Civic capital and Development: Italy, 1951-2001

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Abstract

We empirically investigate the role of civic capital (proxied by voter turnout) on Italy's development during the second half of the 20th century. By using a unique dataset at the city level, we show that over half a century voter turnout has been steadily correlated with economic development and that this reflects some causality going from the former to the latter. We also find that the impact of civic capital was higher in the period after the WWII war, and decreased gradually in the following decades.

JEL Classification: O10, O43
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Contents

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1. Introduction[1]

Following Knack and Keefer (1997) a massive literature has investigated the economic payoffs of informal constraints (see, for instance, Hall and Jones 1999; Temple and Johnson 1998). The point that cultural aspects such as reciprocity, trust and habits of cooperation significantly impact on growth has now firmly established in economics (see, for a survey, Guiso *et al.* 2006). In particular, since Putnam (1993) the Italian case has been extensively studied with regard to both the origins of large and persistent differences in local stocks of social capital and the impact of such differences on economic performances.

This paper adds to this literature by empirically gauging the role of informal norms over Italy's development process during the second half of the 20th century.[2] By considering long term data (from 1951 to 2001) we are able to look at the different stages of Italy's development path, from a developing economy to a G7 nation (see, for instance, Ginsborg 1989; Castronovo 1995; Crafts and Toniolo 1996).[3] As explained by North (1991), the role of cultural constraints is likely to be greatest in an initial phase of development of a market economy, as the increasing specialization raises the number of transactions between strangers, who cannot rely on previous experience,[4] and formal constraints (such as law and property right) that reduce uncertainty in exchange have not already emerged. As matter of fact, we find that North's suggestion receives empirical support for the case of Italy.

On the empirical ground, the paper tries to overcome many of the shortcomings of the existing estimates of the impact of informal constraints on economic performance. The informal rules that matter for economics are taken to be the set of values and beliefs that help cooperation (which are defined as *civic capital* or *civicness*). This definition has theoretical merits, as convincingly argued in the recent work of Guiso *et al.* (2010).[5] Moreover, it has a clear empirical counterpart, as civic capital can be measured with voter turnout (that is, the

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[2] Also because of restricted data availability, previous works focus on estimating the effect of informal norms for just one point in time, mostly at the turn of the 21st century (see, e.g., Guiso *et al*. 2008; de Blasio and Nuzzo 2010).

[3] Note that the decades following WWII were a crucial phase of the Italian long run developmental path, its second industrial wave and its main catching up phase. According to Maddison (2010), between 1951 and 2001 GDP per capita in Italy grew from 56% to 82% of the average of the Western Countries (Western Europe, United States, Canada, Australia and New Zealand). Rey *et al.* (2012) and Baffigi (2011) show that, in the same period, the shares of value added in agriculture, industry and services sectors changed respectively from 25%, 36% and 39% to 3%, 27% and 70%.

[4] Game theory suggests that wealth maximizing individuals find it difficult to play cooperatively when (i) information on the other players is lacking; (ii) there are large number of players: and (iii) the game does not have a track record (for instance, it is an initial stage of a possibly repeated game).

[5] According to Guiso *et al.* (2010) civic capital is the only definition for informal constraints, among the many proposed in the socio economic literature, that makes sense from an economic perspective. In particular, analogously with other forms of capital, civic capital can be accumulated and depreciated; moreover, it provides positive payoffs.

percentage of eligible voters who actually cast their vote).[6] Voter participation is strictly related to civic engagement: as an individual vote cast in an election conceivably has a negligible effect on its outcome, in presence of cost of going to the polls, a rational individual who is not interested in the common good should abstain from voting (see: Downs 1957; Dhillon and Peralta 2002).[7]

The evidence we present is based on a comparison across Italian cities (municipalities). Cities represent a very detailed level of geographic stratification. The choice of relatively small areas should help to minimize measurement, reverse causality and omitted variable problems that are frequent in cross-country (and, to a lesser extent, cross-region) regressions.[8] More importantly, a limited spatial scale should be ideal to capture phenomena that are of a local nature. From one hand, civic capital has been shown to depend from the long-lasting effect of cities' history; on the other hand, civic capital can be accumulated through repeated interactions and socialization, which is facilitated in small areas (see Guiso *et al.* 2010).[9]

Furthermore, we use an econometric approach intended to disentangle the extent to which correlations between civic capital and economic performance reflect causality going from the former to the latter. Our strategy relies on Putnam's (1993) conjecture on the long term persistence of civic capital and uses voter turnout in 1913 (that is, participation at the polls of the first election with universal manhood suffrage in Italy). We argue that the identification assumption implied in our approach - that is, conditional on the controls included in the regressions, voter turnout in 1913 has no effect on the economic performance of Italy's cities in the second half of the 1900, other than through the persistence of civic capital - seems to be sensible.

In the next section we describe the dataset and show some preliminary (cross-sectional and overtime) evidence for our panel that includes more than 2,000 municipalities observed for 6 consecutives Census dates. Section 3 provides the main results of our investigation, which are based on repeated cross-sectional IV estimates. They can be easily summarized: a) over half a century, voter turnout has been steadily correlated with measures of economic development; b) the correlation is likely to reflect some causality going from civic capital to economic performance; and c) the role of civic capital was stronger in the

[6] A long tradition in political science (see: Fowler 2006; and, in particular, the concept of civic culture proposed by Almond and Verba 1963) suggests that voter participation is a key indicator of the strength of citizens' engagement in the life of the community.

[7] Note, however, that voter turnout can be a misleading proxy of the individual interest in the common good, to the extent that it leads to personal patronage benefits ("exchange voting"). This is why Putnam (1993) proposes the use of referenda turnout instead of participation at the political elections. As matter of fact, voter turnout and referenda turnout seem to be highly correlated across Italian cities. Therefore, empirically the two measures are largely indistinguishable. For instance, by comparing participation at referenda and that at the political elections for the sample of 686 municipalities used by Guiso *et al.* (2010) – where the referenda are those that took place in 1978, 1981 and 1985 and the political elections refer to 1979 and 1983 – we obtain a correlation coefficient of 0.85. By using data at the provincial level, similar high correlations are found for the entire period 1946-1989.

[8] As shown by Briant *et al.* (2010) inappropriate spatial units are going to jeopardize estimations.

[9] Furthermore, also as effect of the increasing availability of data, cities are becoming a common point of reference in the analysis of economic activity (Glaeser and Gottlieb 2009).

period after the WWII war, and decreased gradually in the following decades. The concluding section draws a possible interpretation of the findings.

2. Data and preliminary evidence

Our sample includes the universe of Italy's municipalities with more than 5,000 inhabitants in 1951. [10] Summary statistics are documented in Table 1. On average, each city had 16,840 residents in 1951 (20,760 in 2001) and extends over 71 squared kilometers. Our outcomes of economic development are built by using Census information (provided by Istat, the National Statistical Institute) on population, employment and plants.[11] We combine them to obtain three different measures: the employment rate (employment over population), employment density (employment over squared kilometers) and plant density (plants over squared kilometers). From 1951 to 2001 these measures show a consistent pattern, as they all increase. Data on political participation are taken from the *Atlante Storico Elettorale d'Italia*, produced by the Istituto Carlo Cattaneo. As the measures for economic development are available only at 10-year intervals, we select among the dates in which Parliamentary elections were held those close to the dates of Census availability.[12] Our measure for civic capital displays an average of 93% (s.d. = 4%) in 1951 and decreases to 81% (s.d. = 9%) in 2001. This index of civic capital is highly persistent: the first order autocorrelation coefficient over the five decades is 0.91. We also make use of a number of covariates time invariant at the city level which are taken from the dataset assembled by Anci (Italy's Association of Municipalities). 5% of the cities in our sample are province capital, while 17% are located on the seaside. Note also that 40% of the sample is comprised of southern cities.

Table 2 provides a first glance at the decomposition of the within and between variances of civic capital in our panel (in a specification where the common nationwide time trend has been differentiated out). It shows that the main source of variability is that refereeing to the cross-municipality dimension (the within variance accounts for roughly one-fourth of the between variance). This is consistent with the idea that civic capital has a strong persistence.

Table 3 presents the results from an empirical exercise that exploits both dimension of variability of our panel. We regress our outcomes for economic development on civic capital by using three estimators: pooled LS, the between group (BE) and the fixed effect (FE) estimators. As it is well known, pooled LS is a weighted average of the BE and FE estimators: the former takes into account only the variation between groups, while the latter

[10] Very small municipalities (with less 5,000 residents) have high heterogeneity for both civic capital and measures of economic performance. This implies that our estimates might be biased by the presence of several outliers, which we struggle to identify ex ante. In any case, results from the untrimmed sample are very similar (though less precise) of those documented in the text (they are available upon request).

[11] Census data are the only available at the city level for the time span we consider. For instance, GDP data are available only at less detailed level of geographical stratification.

[12] Therefore, civic capital at the various Census date (1951, 1961, 1971, 1981, 1991, and 2001) is measured with voter turnout at the political election (Chamber of Deputies), taken respectively at 1948, 1958, 1972, 1979, 1992, and 2001 (proportional rule).

considers only the variation within groups. The LS and BE specifications always include a number of controls aimed to capture cities heterogeneity. Following previous literature (see, for instance, Guiso *et al*. 2008) we use: slope and altitude, a dummy that takes on the value of one if the municipality is located on the coast, a dummy that takes on the value of one if the municipality is a capital city at provincial level, and a dummy for cities located in the south.[13] The LS and FE specifications includes also a set of period dummies, to cope with common time effects. Finally, in each regression we control for city population and its square.

Columns 1-3 reports the results we obtain by using the employment rate as outcome. Civic capital is estimated to be positively correlated with the employment rate in both BE and FE regressions. The effect, however, is much higher in the former case. Columns 4-6 report the results obtained by using as outcome employment density (employment over squared kilometers) instead of the employment rate.[14] The results mirror those previously showed. Finally, Columns 7-9 depict the results we get by using plant density as dependent variable. This measure (defined as number of plants over squared kilometers) is more likely to capture the vigor of local entrepreneurship.[15] Previous findings remain confirmed: civic capital and economic development are correlated both cross-sectionally than overtime. The impact estimated with the BE estimator is substantially higher that that measured with the FE estimator.

The correlations documented above between civic capital and economic performance are unlikely to be as a signal of some causality going from the former to the latter. They are not shielded from the usual identification flaws related to reverse causality, omitted variable and measurement error. In the next section we provide more decisive evidence in this regard. We focus on the cross-section dimension of our data, for which we can use a credible instrument to tackle the identification challenges.[16] In an attempt to document the evolution

[13] This inclusion is warranted: while high-civic capital municipalities are mostly located in north and center regions of the country, these areas also differ from the south for several factors, such as infrastructures and access to foreign markets. Thus, local civic capital may pick up differences between the areas that just happen to be correlated with it.

[14] Note that employment density is a highly celebrated proxy for local economic development in regional science and urban economics (see: Glaeser 2008).

[15] Employment density also reflects the size of the industrial plants sited in a city. For instance, employment density rises abruptly if a large scale plant is situated in the municipality. To the extent that the localization large size plants derive from Government choices or delocalization choices from firms (perhaps, multinationals) established elsewhere, it is likely that employment density picks up effects that might have nothing to so with the local endowments of civic capital. Indeed, creating industrial poles, mainly through the localization of State-owned enterprises, is a frequent occurrence in Italy's industrial policy (see: Colli and Vasta 2010). Moreover, in the last decades of the century the localization of large plants of multinational enterprises was heavily subsidized.

[16] The positive correlation between (within-municipality) variations in economic development and civic capital signals that there might a role for the co-evolution of economic variables and social norms. As explained in Sect. 3, the empirical framework employed in this paper does not allow us to disentangle what part of the co-movements is due to a causal impact of the social norms on the economy. In a companion paper (Albanese and de Blasio 2014), which investigates the link that goes from economic development to civic capital (and uses an appropriate framework to infer causality), we show that roughly an half of the co-evolution in the period 1951-1991 should be attributed to the causal impact of industrialization on social norms.

of the role of civic capital over half a century, our results are derived for any single date of availability of Census data (from 1951 to 2001).

3. Results from IV estimates for repeated cross-sections

Figure 1 (Figure 2) conveys the flavor of our identification strategy by illustrating, with regard to the provinces of Florence and Naples, the joint distribution at the municipality level of civic capital and employment rate in 1951 (2001).

Table 4 reports the LS cross-sectional results we obtain at the various Census waves (the covariates included are those reported in the BE estimates of Table 3).[17] Panel A makes use of the employment rate as outcome. The findings display a consistent pattern: over half a century, civic capital shows a steady correlation with the employment rate (however, the economic magnitude of the estimates decreases overtime: compared to 1951, the elasticity in 2001 is roughly 1/3). Panel B reports the results obtained by using as outcome employment density. The findings mirror those previously showed. In every single Census date, civic capital predicts with high statistical significance employment density. The estimated elasticity is bounded between 1.6% and 3.0%, with no discernable overtime pattern. Panel C depicts the results we get by using plant density. Again, they nicely confirm previous findings. The estimated coefficient for elasticity enters very significantly; it ranges between 0.9% and 2.2% (again, no clear overtime trend emerges). Overall, LS findings suggest that civic capital has had a significant role all over Italy's stages of economic development.

There are, however, a number of important reasons for not interpreting these results as causal. First, the civic capital variable could be measured with error, and thus it could correspond poorly with the true civic capital that matters in practice for development. This creates attenuation bias and may bias the linear estimates downward. Second, rich cities may be able to afford or prefer a greater sense of civic duty. This reverse causality problem introduces positive bias in the linear estimates. Third, there could be many omitted determinants of economic performance that will naturally be correlated with civicness. The omitted variable inconsistency also generates an upward bias. All of these problems could be solved if we had an instrument for civic capital. Such an instrument must be an important factor in accounting for the variation of the endogenous regressor, but have no direct effect on economic outcomes.

We use past voter turnout as instrument. We take the 1913 voter turnout, that is, participation at the polls of the first election with universal manhood suffrage in Italy.[18] The idea of using past values of the interest variable as instruments has a long tradition in economics. In the context of local development, Combes *et al.* (2010) accurately discuss the

[17] For the sake of brevity, Tables 4 and 5 reports only the coefficients for civic capital. The complete results for the specification with the employment rate as outcome are provided in the Appendix, Those for the specifications with employment density and plant density as outcomes are similar and available upon request.

[18] Guiso and Pinotti (2011) argues that, before the 1912 enfranchisement, voting in political elections was driven mainly by private rent-seeking for the potential benefit that involvement with power may give to a limited elite. After the extension of voting rights, the pattern of electoral turnout in Italy changed abruptly, due to the impact of pre-existing civic capital on the political participation of non-elites.

merits and the pitfalls of relying on historical variables as instruments. They make clear that this strategy makes sense if (i) there is some persistence in the spatial distribution of the variable of interest; and (ii) the local drivers of economic performance totally differ from those of a long-gone past.

As for persistency, our instrument relies on Putnam's (1993) conjecture according to which the endowments of civic capital across Italian territories have been highly persistent over the centuries. In particular, it was the local political regimes in place in the Middle Ages that shaped the degree of local civic commitment that persisted through more than 600 years.[19] This conjecture has been validated in de Blasio and Nuzzo (2010) and Guiso *et al.* (2008). As matter of fact, the instrument we use – voter turnout in 1913 - is suggested by Putnam (1993) himself as one of the possible good quantitative measure of past civic capital.[20] Empirically, we show below that voter turnout in 1913 is a significant determinant of the observed voter turnout over the second half of the 1900 (this relationship will represent the first stage in our instrumental variable approach).

With regard to requirement (ii), which technically is referred as the condition of orthogonality of the instrument to the (second stage) error term, and that is basically non testable in the exactly identified case (Angrist and Pischke 2009), a few aspects have to be noted. First, long-lagged values of civic capital clearly remove any simultaneity bias caused by local shocks that occurred in the second half of the XX century. For such simultaneity to remain we would need these shocks to be expected in 1913 (and have affected voter turnout at the time). However, the Italian economy at the beginning of 1900 was very different from that it was in the second half of the century. This seems to be safe, as major events – such as the two world wars and twenty years of dictatorship under Mussolini – contributed to change abruptly the structure of Italy's economy and society (Zamagni 1993).[21] Second, the condition might be violated if some missing permanent city characteristic drives both past civicness and XX century economic performance. However, we directly control in our regressions for the most relevant geographic characteristics. Moreover, we also control for population size, which differentiate away potential source of violation of (ii) related to agglomeration.

IV estimates are presented in Tables 5, where in each Census date civic capital is treated as endogenous and instrumented by voter turnout in 1913. Our results present a number of common features. First, the instrument is very strong: the first stage *F*-statistics is always larger than 49. According the critical values of Stock and Yogo (2005), we can be

[19] Putnam (1993) classifies the regimes in place the beginning of the 14th century according to their degree of republicanism: (1) the communal republics, the heartland of republicanism; (2) the *Signorie*, former communal republics fallen prey to signorial rule by the beginning of 14th century; (3) the Papal State, characterized by a mixture of feudalism, tyranny and republicanism; and (4) the Kingdom of Sicily, which had the highest degree of autocracy.

[20] The other proxies suggested by Putnam (1993), which all refer to the period after the unification of Italy (1861), are: membership in mutual aid society; membership in cooperatives; strength of mass parties; and the longevity of local associations. Unfortunately, at the city level no information is available for these measures.

[21] Notice also that local differences in development at the beginning of the century were strikingly dissimilar from those prevailing after WWII. In particular, in 1910s the North-South divide was not so pronounced, while within area differences were relevant. Therefore, during the first half of 1900s there was a process of convergence within areas accompanied by a process of divergence between the South and the rest of the country (see, e.g, Felice 2011; Iuzzolino *et al.* 2011).

assured that weak instruments issues do not apply. Interestingly, the strength of the first-stage relationship does not decay overtime: this suggest that our instrument is so good to predict the current endowments of civil capital at the turn of the century as it was in the aftermath of WWII. Second, we generally find that IV estimates are larger than LS estimates. This suggests that the attenuation bias related to measurement error is the predominant source of bias (that is, it is larger than the positive bias associated with reverse causality and omitted variables). This is a reassuring upshot, given that previous empirical studies on the role of civic capital for local economic development also point to the same conclusion.[22]

Third, and crucially, IV results highlight a consistent time pattern. The role of civic capital is now much larger for the first two decades of post WWII economic development. In particular, the positive effect of civicness on the employment rate has vanished since 1981. The estimated elasticities for employment density and plant density continue to remain positive and significant all over the period; however, their magnitudes suddenly diminish as the estimation period approaches the end of the century. For instance, our results suggest that the causal impact of civic capital for employment density (plant density) at the turn of the millennium was only $1/4^{th}$ ($1/3^{rd}$) of that recorded in 1951 and 1961.

We also tried to implement the IV framework to analyze the (within-city) overtime variation between civic capital and economic performance. That is: to shed light on the correlations documented in Table 2 referring to the FE estimator, trying to disentangle the causal effect beyond the correlations. Unfortunately, this attempt was unsuccessful. The instrument (1913 turnout) systematically fails to accurately predict the changes in civic capital endowments that occurred at the city level over period under scrutiny. We note, however, that this is in line with the notion that cultural norms have a slow-changing nature of (see: Nunn 2009). Moreover, the finding is also consistent with the circumstance that in our data the strength of the first stage relationship (see Table 5) does not weaken overtime.

4. Discussion of the findings

This paper brings new evidence that supports the role of informal norms for the fortune of Italy's territories. Compared to the existing evidence, our results have been derived by using a definition of informal constraints that is grounded in economic theory, a very detailed level of geographic stratification for the spatial units of observation, and a possible source of exogenous variation to unravel threats to identification. Once econometric biases are appropriately eliminated, our findings suggest that the role of civic capital as driver of development has been quite relevant for the entire period of fifty years following WWII. As for the mechanisms through which civic capital impact on the economy, our results cannot be informative. Previous research, however, documents that civic capital has a role both in the goods and labor markets (de Blasio and Nuzzo 2010) and in the credit market (Guiso *et al.* 2004).

[22] An empirical framework to double-check this finding can be found in de Blasio and Nuzzo (2010).

The results also suggest that the importance of civicness was greatest during the fifties and the sixties[23]. In this respect, Italy's economic history seems to provide a sensible rationalization for our findings. At the beginning of the 50s, Italy was in many instances a less developed country (in the international scenario).[24] From 1950 to 1970, taking great advantage of the unprecedented expansion of the world economy,[25] Italy grew more rapidly than other European countries (except West Germany), with a per capita income that rose by a factor of 2.3 (1.4 in France, 1.3 in UK). As underscored by Salvati (1984), the striking economic growth recorded during these years was basically due to a move towards a system in which the market forces were left free to operate. By the same token, Ginsborg (1989) explains that the economic boom was a "spontaneous process," which followed the free-market paradigm.[26] The spontaneous industrialization process[27] went to a halt at the end of the sixties, when the relatively market friendly attitude of the Government was replaced by a more invasive stance. Historians attributed this change to a mix of domestic and external pressures. Among those, the 1969 "hot autumn" of labour conflict, which led to wage rises that outpaced productivity and the 1973 fourfold jump in oil prices, which intensified inflationary pressures and threatened the country's financial stability. Whatever the reason, starting from the end of the sixties the economy became increasingly regulated by the State. As reported by Tanzi and Schuknecht (2000), between 1960 and mid '90s, government expenditure to GDP rose from 30% to 53%, while government employment grew from 8% to 16% of the total employment.

[23] At first glance, our results seem to contrast with the fact that regional convergence in Italy occurred in the 50s and 60s, but stopped in early 70s (see Mauro and Pigliaru 2011, for an interpretation of the role of social capital in this context). This contrast, however, is only apparent. Convergence is measured by pr capita GDP; decomposing it in terms of productivity and rate of employment shows that the reduction of disparities during the 50s and 60s is entirely due to growth of productivity, and not employment (Daniele and Malanima 2007). This evidence has also been highlighted by Graziani and Pugliese (1979), who use the words "development without jobs", and interpreted it as reflecting an industrial policy based on the installation of external enterprises in the area, mostly operating with large plants and in high-intensity capital sectors.

[24] At that time, 44% of the working population was in agriculture, against respectively 11% and 5% for United States and UK; manufacturing had only a limited role and was confined within selected areas of the north-west of the country (see Broadberry *et al.* 2011, and Iuzzolino *et al.* 2011). Private consumption was modest and so they were the living conditions of the households: only 7.4% of the dwellings were endowed with electricity, drinkable water and an onsite restroom (Cacioppo 1982).

[25] As it is well known, this period was a "Golden Age" for the world economy. Trade increased by a factor of six; economic integration among industrialized countries boomed; and standardized productions in manufacturing allowed an unprecedented expansion of household consumption (see also Crafts and Magnani 2011, for a comprehensive discussion of Italy in the Golden Age).

[26] In particular, trade barriers were dismantled (the creation of the European Common Market was a key advance in this regard); the intervention of the Government was mainly limited to infrastructure building (which also benefited from the Marshall Plan from 1957 to 1951) while monetary policy focused strictly on preserving stability; wages were kept moderate, thanks to the abundant supply and a reduced power of the labor unions (between 1953 and 1960 while industrial production increased by 89% and labour productivity by 62%, real wages remained stationary: Scalfari 1961); residents in all regions were left free to search for better labor market opportunities all over the country (a Fascist law limiting relocations was eliminated in 1961): as a result migration boomed (from 1955 to 1971, 9,140,000 Italians were involved in interregional migrations).

[27] The unregulated industrialization developed, other than in the traditional areas of the north-west, in some "emerging" regions of the north-east and the center, which will be later defined "the third Italy," to underscored the peculiarity of their development path, which was different from those of the north-west and the south. In these areas, formerly farmers started their own industrial business, mainly in the sectors of textile and clothing, footwear, leather, furniture and ceramic goods. In the Seventies, the network of SMEs localized in selected areas of the country was a distinguished featured of Italy's economic landscape (Becattini 1987).

All in all, our results support two conclusions. First, civic capital could matter more in the early stage of development. In the introduction to his book, North (1991) discusses as informal constraints matter more in an initial phase of development of a market economy. Yet, building on Gerschenkron (1962), Abramovitz (1986) argues that the country's potential for development is strong not when it is backward without qualification, but rather when it is technologically backward but socially advanced. Knack and Keefer (1997) and Zak and Knack (2001) confirm that social capital (trust) increases economic growth more in poor countries than in developed ones. In a backwards country, civic capital can circumvent difficulties due to an underdeveloped financial sector (Besley 1995), reduce transaction costs where formal market institutions are absent (Fafchamps and Minten 2001) or fund local public goods in absence of a centralized provision (Miguel and Gugerty 2005).

Second, a free market environment can deepen the role of civic capital. Where public intervention is less intrusive, social networks can play a more important role in channelling credit, knowledge or other resources to productive uses. On the other side, the idea that an extensive government intervention could crowd out civic capital is well-grounded in the literature (Putnam 1993; Fukuyama 1995). This is in line with previous findings on the relationship between development, social capital and public intervention. For example, Miguel *et al.* (2005) obtain that initial social capital does not predict subsequent industrialization across Indonesian districts from 1985 to 1995 but notice that country's development took place in a setting where government played a leading role in the economy.

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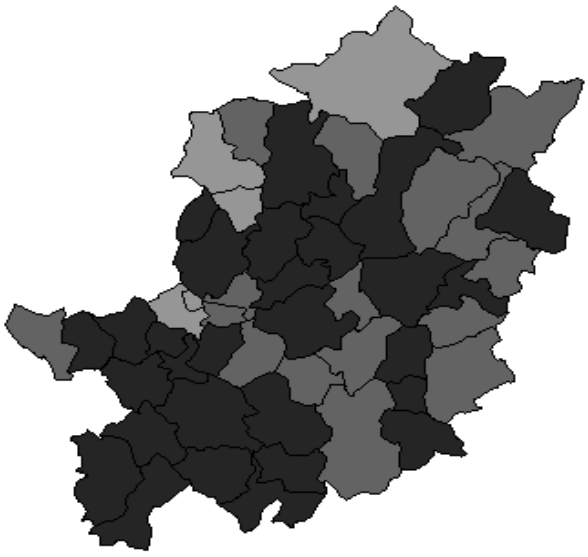
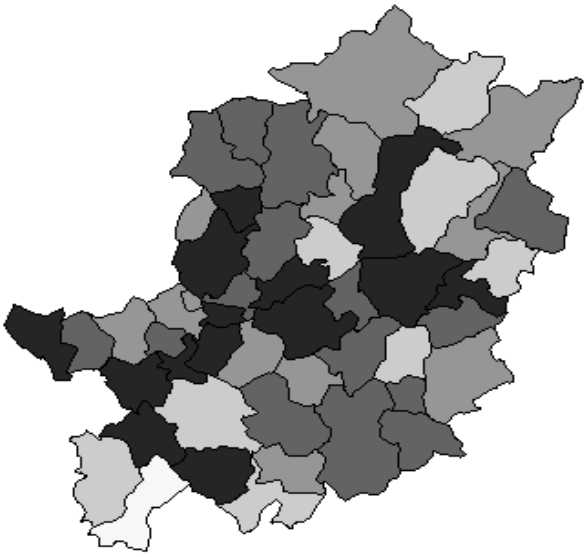
Tables and Figures

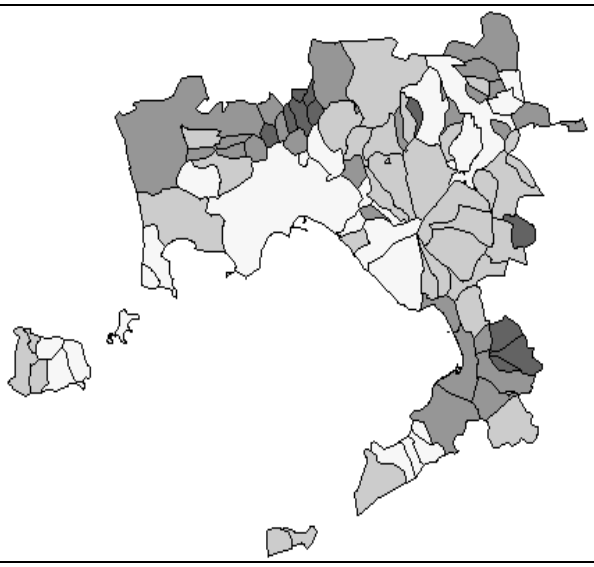
Figure 1.
Civic capital and economic performance: 1951



Civic capital 1951 – Province of Florence



Employment rate 1951 - Province of Florence

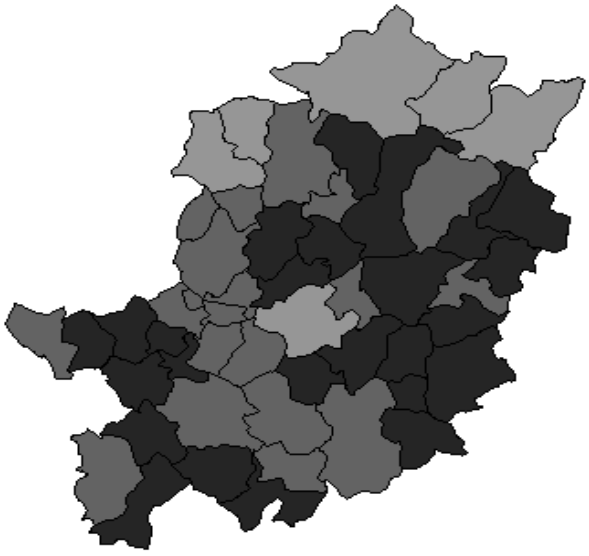


Civic capital 1951 - Province of Naples

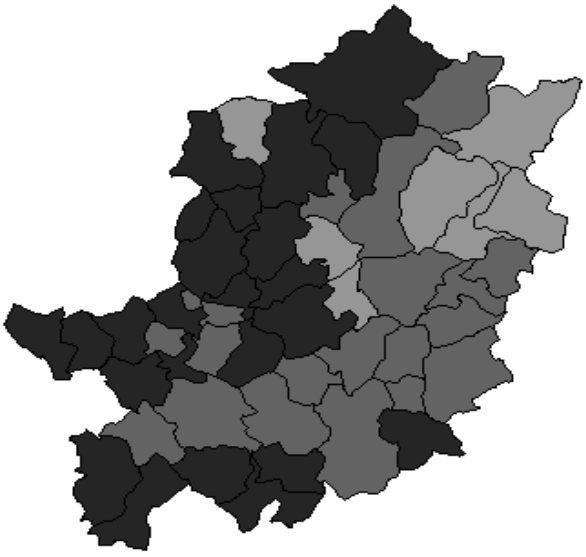
Employment rate 1951 - Province of Naples

Notes: Civic capital is measured with voter turnout at the Parliamentary elections (Chamber of Deputies). There were 137 municipalities in the two provinces (49 in Florence and 88 in Naples). The observations are divided in quintiles and darker colors indicates higher civic capital or employment rate.

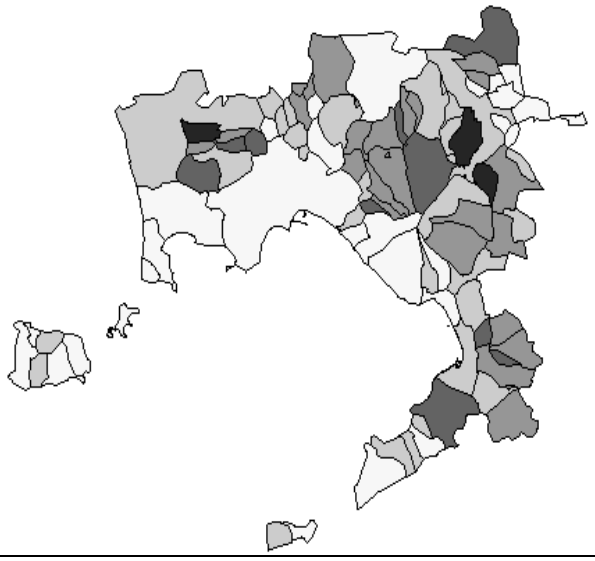
Figure 2.
Civic capital and economic performance: 2001



Civic capital 2001 - Province of Florence



Employment rate 2001 - Province of Florence



Civic capital 2001 - Province of Naples

Employment rate 2001 - Province of Naples

Notes. Civic capital is measured with voter turnout at the Parliamentary elections (Chamber of Deputies). There were 136 municipalities in the two provinces (44 in Florence and 92 in Naples). In 1992, 7 cities belonging to the province of Florence were incorporated in the new province of Prato. Nevertheless, they are showed in the figure so as to ensure comparability. The observations are divided in quintiles and darker colors indicates higher civic capital or employment rate.

Table 1.
Descriptive statistics.

		Obs.	Mean	s.d.	Min	Max
Civic capital	1913	1988	61.3	11.5	24.8	88.4
Civic capital	1951	2002	93.5	4.4	68.4	99.7
Civic capital	2001	2075	80.8	9.3	34.6	99.4
Population	1951	2079	16834.3	60134.6	5000	1651754
Population	2001	2089	20752.7	75668.6	1241	2546804
Employment	1951	2079	2702.7	16869.2	105	545967
Employment	2001	2089	5356.6	23843.9	64	718778
Plants	1951	2079	584.3	2325.3	68	67457
Plants	2001	2089	1770.6	7401.9	58	230353
Capital city	1951	2079	0.04	0.20	0	1
Capital city	2001	2089	0.05	0.22	0	1
Area		2089	71.10	77.95	1.62	1307.71
Elevation		2089	233.87	229.22	0	1211
Difference elevation		2089	533.76	547.48	1	3282
Coastal location		2089	0.17	0.38	0	1
South		2089	0.40	0.49	0	1

Notes. Sources: Census data, Anci (*Le Misure dei Comuni*) e Istituto Carlo Cattaneo (*Atlante Storico Elettorale d'Italia*). Civic capital is measured with voter turnout at the Parliamentary elections (Chamber of Deputies).

Table 2.
Variance decomposition of civic capital.

	Total variance	Variance ratio
Civic capital (raw data)	73.5	0.59
Civic capital (after national trend removal)	56.3	0.23

Notes. Variance ratio is the ratio of within and between variation.

Table 3.
Panel data evidence on civic capital and economic performance.

Dependent Variable	Employment rate			Employment density			Plant density		
Estimator:	OLS	BE	FE	OLS	BE	FE	OLS	BE	FE
Civic capital	1.135***	1.372***	.895***	1.939***	1.928***	.895***	1.421***	1.163***	.801***
	(.052)	*(.119)*	*(.086)*	*(.116)*	*(.329)*	*(.086)*	*(.102)*	*(.288)*	*(.054)*
Population	.427***	.429***	.631**	.116	.815***	1.631***	--.123*	.517***	1.205***
	(.036)	*(.065)*	*(.294)*	*(.081)*	*(.179)*	*(.294)*	*(.071)*	*(.157)*	*(.232)*
Pop squared	--.017***	--.016***	--.047***	.035***	.002	--.047***	.039***	.010	--.021*
	(.002)	*(.004)*	*(.016)*	*(.005)*	*(.010)*	*(.016)*	*(.004)*	*(.009)*	*(.012)*
Altitude	.010**	.013		--.011	--.001		--.035***	--.028	
	(.004)	*(.008)*		*(.011)*	*(.022)*		*(.009)*	*(.019)*	
Slope	--.008**	--.008		--.183***	--.190***		--.155***	--.161***	
	(.004)	*(.006)*		*(.008)*	*(.018)*		*(.007)*	*(.016)*	
Coastal location	.083***	.091***		.098***	.020		.092***	.016	
	(.013)	*(.026)*		*(.034)*	*(.071)*		*(.031)*	*(.062)*	
Capital city	.242***	.202***		--.300***	--.315**		--.375***	--.367***	
	(.022)	*(.052)*		*(.063)*	*(.145)*		*(.057)*	*(.127)*	
South	--.648***	--.623***		--.566***	--.548***		--.211***	--.222***	
	(.010)	*(.021)*		*(.024)*	*(.057)*		*(.021)*	*(.050)*	
Adj. R2:	.583	.561	.617	.507	.506	.682	.464	.441	.817
Dummy Year	YES	NO	YES	YES	NO	YES	YES	NO	YES
Observations	12,210	12,210	12,210	12,210	12,210	12,210	12,210	12,210	12,210

Notes. Sources: Census data, Anci (*Le Misure dei Comuni*) e Istituto Carlo Cattaneo (*Atlante Storico Elettorale d'Italia*). Civic capital is measured with voter turnout at the Parliamentary elections (Chamber of Deputies). Regressions are weighted using city population. Robust standard errors are reported in parentheses. * (**) [***] denotes statistical significance at the 10% (5%) [1%] level.

Table 4.
Civic capital and economic performance: LS results.

	(1)	(2)	(3)	(4)	(5)	(6)
Period:	1951	1961	1971	1981	1991	2001
			Panel A. Outcome: Employment Rate			
Civic capital	2.850***	1.952***	1.215***	1.073***	0.904***	0.949***
	(0.323)	*(0.203)*	*(0.165)*	*(0.094)*	*(0.097)*	*(0.118)*
Adj. R2:	.38	.40	.57	.56	.51	.57
			Panel B. Outcome: Employment Density			
Civic capital	2.702***	2.963***	1.791***	1.630***	1.703***	2.111***
	(0.598)	*(0.408)*	*(0.390)*	*(0.259)*	*(0.260)*	*(0.258)*
Adj. R2:	.31	.40	.50	.53	.54	.59
			Panel C. Outcome: Plant Density			
Civic capital	1.559***	2.196***	1.033***	0.976***	1.173***	1.472***
	(0.479)	*(0.344)*	*(0.309)*	*(0.239)*	*(0.239)*	*(0.222)*
Adj. R2:	.24	.32	.42	.47	.48	.52

Notes. Sources: Census data, Anci (*Le Misure dei Comuni*) e Istituto Carlo Cattaneo (*Atlante Storico Elettorale d'Italia*). Civic capital is measured with voter turnout at the Parliamentary elections (Chamber of Deputies). Regressions are weighted using city population. Specifications include: elevation of the municipality (meters), a dummy that takes on the value of one if the municipality is located on the coast, a dummy that takes on the value of one if the municipality is a provincial capital, difference in elevation within the municipality (meters), city population and its square, a dummy for the municipalities located in the south. Number of observations are the following: 2,002 (for 1951); 1,994 (1961); 2,024 (1971); 2,049 (1981); 2,073 (1991), and 2,068 (2001). Robust standard errors are reported in parentheses. * (**) [***] denotes statistical significance at the 10% (5%) [1%] level.

Table 5.
Civic capital and economic performance: IV results.

	(1)	(2)	(3)	(4)	(5)	(6)
Period:	1951	1961	1971	1981	1991	2001
			2nd STAGE			
			Panel A. Outcome: Employment Rate			
Civic capital	8.327***	5.587***	2.921***	0.506	0.070	0.159
	(1.617)	*(1.320)*	*(0.971)*	*(0.559)*	*(0.631)*	*(0.499)*
			Panel B. Outcome: Employment Density			
Civic capital	11.020***	9.194***	7.936***	3.959***	4.268**	2.672**
	(3.085)	*(2.347)*	*(2.324)*	*(1.555)*	*(1.728)*	*(1.170)*
			Panel C. Outcome: Plant Density			
Civic capital	6.061***	6.456***	6.169***	3.551***	4.520***	2.783***
	(2.317)	*(1.900)*	*(1.841)*	*(1.333)*	*(1.576)*	*(1.057)*
			1st STAGE			
Partial F	91.9	77.0	58.9	69.0	49.2	72.5

Notes. Sources: Census data, Anci (*Le Misure dei Comuni*) e Istituto Carlo Cattaneo (*Atlante Storico Elettorale d'Italia*). Civic capital is measured with voter turnout at the Parliamentary elections (Chamber of Deputies). The instrument is voter turnout in 1913. Regressions are weighted using city population. Both first-stage and second-stage specifications include: elevation of the municipality (meters), a dummy that takes on the value of one if the municipality is located on the coast, a dummy that takes on the value of one if the municipality is a provincial capital, difference in elevation within the municipality (meters), city population and its square, a dummy for the municipalities located in the south. Number of observations are the following: 1,949 (for 1951); 1,933 (1961); 1,963 (1971); 1,975 (1981); 1,980 (1991), and 1,977 (2001). Robust standard errors are reported in parentheses. * (**) [***] denotes statistical significance at the 10% (5%) [1%] level.

Appendix.

Table A1.
Civic capital and the employment rate: LS full set of results.

	(1)	(2)	(3)	(4)	(5)	(6)
Period:	1951	1961	1971	1981	1991	2001
Civic capital	2.850***	1.952***	1.215***	1.073***	.904***	.949***
	(.323)	*(.203)*	*(.165)*	*(.094)*	*(.097)*	*(.118)*
Population	.875***	.292	.604***	.609***	.715***	.817***
	(.176)	*(.291)*	*(.130)*	*(.103)*	*(.144)*	*(.139)*
Pop squared	--.032***	--.006	--.025***	--.027***	--.033***	--.038***
	(.009)	*(.015)*	*(.007)*	*(.005)*	*(.008)*	*(.008)*
Altitude	.063***	.002	--.002	.004	.010	.001
	(.014)	*(.013)*	*(.011)*	*(.008)*	*(.008)*	*(.009)*
Slope	.051***	.035***	.020**	.009	.004	--.019**
	(.013)	*(.012)*	*(.009)*	*(.007)*	*(.007)*	*(.008)*
Coastal location	.254***	.139***	.054	.044*	.017	--.023
	(.038)	*(.038)*	*(.035)*	*(.026)*	*(.027)*	*(.032)*
Capital city	.215***	.049	.154***	.305***	.397***	.262***
	(.055)	*(.080)*	*(.050)*	*(.043)*	*(.045)*	*(.048)*
South	--.638***	--.676***	--.818***	--.574***	--.483***	--.662***
	(.029)	*(.028)*	*(.029)*	*(.022)*	*(.024)*	*(.028)*
Adj. R2:	.38	.40	.57	.56	.51	.57
Observations	2,002	1,994	2,024	2,049	2,073	2,068

Notes. Sources: Census data, Anci (*Le Misure dei Comuni*) e Istituto Carlo Cattaneo (*Atlante Storico Elettorale d'Italia*). The dependent variable is the employment rate. Civic capital is measured with voter turnout at the Parliamentary elections (Chamber of Deputies). Regressions are weighted using city population. Robust standard errors are reported in parentheses. * (**) [***] denotes statistical significance at the 10% (5%) [1%] level.

Table A2.
Civic capital and the employment rate: IV full set of results.

	(1)	(2)	(3)	(4)	(5)	(6)
Period:	1951	1961	1971	1981	1991	2001
Civic capital	8.327***	5.587***	2.921***	.506	.070	.159
	(1.617)	*(1.320)*	*(.971)*	*(.559)*	*(.631)*	*(.499)*
Population	.628***	.161	.629***	.601***	.713***	.811***
	(.216)	*(.286)*	*(.141)*	*(.103)*	*(.141)*	*(.130)*
Pop squared	--.022**	--.002	--.028***	--.026***	--.032***	--.037***
	(.011)	*(.014)*	*(.008)*	*(.006)*	*(.007)*	*(.007)*
Altitude	.054***	.009	.008	--.000	.003	--.007
	(.015)	*(.014)*	*(.012)*	*(.009)*	*(.010)*	*(.010)*
Slope	.114***	.068***	.031***	.005	--.002	--.025***
	(.022)	*(.015)*	*(.011)*	*(.009)*	*(.009)*	*(.009)*
Coastal location	.299***	.145***	.062*	.039	--.003	--.043
	(.046)	*(.041)*	*(.036)*	*(.027)*	*(.032)*	*(.035)*
Capital city	.205***	.041	.169***	.299***	.387***	.235***
	(.062)	*(.080)*	*(.051)*	*(.045)*	*(.047)*	*(.051)*
South	--.559***	--.541***	--.748***	--.707***	--.680***	--.849***
	(.048)	*(.086)*	*(.102)*	*(.071)*	*(.093)*	*(.078)*
Adj. R2:	.28	.33	.54	.55	.48	.55
F 1st stage	91.9	77.0	58.9	69.0	49.2	72.5
Observations	1,949	1,933	1,963	1,975	1,980	1,977

Notes. Sources: Census data, Anci (*Le Misure dei Comuni*) e Istituto Carlo Cattaneo (*Atlante Storico Elettorale d'Italia*). The dependent variable is the employment rate. Civic capital is measured with voter turnout at the Parliamentary elections (Chamber of Deputies). Regressions are weighted using city population. Robust standard errors are reported in parentheses. * (**) [***] denotes statistical significance at the 10% (5%) [1%] level.