Geographical and historical roots of culture and human development in Italy

Ilaria Petrarca
University of Verona

Roberto Ricciuti*
University of Verona and CESifo

Abstract

We investigate the relationship between social capital and human development in Italy, a country with strong geographical variations in social capital. Because interactions may have a strong proximity effect, we have estimated econometric models that take into account this feature. We find that strong spatial correlation parameter: there is diffusion of the HDI among the Provinces. The social capital index and the civicness scale are always significant and positive: larger social capital is related to larger HDI and vice versa. Mobility variables are significant and indicate that larger mobility inside the province increases the HDI, whereas larger mobility outside the province reduces it.

Keywords: Human development, culture, institutions, social capital, history.

** Corresponding author: Roberto Ricciuti, Department of Economics, University of Verona, Vicolo Campofiore 2, 37129 Verona – Italy. Email: roberto.ricciuti@univr.it

1. Introduction

Social capital is a feature of culture that has received remarkable interest in the last decades, but still needs a throughout quantitative analysis linking it to historical fractures that may have led to historical differences in social capital with effects on today's levels of development. Moreover, social capital may have neighboring effects, which call for an econometric analysis taking into account geographical features. Italy is a suitable testing ground since it shows high variations in development levels, strong variations in social capital and it has a long history of dominations and self-government. We relate social capital to economic development through the lenses of "human development", a more comprehensive indicator that goes beyond GDP and also link it to the quality of development.

The paper is organized as follows. Section 2 reviews the literature on the interplay between institutions, their history and their consequences. Section 3 presents the methodology and the data we use, whereas results are discussed in Section 4. Conclusions are drawn in Section 5.

2. Social capital, history and geography

The role of institutions and history has been analyzed in the economic literature in the framework defined by the works of March and Olson (2006), La Porta et al. (1998, 1999), Glaeser et al. (2004), Acemoglu and Robinson (2008, 2012), and Besley and Persson (2009). They maintain that there is a link between the quality of institutions, the efficiency of the public policies and the wellbeing of the countries. Institutions are considered as a collection of rules, norms, practices and customs that regulate the life in common and the behaviors of citizens. In particular, institutions play a key role in setting incentives, solve conflicts among sections of the societies, and allow new emerging groups to substitute old ones without violence. [1]

In a series of influential articles, Daron Acemoglu, Simon Johnson and James Robinson addressed the issue of differences in development levels putting forward an institutionalist theory based on three main tenets (Acemoglu et al., 2001: 1370). The first hypothesis is concerned with different types of colonization: in colonies where Europeans were mainly interested in expropriating resources (e.g., Congo), institutions did not enforced neither private property nor checks and balances in order to tame expropriation from the government. Instead, where Europeans migrated and founded colonies, they designed institutions that protected private property and contracts (as in the US, Canada, New Zealand

[1] The role of institutions over geography and trade as the main determinant of growth has been put forward by Rodrick et al. (2004). Glaeser et al. (2004) have an opposite view, claiming that human capital is more important than institutions for growth.

and Australia). The second hypothesis claims that European settlements were influenced by the environment: colonizers moved to relatively safe areas and implemented effective institutions. Where this was impossible (for example, because of malaria) expropriation was the policy. Third, institutions show considerable inertia, therefore they were kept in place after decolonization. In this view, French and Spanish colonization were mainly expropriatory, destroyed indigenous institutions, causing per capita GDP to stagnate also after decolonization.

Petrarca and Ricciuti (2013) investigate the relationship between corruption and economic performance, focusing on the historical roots of the former. They claim that a sequential mechanism linking history to development exists: history defines the quality of social capital; then, social capital determines the level of corruption; finally, corruption affects economic performance. This hypothesis is tested on a dataset of Italian provinces, and address the possible endogeneity of corruption by applying an IV model with three sets of historical instruments for corruption: 1) foreign dominations that ruled Italian regions between the 16th and 17th century, 2) autocracy/autonomous rule in the 14th century, and 3) an index of social capital between the end of the 19th and at the onset of the 20th century. The results confirm the validity of the set of instruments 2) and 3), and indicate a significant impact of historically-driven corruption on development. De Blasio and Nuzzo (2010) study the effect of social capital on worker productivity, entrepreneurship and female participation, using similar strategies. More recently, Albanese and De Blasio (2014) investigate the role of civic capital (proxied by voter turnout) in Italy's economic development in the second half of the Twentieth century using a dataset at the city level. They show that voter turnout was steadily correlated with economic development and that this reflected some causality running from the former to the latter.

Social Capital Theory gained importance through the integration of classical sociological theory with the description of an intangible form of capital. Through social capital, researchers have tried to propose a synthesis between the value contained in the communitarian approaches and individualism professed by the 'rational choice theory.' Social capital can only be generated collectively thanks to the presence of communities and social networks, but individuals and groups can use it at the same time. Individuals can exploit social capital of their networks to achieve private objectives and groups can use it to enforce a certain set of norms or behaviors (Ferragina, 2010:75).

In the first half of the 19th century, Alexis de Tocqueville had observations about American life that seemed to outline and define social capital. He observed that Americans were prone to meeting at as many gatherings as possible to discuss all possible issues of state, economics, or the world. The high levels of transparency caused greater participation from the people and thus allowed for

democracy to work better. He also claimed that social capital in America was directly linked to the equality of conditions (Ferragina, 2010; 2012).

One of the first definitions was given by Hanifan (1916) in an article regarding local support for rural schools:

> "I do not refer to real estate, or to personal property or to cold cash, but rather to that in life which tends to make these tangible substances count for most in the daily lives of people, namely, goodwill, fellowship, mutual sympathy and social intercourse among a group of individuals and families who make up a social unit… If he may come into contact with his neighbor, and they with other neighbors, there will be an accumulation of social capital, which may immediately satisfy his social needs and which may bear a social potentiality sufficient to the substantial improvement of living conditions in the whole community. The community as a whole will benefit by the cooperation of all its parts, while the individual will find in his associations the advantages of the help, the sympathy, and the fellowship of his neighbors (Hanifan, 1916: 130-131)."

The power of 'community governance' has been stressed by many philosophers from Antiquity to the 18th century, from Aristotle to Thomas Aquinas and Edmund Burke and James Madison in *The Federalist Papers* (Bowles and Gintis, 2002). This vision was strongly criticised at the end of the 18th century, with the development of the idea of *Homo Economicus* and subsequently with 'rational choice theory'.

Geography may play an important role both for the reasons outlined above (with its interplay with history), but also for other reasons. First, social capital is geographically concentrated in Italy, as we will show in Section 3, therefore it makes sense to address issues related with concentration. Second, geography helps shaping relationships: a flat area promotes travelling and exchanges, whereas mountains are a friction towards such exchanges. Social capital may be bonding in isolated communities, therefore they may be more closed with respect to other communities and that may reduce the circulation of new ideas and practices, which in turn may hinder development. However, forms of mutual association and self-organization may occur in these areas, therefore this can increase development. In turn, geographic features that promote exchange may dissipate existing social capital but being conducive to development. For these reasons we are agnostic about the relationship between geography, social capital and development.

3. Methodology and data

The HDI index we use is the ISUPR (*Indice di Sviluppo Umano Provinciale*) developed by Monni (2002). The three standard dimensions of the HDI, that is

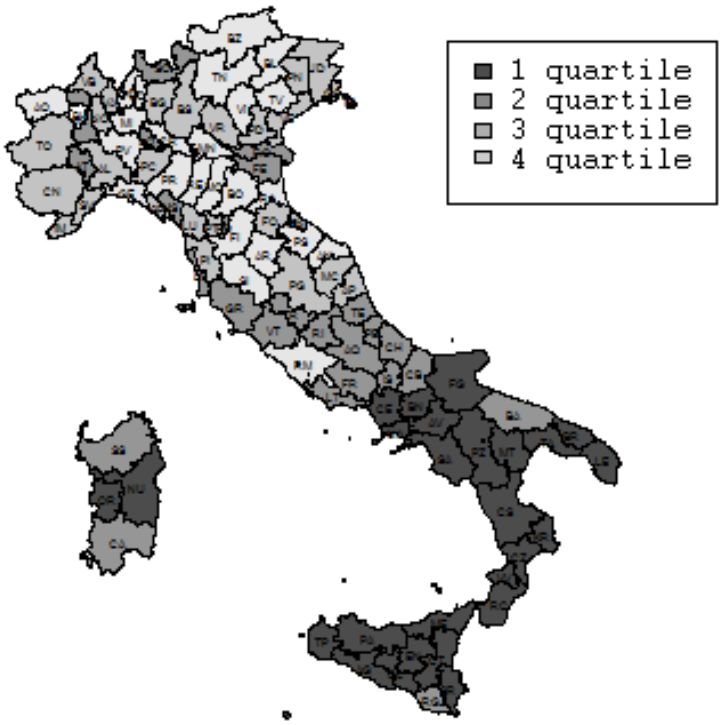
longevity, knowledge and access to the resources, have been adapted to the sub-national level. This provincial HDI index is then composed of 1) the per capita income; 2) the university and high schools attendance rate; 3) the unemployment rate.

The social capital variable that we use has been computed by Cartocci (2007), using data of the period 1999-2002. The author measured social capital in the 103 Italian Provinces according to 4 indicators: 1) diffusion of the local press; 2) local elections turnout rate; 3) sport associations; 4) blood donations. Furthermore, he added the local *civicness* as the average turnout rate during the five elections held in the period 1999-2001. We observe a degree of heterogeneity of the Human Development Index (HDI) across the provinces. The minimum is 34.77 (Crotone, in the Calabria Region in the South), the maximum is 80.99 (Biella, in the Piedmont Region in the North-West). The map in Figure 1 illustrates the geographical distribution of the HDI, and clearly depicts a North-South divide, safe for some exceptions. The social capital index (Figure 2) roughly mirrors this image, but it worth noting that the provinces of the Northern border of the country show a lower degree of social capital than those in the *Pianura Padana*. The list of the Provinces and their codes on the maps is given in the Appendix.

To inspect the presence of spatial autocorrelation in the data, we calculate the Moran I coefficient (Moran, 1950). This index is computed as the correlation between observations $i = 1, ..., N$ and $j = -i$, that is the ratio between covariance and variance:

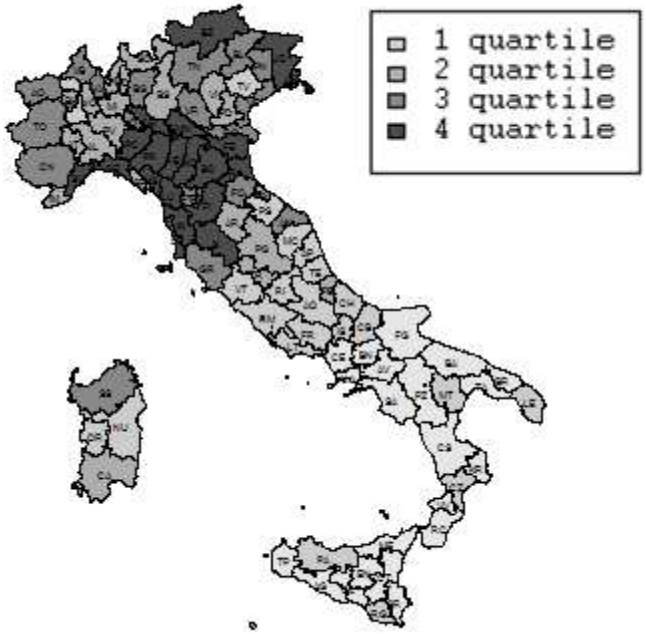
$$I = \frac{N}{\sum_i \sum_j w_{ij}} \frac{\sum_i \sum_j w_{ij}(X_i - X)(X_j - X)}{\sum_i (X_i - \bar{X})^2} \qquad [1]$$

Figure 1. Geographical distribution of the Human Development index, by quartile



Note: I quartile 34.77-50.99; II quartile max 70.4; III quartile max 71.81: IV quartile max 80.99

Figure 2. Geographical distribution of the social capital index, by quartile



Note: I quartile 5; II quartile 4; III quartile 3: IV quartile 0-2

As the formula shows, the peculiarity is that j is associated to a coefficient w_{ij}, that is the spatial weight. The spatial weight is the element of a matrix of

contiguity that describes the neighborhood network in the dataset. If i is a neighbor of j, w_{ij} is different from zero. This weighting scheme allows picking in the correlation index only those j that border with i. The Moran I, therefore, is a standard correlation coefficient among one unit and is neighbors. We apply a definition of neighborhood that considers if two provinces share at least one common border.

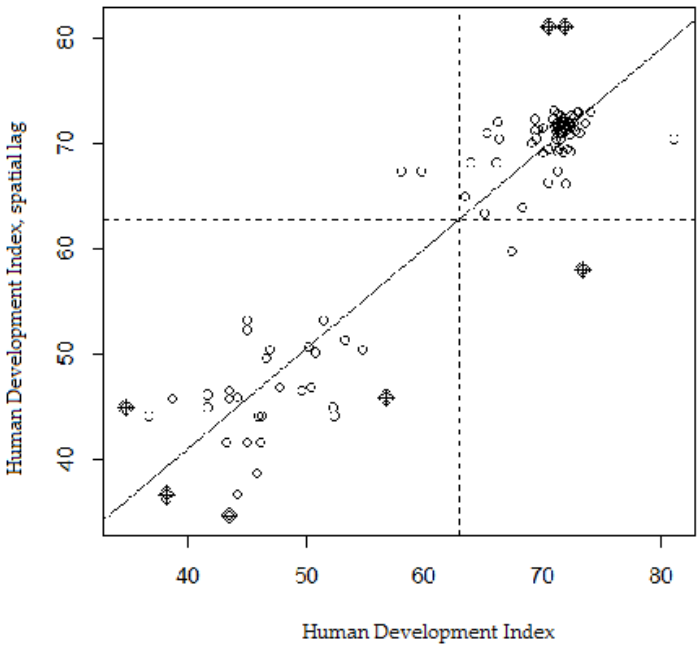
Table 1 shows that neighboring provinces have very similar HDI value. The positive sign, in particular, means that high HDI values are present in provinces that border with high HDI levels, and *vice versa*. This pattern is clear in the Moran scatterplot in Figure 3: the largest part of the correlation comes from the high-high values (north-eastern quadrant). If we look at the spatial correlation among the residuals of an OLS regression to wipe out the confounding effect of the distribution of the social capital, we still find a positive Moran I. The magnitude is lower (0.717 instead of 0.947), but it is significant at the 10% level.

Table 1. Spatial autocorrelation test statistics: the Moran I

	On the dependent variable	On the regression residuals*
Moran I coefficient	0.947***	0.717*
p-value	(0.000)	(0.07)

*Note: *residuals from al OLS regression of the type: $HDI_i = \alpha+\beta$*social capital index$_i+u_i$, where i is the provincial indicator.*

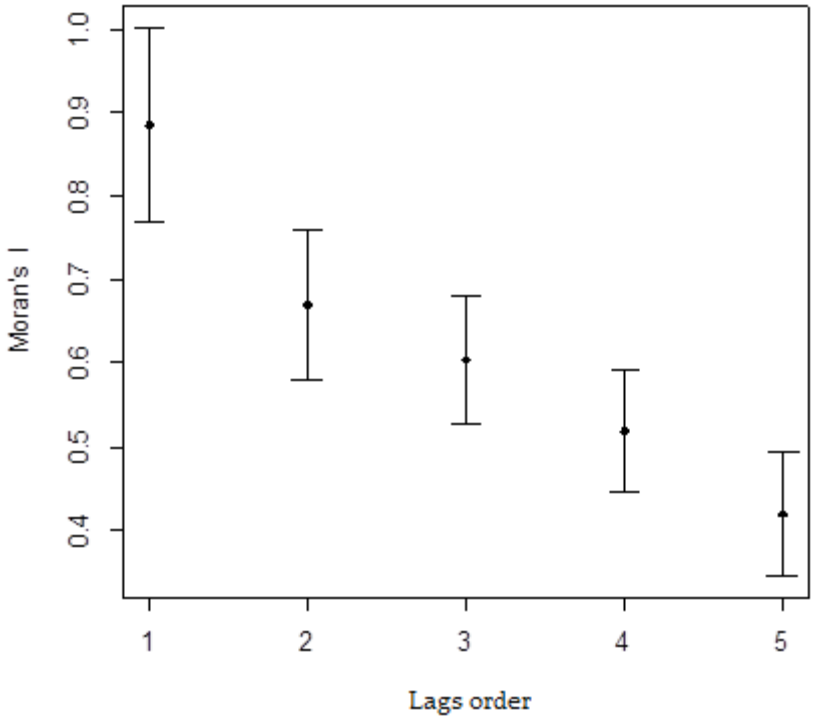
Figure 3. Moran scatterplot



If neighborhood matters, we expect that the farther apart two provinces are, the smaller is their spatial correlation coefficient. Figure 4 supports this view. It depicts a correlogram, that is a diagram of the values of the Moran I calculated between neighbors of increasing lags order. The dynamics of the

Moran I is the one we expected: those provinces sharing one border (order 1) show the highest spatial autocorrelation. As the lags order increases (e.g. lags two means that if i borders with j only, and j borders also with k, i and k are second order neighbors), the value of the Moran I monotonically decreases. This preliminary analysis suggests the presence of spatial autocorrelation of the HDI in the Italian Provinces that we need to take into account in regressions.

Figure 4. Correlogram



We estimate a model of the type:

$$HDI_i=\alpha+\rho W^*HDI_i+\beta SC_i+\gamma X_i+u_i \qquad [2]$$

where i=1, ..., 103 indexes the observations; *HDI* is the Monni (2002) index of human development; W is a contiguity matrix describing the neighborhood structure among the Provinces, therefore W^*HDI_i is the 'spatial lag' of the HDI. In other words, it is the value of the HDI in the neighbors. The parameter ρ, bounded between 0 and 1 by assumption, is the spatial autocorrelation parameter. The variable *SC* is the social capital index of Cartocci (2007); we expect a positive sign of the parameter β. The vector X includes a set of independent variables taken from the literature. They are:

- Population size: larger provinces have an interaction potential that is higher, therefore we expect a larger HDI. Moreover, population size is a good proxy for urbanization, therefore economic development. We expect a positive sign associated to this variable.

- Geographical shape of the municipalities in the province: number of mountain, hill or flat municipalities every 100 municipalities. For the reasons discussed above, no prior is associated to the sign of these variables.
- Health infrastructure: we use the number of hospital beds and public hospital beds per 1000 inhabitants, to roughly measure the health care supply. We expect a higher HDI associated to these variables.
- Mobility rate: intra-provincial and inter-provincial. Larger mobility is associated to larger interaction potential, we expect a positive sign of these variables.
- Finally, u_i is an error term.

To check the robustness of our results, in a second part of the empirical analysis we re-estimate the equation by substituting *SC* with the civicness scale developed by Putnam et al. (1993).[2] Banfield (1958) and Putnam et al. (1993) claim that social capital is unevenly distributed in Italy according to a North-South divide, higher in the North (because of self-government) and lower in the South because of external dominations and strong preferences towards the welfare of the family as opposed to the welfare of the society. Table 2 reports the descriptive statistics of the dataset.

4. Results

[2] Putnam civicness is compiled from the following variables observed from the late 19th century to the early 20th century: 1. Membership in mutual aid societies (a factor score summarizing the membership in such societies, standardized for regional population, in 1873, 1878, 1885, 1895, and 1904); 2. Membership in cooperatives (a factor score summarizing the number of cooperatives, standardized for regional population, in 1889, 1901, 1910, and 1915); 3. Strength of the mass parties (a factor score summarizing the strength of the socialists and Catholic *popolari* in the national elections of 1919 and 1921, as well as their strength on local councils in this period); 4. Turnout in the few relatively open elections before Fascism brought authoritarian rule to Italy (a factor score summarizing turnout in the national elections of 1919 and 1921, as well as turnout in the local and provincial elections of 1920; these were the only elections under universal manhood suffrage before the advent of Fascism); 5. The longevity of local associations (the proportion of all local cultural and recreational organizations in the 1982 associational census that had been founded before 1860). This index is not available for all the current Italian provinces. The relevant figure is in Appendix 2.

The methodology we apply is a Maximum likelihood estimation of spatial simultaneous autoregressive lag models[3] (for a comprehensive review of spatial regression models see LeSage and Pace, 2009). The baseline results are presented in Table 3.

Table 2. Descriptive statistics

Variable	*Source*	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
Human Development Index	Monni, 2002	102	62.878	12.076	34.77	80.99
Social capital index	Cartocci, 2012	103	3.029	1.431	1	5
Population (millions)	Istat	103	579,531.6	644,079.9	89,127	4,100,000
Civicness scale	Putnam et al., 1993	103	5.718	2.806	0	9
Mountain municipalities every 100 municipalities	Istat	103	27.440	28.156	0	100
Hill municipalities every 100 municipalities	Istat	103	46.774	29.312	0	100
Flat municipalities every 100 municipalities	Istat	103	39.596	32.571	0	100
Intra-provincial mobility rate	Istat	103	18.705	4.796	7.77	33.36
Inter-provincial mobility rate	Istat	103	11.501	5.316	2.32	26.78
Hospital beds per 1000 inhabitants	Istat	103	3.834	1.036	0	6.89
Public hospital beds per 1000 inhabitants	Istat	103	3.094	0.919	0	5.78

The five models differ with respect to the covariates included. Before commenting the coefficients, if we look at the diagnostics at the bottom of the table we see that 1) the AIC value for the OLS model is always larger than the AIC for the spatial model, therefore we prefer the latter; 2) the LM test rejects the presence of residual autocorrelation in models 1-5, and in the most complete modes using the civicness scale, model 9 and 10. All the estimations exploits all the 103 provinces.

The spatial correlation parameter ρ is always significant and positive, as expected: diffusion of the HDI among the Provinces. The social capital index and the civicness scale are always significant and positive, as expected: larger social capital, larger HDI and *vice versa*. Population, when significant, is positive as expected. The geographical variables are rarely significant; the health indicators are never significant. Mobility variables are significant and indicate that larger mobility *inside* the province increases the HDI (possibly because of stronger relationship between the citizens, and subsequent development of trust), while

[3] The command *lagsarlm* in *R*. Some details on the estimation method: ρ is found by optimization procedures first, and the parameters by generalized least squares subsequently.

larger mobility *outside* the province reduces it (possibly because this reduces interactions inside a province).

In the Tables 5 and 6 we present a set of estimates of the more general spatial Durbin model. It is a specification where we introduce also the spatial lag of the covariates among the independent variables. The spatial correlation parameter ρ is robust to this alternative model, being always significant and positive. The sign of the coefficients, when significant, are consistent with those of Table 3 and Table 4.

Table 3. Social capital and human development

	Model 1	Model 2	Model 3	Model 4	Model 5
Social capital index	2.604***	2.602***	2.726***	2.501***	2.227***
	(0.357)	(0.331)	(0.333)	(0.338)	(3.294)
Population (millions)		2.381***	2.658***	2.383**	1.499**
		(0.589)	(0.586)	(0.614)	(0.602)
Mountain municipalities every 100 municipalities			0.003		
			(0.025)		
Hill municipalities every 100 municipalities			0.023		
			(0.018)		
Flat municipalities every 100 municipalities			-0.014		
			(0.02)		
Hospital beds per 1000 inhabitants				-0.055	
				(0.689)	
Public hospital beds per 1000 inhabitants				0.547	
				(0.783)	
Intra-provincial mobility rate					0.326***
					(0.084)
Inter-provincial mobility rate					-0.097
					(0.079)
Spatial autocorrelation coefficient	0.627***	0.648***	0.656***	0.648***	0.619***
Constant	31.44***	28.80***	27.84***	26.99***	27.99***
	(3.241)	(2.967)	(3.58)	(3.43)	(3.29)
Obs.	103	103	103	103	103
Log lik	-308.334	-300.874	-298.238	-300.204	-293.337
AIC	624.66	611.75	612.47	614.41	600.68
AIC for lm	717.05	715.76	718.58	718.73	693.6
LM test for residual autocorrelation:					
test value	1.598	0.324	0.038	0.249	2.091
p-value	0.21	0.57	0.84	0.62	0.15

*Notes: standard errors in parentheses. *** p<0.01. ** p<0.05. * p<0.1.*

Table 4. Civicness and human development

	Model 1	Model 2	Model 3	Model 4	Model 5
Civicness scale	1.205***	1.111***	1.301***	1.108***	1.173***
	(2.136)	(2.059)	(0.193)	(0.175)	(0.195)
Population (millions)		1.496**	1.753***	1.609**	0.21
		(0.652)	(0.654)	(0.664)	(0.629)
Mountain municipalities every 100 municipalities			0.053*		
			(0.029)		
Hill municipalities every 100 municipalities			0.028		
			(0.022)		
Flat municipalities every 100 municipalities			-0.009		
			(0.023)		
Hospital beds per 1000 inhabitants				-0.418	
				(0.745)	
Public hospital beds per 1000 inhabitants				1.692*	
				(0.836)	
Intra-provincial mobility rate					0.377***
					(0.091)
Inter-provincial mobility rate					-0.317***
					(0.095)
Spatial autocorrelation coefficient	0.631***	0.654***	0.632***	0.639***	0.615***
Constant	16.44***	14.64***	11.69***	11.90***	19.09***
	(2.136)	(2.059)	(3.34)	(2.42)	(2.45)
Obs.	103	103	103	103	103
Log lik	-314.651	-312.224	-308.947	-308.027	-298.08
AIC	637.3	634.45	633.9	630.05	610.16
AIC for lm	721.1	723.06	710.85	715.89	694.39
LM test for residual autocorrelation:					
test value	5.56	3.86	3.82	2.59	0.155
p-value	0.02	0.05	0.05	0.11	0.69

*Notes: standard errors in parentheses. *** p<0.01. ** p<0.05. * p<0.1.*

Table 5 presents the results using the index of social capital. The provincial degree of social capital is positively and significantly associated with the HDI; the same applies for population size, hill municipalities and intra-provincial mobility. Inter-provincial mobility, on the other hand, is negative. The spatial lag of the covariates show the opposite sign of the non-spatially lagged covariates: if the neighbors show a larger population size, the HDI decreases. Probably this result captures the heterogeneity of the distribution of Italian provinces by population size, where very large cities border with smaller ones. The same logic applies to the spatial lag of the share of hill municipalities due to the geographic heterogeneity of the peninsula. Interestingly, the mobility variables show the same sign also when they are spatially lagged.

Table 5. Durbin model: social capital index

	Model 1	Model 2	Model 3	Model 4	Model 5
Social capital index	2.604***	2.457***	2.561***	2.412***	1.865***
	(3.689)	(3.431)	(4.332)	(0.428)	(0.379)
Population (millions)		2.497***	2.569***	2.701***	1.136**
		(0.575)	(0.392)	(0.594)	(0.56)
Mountain municipalities every 100 mun.			0.017		
			(0.024)		
Hill municipalities every 100 municipalities			0.046**		
			(0.019)		
Flat municipalities every 100 municipalities			-0.020		
			(0.019)		
Hospital beds per 1000 inhabitants				-0.376	
				(0.673)	
Public hospital beds per 1000 inhabitants				0.804	
				(0.758)	
Intra-provincial mobility rate					0.395***
					(0.083)
Inter-provincial mobility rate					-0.170**
					(0.077)
Spatial lag of the indep. vars:					
Social capital index	-0.0005	0.021	-0.205	0.072	-0.101
	(0.521)	(0.469)	(0.441)	(0.472)	(0.408)
Population (millions)		-2.458**	-2.486**	-2.809***	-1.541
		(1.008)	(0.984)	(1.012)	(0.975)
Mountain municipalities every 100 mun.			-0.037		
			(0.026)		
Hill municipalities every 100 municipalities			-0.057***		
			(0.020)		
Flat municipalities every 100 municipalities			-0.006		
			(0.020)		
Hospital beds per 1000 inhabitants				0.936	
				(0.670)	
Public hospital beds per 1000 inhabitants				-1.468*	
				(0.769)	
Intra-provincial mobility rate					0.394***
					(0.083)
Inter-provincial mobility rate					-0.017**
					(0.077)
Spatial autocorrelation coefficient	0.628***	0.652***	0.669***	0.564***	0.767***
Constant	31.43***	29.12***	29.86***	29.02***	22.61***
	(3.69)	(3.432)	(4.332)	(4.059)	(3.630)
Obs.	103	103	103	103	
Log lik	-308.33	-297.98	-291.12	-295.66	-283.382
AIC	626.66	609.97	608.24	612.11	588.76
AIC for lm	709	706.67	712.27	712.07	684.85
LM test for residual autocorrelation: test value	2.508	1.725	0.473	1.799	0.032
p-value	0.11	0.19	0.49	0.18	0.86

*Notes: standard errors in parentheses. *** p<0.01. ** p<0.05. * p<0.1.*

When there is a larger intra-provincial mobility, it is reasonable that neighbors are affected by this phenomenon because of cultural spillovers, i.e. they get in touch with their neighbors, and the sign remains negative. When there is larger intra-provincial mobility, there might be larger insulation of the nearby provinces. This segregation reduces the potential for inter-provincial mobility, and the spillovers are limited inside the borders. The sign of intra-provincial mobility, therefore, remains positive.

Table 6 replicates the estimation of the Durbin model using the civicness scale. We observe a positive sign for civicness, whose significance is limited to model 1 and 5. The covariates behave as in Table 5, safe for the spatial lag of the mobility variables that now are not significant at the 10% level (they are significant at the 20% level). Reasonably, the spillovers are captured by the significant spatial lag of the civicness scale. In fact, differently from the other Tables, the spatial lag of civicness is significant and positive.

All in all, the Durbin results confirm the presence of spatial autocorrelation of the HDI and the positive effect of the social capital measures over the HDI, except for the independence dummy. The spillover is channeled by local mobility when we consider social capital, but for the civicness scale it directly passes by the spatial lag.

Table 6. Durbin model: civicness

Dep var: *HDI*	Model 1	Model 2	Model 3	Model 4	Model 5
Civicness	0.546*	0.251	0.322	0.328	0.480***
	(0.289)	(2.178)	(0.281)	(0.267)	(2.911)
Population (millions)		2.127***	2.129***	2.1921***	0.702
		(0.617)	(0.607)	(0.631)	(0.601)
Mountain municipalities every 100 municipalities			0.034		
			(0.027)		
Hill municipalities every 100 municipalities			0.042*		
			(0.021)		
Flat municipalities every 100 municipalities			-0.004		
			(0.021)		
Hospital beds per 1000 inhabitants				-0.446	
				(0.705)	
Public hospital beds per 1000 inhabitants				1.464*	
				(0.793)	
Intra-provincial mobility rate					0.376***
					(0.088)
Inter-provincial mobility rate					-0.347**
					(0.086)
Spatial lag of the indep.vars:					
Civicness	0.964***	1.139***	1.225***	1.053***	0.859***
	(0.305)	(0.279)	(0.292)	(0.278)	(0.261)
Population (millions)		-3.619**	-3.606***	-3.369***	-3.134***
		(1.058)	(1.040)	(1.062)	(1.024)
Mountain municipalities every 100 mun.			0.027		
			(0.030)		
Hill municipalities every 100 municipalities			-0.038*		
			(0.022)		
Flat municipalities every 100 municipalities			0.015		
			(0.022)		
Hospital beds per 1000 inhabitants				-0.240	
				(0.702)	
Public hospital beds per 1000 inhabitants				-0.069	
				(0.817)	
Intra-provincial mobility rate					-0.130
					(0.088)
Inter-provincial mobility rate					0.070
					(0.100)
Spatial autocorrelation coefficient	0.58***	0.604***	0.581***	0.596***	0.612***
Constant	17.89***	17.39***	15.92***	16.13***	20.06***
	(2.25)	(2.178)	(3.78)	(2.78)	(2.91)
Obs.	103	103	103	103	103
Log lik	-309.79	-300.315	-292.29	-296.84	-283.671
AIC	629.60	614.63	610.58	615.69	589.34
AIC for lm	696.27	691.85	679.99	690.54	661.06

LM test for residual autocorrelation:					
test value	3.851	3.824	0.767	4.703	0.564
p-value	0.05	0.05	0.38	0.03	0.45

*Notes: standard errors in parentheses. *** p<0.01. ** p<0.05. * p<0.1.*

5. Conclusions

In this paper we have found considerable geographical and historical effects in the relationship between social capital and human development. We find that the spatial correlation parameter ρ is always significant and positive, as expected: there is diffusion of the HDI among the Provinces. The social capital index and the civicness scale are always significant and positive: larger social capital is related to larger HDI and vice versa. Mobility variables are significant and indicate that larger mobility inside the province increases the HDI, whereas larger mobility outside the province reduces it.

Italy experienced very different economic policies to allow the South to catch-up with the North in terms of development. From the 50s to the 80s, the policy of external investments (often from state owned companies) in basic sectors was implemented. This policy was successful in terms of reducing the disparities with respect to the North, but it caused dependency and did not promoted the birth of competitive local companies. In the early 90s this policy was stopped because of the fiscal consolidation Italy had to implement, and it was followed by a policy of local development mainly financed through the structural funds of the EU (Ministero del Tesoro, 1998). This was a 'bottom-up' policy aimed at building social capital and soliciting development projects from below. This policy also failed because projects were too small and unable to ignite a proper process of growth (Rossi, 2005). Given our results, it is not surprising to find such a failure. The issue is now to design a new policy that would be able to overcome both failure.

References

Acemoglu D. and Robinson J. (2012). *Why Nations Fails. The Origins of Power, Prosperity and Poverty*, Profile Books, London.

Acemoglu D. and Robinson J. (2008). Persistence of Power, Elites and Institutions, *American Economic Review* 98: 267-93.

Acemoglu, D., S. Johnson and J. A. Robinson (2001). The Colonial Origins of Comparative Development: An Empirical Investigation, *American Economic Review*, 91, 1369-1401.

Albanese, G. and De Blasio, G. (2014). Civic Capital and Development: Italy, 1951-2001, *Quaderni di Storia Economica* n. 32, Bank of Italy, Rome.

Banfield, E. (1958). *The Moral Basis of a Backward Society*, Free Press, New York.

Besley, T. and Persson, T. (2009). The origins of state capacity: Property rights, taxation, and policy, *American Economic Review*, 99: 1218-1244.

Bowles, S. and Gintis, S. (2002). Social Capital and Community Governance, *Economic Journal*, 112: 419-436.

Cafiero, S. (2000). *Storia dell'Intervento Straordinario nel Mezzogiorno* (1950-1993). Lacaita, Manduria.

Cartocci, R. (2007), *Mappe del tesoro. Atlante del capitale sociale in Italia*. Il Mulino, Bologna.

De Blasio, G. and Nuzzo, G. (2010). Historical traditions of civicness and local economic development, *Journal of Regional Science*, 20, 1-29.

Di Liberto, A. and M. Sideri (2011). Past Dominations, Current Institutions and the Italian Regional Economic Performance, *Working Paper CRENoS* n. 201115, Center for North South Economic Research, University of Cagliari and Sassari.

Ferragina, E. (2010). Social Capital and Equality: Tocqueville's Legacy, *The Tocqueville Review*, 31: 73-98.

Ferragina, E. (2012). *Social Capital in Europe: A Comparative Regional Analysis*. Cheltenham: Edward Elgar.

Glaeser, E.L., R. La Porta, F. Lopez-de-Silanes and A. Shleifer (2004). Do Institutions Cause Growth? *Journal of Economic Growth*, 9**:** 271-303.

Guiso, L., Sapienza, P. and Zingales, L. (2013). Long-Term Persistence, EIEF Working Papers 23/13.

Hanifan, L.J. (1916). The Rural school Community Center, *Annals of the American Academy of Political and Social Science*, 67: 130-138.

La Porta R., Lopez-de-Silanes F., Schleifer A. and Vishny R. (1999). The Quality of Government, *Journal of Law, Economics and Organization* 15: 222-279.

LeSage, J. and Pace, R.K. (2009). *Introduction to Spatial Econometrics*, Chapman & Hall/CRC Press, Boca Raton.

March J. G.. and Olsen J. P. (2006). Elaborating the New Institutionalism, in: Rhodes R. A. W., Binder S. A. and Rockman B. A. (eds.) *Oxford Handbooks of Political Science*, Oxford University Press, New York.

Ministero del Tesoro (1998). *La Nuova Programmazione e il Mezzogiorno*, Donzelli, Roma.

Monni, S. (2002). L'indice di sviluppo umano nelle province italiane, *QA Rivista dell'Associazione Rossi-Doria*, 2: 115-131.

Moran, P. A. P. (1950). Notes on Continuous Stochastic Phenomena, *Biometrika* 37: 17–23.

Petrarca I. and Ricciuti R. (2013). "The Historical Economics of Corruption and Development within Italy" (2013), *International Journal of Monetary Economics and Finance*, 6, 186-202.

Putnam, R., Leonardi, R. and Nanetti, R.Y. (1993). *Making Democracy Work*, Simon & Schuster, New York.

Rodrik, D., Subramanian, A. and Trebbi F. (2004). Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development, *Journal of Economic Growth*, 9**:** 131-165.

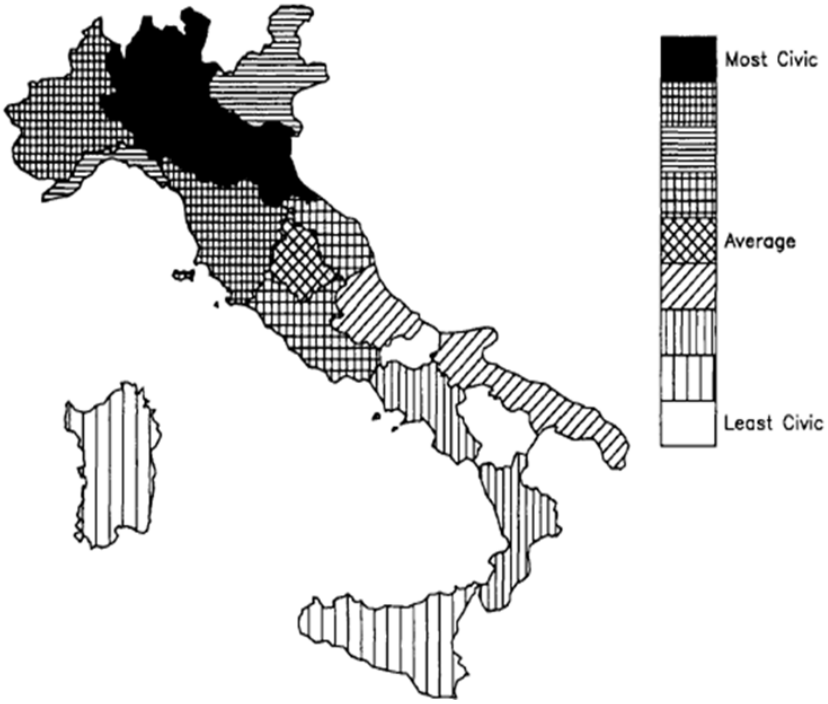
Rossi, N. (2005). *Mediterraneo del Nord*, Laterza, Roma-Bari.

APPENDIX 1

List of the Provinces and their codes on the maps

	code	name		code	Name		code	name		code	name		code	name		code	Name
1	TO	TORINO	21	BZ	BOLZANO	41	PS	PESARO E URBINO	61	CE	CASERTA	81	TP	TRAPANI	101	KR	CROTONE
2	VC	VERCELLI	22	TN	TRENTO	42	AN	ANCONA	62	BN	BENEVENTO	82	PA	PALERMO	102	VV	VIBO VALENTIA
3	NO	NOVARA	23	VR	VERONA	43	MC	MACERATA	63	NA	NAPOLI	83	ME	MESSINA	103	VB	VERBANO-CUSIO-OSSOLA
4	CN	CUNEO	24	VI	VICENZA	44	AP	ASCOLI PICENO	64	AV	AVELLINO	84	AG	AGRIGENTO			
5	AT	ASTI	25	BL	BELLUNO	45	MS	MASSA CARRARA	65	SA	SALERNO	85	CL	CALTANISSETTA			
6	AL	ALESSANDRIA	26	TV	TREVISO	46	LU	LUCCA	66	AQ	L'AQUILA	86	EN	ENNA			
7	AO	AOSTA	27	VE	VENEZIA	47	PT	PISTOIA	67	TE	TERAMO	87	CT	CATANIA			
8	IM	IMPERIA	28	PD	PADOVA	48	FI	FIRENZE	68	PE	PESCARA	88	RG	RAGUSA			
9	SV	SAVONA	29	RO	ROVIGO	49	LI	LIVORNO	69	CH	CHIETI	89	SR	SIRACUSA			
10	GE	GENOVA	30	UD	UDINE	50	PI	PISA	70	CB	CAMPOBASSO	90	SS	SASSARI			
11	SP	LA SPEZIA	31	GO	GORIZIA	51	AR	AREZZO	71	FG	FOGGIA	91	NU	NUORO			
12	VA	VARESE	32	TS	TRIESTE	52	SI	SIENA	72	BA	BARI	92	CA	CAGLIARI			
13	CO	COMO	33	PC	PIACENZA	53	GR	GROSSETO	73	TA	TARANTO	93	PN	PORDENONE			
14	SO	SONDRIO	34	PR	PARMA	54	PG	PERUGIA	74	BR	BRINDISI	94	IS	ISERNIA			
15	MI	MILANO	35	RE	REGGIO EMILIA	55	TR	TERNI	75	LE	LECCE	95	OR	ORISTANO			
16	BG	BERGAMO	36	MO	MODENA	56	VT	VITERBO	76	PZ	POTENZA	96	BI	BIELLA			
17	BS	BRESCIA	37	BO	BOLOGNA	57	RI	RIETI	77	MT	MATERA	97	LC	LECCO			
18	PV	PAVIA	38	FE	FERRARA	58	RM	ROMA	78	CS	COSENZA	98	LO	LODI			
19	CR	CREMONA	39	RA	RAVENNA	59	LT	LATINA	79	CZ	CATANZARO	99	RN	RIMINI			
20	MN	MANTOVA	40	FO	FORLI' - CESENA	60	FR	FROSINONE	80	RC	REGGIO CALABRIA	100	PO	PRATO			

Appendix 2. Civicness in Italian regions



Source: Putnam et al. (1993)