

Social capital and regional development in Europe

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Abstract

Several case studies related to specific fields and projects or analysis prevailing with a national level emerge in the empirical analysis on social capital theory and on its contribution to development. First applications on sub-national level have been only recently studied. These studies, linked to the measurement of social capital and to its relationships with local and regional development, highlight uncertain connections between income level and social and economic relational stock, and more dubious ones on territorial development paths. From the principal component analysis already tested on Italian regions and provinces (Rizzi, 2004, 2006), using the synthesis method on several indicators of social capital, this paper aims to check these results in Europe, first at the national level and then at the regional level. Micro-indicators of territorial social capital are selected thanks to the European Values Survey database (participation in voluntary and social activity, participation in political elections, propension to trust and solidaristic values, crime and relational indexes), which are summarized in some explanatory components with factor analysis (as trust and civiness). So it finds correlation among these national and regional, social capital macro-indicators and income level and other economic growth variables. At the end, multi-variated regressions are run to explain growth rates of per-capita income, employment dynamic and other economic variables, since indicators obtained from principal components of factor analysis. Social capital theory hypothesis, as determinant of development, are confirmed only partially from European national and regional data.

Index

| | |
|---|------|
| Introduction | p.2 |
| 1. A review of the literature and theories of Social Capital | p.2 |
| 2. The measurement of Social Capital and the relationships with its development. | p.6 |
| 3. An empirical study of the countries and regions of Europe | p.7 |
| 3.1. Social Capital in European countries | p.8 |
| 3.2. Social Capital in European regions | p.12 |
| 4. The relationships between Social Capital and sustainable development: an economic study | p.16 |
| 5. Conclusions | p.19 |
| Appendices | p.21 |
| Bibliography | p.26 |

Introduction

Within the past few decades, the notion and effects of social capital have been the subject of numerous theoretical discussions and empirical studies. The concept is known for its characteristic of multidimensionality, which does not allow for a precise definition. The principal definitions come from Bourdieu (1986), Coleman (1990), and Putnam (1993). However, some key elements emerge which constitute the theoretical and operational base. The responses (often referring to Coleman and Granovetter) are readable both at the personal level, of a single individual, and at broader levels, involving organizations, to which these belong, and the entire social and economic context in which they reside. In order to develop concrete, stable, and profitable relationships, it is necessary to consider “trust” (Fukuyama, 1996), which represents the crossover point between the values and the norms of a single individual and the relationships that distinguish him, bringing him into contact with society. In fact, social structure consists of individuals, but also of organizations, which develop in an institutional context (North, Williamson)), which governs the actions of its subjects. One fundamental ulterior dimension of Social Capital comes from the territory, along with all of its peculiar characteristics, and which today represents the limit of comparison for the most advanced economic and social analyses in terms of competitiveness and sustainability. One can affirm, therefore, that Social Capital develops initially at the individual level and then extends outward from there, thanks to the relationships which, if founded on solid principles and positive values, can produce a cooperation useful to a balanced and sustainable development. The diffusion of this topic has brought about the development of new avenues of research that propose to further investigate its characteristics and overcome the critiques (among others, those of Solow, 1995) and the problems connected to them. Any attempt to insert this concept into a general economic discussion puts it on par with other, more traditional elements which can be readily and routinely measured. This is not the case with Social Capital, which instead, due to its multidimensional and fundamentally immaterial nature, cannot be measured in either precise or comparable terms. Every time one speaks of Social Capital it is necessary to identify the specific dimensions and data utilized in order to include it in a logical scheme of reflection. It is without a doubt, however, that Social Capital exhibits some characteristics of the systems, thereby influencing their performance, but which prove difficult to separate from their determining and chance effects. The structure of this article is as follows: the first chapter will present the background literature on Social Capital, with some deeper examination of specific studies.

This paper looks at the broad question of measurement, considering other previous studies on the topic, including statistical and economic analyses of the relationships between Social Capital and the diverse dimensions of sustainable development, both at the national and regional levels in Europe: as far as the economic dimension is concerned, the reference variable is the growth rate of the Pil per capita during the first decade of the twentyfirst century; as for the social aspect, it is the unemployment rate, and for the environmental dimension it is the emission of greenhouse gasses.

1. A review of the literature and theories of Social Capital

The concept of Social Capital still has not found a unanimously accepted definition (Rizzi 2003). During the 1920's, a school superintendant from the United States, Lydia Hanifan (1916), outlines it as the good will, sympathy, and relationships between individuals and families, from which the individual benefits, also producing, on his part, advantages for the community, thanks to contact with others.

During the 1960's, this initial idea of the concept is taken up and analyzed by the American anthropologist Jane Jacobs (1961).

The first precise definition of Social Capital occurs in 1986, when the French sociologist Pierre Bourdieu (1986), who describes it as “the sum of the resources, effective or potential, that mature in an individual or group, in virtue of the possession of a network of more or less institutionalized relationships of mutual experiences and recognitions,” pointing out the personal advantages obtained from belonging to a group, and recalling the first attempt to incorporate the concept into the economic theory which occurred in 1977,

when Glenn Loury (1977) underlines the role of social networks on the status of the individual (in particular with reference to the mechanisms of professional inclusion).

During the early 1990's, even the American sociologist James Coleman (2000) constructs a definition, indentifying it as a resource which does not reside either within the individual or in the means of production, but rather in the structure of social relationships.

In 1993, the politician and sociologist from the United States, Robert Putnam, utilizes the concept of "association."

Later, the Italian sociologist, Carlo Trigilia (1998), associates the social capital with the "social networks which make available resources both cognitive (information) and normative (trust), which allow the actors to realize objectives otherwise unreachable, or reachable only at a very high cost."

At the end of the 1990's, Franis Fukuyama and Antonio Muti develop a body of literature on the concept of trust and the sharing of collective value systems, which is also taken up by the sociologist Mchael Woolcock (2000), who describes the concept of social capital as a "solution" situations of vulnerability.

One can find a synthesis of the aspects discussed above in the definitions given by the Banca Mondiale and the OCSE (2001), according to which the concept consists of the values, norms, relationships, and institutions which form the social interactions and which favor the action, facilitating cooperation.

The breadth of the concept could weaken its significance, but specific methods and indicators, suited for the particular meaning being considered, can produce solid and verifiable results (Grootaert, Van Bastelaer 2002).

The range of disciplines involved¹ is ample, but the primary contributions come from Sociology, which analyzes its constructions and characteristics, and from Economics, which evaluates its effects on the economic growth and well-being of the individuals. Many authors have indicated reciprocal influences within the two approaches (Coleman 2000).

The use of the term "capital" has also received strong criticism. In response to such criticisms it is possible to say that social capital is an essential complement to the other concepts of capital. In addition, the traditional characteristics of "capital" can be adjusted to this usage: in fact, the process of construction extends with time; the establishment of social networks produces effects with time; generates a sharing of resources with effects on all parts.

Social capital represents the "social" factors that complete the traditional productive factors.

As seen from the definitions, a few elements emerge which constitute the base of social capital.

The first element is that of relationships. At the micro-level, as defined by Putnam, one sees the manifestation of ties of an informal nature and horizontal nature, that is to say, relationships with family and friends, and the networks of civic engagement. Coleman introduces an intermediate level, dealing with the vertical associations between individuals, characterized by hierarchical relationships and by an unequal distribution of power. To all this must be added the political and social environments (the macro-level), within which is formed the general social structure. The coexistence of these three dimensions allows social capital to produce effects on both economic and social results.

In order that the relationships may develop, it is fundamental to have "social capabilities" (Abramovitz 1995), or rather the attitudes of the individuals and the characteristics of the institutions, but it is also necessary to have trust² (the second element of social capital), which is intended to mean the expectation of correct behavior and of a credible obligation, which allows one to amplify cooperation from the interpersonal level to more articulated ones, and is a product of reputation, which one solidifies with time.

The third element is that of the institution. Some economists, among them Williamson, have developed a neo-institutionalist approach (Stiglitz 2000), according to which modern society is conceived as a system of institutions, that is habitual forms of organizations, represented by political, economic, social, and educational bodies of society (Sabatini 2008a).

¹ Putnam R.D., "Democracies in flux: the evolution of social capital in contemporary society", Oxford University Press, Inc., 2004.

² Fukuyama F., "Fiducia", Rizzoli, Milano, 1996.

The last element is territory. In the current context of globalization, competitiveness must be seen within territories as a whole. From this emerges the idea of “territorial capital,”³ defined by OCSE as the set of all the characteristics which guarantee a competitive advantage⁴ for a territory. Social capital develops within the system of cultural elements and values that coincide with a territory. Social capital, therefore, is measurable on two levels (Bagnasco 2001):

- according to a “relationship/connectionist” or “interactive” vision, social capital is made up of resources (Esser 2008), made available by an individual which he can utilize, through personal contacts;
- according to the “systematic” or “cultural” vision, however, social capital is a resource which belongs within the entire system of relationships.

This distinction, though, is not rigid, but rather the two components feed each other and recall the distinction, developed by Putnam, Leonardi e Nanetti (1993), between “bonding social capital” and “bridging social capital”: in the first case highlighting the internal ties (familial and group) that deal with single individuals; in the second case considering the the external ties, linked to the effects on the social and economic system.

Social capital develops initially from the individual; the interpersonal relationships flow together with the institutions, rendering the social networks more complex, and generating effects on society (Coleman 2000). Alongside this distinction, and at the level at which the relationships develop (as seen above), Uphoff (2000) proposes two categories of social capital:

- Structural social capital, formed from roles, rules, and social and institutional relationships (one example can be seen with sanctions: they facilitate collective action, are produced by people who hold specific roles, are created according to rules, and are realized according to procedures and precedents⁵);
- Cognitive social capital, which contains norms, values, attitudes, and beliefs.⁶ It can be seen in trust and reciprocity, in solidarity and cooperation.

Abstractly, these forms could exist separately, but they would persist with great difficulty. In other words, they are connected and influence each other.

As far as effects are concerned, social capital produces positive ones in politics (in terms of participation and functionality), on economic activity (with the reduction of transaction costs and strengthening of cooperation and development), and on social well-being (facilitating cohesion and improving quality of life), all direct results of access to and use of social capital (Castiglione et.al. 2008). However, it can also produce negative effects: relationships are used up quickly, are expensive, and unsure; trust implies risk; one may encounter social exclusion or the creation of groups with illegal interests.

Taking into consideration the economic theory tied to the concept of social capital, the traditional approach is developed exposing the economic relationships in their social context (Sabatini 2008a). Analysis of social capital shows similarities with the study proposed by Game Theory with respect to individual behavior in situations involving other subjects (Ostrom 2000): consideration of the incentives of the agents, structural modality of the relationships, and sanctions in cases of a lack of obligation.⁷

New factors are inserted into the growth models (Barro, Sala-I-Martin 2002), of a cultural, environmental, and institutional nature.

³ Camagni R., Capello R., “Apprendimento collettivo e competitività territoriale”, Franco Angeli, Milano, 2002.

⁴ In Porter (1985). The term “competitive advantage” is intended as that which allows an enterprise or region or nation to realize and maintain economic performance superior to its competitors.

⁵ The term “role” is intended to mean the function assumed or carried out in some part, either formal or informal. The term “rule” is intended as a principle to be followed, a behavioral norm, or precept based on experience. For “procedure” is intended a process accepted and used to realize activities and functions through roles and rules, in such a way that these roles and rules are widely understood and approved. By “precedent”, it is intended to mean a previous action the result of which establishes the validity and worth of roles, rules, and procedures. Precedents increase the probability that people will act in a certain way and that these actions will be accepted and effective.

⁶ Uphoff N., “Understanding social capital: learning from the analysis and experience of participation”, in Dasgupta, Serageldin 2000.

⁷ Elster J., “Ulysses and the sirens: studies in rationality and irrationality”, Cambridge University Press, 1979

One attributes the greatest importance to the context, with contributions to the study of geographic proximity and socio-cultural vicinity (the theory of Milieu Innovateur, formulated by GREMI - Groupe de Recherche Européen sur le Milieu Innovateur⁸).

Also considered are the differences between the individuals, privy to limited information and a rationality that pushes them toward the obtainment of satisfactory results.

During the 1980's, new avenues of research were developed. Attention was no longer focused only on pure numeric variables, but rather methods and structures were explored which allow the measurement of behaviors in their complexity.

Among others, the following studies provide important contributions to the new trend of research. Analysis of networks,⁹ within the approach of Social Network Analysis, is developed beginning with the idea of "socialmetric" attributed to Jacob Levi Moreno (a psychiatrist from the United States), that is the measurement-collection of relationships in a group, utilizing the mathematical concept of Graph Theory.

The analysis of local systems and districts is founded on the concept of external economics defined by Marshall, that is to say, the collective acquaintances, values, behaviors, and institutions which give an advantage to the economic agents connected to the territory in which they operate. Becattini (2000) and Porter (1998) redefine Marshall's initial concept of district, describing it as a socio-territorial entity, characterized by the coexistence in one area, of people, companies, and other connected institutions. With districtization comes the creation of useful conditions which favor the active participation of civil society in the productive process, thanks to local governance. The development of districts is determined by the referenced environment, made up of values and institutions, with regulation of the norms. The relationships develop internally, but there is still constant interaction with the surrounding world.

For the analysis of behavior and individual values, one looks to the World Values Survey¹⁰ which consists of an analysis project which took place in 1981 in Europe and studied world political and socio-cultural changes. The study conducted national surveys in 97 countries which represent almost 90% of the world's population and gathered publications on social capital, directed by World Bank¹¹ in 1996, to encourage discussions on the topic.

The regional systems of innovation (Florida 1995; Doloreux 2002) are territorial institutional infrastructures, characterized by organizations and relationships both internal and external which include the businesses, public sectors, and territorial organizations.

In recent years, with the acceptance of behavioral economics (Smerilli 2008), a new method has been diffused based on experimental tests. Once again, the discussion of economics and psychology (Bruni, Sudgen 2007) has been taken up, with a renewed interest in the significance of the actions, and therefore also the intentions, of the opinions about the reflections of others, of their emotions, and most of all their consequences.

Also, within the past few years, one has seen a new orientation of politics, with models of governance turning to cooperation and relationships (Rizzi 2003), with a reciprocal strengthening between the public and private sectors (Ostrom 1994, 2000). At a European level, orientation is towards setting up policies that can contemporarily sustain competition and cooperation, with the intent to utilize the "social" factors as a foundation onto which the new "economics of knowledge," based on a majority economic and social cohesion, can be grafted.

2. The measurement of Social Capital and the relationships with its development

In the study conducted by Putnam, Leonardi, and Nanetti (1993) on the regions of Italy, they measured social capital as the number of voluntary associations, which one observes as the positive link between a concept and a better institutional performance.

⁸ Located in Paris, within the University of La Sorbonne, active since the mid 1980's

⁹ Trigilia C. and Inglehart R. conducted several studies utilizing the techniques of Network Analysis.

¹⁰ www.worldvaluessurvey.org/organization

¹¹ www.worldbank.org/socialcapital: "Social Capital Initiative – Working Paper Series" directed by World Bank.

According to various authors (Gambetta 1988; Coleman 1990; Putnam 1993; Fukuyama 1995¹²), it is trust which influences the function of the institutions, while according to others (Schneider et.al. 1997), the casual relationship is inverse.

Righi and Turi (2007) propose the adoption of a benchmarking strategy for the study of regional differences in the properties of social capital: this provides a system of comparative measurement and evaluation (made up of a matrix of indicators), that offers the necessary instruments to develop a sustainable development, both to those in charge and to society as a whole.

When considering measurement itself, one example can be taken from the study performed by Helliwell and Putnam (1995) in which they utilize three variables for the Italian regions:

- 1) The civil community¹³: a measurement made up of 4 indicators, two used to measure the relevance of the civic community (newspaper readers and availability for sports and cultural associations) and two linked to the political behaviors of the citizens (affluence of referendums and tendencies in voting preferences). The 4 measurements provide coherent results, distinguishing the northern regions from the southern regions;
- 2) Institutional performance: this constitutes a measurement made up of comparative performance of regional governments. It includes 12 elements, ranging from budget adherence, to innovative legislation, to the speed of bureaucracy (ex. speed and precision of the responses to citizen requests). The measurement, for this study, deals with the period from 1978-1985;
- 3) The satisfaction of the citizens: based on various sample surveys from 1977 and 1988, in which the interviewees were asked their level of satisfaction regarding the attitude of their regional government.

What emerges is that the regions with a larger participation in civic activities show greater institutional performance. Trust (which in the North is constructed thanks to an historical heritage connected to greater liberty with respect to the South) favored the construction of networks, which, for their part, influence the functionality of the political system.

The measurement, however, is subject to problems (Ciani 2005), in particular the banality of the concept, the use of sample surveys based on interviews, and the scarce attention paid to the context (Sabatini 2008b). The conditions for a correct measurement therefore come from the specification of dimensions (Narayan, Pritchett (2000) and involved components (Beugelsdijk, Smulders 2009) and from the combinations of quantitative and qualitative instruments (Grootaert, Van Bastelaer 2002).

Evidence in support of the positive relationship between social capital and economic growth is therefore relatively consolidated, even if the causality of the relationships and the effects are, in certain cases, ambiguous.¹⁴

Recalling the study of Helliwell and Putnam, the variable of interest considered is the growth rate of the PIL. The conclusions are the following: the regions with superior initial levels of social capital show more effective regional governments; one also finds a significant influence from both citizen satisfaction and regional differences from long-term institutions on economic growth.

Significant and positive effects of social capital on economic growth can also be seen in various studies: Krishna and Uphoff (1999), Inglehart (2000), Panebianco (2003), Beugelsdijk and Van Schaik (2004), Andriani and Karyampas (2008).

The presence of faith reduces the risk of opportunistic behavior, lowers the cost of transactions, favors exchanges, stimulates investments and production, positively influencing the process of development. However, La Porta and other authors (2000) verify that the positive relationship between social capital and economic growth is true only for developing countries. It is here that the public role must be largely active

¹² In La Porta R., Lopez-de-Silanes F. Shleifer A., Vishny R.W., "Trust in large Organizations", 1997, in Dasgupta, Serageldin 2000.

¹³ "Public spirit" is a vision of politics with alternatives to the parties. The inhabitants of a community collaborate (tied together by their positive values) to reach an objective useful to the community.

¹⁴ Among others, see the studies of Rizzi and Popara (2006) on the provinces of Italy and Rizzi (2004) and Righi, Turi (2007) on the regions of Italy.

because it is impossible to think of confronting the problems of poverty and inequity without public intervention.

Within the relationship between social capital and growth, however, it can also be very important to analyze sustainable development not only from the point of view of economic growth. The logic of sustainable growth¹⁵ and its dimensions has received more and more attention within the last few years, and is measured by separate indicators and by composite indices, made up of various elementary indices.¹⁶

3. An empirical study of the countries and regions of Europe

This paper seeks to define a new measurement of social capital in the countries and regions of Europe and to analyze the effects of social capital on a number of elementary variables stemming from the three dimensions of sustainable growth.

The method of analysis is based on a sample study which was conducted within the scope of the "European Values Study" project, including around 40,000 individuals between 1991 and 2001. The data is available through the "GESIS Data" archive for the Social Sciences, located in Colonia (also available on-line via ZACAT, the data portal of the Social Sciences). The collections deal with values, ideas, attitudes, beliefs, opinions, and preferences of the citizens.

As to the merit of the object sample of the survey, one should note that the questionnaire involved covered various countries, including those outside of Europe. The three years of the survey (1981, 1990, and 1999) at the European level, in fact, were integrated with the four years of the World Values Survey, conducted in 1981-1984, 1980-1993, 1989-1993, and 199-2004. The present study focuses on the participants from the European nations.

The sample, therefore, comprises nearly 30,000 interviewees from 26 nations which today are part of the European Union. With regard to the official and current composition of the EU, Cyprus was not included in the analysis since it did not participate in the survey. With the exception of Greece, the survey was performed by professional organizations, utilizing the direct interview method, completed by adults older than 18 years of age. The year of reference is 1999, with a small percentage of responses coming from the 2000 and 2001 surveys.

In the following analysis, the information relative to the sample derives from the European Values Survey questionnaire, while the source of objective data relative to the countries and regions of Europe comes from Eurostat.

The method of analysis utilized was constructed in various rounds, realized first at the national levels and then at the regional level. The rounds can be summarized as such:

- choice of variables tied to the concept of Social Capital: calculation of the frequency of the selected questions, study of the correlations between the individual variables;
- synthesis of the variables of departure relating to Social Capital in a few principal components;
- study of the potential relationships between Social Capital, and its components, and some objective variables relating to the dimensions of sustainable development, utilizing the estimates of the Ordinary Least Square.

The variables of Social Capital, despite being made up of subjective responses, constitute an example of measurement of its own components, showing the properties of values, trust, and relationships that one develops over time.

After the selection of the variables and calculation of the associated frequencies, the study moves to the analysis of the bi-variable correlation¹⁷ between the selected variables: on the basis of the results, both the

¹⁵ Definition from Brundtland Commission of 1987 - World Commission on Environment and Development, directed by the United Nations in 1983.

¹⁶ Stiglitz, Sen, Fitoussi, Report by the Commission on the Measurement of Economic Performance and Social Progress, September 2009.

¹⁷ The index of correlation utilized is that of Bravais-Pearson: it tests the linear dependence between two variables, such as the relationship between their covariance and the product of the mean square deviations

strongly correlated variables (correlation value > 0.80) and the scarcely correlated variables (correlation value < 0.30) were eliminated. However, in the end, it was deemed opportune to retain a few variables which between them did not show a correlation condition greater than 0.30 in order to maintain their informative content, useful to the objective focus of the present study. Of the original 61 variables, 18 were selected and utilized in the study.

3.1 Social Capital in European countries

The analysis of the principal components allows a reduction of the dimension of a collection of variables, substituting new variables (Principal Components) for the departed variables. These new variables,¹⁸ which can be qualified as “latent variables,” represent a synthetic measurement of social capital.

So that the ACP could be followed, the Bartlett test must be verified: the null hypothesis foresees that the variables are independent. In this case one rejects the null hypothesis, with a significance of 1%: the variables are therefore not independent (one can also see that the elevated value of the test statistics, based, in this case, on a transformation of Chi Squared). The KMO index deals with the partial correlation and is measured via several values: 0.90 - optimal, 0.80 - good, 0.70 - discreet, 0.60 - mediocre, 0.50 - sufficient, less than 0.50 - insufficient. In the case in question, the index shows a result between mediocre and discreet.

KMO E BARTLETT TEST

| | | |
|---|---------------------------|----------------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.614 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 335.565 |
| | df | 153.000 |
| | Sig. | 0.000 |

The table of the “Commonality” provides the quotas of variance for each variable explained by the principal components extracted (such information can be seen in the “Extraction” column in Appendix I).

In the case in question, the extracted components show quotas of variance above 40%.

The cumulative quota of total variance explained by the extracted components is equal to 68.28%

In the end, the rotation of the components is able to distribute the variation of the explained variance of the principal components in a uniform way so as to allow the significance of the extracted components to be interpreted in the correct way.

Observing the matrix of the rotated components (which signals the coefficients of correlation), one notes that the departing variables associate with the extracted components according to a precise logic, or rather:

- 1) Component 1 represents the Relationship Capital in and of itself, coming from the importance of the interactions, the belonging to social networks, and the trust in others;
- 2) Component 2 shows the Normative Capital, consisting of personal values and the values that govern the relationships with institutions, and ethical and civic norms that govern daily life;
- 3) Component 3 (referred to as Cooperative Capital) shows the existence of an active dimension useful to the cultivation of processes of cooperation.

¹⁸ The Principal Components are attained as linear combinations of the original variables; in such a way as to offer an adequate representation, with a minimal loss of original information of the data. The theory foresees that the minimum number of components to be extracted be equal to 3, expecting that the total variance explained centers around 60%.

Matrix of Rotated Components

| Variables | Components | | |
|--|------------|--------|--------|
| | 1 | 2 | 3 |
| Very important in life: work | -0.718 | 0.296 | 0.125 |
| Very important in life: family | 0.082 | 0.755 | 0.405 |
| Very important in life: religion | -0.473 | 0.625 | 0.386 |
| Availability to an increase in taxes useful in the prevention of environmental pollution | 0.468 | 0.233 | 0.495 |
| Non Justifiable Behavior: not paying taxies if given the opportunity | -0.188 | 0.658 | -0.151 |
| Non Justifiable Behavior: littering in public | -0.485 | 0.382 | -0.150 |
| Very important in life: friends | 0.870 | 0.200 | 0.184 |
| Membership in a religious organization | 0.749 | 0.067 | 0.235 |
| Membership in cultural organizaions | 0.723 | -0.163 | 0.418 |
| Volunteer in a social services organization | 0.640 | -0.004 | 0.670 |
| Active participation in political party/group (non-reimbursed work) | 0.163 | 0.004 | 0.808 |
| Volunteer in an environmental organization | 0.308 | -0.145 | 0.773 |
| Trust in others (in the majority of people) | 0.911 | -0.003 | -0.028 |
| A great deal of trust in institutions: educational system | -0.087 | 0.781 | -0.151 |
| A great deal of trust in institutions: national government | 0.175 | 0.824 | -0.006 |
| A great deal of trust in institutions: European Union | -0.505 | 0.638 | 0.246 |
| A great deal of trust in institutions: judicial system | 0.354 | 0.784 | -0.217 |
| National pride (Response: "very proud") | -0.107 | 0.788 | 0.039 |

Extraction Method: Principal Component Analysis. Rotation Method: Quartimax with Kaiser Normalization.

a Rotation converged in 6 iterations.

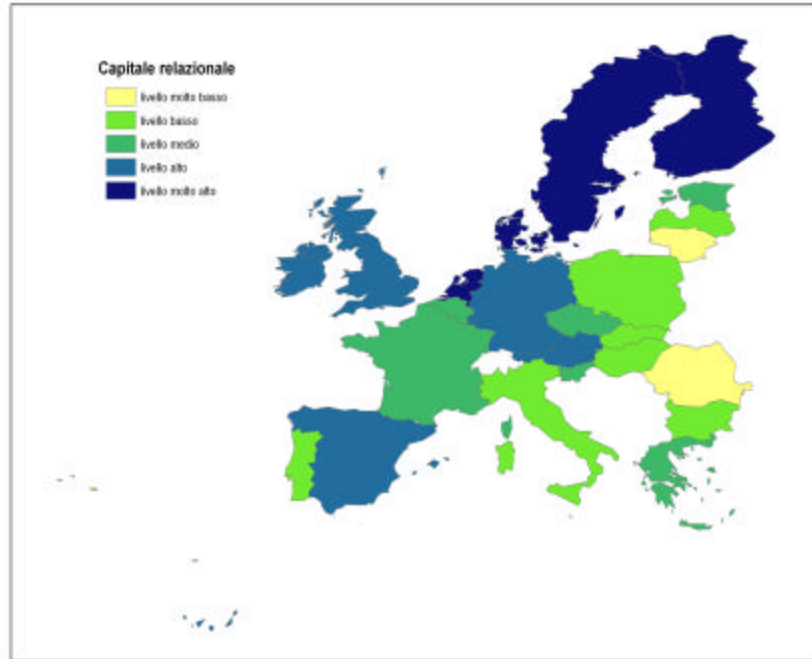
Now it is possible to determine a synthetic index (calculated on the basis of a specific standardizations¹⁹) of the individual components, and at the end draw up a classification of the European countries in the study.

¹⁹ The method of standardization utilized refers to the values of every one of the referenced components in each country with the formula: $(CPI - \min) * 100 / (\max - \min)$, where max and min are the maximum and minimum values of the same component. The methodology is covered by Sessa (1998) and taken up again by Rizzi (2004).

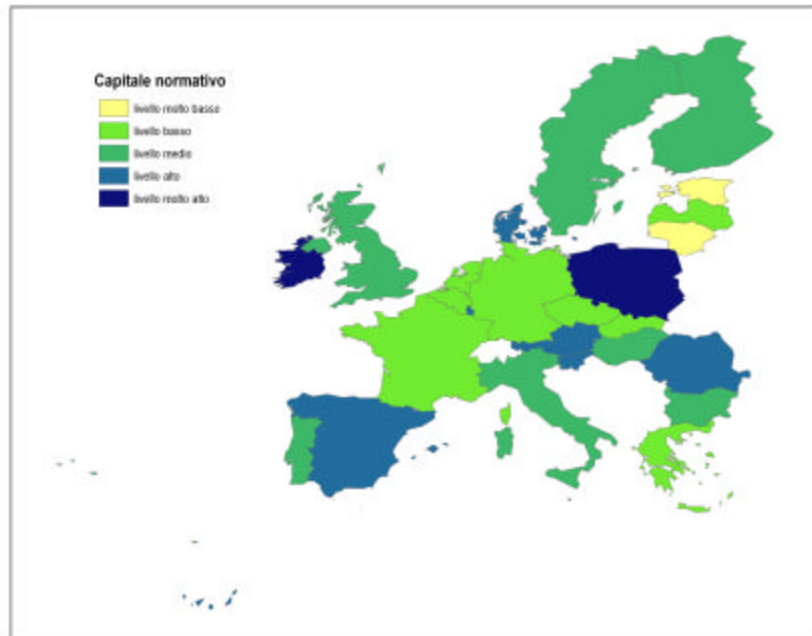
| Classification | | Component 1 – Relationship Capital | |
|----------------|------------|--|-----------------|
| rank | country | score | standardization |
| SE | Sweden | 2.365 | 100 |
| NL | Holland | 1.744 | 83.76 |
| DK | Denmark | 1.661 | 81.58 |
| FI | Finland | 1.64 | 81.04 |
| UK | UK | 0.991 | 64.07 |
| IR | Ireland | 0.66 | 55.41 |
| AT | Austria | 0.415 | 49 |
| LU | Luxembourg | 0.321 | 46.53 |
| DE | Germany | 0.317 | 46.44 |
| ES | Spain | 0.159 | 42.29 |
| SL | Slovenia | 0.032 | 38.99 |
| BE | Belgium | -0.187 | 33.25 |
| GR | Greece | -0.212 | 32.59 |
| EE | Estonia | -0.302 | 30.25 |
| CZ | Czech Rep. | -0.349 | 29 |
| FR | France | -0.45 | 26.37 |
| HU | Hungary | -0.546 | 23.85 |
| BG | Bulgaria | -0.626 | 21.75 |
| IT | Italy | -0.631 | 21.64 |
| SK | Slovakia | -0.738 | 18.84 |
| PT | Portugal | -0.777 | 17.81 |
| LV | Latvia | -0.801 | 17.18 |
| PL | Poland | -0.845 | 16.03 |
| LT | Lithuania | -1.051 | 10.65 |
| RO | Romania | -1.333 | 3.27 |
| MT | Malta | -1.458 | 0 |

| Classification European Nations | | Component 2 – Normative Capital | |
|------------------------------------|------------|---|-------------|
| rank | country | score | standardiz. |
| MT | Malta | 2.147 | 100 |
| IR | Ireland | 1.798 | 92.21 |
| PL | Poland | 1.638 | 88.64 |
| AT | Austria | 0.909 | 72.35 |
| RO | Romania | 0.634 | 66.22 |
| DK | Denmark | 0.517 | 63.61 |
| ES | Spain | 0.438 | 61.84 |
| SL | Slovenia | 0.43 | 61.66 |
| LU | Luxembourg | 0.412 | 61.25 |
| IT | Italy | 0.192 | 56.34 |
| BG | Bulgaria | 0.174 | 55.93 |
| PT | Portugal | 0.11 | 54.51 |
| FI | Finland | 0.097 | 54.23 |
| UK | UK | 0.056 | 53.3 |
| HU | Hungary | 0.022 | 52.55 |
| SE | Sweden | -0.031 | 51.37 |
| LV | Latvia | -0.379 | 43.59 |
| FR | France | -0.42 | 42.68 |
| BE | Belgium | -0.495 | 41.01 |
| CZ | Czech Rep. | -0.741 | 35.5 |
| NL | Holland | -0.793 | 34.33 |
| SK | Slovakia | -0.795 | 34.3 |
| DE | Germany | -0.932 | 31.23 |
| GR | Greece | -1.079 | 27.96 |
| EE | Estonia | -1.579 | 16.79 |
| LT | Lithuania | -2.331 | 0 |

| Classification European nations | | Component 3 – Cooperative Capital | |
|------------------------------------|------------|---|-------------|
| rank | country | score | standardiz. |
| GR | Greece | 2.909 | 100 |
| MT | Malta | 1.47 | 67.5 |
| SK | Slovakia | 1.412 | 66.19 |
| SE | Sweden | 1.297 | 63.58 |
| BE | Belgium | 0.905 | 54.72 |
| LU | Luxembourg | 0.634 | 48.6 |
| IT | Italy | 0.576 | 47.3 |
| NL | Holland | 0.529 | 46.23 |
| CZ | Czech Rep. | 0.381 | 42.9 |
| UK | UK | 0.141 | 37.46 |
| BG | Bulgaria | -0.091 | 32.22 |
| RO | Romania | -0.238 | 28.89 |
| SL | Slovenia | -0.264 | 28.32 |
| AT | Austria | -0.335 | 26.71 |
| FR | France | -0.447 | 24.19 |
| PT | Portugal | -0.477 | 23.5 |
| PL | Poland | -0.508 | 22.81 |
| HU | Hungary | -0.508 | 22.79 |
| FI | Finland | -0.512 | 22.72 |
| IR | Ireland | -0.627 | 20.12 |
| LT | Lithuania | -0.793 | 16.36 |
| ES | Spain | -0.858 | 14.9 |
| DK | Denmark | -0.939 | 13.07 |
| EE | Estonia | -0.976 | 12.23 |
| LV | Latvia | -1.165 | 7.95 |
| DE | Germany | -1.517 | 0 |



The North countries, specifically in the order of Sweden, Holland, Denmark, and Finland, are classified first: in this territory it seems that associations, in the form of passive participation (membership) and trust in others has great importance.



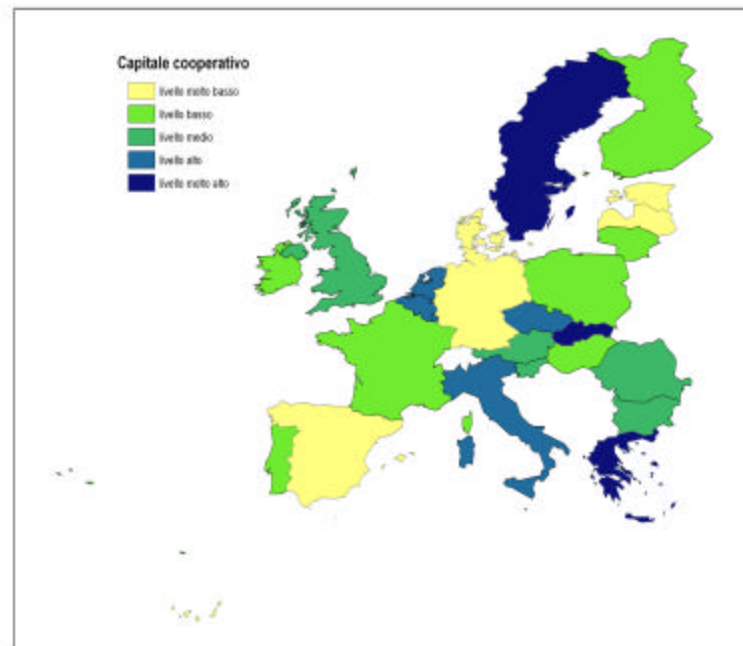
Malta, Romania, Lithuania, and other countries in Southern and Eastern Europe find themselves at the bottom.

The value of family and work reach a mean of 80% and 60% respectively of positive responses, while religion reaches a mean of 20%, from which emerges a distinction between the North (less inclined toward religion) and the South (largely orientated toward the practice of religion) with examples from both the Eastern countries and the Western countries, with a strong religious orientation.

Also emerging is a judgment of trust in the institutions, in particular in recently developed nations (such as Ireland) or new democracies (such as areas of Eastern Europe). The citizens of the latter countries, even with the prospect of integration into the European Union, most likely aspire to maintain the efforts enacted on behalf of their national institutions and a possible support of the supra-national structures, in favor of consolidation of their development.

On the other hand, those nations, such as Germany, who show the lowest totals are nations who strive to be faithful within the systems in general for particular historical reasons.

Italy positions itself in the higher part of the table, thanks in most part to the importance of values.



Cooperative Capital, strictly derived from Relationship Capital, does not seem to have a clear definition. The countries ranked higher show a greater active dimension of relationships, independently from economic levels, for which a more evident distinction appears in the two preceding cases. In fact, the highest ranked countries are Greece, Malta, and Slovakia, but also Sweden and Luxembourg, while the lowest ranked countries are Estonia and Latvia, but also Germany and Denmark.

3.2 Social Capital in the European regions

From here, one moves on to define a measurement of social capital at the level of the regions of Europe in order to take into account the territorial context in which every individual resides. The number of areas considered was 187: this includes both regions (level: NUTS 2) and macro-regions (level: NUTS 1).

Relative to the choice of Social Capital variables to be considered, the method of analysis is the same as used for the nations.

For the Bartlett test, one rejects the null hypothesis, with a significance of 1%: the variables are, therefore, not independent (one can also see the elevated value of the test statistics, based, in this case, on a transformation of the Chi Square). For the KMO index, the measurement of the value is discreet.

The table of “Communality” provides the quotas of variance in each explained variable of the principal extracted component (such information can be found in the “Extraction” column in Appendix II). In the case in question, the extracted components give quotas of variance from 30%.

KMO E BARTLETT TEST

| | | |
|---|---------------------------|------------------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0,704 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 1,313.666 |
| | df | 153.000 |
| | Sig. | 0.000 |

The cumulative quota of total variance explained by the extracted components is equal to 58%.

In the end, the rotation of the components is able to distribute the variation of the explained variance of the principal components in a uniform way so as to allow the significance of the extracted components to be interpreted in the correct way. As opposed to the case of the countries, here 4 components were extracted which correctly synthesize the departing variables. Looking at the matrix of rotated components, one notes the performance of the three components already seen at the national level, with one additional specification:

- 1) Component 1 is the Value Capital, made up of personal values and values tied to the institutions closest to the individual (education system), and of ethical and civic norms for daily life;
- 2) Component 2 represents the Relationship Capital in and of itself, coming from the importance of the interactions, the belonging to social networks, and the trust in others;
- 3) Component 3, here named “Institutional Capital” (which, at the national level was associated with component 1), expresses the values which tie the individuals to the institutions of society;
- 4) Component 4 is the Cooperative Capital, that is to say the existence of an active dimension useful to the establishment of processes of cooperation.

Matrix of Rotated Components

| Variables | Components | | | |
|---|------------|---------|---------|---------|
| | 1 | 2 | 3 | 4 |
| Very important in life: work | 0.7379 | -0.2163 | -0.0963 | -0.1671 |
| Very important in life: family | 0.5663 | 0.1406 | 0.1886 | 0.1945 |
| Very important in life: religion | 0.7591 | -0.0672 | 0.0516 | -0.1041 |
| Availability to an increase in taxes useful for prevention of environmental pollution | 0.3096 | 0.5633 | -0.0517 | 0.2331 |
| Non Justifiable Behavior: not paying taxes if given the opportunity | 0.1680 | -0.0348 | 0.3704 | -0.4503 |
| Non Justifiable Behavior: littering in public | 0.4290 | -0.1275 | -0.1589 | -0.2973 |
| Very important in life: friends | -0.3436 | 0.6228 | 0.2867 | 0.3498 |
| Membership in a religious organization | -0.1435 | 0.8385 | -0.0224 | -0.0703 |
| Membership in cultural organizaions | -0.2583 | 0.7007 | -0.0992 | 0.3057 |
| Volunteer in a social services organization | -0.1407 | 0.3072 | -0.1174 | 0.7172 |
| Active participation in political party/group (non-reimbursed) | 0.2371 | 0.3262 | -0.3178 | 0.1682 |
| Volunteer in an environmental organization | 0.0263 | 0.0889 | -0.1022 | 0.8983 |
| A great deal of trust in others | -0.4963 | 0.7172 | 0.0059 | -0.1228 |
| A great deal of trust in institutions: educational system | 0.5857 | 0.0149 | 0.3782 | -0.1485 |
| A great deal of trust in institutions: national government | 0.0890 | 0.0397 | 0.8625 | -0.0799 |
| A great deal of trust in institutions: European Union | 0.3216 | -0.2230 | 0.5376 | -0.0908 |
| A great deal of trust in institutions: judicial system | 0.0808 | 0.0516 | 0.8498 | -0.0278 |
| National Pride (Response: “very proud”) | 0.6979 | -0.1236 | 0.1397 | 0.0885 |

Extraction Method: Principal Component Analysis. Rotation Method: Quartimax with Kaiser Normalization. Rotation converged in 7 iterations.

It is now possible to determine a synthetic index (calculated on the basis of the same specific standardization used for the countries) of the components, in order to draw up a classification of the regions of Europe.

| Classification: European regions | | Component 1 – Value Capital | | Classification: European regions | | Component 2 – Relationship Capital | |
|----------------------------------|---------------------------|-----------------------------|-----------------|----------------------------------|--------------------------|------------------------------------|-----------------|
| | | score | standardization | | | score | standardization |
| 1 | ES La Rioja | 2.66 | 100 | 1 | SE Norr | 3.5 | 100 |
| 2 | MT Malta | 2.48 | 97.32 | 2 | SE Öst | 3.32 | 96.7 |
| 3 | IT Basilicata | 2.16 | 92.3 | 3 | SE Västsverige | 3.27 | 95.78 |
| 4 | PL Opolskie | 2.13 | 91.88 | 4 | SE Sydsverige | 3.12 | 93.07 |
| 5 | PL Pomorskie | 2.01 | 90.1 | 5 | SE Stor Stockholm | 3.01 | 91.02 |
| 6 | PL Dolnolaskie | 1.94 | 89.07 | 6 | NL Drenthe | 2.79 | 869 |
| 7 | GR Chios | 1.94 | 89.03 | 7 | NL Utrecht | 2.74 | 85.89 |
| 8 | RO Nord-Est | 1.94 | 88.94 | 8 | NL Overijssel | 2.46 | 80.74 |
| 9 | PL Podlaskie | 1.89 | 88.19 | 9 | ES La Rioja | 2.34 | 78.46 |
| 10 | PL Zachodniopomorskie | 1.67 | 84.94 | 10 | NL Groningen | 2.19 | 75.85 |
| 28 | IT Campania | 1.01 | 74.81 | 31 | IT Trentino-Alto Adige | 0.79 | 49.78 |
| 29 | IT Calabria | 1 | 74.63 | 41 | IT Veneto | 0.55 | 45.43 |
| 40 | IT Puglia | 0.72 | 70.26 | 42 | IT Basilicata | 0.4 | 42.59 |
| 52 | IT Abruzzo | 0.48 | 66.57 | 57 | IT Friuli-Venezia Giulia | 0.04 | 36.01 |
| 54 | IT Veneto | 0.45 | 66.11 | 58 | IT Lombardia | 0.01 | 35.43 |
| 55 | IT Molise | 0.42 | 65.75 | 60 | IT Toscana | 0 | 35.22 |
| 56 | IT Piemonte | 0.4 | 65.37 | 65 | IT Emilia-Romagna | -0.06 | 34.05 |
| 57 | IT Lazio | 0.36 | 64.86 | 75 | IT Calabria | -0.14 | 32.62 |
| 62 | IT Sicilia | 0.3 | 63.91 | 80 | IT Abruzzo | -0.18 | 31.84 |
| 69 | IT Lombardia | 0.24 | 62.99 | 83 | IT Lazio | -0.2 | 31.51 |
| 74 | IT Emilia-Romagna | 0.15 | 61.51 | 103 | IT Campania | -0.32 | 29.21 |
| 77 | IT Trentino-Alto Adige | 0.13 | 61.23 | 106 | IT Piemonte | -0.35 | 28.66 |
| 81 | IT Umbria | 0.08 | 60.52 | 110 | IT Puglia | -0.37 | 28.39 |
| 84 | IT Toscana | 0.07 | 60.29 | 140 | IT Sicilia | -0.66 | 23.02 |
| 107 | IT Marche | -0.19 | 56.34 | 144 | IT Sardegna | -0.67 | 22.86 |
| 114 | IT Sardegna | -0.24 | 55.56 | 151 | IT Marche | -0.7 | 22.31 |
| 127 | IT Liguria | -0.41 | 53.05 | 174 | IT Valle d'Aosta | -0.95 | 17.56 |
| 136 | IT Valle d'Aosta | -0.52 | 51.26 | 175 | IT Liguria | -0.96 | 17.46 |
| 162 | IT Friuli-Venezia Giulia | -0.92 | 45.23 | 178 | RO Centru | -0.99 | 16.88 |
| 178 | DE Hessen | -1.61 | 34.67 | 179 | PT Norte | -1.01 | 16.49 |
| 179 | ES Cataluña | -1.7 | 33.16 | 180 | ES Galicia | -1.03 | 16.13 |
| 180 | DE Brandenburg | -1.71 | 33 | 181 | DE Bayern | -1.09 | 14.97 |
| 181 | DE Baden-Württemberg | -1.75 | 32.44 | 182 | IT Umbria | -1.12 | 14.48 |
| 182 | NL Utrecht | -1.76 | 32.37 | 183 | ES Cataluña | -1.14 | 14.15 |
| 183 | DE Mecklenburg-Vorpommern | -1.9 | 30.09 | 184 | EE Estonia | -1.22 | 12.61 |
| 184 | DE Bayern | -1.95 | 29.44 | 185 | IT Molise | -1.42 | 8.89 |
| 185 | DE Rheinland-Pfalz | -2.12 | 26.74 | 186 | LT Lithuania | -1.61 | 5.45 |
| 186 | DE Saarland | -2.2 | 25.58 | 187 | DE Hamburg | -1.9 | 0 |
| 187 | DE Hamburg | -3.87 | 0 | | | | |

With reference to the Value Capital, as expected, one sees that the Southern regions and those of Eastern Europe, the more orientated toward religion (such as Italy and Poland), are ranked highest. Countries such as Germany and Holland find themselves instead at the bottom. Among the regions of Italy, one sees, in order, a few regions of the South and then all the Northern regions. Along these lines, it is almost possible to develop a distinction on the basis of income: the highest ranked regions are those with lower income, while those with higher income are found at the bottom. Considering the Relationship Capital, the Swedish regions and Dutch regions are ranked highest, while the regions in Southeastern Europe are last. One can also see the presence of a few German regions towards the bottom (such as Saarland, Bayern, and Hamburg), which present, at the macro-region level, lower relationship values. As far as Italy, the Northern regions are found to be highest in ranking and then the Southern ones, confirming the opposite significance of these components compared to the previous one. At the level of institutional trust there exists no evident distinction among regions.

Observing the Institutional Capital, we observe that at the top are the German, Spanish, and English regions. Even within Italy the areas combine: the highest ranked region is Emilia-Romagna, the lowest is Valle d'Aosta.

One possible reflection is given by geographic positioning: decentralized regions, with respect to national governments, yield less trust in institutions.

For Cooperative Capital, as one can see from the table, the Greek, United Kingdom, and Italian regions occupy the top positions, while German, Dutch, and Eastern European regions are at the bottom.

Here, Italy can be taken as an example: it seems that, at least for some peripheral Northern areas, Cooperative Capital constitutes a sort of compensation with respect to Institutional Capital.

As far as Germany, however, the presence of regions such as Hamburg leads one to think about a possible explanation as to why, at the national level, it finds itself in such a low ranking.

| Classification: European regions | | Component 3 – Institutional Capital | |
|----------------------------------|--------------------------|---|-----------------|
| | | score | standardization |
| 1 | DE Saarland | 5.8 | 100 |
| 2 | ES Comunidad Foral de N. | 5.46 | 95.82 |
| 3 | DE Rheinland-Pfalz | 4.3 | 81.39 |
| 4 | UK London | 1.87 | 51.39 |
| 5 | DE Nordrhein- Westfalen | 1.78 | 50.33 |
| 6 | ES Castilla y León | 1.67 | 48.92 |
| 7 | ES Andalucía | 1.55 | 47.43 |
| 8 | IR Ireland | 1.48 | 46.56 |
| 9 | DK Nordjyllands amt | 1.4 | 45.65 |
| 10 | IT Abruzzo | 1.4 | 45.64 |
| 37 | IT Emilia-Romagna | 0.62 | 35.98 |
| 40 | IT Campania | 0.57 | 35.41 |
| 50 | IT Sicilia | 0.41 | 33.41 |
| 52 | IT Trentino-Alto Adige | 0.39 | 33.14 |
| 55 | IT Veneto | 0.35 | 32.65 |
| 82 | IT Lombardia | 0 | 28.37 |
| 89 | IT Piemonte | -0.1 | 27.14 |
| 91 | IT Friuli-Venezia Giulia | -0.14 | 26.54 |
| 98 | IT Calabria | -0.21 | 25.76 |
| 105 | IT Toscana | -0.27 | 25.02 |
| 122 | IT Marche | -0.4 | 23.38 |
| 129 | IT Umbria | -0.46 | 22.65 |
| 132 | IT Puglia | -0.48 | 22.41 |
| 140 | IT Molise | -0.54 | 21.6 |
| 144 | IT Lazio | -0.57 | 21.31 |
| 153 | IT Sardegna | -0.66 | 20.13 |
| 173 | IT Basilicata | -0.96 | 16.45 |
| 175 | IT Liguria | -1.03 | 15.54 |
| 178 | BE Prov. Namur | -1.23 | 13.16 |
| 179 | DE Schleswig-Holstein | -1.25 | 12.88 |
| 180 | GR Notio Aigaio | -1.29 | 12.37 |
| 181 | DE Sachsen-Anhalt | -1.58 | 8.83 |
| 182 | GR Peloponnisos | -1.63 | 8.13 |
| 183 | IT Valle d' Aosta | -1.67 | 7.74 |
| 184 | LT Lithuania | -1.68 | 7.61 |
| 185 | BE Prov. Luxembourg | -1.73 | 6.89 |
| 186 | GR Chios | -2.07 | 2.8 |
| 187 | ES La Rioja | -2.29 | 0 |

| Classification: European regions | | Component 4 – Cooperative Capital | |
|----------------------------------|--------------------------|---|-----------------|
| | | score | standardization |
| 1 | GR Kerkyra | 6.34 | 100 |
| 2 | IT Valle d' Aosta | 4.8 | 81.53 |
| 3 | UK London | 3.33 | 63.89 |
| 4 | UK W. Mids | 2.89 | 58.67 |
| 5 | UK South West | 2.87 | 58.33 |
| 6 | UK North East | 2.75 | 56.91 |
| 7 | UK Eastern | 2.72 | 56.62 |
| 8 | GR Chios | 2.26 | 51.12 |
| 9 | UK E. Mids | 2.23 | 50.68 |
| 10 | GR Notio Aigaio | 2.06 | 48.65 |
| 34 | IT Liguria | 0.4 | 28.85 |
| 41 | IT Trentino-Alto Adige | 0.25 | 27.04 |
| 46 | IT Lombardia | 0.21 | 26.47 |
| 56 | IT Toscana | 0.08 | 24.95 |
| 58 | IT Friuli-Venezia Giulia | 0.07 | 24.81 |
| 60 | IT Veneto | 0.03 | 24.41 |
| 65 | IT Piemonte | 0.01 | 24.1 |
| 85 | IT Puglia | -0.16 | 22.14 |
| 98 | IT Emilia-Romagna | -0.26 | 20.9 |
| 100 | IT Lazio | -0.28 | 20.6 |
| 106 | IT Molise | -0.33 | 20.06 |
| 115 | IT Campania | -0.38 | 19.44 |
| 127 | IT Sicilia | -0.45 | 18.57 |
| 143 | IT Marche | -0.54 | 17.57 |
| 151 | IT Calabria | -0.64 | 16.35 |
| 154 | IT Basilicata | -0.65 | 16.24 |
| 160 | IT Umbria | -0.69 | 15.7 |
| 162 | IT Sardegna | -0.72 | 15.33 |
| 178 | NL Flevoland | -0.94 | 12.72 |
| 179 | DE Hessen | -0.96 | 12.51 |
| 180 | DE Sachsen | -0.99 | 12.11 |
| 181 | RO Nord-Vest | -1 | 12.02 |
| 182 | BG Severen tsentralen | -1 | 12.01 |
| 183 | PL Podlaskie | -1 | 12 |
| 184 | DE Mecklenburg-Vor. | -1.03 | 11.65 |
| 185 | IT Abruzzo | -1.08 | 11.11 |
| 186 | DE Hamburg | -1.22 | 9.37 |
| 187 | DE Brandenburg | -2 | 0 |

4. The relationship between Social Capital and sustainable development: an economic study

In order to evaluate the ties between the individual components of Social Capital and a few selected variables with reference to the dimensions of sustainable development (growth of the GDP for economic dimension, unemployment rate for the social dimension, and emission of greenhouse gasses for the environmental dimension), various cross-section economic studies were utilized.

For the economic dimension the growth rate of the GDP from 2000 to 2008 is explained with the value of the GDP in the initial year, in order to verify the processes of convergence between countries, the exports per capita. Research and development costs and other diverse components of social capital.

COEFFICIENTS

| Model | | REGR. 1 | REGR. 2 | REGR. 3 |
|--|--|--------------|--------------|--------------|
| | | Coeff. | Coeff. | Coeff. |
| 1 | (Constant) | 181.927 | 262.611 | 724.342 |
| | Sig. | 0.008 | 0.000 | 0.000 |
| | Ln PII real per-capita 2000 | -23.228 | -24.737 | -21.914 |
| | Sig. | 0.043 | 0.000 | 0.000 |
| | Ln exportations per-capita (PPS) 2000 | 10.708 | | |
| | Sig. | 0.065 | | |
| | Ln R&S expense internal (public e private: GERD) - PPS per-capite at constant prices 2000, anno 2000 | -5.504 | | |
| | Sig. | 0.564 | | |
| | Component 1 - Relationship Capital | | 5.092 | 5.542 |
| | Sig. | | 0.181 | 0.204 |
| | Component 2 - Normative Capital | | -5.610 | |
| Sig. | | 0.050 | | |
| Component 3 - Cooperative Capital | | -1.461 | 1.977 | |
| Sig. | | 0.586 | 0.466 | |
| Very important in life - work (ln) | | | 7.792 | |
| Sig. | | | 0.712 | |
| Very important in life - family (ln) | | | - | |
| Sig. | | | 117.889 | |
| | | | 0.006 | |
| Very important in life - religion (ln) | | | 1.035 | |
| Sig. | | | 0.862 | |
| Characteristics Model | | | | |
| | R2 | 0.781 | 0.789 | 0.851 |
| | R2 correct | 0.746 | 0.749 | 0.803 |
| | Sig. Test F | 0.000 | 0.000 | 0.000 |

The data here is in cross-section, that is to say they influence more than one subject in the same temporal instant;²⁰ the dependant variable, however, was chosen with a successive temporal specification, in such a way as to verify the casual effects of the regressors on it. In this way, the problem of endogeneity of the regressors²¹ has been mitigated.

²⁰ The variables of Social Capital are from 1999 (and, in some cases, from 2000), while the individual regressions are from 2000.

²¹ The Durbin-Watson test to verify the autocorrelation of residuals is not considered, since these deal with cross-section data, the autocorrelations are negligible. The Anova table, in every case, consents to affirm that the model is significant in its entirety, as far as it is possible to reject the null hypothesis according to which the "coefficients of the regressors considered are null." The choice

The control variables of the model (GDP value of the initial year, the exportations per capita, and cost research and development) turn out to be significant (with the exception of research and development) as expected.

Inserting the variables of Social Capital, one observes the significance of the Normative Capital with a negative sign. One confirms this with the evidence from the responses: in fact, the countries with a lower valuation who show greater growth. Also, one finds, at the level of individual variables, a potentially positive impact (but, this is not supported by the evidence from the model) of the variable related to the importance of work. In fact, what shows up is that the countries with larger growth attribute a greater significance to this “concrete” value, with respect to the traditional values of family and religion. The resulting data does not confirm all preceding studies that have shown a favorable results for a positive impact of Social Capital on economic growth (Krishna-Uphoff 1999, Inglehart 2000, Panebianco 2003).

Turning to the analysis of the variables of social dimension (unemployment rate), the regression is considered as independent variables: gross fixed investments per capita and the various components of social capital.

| Dependant Variable: Unemployment Rate | | | |
|--|---|----------------|----------------|
| Model | | REGR. 1 | REGR. 2 |
| | | Coeff. | Coeff. |
| 1 | (Constant) | 5.416 | 1.992 |
| | Sig. | 0.000 | 0.000 |
| | Ln Investments per capita (PPS, prezzi 2000) | -0.436 | |
| | Sig. | 0.000 | |
| | Component 1 - Relationship Capital | | -0.313 |
| | Sig. | | 0.008 |
| | Component 2 - Normative Capital | | -0.164 |
| | Sig. | | 0.140 |
| | Component 3 - Cooperative Capital | | -0.024 |
| | Sig. | | 0.821 |
| Characteristics Model | | | |
| | R2 | 0.48 | 0.33 |
| | R2 correct | 0.46 | 0.24 |
| | Sig. Test F | 0.00 | 0.03 |

The control variable (“Investments”) prove to be, as expected, significant.

Inserting the variables of Social Capital, one sees the significance and the negative sign of Relationship Capital (with an impact²² of 0.31% on the unemployment rate). The evidence confirms a relationship in which the countries with a propensity for relationships show a lower unemployment rate.

of the regressors is confirmed also by VIF (Variance Inflation Factor). As far as the residuals, it is possible to say that not one of the standardized residuals surpasses the standard deviation in an absolute value of 3 times: therefore, no anomalous values, called “outliers” are present, that is observations that tend to deviate from the normal distribution of the data, and therefore present rather elevated residuals in regressive sequence. As for the normal distribution (Normal PP Plot) and the heteroskedasticity of the residuals, the questions were confronted using a logarithmic transformation for variable dependents and for regressors.

²² The logarithmic transformation of dependent variables and regressors consents to speak of elasticity, that is an increase of 1% of the independent variable generates a % increase of the value of the same coefficient of the dependent variable.

The evidence also seems to confirm the vein of study of the professional mechanisms of insertion facilitated by the relationship systems, as seen in Granovetter (1974) and in Networks View, and even earlier in the considerations of Loury (1977).

Finally, as for the environmental dimension, the dependent variable is the emission of greenhouse gasses, explained through electricity consumption, emission of acidic substances, and various components of social capital.

| Model | | Dependent variable: Emission of greenhouse gasses | | |
|---|--|---|---------|---------|
| | | REGR. 1 | REGR. 2 | REGR. 3 |
| | | Coeff. | Coeff. | Coeff. |
| 1 | (Constant) | -0.145 | 0.021 | 0.820 |
| | Sig. | 0.761 | 0.978 | 0.558 |
| | Ln Electricity consumption (1.000 toe) 2000 | 0.475 | 0.439 | 0.426 |
| | Sig. | 0.000 | 0.017 | 0.015 |
| | Ln Emission of acidic substances (1.000 tonnes) 2000 | 0.500 | 0.531 | 0.541 |
| | Sig. | 0.000 | 0.005 | 0.003 |
| | Componente 1 - Relationship Capital | | 0.032 | 0.058 |
| | Sig. | | 0.780 | 0.617 |
| Componente 2 - Normative Capital | | -0.052 | -0.041 | |
| Sig. | | 0.507 | 0.611 | |
| Componente 3 - Cooperative Capital | | -0.017 | | |
| Sig. | | 0.839 | | |
| Availability to an increase in taxes useful in the prevention of environmental pollution (Ln) | | | -0.194 | |
| Sig. | | | 0.528 | |
| Characteristics Model | | | | |
| R2 | | 0.942 | 0.944 | 0.945 |
| R2 correct | | 0.937 | 0.930 | 0.931 |
| Sig. Test F | | 0.000 | 0.000 | 0.000 |

The control variables of the model prove significant, as expected. Inserting the variables of Social Capital, one sees a coherent sign, but no significance. In any case, one chooses to report the complete results of the analysis for dimensions of sustainable development.

With reference to the effects on development, it is possible to realize, at least for the regions, a regression of economic growth, due to lack of ulterior economic, social, and environmental data at the sub-national level.

Dependent variable: Growth rate of the GDP 2000-2008

| Model | | REGR. 1 | REGR. 2 |
|-------|---|-----------------|----------------|
| | | Coeff. | Coeff. |
| 1 | (Constant) Sig. | 86.693 0.000 | 120.39 0.00 |
| | Ln PIL per capita 2000 Sig. | -5.734 0.001 | -9.21 0.00 |
| | Component 1 - Value Capital Sig. | | -2.52 0.02 |
| | Component 2 - Relationship Capital Sig. | | 1.33 0.17 |
| | Component 3 - Institutional Capital Sig. | | 1.60 0.07 |
| | Component 4 - Cooperative Capital Sig. | | 1.17 0.29 |
| | Characteristics Model | | |
| | R2 | 0.061 | 0.114 |
| | R2 correct | 0.056 | 0.086 |
| | Sig. Test F | 0.001 | 0.001 |

The control variable of the model (GDP pro capita 2000) is, as expected, negative, confirms the processes of convergence and is significant.

After inserting the Social Capital variables one sees the significance and positivity of Institutional Capital (with an impact of 1.60% on the growth rate), and the significance and negativity of Value Capital.

In essence, the effect already discussed at the national level is again taken up here relative to the Normative Capital: of the two components, one incites positivity (Institutional Capital), while the other (Value Capital) has a negative impact on economic growth.

In this case one could confirm the theory of a positive link between Social Capital and economic growth (Inglehart 2000).

5. Conclusions

This study, after a review of the literature and orientations of research previously generated on the subject of Social Capital, has sought to isolate the presence of such in both the countries and regions of Europe, taking as a starting point the questionnaires administered to a significant sample of European citizens, on the value and immaterial aspects of economic and social life (European Value Survey).

Thanks to the Analysis of Principal Components it is possible to observe the presence of a few distinct dimensions of Social Capital, allowing a unified definition of positioning of the analyses used.

In the attempt to operationalize the concept, a relatively innovative taxonomy emerged with respect to the existing literature.

At the national level one finds three components of Social Capital: Relationship Capital, representing the importance of interactions and membership in society, facilitated through trust in others; Normative Capital, that which is linked to personal values and those values seen in institutional relationships, also considering

the ethical norms of social life; Cooperative Capital, which represents the active dimension of relationships and comes from voluntary experiences.

Relationship Capital is largely present in the Northern countries (such as Sweden and Holland) and less so in the Southern countries (such as Malta and Portugal) and Eastern countries (such as Romania and Lithuania); Normative Capital is found in recently developed areas (such as Ireland) and in new democracies (such as Poland), while it is less present in the East (Estonia, Latvia, Lithuania); Cooperative Capital, which represents the active component of Social Capital, is present, but indifferently so, in Greece, Slovakia, and Belgium, while scarcely present in the East, but also in Germany and Denmark.

At the regional level, there are four individual components of Social Capital: Value Capital, tied to history, tradition, culture, religion, and context; Relationship Capital, from which emerges the importance of social relationships; Institutional Capital, which expresses the values that link individuals to the institutions of society; Cooperative Capital, which signifies the existence of the active dimension of relationships.

For Value Capital, the Spanish region, La Rioja, is highest, while the lowest in Hamburg (Germany); for Relationship Capital, the Swedish regions are found at the top; Institutional Capital (which, for the nations was a complement of Value Capital), is largely present in a few German regions; Cooperative Capital seems to be largely found in peripheral areas, both with respect to central governments and Europe in general, and less present in central areas.

Also verifying the presence of a possible effect of the determined components on sustainable development, it would seem that, at a national level, Normative Capital negatively affects economic growth, while Relationship Capital is negatively linked (in coherence with the theory) to the unemployment rate. As far as the environmental component, there is no significant evidence, but Cooperative Capital does prove to be negatively linked with the emissions of greenhouse gasses.

Also, evaluating an indicator of sustainable development (the Genuine Savings Indicator) there appears no significant variable, however, after analysing it further, one observes a positive relationship between it and a voluntary component within Cooperative Capital.

When considering the regions, one sees a positive effect of Institutional Capital (very present in a few German regions) compensated by a negative impact of Value Capital (present in the Polish regions with more elevated values with respect to the others).

One can therefore conclude, as the empirical test partially confirms, the results of preceding empirical explorations for the positive relationship between Social Capital and economic growth (Krishna-Uphoff 1999, Inglehart 2000, Panebianco 2003), for the positive relationship between Social Capital and access to the working world (Loury 1997, Granovetter 1974), within the scope of relative evidence of effects produced by Social Capital on the dimensions of sustainable development.

Further studies of the measurement techniques, both of Social Capital and sustainable development, will lead to new developments in the research and results which are more precise and robust.

Appendices

I Analysis of principal components: analysis at the European country level

COMMONALITY

| Variables | Initial | Extraction |
|--|---------|------------|
| Very important in life: work | 1 | 0.628 |
| Very important in life: family | 1 | 0.414 |
| Very important in life: religion | 1 | 0.594 |
| Availability to an increase in taxes useful in the prevention of environmental pollution | 1 | 0.470 |
| Non Justifiable Behavior: not paying taxes if given the opportunity | 1 | 0.369 |
| Non Justifiable Behavior: littering in public | 1 | 0.314 |
| Very important in life: friends | 1 | 0.711 |
| Membership in a religious organization | 1 | 0.729 |
| Membership in cultural organizaions | 1 | 0.661 |
| Volunteer in a social services organization | 1 | 0.642 |
| Active participation in political party/group (non-reimbursed work) | 1 | 0.292 |
| Volunteer in an environmental organization | 1 | 0.826 |
| A great deal of trust in others | 1 | 0.776 |
| A great deal of trust in institutions: educational system | 1 | 0.508 |
| A great deal of trust in institutions: national government | 1 | 0.760 |
| A great deal of trust in institutions: European Union | 1 | 0.450 |
| A great deal of trust in institutions: judicial system | 1 | 0.732 |
| National Pride (Response: "very proud") | 1 | 0.530 |

Extraction Method: Principal Component Analysis.

II Analysis of principal components: analysis at the European region level

COMMONALITY

| Variables | Initial | Extraction |
|--|---------|------------|
| Very important in life: work | 1 | 0.618 |
| Very important in life: family | 1 | 0.740 |
| Very important in life: religion | 1 | 0.764 |
| Availability to an increase in taxes useful in the prevention of environmental pollution | 1 | 0.519 |
| Non Justifiable Behavior: not paying taxes if given the opportunity | 1 | 0.491 |
| Non Justifiable Behavior: littering in public | 1 | 0.404 |
| Very important in life: friends | 1 | 0.831 |
| Membership in a religious organization | 1 | 0.620 |
| Membership in cultural organizaions | 1 | 0.724 |
| Volunteer in a social services organization | 1 | 0.859 |
| Active participation in political party/group (non-reimbursed work) | 1 | 0.680 |
| Volunteer in an environmental organization | 1 | 0.714 |
| A great deal of trust in others | 1 | 0.832 |
| A great deal of trust in institutions: educational system | 1 | 0.640 |
| A great deal of trust in institutions: national government | 1 | 0.709 |
| A great deal of trust in institutions: European Union | 1 | 0.723 |
| A great deal of trust in institutions: judicial system | 1 | 0.787 |
| National Pride (Response: "very proud") | 1 | 0.634 |

Extraction Method: Principal Component Analysis.

III. Regressions at the national level

- Dimension ECONOMY

Dependent Variable: Growth rate of the PIL per capita, 2000-2008 (variation %)

| DESCRIPTIVE STATISTICS | Min | Max | Mean | Dev. Std. | N |
|--|----------|------------|--------|-----------|----|
| Growth rate of the PIL per capita (prices from 2000) 2000-2008 | Italy | Lithuania | 32.497 | 26.914 | 23 |
| Ln PIL per capita 2000 | Bulgaria | Luxembourg | 9.324 | 1.016 | 23 |
| Ln exportations per capita (PPS ²³) 2000 | Romania | Luxembourg | 8.907 | 0.825 | 23 |
| Ln cost of internal R&S (public and private: GERD) - PPS per capita at constant prices 2000, year 2000 | Romania | Luxembourg | 5.128 | 1.169 | 23 |

The following is the correlation table

| CORRELATIONS | | Growth rate of the PIL per capita (prices from 2000) 2000-2008 | Ln PIL per capita 2000 | Ln exportations per capita (PPS) 2000 | Ln cost of internal R&S (public and private) PPS p.c. at constant prices 2000, year 2000 | Component 1 - Relationship Capital | Component 2 - Normative Capital | Component 3 - Cooperative Capital |
|---|---------------------|--|------------------------|---------------------------------------|--|------------------------------------|---------------------------------|-----------------------------------|
| Growth rate of the PIL per capita (prices from 2000) 2000-2008 | Pearson Correlation | 1.000 | - 0.841 | - 0.535 | - 0.833 | - 0.444 | - 0.392 | - 0.171 |
| | Sig. (2-tailed) | , | 0.000 | 0.005 | 0.000 | 0.023 | 0.048 | 0.403 |
| | N | 26.000 | 26.000 | 26.000 | 23.000 | 26.000 | 26.000 | 26.000 |
| Ln PIL per capita 2000 | Pearson Correlation | - 0.841 | 1.000 | 0.736 | 0.963 | 0.690 | 0.189 | 0.124 |
| | Sig. (2-tailed) | , | 0.000 | 0.000 | 0.000 | 0.000 | 0.355 | 0.548 |
| | N | 26.000 | 26.000 | 26.000 | 23.000 | 26.000 | 26.000 | 26.000 |
| Ln exportations per capita (PPS) 2000 | Pearson Correlation | - 0.535 | 0.736 | 1.000 | 0.762 | 0.496 | 0.192 | 0.201 |
| | Sig. (2-tailed) | 0.005 | 0.000 | , | 0.000 | 0.010 | 0.348 | 0.324 |
| | N | 26.000 | 26.000 | 26.000 | 23.000 | 26.000 | 26.000 | 26.000 |
| Ln cost of internal R&S PPS p.c. at constant prices 2000, year 2000 | Pearson Correlation | - 0.833 | 0.963 | 0.762 | 1.000 | 0.769 | 0.150 | 0.130 |
| | Sig. (2-tailed) | 0.000 | 0.000 | 0.000 | , | 0.000 | 0.496 | 0.553 |
| | N | 23.000 | 23.000 | 23.000 | 23.000 | 23.000 | 23.000 | 23.000 |
| Component 1 - Relationship Capital | Pearson Correlation | - 0.444 | 0.690 | 0.496 | 0.769 | 1.000 | 0.000 | 0.000 |
| | Sig. (2-tailed) | 0.023 | 0.000 | 0.010 | 0.000 | , | 1.000 | 1.000 |
| | N | 26.000 | 26.000 | 26.000 | 23.000 | 26.000 | 26.000 | 26.000 |
| Component 2 - Normative Capital | Pearson Correlation | - 0.392 | 0.189 | 0.192 | 0.150 | 0.000 | 1.000 | 0.000 |
| | Sig. (2-tailed) | 0.048 | 0.355 | 0.348 | 0.496 | 1.000 | , | 1.000 |
| | N | 26.000 | 26.000 | 26.000 | 23.000 | 26.000 | 26.000 | 26.000 |
| Component 3 - Cooperative Capital | Pearson Correlation | - 0.171 | 0.124 | 0.201 | 0.130 | 0.000 | 0.000 | 1.000 |
| | Sig. (2-tailed) | 0.403 | 0.548 | 0.324 | 0.553 | 1.000 | 1.000 | , |
| | N | 26.000 | 26.000 | 26.000 | 23.000 | 26.000 | 26.000 | 26.000 |

²³ Here, PPS means the concept of Purchasing Power Standard developed by Eurostat as an extension of the idea of Parity of Acquisition Power, in the end able to effect a comparison between different countries.

- Dimension SOCIETY

Dependent Variable: Unemployment Rate 2001

| DESCRIPTIVE STATISTICS | Min | Max | Mean | Dev. Std. | N |
|--|----------|------------|-------|-----------|----|
| Ln unemployment rate 2001 | Bulgaria | Luxembourg | 1.992 | 0.614 | 26 |
| Ln investimenti pro-capite (PPS, prezzi 2000) 2000 | Bulgaria | Luxembourg | 7.847 | 0.972 | 26 |

The following is the correlation table.

| CORRELATIONS | | Ln unemployment rate 2001 | Ln investments per capita (PPS, prices 2000) 2000 | Component 1 - Relationship Capital | Component 2 - Normative Capital | Component 3 - Cooperative Capital |
|---|---------------------|---------------------------|---|------------------------------------|---------------------------------|-----------------------------------|
| Ln unemployment rate 2001 | Pearson Correlation | 1.0000 | - 0.6906 | - 0.5096 | - 0.2665 | - 0.0398 |
| | Sig. (2-tailed) | , | 0.0001 | 0.0078 | 0.1882 | 0.8468 |
| | N | 26.0000 | 26.0000 | 26.0000 | 26.0000 | 26.0000 |
| Ln investments per capita (PPS, prices 2000) 2000 | Pearson Correlation | - 0.6906 | 1.0000 | 0.6512 | 0.1971 | 0.1080 |
| | Sig. (2-tailed) | 0.0001 | , | 0.0003 | 0.3345 | 0.5996 |
| | N | 26.0000 | 26.0000 | 26.0000 | 26.0000 | 26.0000 |
| Component 1 - Relationship Capital | Pearson Correlation | - 0.5096 | 0.6512 | 1.0000 | 0.0000 | 0.0000 |
| | Sig. (2-tailed) | 0.0078 | 0.0003 | , | 1.0000 | 1.0000 |
| | N | 26.0000 | 26.0000 | 26.0000 | 26.0000 | 26.0000 |
| Component 2 - Normative Capital | Pearson Correlation | - 0.2665 | 0.1971 | 0.0000 | 1.0000 | 0.0000 |
| | Sig. (2-tailed) | 0.1882 | 0.3345 | 1.0000 | , | 1.0000 |
| | N | 26.0000 | 26.0000 | 26.0000 | 26.0000 | 26.0000 |
| Component 3 - Cooperative Capital | Pearson Correlation | - 0.0398 | 0.1080 | 0.0000 | 0.0000 | 1.0000 |
| | Sig. (2-tailed) | 0.8468 | 0.5996 | 1.0000 | 1.0000 | , |
| | N | 26.0000 | 26.0000 | 26.0000 | 26.0000 | 26.0000 |

- Dimension ENVIRONMENT

Dependent Variable: Emissions of greenhouse gasses (per million tons CO2) 2001

| DESCRIPTIVE STATISTICS | Min | Max | Mean | Dev. Std. | N |
|--|------------|---------|-------|-----------|----|
| Ln emission of greenhouse gasses (per million tons CO2) 2001 | Malta | Germany | 4.470 | 1.437 | 26 |
| Ln electricity consumption (1,000 tons) 2000 | Malta | Germany | 6.840 | 1.522 | 26 |
| Ln emission of acidic substances (1,000 tons) 2000 | Luxembourg | Spain | 2.728 | 1.421 | 26 |

The following is the correlation table.

| CORRELATIONS | | Ln emission of greenhouse gasses (per million tons CO2) 2001 | Ln electricity consumption (1,000 tons) 2000 | Ln emission of acidic substances (1,000 tons) 2000 | Component 1 - Relationship Capital | Component 2 - Normative Capital | Componente 3 - Cooperative Capital |
|--|---------------------|--|--|--|------------------------------------|---------------------------------|------------------------------------|
| Ln emission of greenhouse gasses (per million tons CO2) 2001 | Pearson Correlation | 1.000 | 0.945 | 0.944 | 0.221 | - 0.085 | - 0.110 |
| | Sig. (2-tailed) | | 0.000 | 0.000 | 0.277 | 0.678 | 0.593 |
| | N | 26.000 | 26.000 | 26.000 | 26.000 | 26.000 | 26.000 |
| Ln electricity consumption (1,000 tons) 2000 | Pearson Correlation | 0.945 | 1.000 | 0.892 | 0.369 | - 0.074 | - 0.042 |
| | Sig. (2-tailed) | 0.000 | | 0.000 | 0.063 | 0.718 | 0.839 |
| | N | 26.000 | 26.000 | 26.000 | 26.000 | 26.000 | 26.000 |
| Ln emission of acidic substances (1,000 tons) 2000 | Pearson Correlation | 0.944 | 0.892 | 1.000 | 0.053 | - 0.027 | - 0.150 |
| | Sig. (2-tailed) | 0.000 | 0.000 | | 0.799 | 0.894 | 0.464 |
| | N | 26.000 | 26.000 | 26.000 | 26.000 | 26.000 | 26.000 |
| Componente 1 - Relationship Capital | Pearson Correlation | 0.221 | 0.369 | 0.053 | 1.000 | 0.000 | 0.000 |
| | Sig. (2-tailed) | 0.277 | 0.063 | 0.799 | | 1.000 | 1.000 |
| | N | 26.000 | 26.000 | 26.000 | 26.000 | 26.000 | 26.000 |
| Component 2 - Normative Capital | Pearson Correlation | - 0.085 | - 0.074 | - 0.027 | 0.000 | 1.000 | - 0.000 |
| | Sig. (2-tailed) | 0.678 | 0.718 | 0.894 | 1.000 | | 1.000 |
| | N | 26.000 | 26.000 | 26.000 | 26.000 | 26.000 | 26.000 |
| Component 3 - Cooperative Capital | Pearson Correlation | - 0.110 | - 0.042 | - 0.150 | 0.000 | - 0.000 | 1.000 |
| | Sig. (2-tailed) | 0.593 | 0.839 | 0.464 | 1.000 | 1.000 | |
| | N | 26.000 | 26.000 | 26.000 | 26.000 | 26.000 | 26.000 |

IV. Regressions at the regional level

Dependent Variable: Growth rate of the PIL per capita (PPS) – var. %

| DESCRIPTIVE STATISTICS | Mean | Dev. Std. | N |
|---|--------|-----------|-----|
| Growth rate of the PIL per capita (PPS) 2000-2007 | 31.271 | 12.525 | 169 |
| Ln PIL per capita 2000 | 9.665 | 0.540 | 169 |

The following is the correlation table²⁴.

| CORRELATIONS | | Growth rate of the PIL reale per capita 2000-2007 | Ln PIL per capita 2000 | Component 1 - Value Capital | Component 2 - Relationship Capital | Component 3 - Institutional Capital | Component 4 - Cooperative Capital |
|---|---------------------|---|------------------------|-----------------------------|------------------------------------|-------------------------------------|-----------------------------------|
| Growth rate of the PIL per capita 2000-2007 | Pearson Correlation | 1.000 | -0.669 | 0.188 | -0.240 | -0.034 | -0.189 |
| | Sig. (2-tailed) | | 0.000 | 0.010 | 0.001 | 0.641 | 0.010 |
| | N | 187.000 | 187.000 | 187.000 | 187.000 | 187.000 | 187.000 |
| Ln PIL per capita 2000 | Pearson Correlation | -0.669 | 1.000 | -0.460 | 0.372 | 0.060 | 0.236 |
| | Sig. (2-tailed) | 0.000 | | 0.000 | 0.000 | 0.413 | 0.001 |
| | N | 187.000 | 187.000 | 187.000 | 187.000 | 187.000 | 187.000 |
| Component 1 - Value Capital | Pearson Correlation | 0.188 | -0.460 | 1.000 | 0.000 | 0.000 | 0.000 |
| | Sig. (2-tailed) | 0.010 | 0.000 | | 1.000 | 1.000 | 1.000 |
| | N | 187.000 | 187.000 | 187.000 | 187.000 | 187.000 | 187.000 |
| Component 2 - Relationship Capital | Pearson Correlation | -0.240 | 0.372 | 0.000 | 1.000 | 0.000 | 0.000 |
| | Sig. (2-tailed) | 0.001 | 0.000 | 1.000 | | 1.000 | 1.000 |
| | N | 187.000 | 187.000 | 187.000 | 187.000 | 187.000 | 187.000 |
| Component 3 - Institutional Capital | Pearson Correlation | -0.034 | 0.060 | 0.000 | 0.000 | 1.000 | 0.000 |
| | Sig. (2-tailed) | 0.641 | 0.413 | 1.000 | 1.000 | | 1.000 |
| | N | 187.000 | 187.000 | 187.000 | 187.000 | 187.000 | 187.000 |
| Component 4 - Cooperative Capital | Pearson Correlation | -0.189 | 0.236 | 0.000 | 0.000 | 0.000 | 1.000 |
| | Sig. (2-tailed) | 0.010 | 0.001 | 1.000 | 1.000 | 1.000 | |
| | N | 187.000 | 187.000 | 187.000 | 187.000 | 187.000 | 187.000 |

²⁴ The table shows the correlations between the variables for all 187 regions. In reality, the regression includes an inferior number of regions, thus those eliminated represent anomalous values. rappresentavano valori anomali.

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