the size of the assets in protected areas (SPA and SCI), which is calculated as the ratio between the surface areas and the territorial surface. The data, which as mentioned in Section 3 are at the regional level, indicate that the average size of both the SPA and the SIC has increased over time, so higher for SPA (+ 112%).

Table 5.3: Natural heritage indicators

Code	KA01		KA02		KA03	KA04	KA05	
Indicator	SPA		SIC		Mountain surface	Coastline length	AA	
Years	2000	2006	2000	2006	2005	2006	1990	2000
ITALY	5.60	11.1	13.6	14.9	54.33	54.33	0.24	0.24
Mean	5.38	11.41	13.62	14.8	48.45	48.45	0.29	0.29
Median	3.69	8.56	10.6	12.2	52.6	52.6	0.10	0.10
Std Dev	6.01	7.12	6.58	6.67	30.1	30.1	0.48	0.48
Std Dev/mean	1.12	0.62	0.48	0.45	0.62	0.62	1.64	1.64
Variation %	112.01		8.91		0	0	- 11.84	

In contrast with a significant increase in the average area of SPA through the years it seems that regional differences will slightly decrease. In fact the value of the standard deviation compared to the mean goes from 1.12 to 0.62. By analyzing space distribution of SPA in 2006,

it was observed that 41% of the regions – 9 out of 20 - have a value higher than the national average. So the remaining 11 regions have an index number greater than 100 which is the value given to Italy. The regions having a value greater than the mean are scattered throughout the country and you cannot group them into geographical areas. Besides, SIC have a space distribution similar to SPA, i.e. 45% of the Italian regions has a value higher than the average and 11 regions have a value greater than the value of Italy.

Indicators KA03, KA04 and KA05 are always measures of the natural heritage of the Italian provinces and allow analysis of percentage of mountain surface as well as coastline and farming areas. Indicator KA03 and KA04 were analyzed over a one-year span only, because data are mainly constant. Statistical indicator KA03 showed that the provincial territorial surface is 48% mountainous and 50% of the provinces has an indicator value above the national average -52 provinces. The first 5 provinces are located in the North, and KA04 shows that the provinces surface is 3%. 33% of the coastline provinces of the indicator have a value higher than the national average - 34 provinces. The provinces in the top ten positions are scattered throughout the country. The utilized agricultural areas (UAA) (KA05) decreased from 1990 to 2000 by a few percentage points: i.e. from 48% in 1990 to 42% in 2000. These areas are mainly located in the North (Cremona, Lodi, Mantova) and in South-West Italy.

5.3   Tourism industry

Indicators from IT01 to IT08 were built to measure the tourist attractiveness of a territory by examining issues related to accommodation sites (IT01-IT04) and the ability of each territory to generate touristic entrepreneurship (IT05-IT08).

Table 5.4: Tourism industry indicators: accommodation endowment

Code	IT01		IT02		IT03		IT04	
Indicator name	Hotels		Beds in hotels		Complementary accommodation		Beds in complementary accommodation	
Years	1996	2006	1996	2006	1996	2006	1996	2006
ITALY	599	571	58600	69300	593	1707	57800	80000
Mean	828	760	84557	97845	863	2125	71160	95750
Median	377	368	36300	46600	187	676	35600	51400
Std Dev	1533	1272	234975	271986	2387	5985	93422	142003
Std Dev/mean	1.85	1.67	2.78	2.78	2.77	2.82	1.31	1.48
Variation %	- 8.19		15.71		146.27		34.56	

The first four indicators, IT01-IT04, relate to the accommodation capacity of an area. By a first approach to the analysis of the statistics, we can see that while the number of hotels per inhabitant diminishes over the time analyzed – 1996 to 2006 - the number of complementary accommodation per inhabitant increases through the years, (+ 146%). Usually spatial variability of this phenomenon, namely the differences between provinces, keeps stable and the percentage of provinces with an indicator value remains above the average: i.e. around 21% for hotels and 15% for complementary exercises. With reference to hotels (indicator IT01 and IT02), provinces in the first quartile are the same and in the same order as for complementary assets. Although the percentage of provinces with values of above average will keep unchanged, we observe a change in sorting the list. The ratio between beds and territorial surface shows great variability over time: hotels had an increase of 16%, while the indicator to complementary accommodation grew up to 35%. Again, regional differences remain the same (standard deviation/mean constant) and it is observed that for hotels 20% of the provinces have a ratio value higher than the national average while with complementary assts the percentage rises to 35%.

Indicators from IT05 to IT08 relate to entrepreneurship aspects in the tourism sector Ateco 55.1 and 55.3 - receptivity of hotels and restaurants. In particular the two indicators, relating to the relationship between employees and population (IT06 and IT05) are used to measure the size of the phenomenon. In the first place there is some variability of indicators over time: indicator IT08 increases from 1991 to 2004 by 26% to a greater extent when compared to IT05. If you take into consideration the relationship between standard and mean deviation there is a reduction of regional differences in the case of local units hotels and a constant spatial distribution in the case of local units restaurants. Regarding the indicators relating to local units employees, through time, they increase (+ 36%) to a greater extent in the field Ateco 55.1 (hotels) with respect to the sector Ateco 55.3 (restaurants).

By the analysis of index numbers we can see that the activities of hotel accommodation (Ateco 55.1), in the 27% of the provinces has a ratio value higher than the national average (constant value between 1991 and 2004), while for the restaurant business (Ateco 55.3) the percentage of provinces with above average values goes up from 49% (1991) to 51% (2004).

Table 5.5: Tourism industry indicators: tourism entrepreneurship

Code	IT05		IT06		IT07		IT08	
Name	LU Hotel		Workers in LU hotel		LU restaurant		Workers in LU restaurant	
Years	1991	2004	1991	2004	1991	2001	1991	2001
ITALY	934	1057	2638	3798	2329	2984	4221	5179
Mean	1436	1514	3100	4206	3104	3901	4677	5653
Median	471	665	1748	2183	1995	2524	4619	5687
Std Dev	4674	4516	4045	6176	3717	4536	2177	2744
Std Dev/mean	3.26	2.98	1.31	1.47	1.20	1.16	0.47	0.49
Variation %	5.45		35.68		25.67		20.87	

6. Critical analysis of territorial capital indicators: the human capital

In this section we will consider the indicators of human capital endowment. We have split them between indicators in education and training and the labour market.

6.1 Education and training

Indicator KU01 shows a turnover rate in the degree courses that has almost tripled through time. In fact in 1996 only the 18% of enrolled people graduated, while in 2006 the percentage rose to 53%. By analyzing the standard deviation/mean, we noticed that, although the average value of the phenomenon has grown over time, regional differences were reduced - standard deviation from 1.20 in 1996 to 0.82 in 2006. The percentage of provinces with above average turnover rates increased from 36% (45 provinces) to 51% (63 provinces). Even the ordering of the provinces in the first quartile changed between 1996 and 2006. Indicator KU02 points out the propensity to study of people aged 19-24 and shows an increase in the average value over time. Between 1996 and 2006 percentage of the population aged from 19 to 24 who matriculated rose from 58% to 77%, and the phenomenon is more balanced in the area - the ratio of mean and standard deviation is reduced. The percentage of provinces with values of KU02 higher than average changes from 35% (36 provinces) to 40% (41 provinces) over time. The number of provinces with more than Italy value (set equal to 100) increases from 29 to 34. The top ten provinces are the same even with a different place in the ranking.

Upper secondary education is measured by indicators KU03 and KU04 and the analysis shows a reduced variability of the two indicators over time. In fact, the average growth, over the years, is lower than what calculated for university education. We also observed a reduced spatial variability (standard deviation/mean almost the same), indicating that the phenomenon is well distributed among the provinces.

Table 6.1: Education and training indicators

Code	KU01		KU02		KU03		KU04	
Indicator name	**Turnover rate in degree courses**		**Propensity to study**		**Schooling rate**		**Average number of students enrolled**	
Years	**1996**	**2006**	**1996**	**2006**	**1996**	**2005**	**1996**	**2005**
ITALY	39.56	83.38	8.42	10.42	18.89	22.58	72.47	67.84
Mean	18.38	52.78	5.84	7.75	19.21	22.65	73.63	67.96
Median	8.19	67.70	1.58	4.07	19.18	22.64	74.03	67.23
Std Dev	22.10	43.38	8.33	9.47	3.16	2.07	8.46	6.72
Std Dev/Average	1.20	0.82	1.42	1.22	0.16	0.09	0.11	0.10
Variation %	187.17		32.56		17.93		- 7.70	

Compared to the national average, the percentage of provinces with a propensity to study by the population aged 15-19 increased from 47% in 1996 to 51% in 2005. The percentage of provinces with the average number of enrolled students increased from 42% to 50% during the analyzed years. The provinces that have seen a greater positive change in the propensity to study are located in the geographical area of south-central and southern Italy. The same change was also recorded by the average number of student enrolled.

6.2   Labour market

The total unemployment rate (KL02) shows an average value which decreases over time going from 9.10% in 1993 to 6.78% in 2007 (-26.73%). An analysis of the index numbers shows that the percentage of provinces with a value higher than the national average is of a 32% in 2007 and the provinces from the first quartile are located in southern Italy. The employment rate (KL01) shows an average increase from 1993 to 2007 (from about 53% to about 59%) with a percentage of provinces that exceed the national average which is around 6/8%, while provinces with higher value than 100 (Italian value) in 2007 are 65%. The provinces in the first quartile of the ranking were rated on the basis of index numbers, and are located in the north-west and centre-west areas of the country.

Table 6.2: labour market indicators

Code	KL01		KL02		KL03		KL04		KL05		KL06	
Indicator	Employment rate		Unemployment rate		Total activity rate		Female activity rate		Youth activity rate		Activity rate over 55 years	
Years	1993	2007	1993	2007	2001	2007	2001	2007	2001	2007	2001	2007
ITALY	55.90	58.40	9.10	6.78	61.14	62.84	34.31	38.72	39.16	32.44	18.63	14.84
Mean	55.80	58.92	9.33	6.83	61.45	63.01	34.13	51.40	39.98	33.30	18.20	14.46
Median	60.10	63.80	5.72	5.00	63.18	66.40	35.15	56.00	39.16	33.30	18.41	14.40
Std Dev	9.28	9.00	7.47	3.99	5.79	7.36	5.11	10.38	6.59	6.85	2.11	1.85
Std Dev /Average	0.17	0.15	0.80	0.58	0.09	0.12	0.15	0.20	0.16	0.21	0.12	0.13
Variation %	5.58		- 26.73		2.54		50.60		- 16.71		- 20.60	

Though the total activity rate (age 15-64) shows a slight increase from 2001 to 2007 (+ 2:54%), the female activity rate went up significantly over time (+ 50.60%). Young people activity rate (KL05) and the activity rate of over 55 years people (KL06) shows a reduction in their average value over time. An analysis of the relationship between mean and standard deviation does not reveal significant changes in the territorial differences.

Analysis of index numbers shows that each province has total activity rates greater than the national average, while 63% of the provinces in 2007 have a value greater than 100 (Italy value). The female activity rate is higher than the national average in 34% of the provinces in 2007 (in 2001 was 9%) and more than 100 in 85% of the provinces, also in 2007. Young people rate and the activity rate of people over 55 are greater than the national average in 21% of the provinces (2007) and in 8% of the provinces (2007) there is an increase if compared to 2001. In the rankings of the provinces calculated for activity rates, we observe significant changes, although in the first quartile there are always the same North and Central West Italy provinces.

7. Conclusions

In Europe, for several years, it has been noticed slow growth rates and lack of regional convergence. The regional growth is the result of a global-local process, where a region has local resources (territorial capital), whose importance is recognized in economics both at theoretical and empirical levels. In particular, empirical evidences shows that the territorial capital bias the process of regional growth and inter-regional convergence. In this context, little attention is paid to traditional resources and mainly to the local natural and cultural heritage. Nevertheless they gain economic importance through human capital which operates in economic activities such as touristic, recreational and cultural activities. In this paper we created indicators which allowed us to measure the endowment of the natural - cultural and human capital in the 103 Italian provinces.

Indicators of the artistic, historical and cultural heritage are given by the ratio between the number of museums, monuments and archaeological sites and population. The analysis of these indicators shows that more than 30% of the provinces has indicator values greater than the national average and they are mostly concentrated in central Italy, particularly in Lazio, Abruzzo, Tuscany, Umbria and Molise. In this group you can also find indicators referring to theatre and musical performances and libraries. Data indicate that shows have a more even distribution in the area compared to the other variables, and the indicator for 36% of the provinces takes a value greater than the Italian average. The natural heritage is measured by the size of the surface of protected areas (SPA and SIC), which shows that the average area of SPA and SIC increased over the time, while regional differences decreased. The regions, having an indicator value higher than average, are scattered throughout the country and you cannot group them into geographical areas. For a better analysis of the natural and cultural capital we need to consider some aspects of tourism, which is one of the ways in which a territory can put value and export its own culture. So we have built some indicators which allowed us to make assessments on tourism supply. This family includes indicators which measure both the touristic attractiveness of a territory (endowment of accommodation) and the local ability to generate touristic entrepreneurship. The analysis shows an increase of the accommodation capacity, especially of complementary exercises (+146%), while maintaining a balanced distribution throughout the country. Even the touristic entrepreneurship shows an increase over the time always keeping a homogeneous distribution through the territory.

The second element of territorial capital, measured in this paper, is the human capital endowment of the Italian provinces. For this analysis, we set up two sets of indicators: education and training and labour market. About education, we observed a growth in the

turnover rate in the degree courses (nearly tripled) and a reduction in regional differences. In addition, an increase in the level of education was also found. This phenomenon is more balanced in the regions compared to the turnover rate. For upper secondary education we found less variability of the indicators, over the time, compared to university education and a reduced spatial variability, which indicates that the phenomenon is well distributed among the provinces. The provinces that had a greater positive change in the propensity to study are located in the geographical area of south-central and south Italy. Indicators relating to the labour market show an overtime reduction of the total unemployment rate which keeps above the national average in 32% of the provinces located mostly in Southern Italy. The average employment rate of the 103 provinces increases over the time but only the 6/8% of the provinces (located in North-West and Centre-West areas) exceeds the national average. The total activity rate shows a slight increase over time while the participation rate of women increases significantly (+ 50.60%). It is also clear that each province shows a total activity rates higher than the national average and that the rate relating to women is higher than the national average in 34% of the provinces.

References

Aighon P., Howitt P. (1996), *Endogenous growth Theory*, Mc Graw Hill.

Antonelli G., Leoncini R., Nosvelli M. (1998), *Sistema formativo e crescita economica: un'analisi empirica del sistema italiano*, «Economia & Lavoro», 2, 9-54.

Bariletti A., Causi M. (1998), *Cultural Heritage, Resources and Employment: an Italian Perspectives*, International Conference on Cultural Economics, 14-17 June 1998, Barcelona.

Barros C. P., Santos C. M. (2007), *The economic return on education for hotel managers*, «International Journal of Tourism Research», 9, 103-113.

Bateman I. J., Lovett A. A., Brainard J. S. (2003), *Applied environmental economcis: a GIS apporach to cost-benefit analysis*, Cambridge, Cambridge U.P.

Becattini G. (1979), *Dal settore industriale al distretto industriale. Alcune considerazioni sul'unità di indiagine dell'economia industriale*, «Rivista di Economia Politica e Industriale».

Bentley R. (1996), *Infromation technology and tourism: an update*, «Tourism Management», 17, 141-144.

Birtwistle R. (1996), *Scottish tourism: an enterprising approach*, «Tourism Management», 17, 141-144.

Brent R. (1996), *Applied cost benefit analysis*, Cheltenham: Elgar.

Buhalis D. (1998), *Strategic use of infomraion technologies in the tourism industry*, «Tourism Management», 19, 409-421.

Camagni R. (1995), *Global network and local milieu: towards a theory of economic space*, in Conti S., Malecki E., Oinas P., *The industrial enterprise and its environment: spatial perspectives*, Averbury, Aldershot.

Card D., Lemieux T. (2001), *Can falling skill supply explain the rising returns to college for young men*, «Quaeterly Journal of Economics», 116 (2), 705-746.

Causi M. (1998), *Riforma della Pubblica amministrazione e modelli di interventi sui beni culturali*, «documento di lavoro», 3/99, ISEA, Roma.

Checchi D. (2003), Retrieved from http://www.fondaazionedivittorio.it/up/forumdocs/danielechecchi.pdf

Checchi D. (2004), *Does educational achievement help to explain income inequality?*, in Cornia A., *Inequality Growth and Poverty in an Era of Liberalisation and Globalisation*, Oxford University Press.

Christaller W. (1963), *Some cosiderations on tourism location in Europe: the peripherical regions - undeveloped countries -recreation areas*, «Regiona Science Association Papers», 12.

Colecchia A., Papaconstantinou G. (1996), *The evolution of skills in OECD countries and the role of technology*, WP 1996/08.

Confindustria (2007), *L'industria turistica in Italia*, «Note Economiche», 3, Centro studi.

Costa P. (1985), *il turismo nell'economia italiana*, Cesdit.

Dallari F. (2004), *Sviluppo e ricomposizione territoriale: sistemi locali e turismo*, in Savelli A. (Ed.), *Turismo, territorio, identità. Ricerche ed esperienze nell'area mediterranea*, Franco Angeli.

Eurofutures (2007), *Preparatory study of spatially relevant aspects of tourim*, Stockholm, European Commission.

European Commission (2003), *Structure, performance and competitiveness at European torurism and its enterprises*, Luxembourg.

Eurostat (2006, 2008), *Panorama of Tourism*, Luxembourg, Eurostat.

Eurostat (2006, 2008, 2010), *Panorama of Tourism*, Luxembourg, Eurostat.

Eurpopean Commission (2005), *Third report on economic and social cohesion: a new partnership for cohesion - convergence, competitiveness and cooperation*, Bruxelles, European Commission.

Faggio G., Salvanes K., Van Reenen J. (2007), *The evolution of inequality in productivity and wages: panal data evidence*, «NBER Working Paper», 13351.

Falzoni A. M., Grasseni M. (2007), *Home country effects of investing abroad: evidence from Italy*, in Piscitello, Santangelo, *Do Multinationals Feed Local development and Growth?* (International Business and Management, 22), Elsevier.

Frinking E. *et al.* (2005), *The supply and demand of skills in Europe*. European Commission.

Grolleau H. (1993), *Tourisme en espace rural*, «Leader Magazine», 4.

Hanushek E. A. (1996), *Measuring Investment in Education*, «Journal of Economic Perspectives», 10 (4), 9-30.

Hanushek E. A., Rivkin S. G., Taylor L. L. (1997), *Aggregation and the Estimated Effects of School Resources*, «The Review of economics and Statistics», 78 (4), 611-627.

Heckman J., Stixrud J., Urzua S. (2006), *The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior*, «NBER Working Paper», 12006.

Helpman E., Melitz M. J., Yeaple S. R. (2004), *Export versus FDI with heterogeneous firms*, «American Economic Review», 94, 300-316.

Hoxby C. M. (2000), *The Effects Of Class Size On Student Achievement: New Evidence From Population Variation*, «The Quarterly JOurnal of Economics», 115 (4), 1239-1285.

Jehiel P. (1991), *Polycentric spatial development, externalities and cost-benefit analysis*, «Annals of Regional Science», 25, 193-208.

Le T., Gibson J., Oxley L. (2005), *Measures of human capital: a review of the literature*, «Working Paper», 05/10, New Zeeland Treasury.

Lee C. K., Kang S. (1998), *Measuring earnings inequality and median earnings in the tourism industry*, «Torism Management», 19, 341-348.

Leiper N. (1979), *The framework of tourism: towards a definition of tourism, tourist, and the tourist industry*, «Annals of Tourism Research» , 6 (4), 390-407.

LEITCH (2006), *Prosperity for all in the global economy - World calss skills*. Retrieved from http://hmtreaury.gov.uk

LSC (2005), *National employers skills survey 2004: Main Report*. Retrieved from http://readinggroom.lsc.gov.uk

Lucas R. (1988), *On the mechanics of economic development*, «Jorunal of Monetary Economics», 22, 3-42.

Machlup F. (1984), *The Economics of Infromation and Human Capital*, Vol. 3, Princeton University Press, Princeton.

Newbery D. (1998), *Spatial general equilibrium and cost-benefit analysis*, «Indian Journal of Applied economics», 7, 1-18.

Nordregio (2005), *Potentials for polycentric development in Europe.* ESPON Project 1.1.1, Stockholm.

OECD (1998), *Human CApital Investment: an International Comparison*, Centre for Educational Research and Innovation – OECD, Paris.

OECD (2005), *Learning a living. First results of the adult and life skills survey*, OECD, Paris.

OECD (2001), *The Well-being of Nations: The Role of Human and Social Capital*, OECD, Paris.

Osservatorio Europeo Leader (1999), *La competitività territoriale - l'approccio territoriale in materia di sviluppo rurale*, RURALEurope.

Requena J. C., Aviles P. R. (1993), *Turismo rurale: un'ooportunità per le zone rurali svantaggiate?*, «Leader Magazine», 4.

Royal Haskoning (2006), *Territorials trends of the management of the natural heritage*, ESPON Project 1.3.2, Utrecht.

Skaple O. (2007), *The CEO gender gap in the tourism industry-evidence from Norway*, «Tourism Management», 28, 845-853.

Stroombergen A., Rose D., Nana G. (2002), *Review of the statistical measurement of human capital*, Statistic New Zeeland.

UNDP (1990), *Misurare lo sviluppo umano, «*Rapporto sullo sviluppo umano», 1, Rosemberg & Sellier.

Unioncamere Lombardia (2010), *Sistema di monitoraggio del turismo e delle filiere turistiche in Lombardia, Progetto FIT*, Regione Lombardia, Milano.

Woessmann L. (2003), *Specifying human capital*, «Journal of Economic Survey», 17, 239-270.

World Tourism Organisation (2006, 2009), *Tourism Highlights.*

World Tourism Organisation (2006, 2009, 2011, 2014), *Tourism Highlights.*

Notes

[1] The legal definition for cultural goods is as set out in the Italian art. 148 of Legislative Decree 112/98 where cultural assets are "goods that make up the historical, artistic, monumental, demo-ethno-anthropological, archaeological, archival and library and other items which are witnesses having the force of civilization as identified according to the law."

[2] It excludes both the capital of intangible nature and of cultural goods members for entertainment industry and media.

[3] Data on population aged between 15 and 19 are always from Istat-Asti with reference to resident population aged 15-19 (unit) for the period of time from 1996 to 2006. The data represent the 1996-2001 series reconstructed longitudinally, by sex and single year of age, between the last two population censuses.

[4] Since 2001, the data include rates of graduates of undergraduate degree, old degree program arrangement, postgraduate courses and degree courses in one cycle. As to university degree courses, the data were aggregated by province.

[5] The classification by professions includes: 1) Legislators, executives, entrepreneurs; 2) Intellectual, scientific and highly specialized; 3) Technical professions; 4) Employees; 5) Professions qualified in commercial activities and services,; 6) Craftsmen, skilled workers and farmers, 7) Plant and semi-skilled workers employed in fixed and mobile machinery; 8) Professions unqualified; 9) Armed Forces.

[6] The code of the indicator consists of two letters and a two-digit number. The first letter K indicates that they are indicators for territorial capital; the second letter indicates the type of territorial capital (environmental, cultural, human, labor) while a number is used to list the indicators.

[7] The number of theatre performances is a flow variable used as a proxy of the production ability in cultural activities

[8] Ratio between the standard and mean deviation allows normalizing the data so as to eliminate the effect related to the measure unit.

Sommario

Il paper ha l'obiettivo di fornire le basi concettuali per analizzare l'impatto che gli elementi intangibili del capitale territoriale hanno sulle perfomance locali. Questi elementi includono il patrimonio culturale e naturale e il capitale umano sia nel processo di crescita territoriale – regionale e provinciale - sia nel processo di risposta a shock esogeni, come nell'attuale situazione di crisi economica e finanziaria. Per raggiungere questo obiettivo, si è partiti da una rassegna della letteratura teorica ed empirica del capitale umano e delle risorse intangibili (culturali, artistiche, architettoniche, paesaggistiche e naturali). In seguito si è provveduto a costruire una banca dati nazionale delle risorse intangibili e del capitale umano nelle 103 province italiane (a livello NUTS 3), limitatamente agli anni 1991, 2001 e 2007. I dati sono stati estratti da siti istituzionali quali: ESPON progetto europeo, Eurostat, Istat e Istituto Tagliacarne. Lo scopo della banca dati è quello di identificare, definire e costruire indicatori sintetici quantitativi relativi alla dotazione di capitale umano (istruzione, qualifiche, professioni) e alla dotazione di risorse naturali, culturali e dell'industria turistica. L'analisi si conclude con una ricostruzione del posizionamento delle province italiane rispetto alla media nazionale in merito al capitale territoriale.

Abstract

The paper aims to the laying out of conceptual and empirical bases for analyzing the impact of the intangible elements have on local performance. These include the cultural and natural heritage and human capital both in the process of territorial growth – regional and provincial – and in the process of responses to exogenous shocks as in the current economic and financial crisis. To achieve this goal, we started from a critical review of theoretical and empirical literature on the possible extent of human capital and intangible resources – cultural, artistic, architectural, landscape and natural. Then, we dealt with the setting up of a national database for territorial capital of intangible resources and human capital in the 103 Italian Provinces NUTS3, limited to 1991, 2001, 2007. Data were supplied by institutional sites like: European Project ESPON, Eurostat, Istat and Tagliacarne Institute. The purpose of data collection is to identify, define and build up synthetic quantitative indicators relating to human capital endowment – educational terms and qualifications, professions as well as natural, cultural art resources, and the tourism industry. Finally we analyzed the positioning of the Italian provinces compared to the national average endowment of territorial capital.

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