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Long-term Persistence (*)

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Long-term Persistence[1]

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Abstract

We study whether culture has an independent role in creating persistence of institutional shocks by testing whether today's notable differences in civic capital between the North and the South of Italy are the legacy of the medieval free city-state experience of the Middle Ages. We show that cities that experienced self-government in the Middle Ages have more civic capital today. This effect is observable even *within* the North and persists even accounting for the fact that cities did not become independent randomly. We conjecture that this effect persisted over time through the intergenerational transmission of attributional styles (i.e., the way people explain the events they experience to themselves). Consistently, we find that fifth-graders in former city-states exhibit a less pessimistic attributional style, which itself is correlated with a higher level of civic capital.

JEL: O43, P16, O10
Keywords: social capital, culture, persistence, institutions, attributional style.

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Having no savings, he must always dread what is likely to happen. What for others are misfortunes are for him calamities…. Fields may be washed away in a flood. Hail may beat down the wheat. Illness may strike. To be a peasant is to stand helpless before these possibilities. But neither his present hunger nor his anticipation of worse to come fully accounts for the peasant's deep dissatisfaction. There are primitive societies in which the level of biological well-being is even lower, but in which people are not chronically unhappy. What makes the difference between a low level of living and "la miseria" comes from culture. Unlike the primitive, the peasant feels himself part of a larger society which he is "in" but not altogether "of".

Edward C. Banfield, "The Moral Basis of a Backward Society" 1958

Although history holds examples of spectacular economic success stories, relative national levels of economic development tend to be quite persistent over time. The per capita income of European countries at the end of the twentieth century had a 0.56 correlation with their per capita income at the beginning of the century. Even over the 300-year span from the eighteenth to the twenty-first century the correlation is 0.23.[2] The correlation persists despite the massive destruction of physical and human capital in Europe's recurrent warfare. Why are these differences in economic development so persistent?

In an influential paper, Acemoglu et al. (2001) attribute the phenomenon to the long-lasting effect of formal institutions, such as protection of property rights and limitations on the power of the executive. Ingrained into a country's legal rules, these institutions tend to endure over the centuries. Consistent with this view, they find that countries inhospitable to white men still suffer of low property rights protection and excessive executive power because the European colonizers, who did not intend to stay, designed legal institutions aimed at extracting rather than creating value.

This influential explanation faces three objections. First, how can we differentiate the role of legal institutions from that of the culture and the human capital that the colonizers brought to the colonies (Glaeser et al. 2004)? Second, if persistence depends on legal institutions, why should these be so persistent themselves? After all, they are designed to be changeable. Even constitutions, the least flexible of legal institutions, are often changed: Argentina, which has had four different constitutions in the last 60 years, is a case in point. Finally, can we completely reject the hypothesis that persistence depends on geographical factors?[3]

An alternative interpretation, going back to Putnam et al. (1993), attributes the relative constancy of relative economic development to cultural persistence. Williamson (2000) claims

[2] These results are obtained using Maddison (2001).

[3] Acemoglu et al. (2001) are well aware of this problem and argue that the diseases that were once a serious problem (yellow fever and malaria) no longer represent a major source of comparative disadvantage today. Still, other geographical factors impeding economic development could be at the origin of this persistence.

that culture is the most persistent of all institutions and, unlike legal institutions, has no explicit mechanisms for amendment. Yet even Williamson (2000) is not clear *why* and *when* culture is so persistent. For example, sexual mores in the West did change rapidly with the introduction of the contraceptive pill (Fernández-Villaverde et al, 2011). Does culture persist only when it is optimal, or does it tend to outlive its usefulness and the environment that generated it?

To address these questions we revisit Putnam's hypothesis. In *Making Democracy Work*: *Civic Traditions in Modern Italy* (1993), he conjectures that regional differences in trust and cooperation (civic capital) can be traced back to the history of independence that certain cities experienced in the first few centuries of the second millennium. In addition to positing a clear logical link, Putnam's conjecture has two further advantages. First, it traces the origin to an historical event whose formal institutions have long disappeared, facilitating the identification of the cultural effect. And second, while it was concentrated in the Northern part of Italy, the free city-state experience did not involve all the major cities in this area. It is possible, then, to look *within* the North to determine whether the cities that experienced a period of independence as free city-states have a different level of civic capital today, more than 800 years later, from those that did not. Third, the richness of our data allows us to probe deeper into the mechanisms that lead to cultural persistence.

To test the conjecture, we first compare current levels of civic capital in different cities within the North of Italy. Following Putnam et al. (1993), our first measure of civic capital is the number of non-profit organizations per capita. We complement this with two new measures. As we observe in Guiso, Sapienza, and Zingales (2008), for an outcome-based measure to qualify as a good gauge of civic capital, the relationship between the input (civic capital) and the output measure should be stable and unaffected by other factors, such as legal enforcement. One such output is donation of blood or organs. So as a second measure of civic capital we use the existence of an organ donation organization. Finally, in the spirit of Fisman and Miguel (2007), we use frequency of children's cheating on a national examination.

Consistent with Putnam's conjecture, we find that the Northern cities that experienced a period of independence in the early Middle Ages have significantly higher levels of civic capital today by all three measures. For example, the number of voluntary associations is 25% higher in cities that were once free city-states.

While general geographical conditions within the region of the North are similar, this test alone cannot rule out the possibility that some subtler geographical characteristics, such as closeness to the sea or elevation, may affect both civic capital and the probability of a city's becoming a city-state. Accordingly, in our regressions we control for several morphological

characteristics; however, we also address the problem directly by historical research to identify exogenous determinants of the rise of independent municipalities.

Our reading of medieval history (among others, Reynolds, 1997; Milani, 2005; Jones, 1997; Tabacco, 1987; Pirenne, 1956) suggests that bishops played a key role in coordinating local citizens in their struggle against the Emperor for independence. Therefore, we use the presence of a bishop before the year 1000 as one predictor of eventual free city-state status.

Another natural factor is strategic military position. Cities on hilltops or surrounded by waters were easier to defend militarily and hence more likely to succeed in rebelling against the Emperor and becoming independent. As a proxy for strategic position we use foundation by the Etruscans. The Etruscans (ninth century BCE), who populated an area stretching from Mantua in the North to Salerno in the South, were the first Italian civilization to be organized in the form of city-states. Since they had "first mover" advantage, they tended to locate their cities in positions that were easy to defend, so that Etruscan origin is a good proxy for strategic location, as the picture of their capital Orvieto (Figure 1 in the Appendix) suggests.

Both of these instruments are very good predictors of a city's becoming independent; and both pass the weak instrument test (the *F*-test of the exclusion restriction is 60). When we use these instruments, the results are substantially unchanged.

The problem with all instrumental variables is that they have to be orthogonal to the error. This assumption is generally not testable, because we lack a counterfactual in which the instruments are prevented from affecting the variables they instrument for but can affect the outcome. However, our historical experiment does provide such an opportunity, because the formation of a strong Norman kingdom in the South of Italy eliminated both the need and the opportunity for the emergence of free cities. Thus, we can test whether our instruments (presence of a bishop and Etruscan origin) have some effect on civic capital in the South, where free city-states did not arise. In fact, we find that they do not, which strengthens our confidence that the causal channel is not some unobserved geographical factor.

Having answered the question of where a certain culture is coming from, we try to answer why and how such a historically remote experience can leave a legacy after over 500 years. As the epigraph suggests, Banfield attributes the typical attitude of southern Italians to a feeling of helplessness (*la miseria*). Can a positive or negative historical experience affect an entire population's sense of helplessness? Can such an attitude be handed down for generations and generations? Is this helplessness – as Banfield's evidence suggests – related to civic capital?

To link Banfield's thesis with Putnam's, we extend Seligman (1972) theory of learned helplessness. Seligman (1972) and Mayer and Seligman (1976) find that individuals who are

exposed to an adverse event outside their control become helpless and develop an attitude that impairs their willingness to exert effort to improve their lives. Helpless people blame themselves for negative events and attribute positive ones to external factors. Helplessness is measured with an attributional style questionnaire concerning the way in which people explain to themselves why they have experienced a particular event (Peterson et al., 1982). As research in psychology shows (Seligman et al., 1984 and Dweck et al., 1978), this attitude is transmitted through education and socialization.

The theory of learned helplessness has focused mostly on individual experience, but this effect should be all the more observable at the level of a society. If the negative or positive event affects an entire society, this attitude can be more widespread in a population. If widely shared, this attribute will be transmitted to the next generation through socialization and formal and informal education.

Thus we can measure the cultural transmission of a historical event by looking at differences in the attributional styles of young children in similar geographical areas that have had different histories. Consistent with our hypothesis, we find that fifth-graders in Northern cities that did not have the free city-state historical experience display a more negative attributional style than their peers living in former city-states.

In the logical chain between past history and today's civic capital, the last missing link is the relation between attributional style and civic capital. Team effort is intrinsically subject to a problem of attribution (Alchian and Demsetz, 1972): how much does an individual's effort translate directly into higher output, and how much does it work indirectly by prompting others to exert more effort? Individuals with a positive attributional style expect their own impact (both direct and indirect) to be greater, increasing their willingness to contribute. Hence, cooperative behavior is more likely to occur among people with a positive attributional style, whereas societies in which helplessness is more common will tend to have lower levels of civic capital. We use our data to test this hypothesis and find that towns exhibiting a higher degree of helplessness in fact have lower levels of civic capital.

There is a growing literature on cultural persistence. Some papers deal with the theory of how culture is transmitted and why it persists. One of the earliest works in this vein is Bisin and Verdier (2000), who trace cultural transmission to parents' desire for their children to have values similar to their own. Similarly, Tabellini (2008) sees the source of cultural persistence as parents' use of their own preferences to decide which set of values to instill in their children. Guiso, Sapienza and Zingales (2008) argue that the persistence of the "wrong" type of culture depends on bias in the transmission mechanism: parents are more likely to bear the cost of children's

mistakes' than to enjoy the benefits of their successes, so they are risk-averse in the values they choose to transmit.

Another branch of this literature takes an empirical approach to the persistence of cultural attitudes over long periods of time.[4] Nunn and Wanchekon (2011), for instance, show the long-term persistence of the effects of the slave trade on Africa's level of trust today. Similarly, Voigtländer and Voth (2012) document a very strong correlation between the level of German anti-Semitism in 1350 and its level in the 1920s and 1930s. Other work demonstrates how cultures functional to a given technology may survive many centuries after that technology's disappearance. Grosjean (2011), for instance, studies a culture of violence functional to a pastoral society; Alesina et al. (2013) examine the diffusion of the plow in agriculture (which gave a comparative advantage to men over women).

We provide novel evidence for this long-term persistence, and – more important – we identify a new mechanism for long-term cultural transmission with evidence supporting its effective operation. Unlike that of Bisin and Verdier (2000 and 2001), the psychological transmission mechanism that we identify is not the result of parental optimization but the involuntary product of parents' biases.

The rest of the paper proceeds as follows. Section 1 provides a brief primer on Italian medieval history, illustrating the logical connection between the conquest of political independence and the development of civic capital. Section 2 describes the data. Section 3 analyses of the effect of the free city-state experience within the Northern part of Italy. Section 4 presents a test of the orthogonality of the instruments. Section 5 extends Seligman's (1972) learned helplessness theory to an entire society and tests it. Section 6 concludes.

1. A primer in Italian medieval history

1.1 Civic capital and the free city-state experience

The term "social capital" has been used to indicate several often quite divergent concepts. Following Putnam et al. (1993) and Fukuyama (1995), we identify social capital as "those persistent and shared beliefs and values that help a group overcome the free rider problem in the pursuit of socially valuable activities" (Guiso, Sapienza and Zingales, 2011). We refer to this asset as "civic capital".

[4] There is also a growing literature on cultural persistence over shorter periods of time; see Algan and Cahuc (2010), Fernandez (2007), Giuliano (2006), Guiso, Sapienza and Zingales (2006), Fisman and Miguel (2007), and Tabellini (2010).

The question is how these values and beliefs arise and how they are transmitted over time. The Italian free city-state experience offers an interesting natural experiment. As we explain below, a number of historical accidents (the presence of a religious authority, strategic location, and distance from the imperial army's headquarters) determined why some towns achieved successful cooperation in such activities as defending themselves, while others did not. And since these historical conditions and the resulting institutions are long gone, this setting allows us to study whether an experience of cooperation may leave a legacy of values and beliefs that survive the circumstances that originally determined them.

1.2 The rise of the free city-states

At the end of the first millennium the Italian regions were part of the Holy Roman Empire, which was on the way to disintegration. Between 1061 and 1091 the Normans invaded the Southern part of Italy and formed a strong state, which guaranteed order and stability. By contrast, in the North the vacuum created by the demise of the imperial authority led to the emergence of a number of independent city-states.

The first nucleus in the emergence of these city-states was the establishment of a "sworn pact" (*patto giurato*) in which a town's inhabitants agreed to provide mutual help and collaborate to solve problems of common interest (Prodi, 1992). In some cases these pacts were enforced by the threat of exclusion from trade (Milani, 2005), a very costly punishment at a time when trade opportunities were very profitable. In others (e.g. Pisa), a third party – the city bishop – was assigned to act as guarantor. His presence added another enforcement mechanism: the threat of exclusion from religious communion (Tabacco, 1987).

The pre-eminent common interest was defense against the Emperor's claim to continued power. This battle culminated in 1176 when a league of free cities (communes) in the North of Italy, the Lombard League, defeated Emperor Fredrick I at the Battle of Legnano.

Unlike the Norman kingdom, the communes made their rules, laws, and formal decisions in the name of the people, because political power was said to derive from the people, not from some religious authority or divine right. While the medieval communes should not be equated with modern democracies, they did introduce many aspects of the system that today goes under the name of "rule of law." For example, government officials' actions were subjected to the control of ad hoc institutions, including courts of law to which citizens could appeal (Galizia, 1951).

1.3. *From the Commune to the Signoria: evolution and dissolution of the Italian city-states*

In the course of the fifteenth century, Italian communes began to confer life-long power on a single person – the Lord or *Signore*, hence the name *Signoria*. In several cases the Signoria retained the fundamental institutions of the commune, including the principle that power originated from the people and was to be exercised in the people's name. In cities such as Florence and Genoa, the Signoria also preserved the political institutions and the personal liberties that had characterized the commune period. In this sense the Signoria was a continuation and transformation of the commune (as is maintained by Prezzolini, 1948 and Chittolini, 1999), which might have allowed the civic culture to become more deeply rooted, especially by comparison with the cities that were conquered and subjugated by other towns or foreign powers.

1.4 The lasting legacy of the communes

Having seen the way in which the rise of the communes was logically linked to the development of civic capital, we can now test Putnam's conjecture that the differences between the various cities in this original endowment of civic capital have survived down to the present. Section 5 examines the mechanisms through which these differences have persisted through time.

1.5. *Why do some towns acquire independence while others do not*?

Before conducting the tests, however, we need to explain why the institution of the commune (and thus civic spirit) did not spread homogeneously throughout the Italian territory. Paradoxically, the reason why southern Italy did not develop independent communes is because it did not *need* them: law and order were ensured by the highly autocratic and efficient Norman kingdom (Putnam et al., 1993 and Kantorowicz, 1931). Between 1061 and 1091, the Normans invaded the area south of Rome and formed a feudal monarchy, which continued in one form or another right up until Italian national unification in 1861.

The Norman kingdom brought peace and prosperity to the South. By the end of the twelfth century, Sicily was the richest, most advanced state in Europe. But its hierarchical form of government inhibited the formation of independent city-states and so, according to Putnam, prevented the accumulation of civic capital.

The same factor – a strong central power in place – explains why communes were rare or non-existent in certain areas of the North. Along the eastern frontier of the Holy Roman Empire, for example, Charlemagne had built some military strongholds, strengthening the Emperor's power in the surrounding areas.

The town of Senigallia (in the Marche Region not far from Ancona) is one of these areas. Trieste, a relatively important town in the easternmost part of Italy, is another. Unfortunately,

information about the location of the imperial power is too coarse (we only have it at the regional level) to be used as an instrument.

However, two other factors linked to the costs and benefits of achieving independence can explain the heterogeneity in the North and serve as instruments. First, local ability to solve the coordination problem and provide military protection was enhanced by the presence of a religious authority (Tabacco, 1987). Empirically, we can measure this with a dummy variable equal to one if the town was the seat of a diocese by the year 1000 CE.

Second, the possibility of survival of an independent power was greatly strengthened by strategic considerations. A town like Orvieto, which is located on top of a cliff (see Figure 1 in the Appendix), could defend itself more easily (especially before the invention of firearms), than a city in the middle of a plain. Since this advantage is not easily identified directly, we use earlier history to help us determine it. The first civilization in Italy to organize as free city-states was the Etruscan (ninth century BCE), which stretched from Mantua in the north to Salerno in the south. Since the Etruscans had first-mover advantage, they chose to locate their cities in positions that were easy to defend (not coincidentally, Orvieto was the capital of the Etruscan confederation). Hence, we use Etruscan origin as predictor of a town's ability to become a commune after year 1000 CE.

2. The Data

2.1 *Identifying the communes*

As observed above, free cities could emerge only in the parts of Italy that were under the Empire at the beginning of the second millennium (see Figure 2 in the Appendix). We focus on this area, which comprises twelve of Italy's present-day regions (Piedmont, Valle D'Aosta, Liguria, Lombardy, Trentino, Veneto, Friuli-Venezia Giulia, Emilia-Romagna, Tuscany, Umbria, Marche, and Lazio).[5]

Historians appear to be agreed that a commune, properly so called, needs to meet four criteria: it should have consuls as part of its institutions; it should have its own institutions to administer justice; it should have some military power and military activity; and finally, it should have its own territory (the *contado*) to administer (Milani, 2005). Assessing the satisfaction of

[5] Since Sardinia was neither part of the Holy Roman Empire nor under Norman domination, we have excluded it from the sample altogether. We also dropped Rome, given its truly unique history, as an exceptional case.

these conditions in all the cities in our sample is extremely difficult, however, and errors are inevitable; as far as we know, there is no comprehensive history of communes in Italy.

We chose instead to start with a prominent historical atlas (the *De Agostini Historical Atlas*) and checked that all the towns reported as independent in the atlas fulfill our four standards. This may underestimate the number of free cities by excluding some; our procedure is accordingly biased against finding any effect of communes.

Since the status of independence changes over time, we chose to focus on two historical moments. The first, 1176, is when the northern communes organized into the Lombard League to fight against Emperor Frederick I, or Frederick Barbarossa (see Figure A.2). We then checked our results using the list of independent cities in 1300 CE, when the free city-state movement was at its height before the emergence of the Signoria (see Figure A.3).

As we can see, communes were spread all over northern Italy, but the phenomenon was more intense in certain regions (Tuscany and Emilia) than in others (such as Lazio or Marche). One controversial case is Venice. While clearly independent, Venice is not classified as a commune because it was an oligarchy, with a different set of institutions. To be consistent with our source, we classified Venice as a "non-city-state," but our results are robust to treating it as a commune.

For these communes, consulting several historical sources (see Appendix) we constructed a measure of duration of independence. Using the same sources, we also devised an indicator for whether or not the independent city evolved into a Signoria. See the Appendix for more details.

2.2. *Measures of Civic Capital*

Putnam et al. (1993) takes the presence of non-profit associations as the main indicator of civic capital. We follow suit and as our first measure we use the total number of non-profit associations present in a town in 2000. Since this information comes from the 2001 census, it has the great advantage of counting *all* non-profit organizations (excluding Church-based voluntary organizations).[6] Moreover, it is readily available for all municipalities**.** On average, there are 6.4 non-profit associations per thousand people (Table 1.A).

As we noted in Guiso, Sapienza and Zingales (2011), for an outcome-based measure to qualify as a reliable indicator of civic capital, the relationship between the input (civic capital) and the measured output should be stable and not affected by other factors, such as legal

[6] This feature is particularly important in smaller towns where, given fixed costs of establishment, only certain types of organization might be present.

enforcement. These conditions are not generally found, but there are some particular situations in which they are likely to be met.

One such instance is donation of blood or organs. Since there is no economic payoff to either type of donation and no legal obligation to donate, the decision to donate can be seen as a direct measure of individuals' internalization of the common good. Donating organs and/or blood provides insurance to others, with no direct compensation for the person providing it. Guiso, Sapienza and Zingales (2004) use blood donation data at the provincial level. But at town level these data are subject to some problems. First, in some regions (e.g. Tuscany) there are several voluntary organizations of blood donors, which do not keep the same quality records as Italy's principal donors' organization, Associazione Volontari Italiani Sangue (AVIS). Their activity is negligible at the provincial level, but not at the municipal level, particularly in smaller towns where they compete with AVIS. Second, people may donate blood where they work and not necessarily where they live, which clouds the town-level measure. Accordingly we have replaced this measure with an indicator for the existence in the town of an organ donation association. This measure has the same virtue as blood donation (i.e., it cannot be explained by economic motives) but is less subject to errors since there is only one organ donation association, Associazione Italiana Donatori Organi (AIDO). The Appendix provides additional details on how these variables are constructed and their sources. There is an organ donor association in 4.4% of Italian municipalities.

Another example of a legitimate outcome-based measure of civic capital is Fisman and Miguel (2007) a work on parking violations by United Nations officials in Manhattan. Until 2002, diplomatic immunity protected U.N. diplomats from enforcement, so only cultural norms prevented them from parking illegally. Building on this idea, we use the pervasiveness of cheating in national math tests. Since 2008 Italian eighth-graders have taken a national standardized test in reading and math conducted by Istituto Nazionale per la Valutazione del Sistema educativo di Istruzione e formazione (INVALSI).

The test is administered to more than half a million students in 6,000 schools in 3,400 cities. The data released by INVALSI include a measure of cheating: the estimated probability that an observed outcome is due to cheating.[7] We average this INVALSI measure at the city level

[7] This estimate is based on the concentration of similar wrong answers in a class in the presence of very low variation across answers and very high average scores. The actual method used is a fuzzy c-means clustering (Dunn 1973; Bezdek 1981). For details see INVALSI (2010).

and divide it by its standard deviation to obtain a standardized measure of cheating. On average this measure is 2.1.[8]

2.3 *Other historical variables and city controls*

We have also gathered a number of additional historical variables that we use as controls or instruments in our regressions. First, based on an historical atlas we determine which towns were seats of dioceses before 1000 CE.[9] In our North sample we find eighty-six such towns.

Second, we obtained information on towns' Etruscan origin from Antonello Montesanti, an archeological expert. Moving from Etruria – the region corresponding approximately to Tuscany, Umbria and northern Lazio – Etruscans founded two additional clusters of towns, one to the North in today's Romagna and one to the South in Campania. Since the Etruscans believed in the magical power of the number twelve, these clusters consisted of twelve cities each. Twenty-three of the twenty-four Etruscan towns in the North can be mapped into current towns, but only eight of the twelve in the South.

Another factor in independence, of course, is a town's size. Here we use data from Bairoch et al. (1988). Since population data for 1000 CE are very scarce, we use those for 1300 CE – earliest data available for a large enough number of towns. And to determine whether a town was located at a Roman crossroads we use the *Touring Club Historical Atlas*.

Finally, all the other variables (including geographic controls and per capita income and wealth) are from "Le Misure dei Comuni", 2003–2004 edition, a database assembled by the association of municipal administrations, which reports over 320 variables at municipal level. The Appendix provides more details about definitions and sources. Table 1 shows summary statistics.

2.4 *Cultural Measures*

As part of the INVALSI national test, eighth graders also undergo a psychological test based on the attributional style questionnaire of Peterson et al. (1982), which elicits bias in interpreting positive and negative events. Attributional style is captured by asking students to interpret eight different situations, five positive events (successes) and three negative (failures). All the situations relate to tasks that the students perform at school. A typical question is: "Your teacher asks to do a project for Christmas. Your performance is so bad that you have to do the assignment over. How do you explain this?" The possible explanations from which the student has to choose

[8] We focus on the level of cheating in math because on average it is higher, but for reading the results are similar.

[9] See "Italia altomedioevale: sedi vescovili" in *Atlante Storico Treccani*, Volume I, Rome, 2007.

are: a) I had no help; b) I was unlucky; c) It was difficult; d) I lack ability; e) I did not try hard. The wording of all the questions is given in the Appendix. In Section 5 we show in detail how we use these answers to construct a measure of helplessness.

3. Core analysis

We start by analyzing the variation in civic capital within the North. Since the measures of civic capital we use tend to be noisier for smaller towns, we use the weighted least squared method, weighted by the population in 2001.

Our first measure of civic capital is the number of non-profit organizations divided by the 2001 population (Table 2, Panel A). In column 1, we regress this measure on a simple indicator of whether a town was a free city in 1176 and several geographical controls. To control for mountain location we insert the average elevation. To control for geographically-driven differences in the cost of interaction, we insert the maximum elevation difference within the municipality's territory. We also control for coastal location (i.e. within five kilometers of the sea). Finally, as a measure of size, we control for the number of inhabitants (thousands of people) in 2001. Since we are unsure how population affects civic capital, we insert both population and its square.

The impact of the free city-state experience is large and statistically significant at the 1% level. Towns that were communes have two more associations per thousand inhabitants (30% more than the average). This is only half of the difference in civic capital between North and South, but it is estimated using only the variation within the North.

Another known determinant of civic capital (Alesina and La Ferrara, 2002) is income inequality. For this reason, column 2 adds two Gini measures of inequality: in land ownership and in pre-tax income. These additions run the risk of overcontrolling, since inequality could be an effect rather than a cause of persistently low civic capital. Surprisingly, greater income inequality leads to more civic capital, as measured by the number of non-profit associations per capita, but this effect is due to the lack of a control for per capita income. When we introduce this control (column 5) the effect vanishes. Regardless, the impact of once having been a commune remains unchanged.

While we control for population and population squared, it is still possible that our estimated effect may only reflect some non-linearity between city size and civic capital. For this reason, in column 3 we drop the largest towns (more than 120,000 inhabitants in 2001). The effect of the free city-state experience remains unchanged.

Two thirds of the medieval city-states are provincial capitals today. This administrative role could confer a different status on the city, possibly affecting the level of civic capital. For example, associations might find it convenient to be located near the local administration. For this reason, in column 4 we drop all provincial capitals from the regression. The effect of the commune experience is undiminished.

Glaeser et al. (2002) show that individual investment in social interaction increases with per capita income. Since towns that became independent in the Middle Ages were likely to be richer, the free city-state experience might be a proxy for unobserved characteristics that make for prosperity.[10] To address this issue we would like to be able to factor in per capita income in 1100 CE. Unfortunately, no such measure is available, so we have to resort to today's per capita income. This specification will clearly underestimate the impact of the free city-state experience because, as Knack and Keefer (1996) show, civic capital itself fosters growth, so that the greater civic capital generated by the city-state experience translates into higher per capita income.

As column 5 shows, wealthier towns do in fact display a higher level of civic capital, so, as expected, the insertion of this variable reduces the impact of the free city-state experience on today's level of civic capital. The effect of the communal experience, however, remains positive and economically and statistically significant.

Finally, in column 6 we add four area dummies to capture possible unobserved heterogeneity in civic capital across regions within the North (Northeast, Northwest, Center-North, and Center) due to other historical factors. These dummies (not reported) are all statistically significant, but inserting them does not change the impact of the free city-state experience on civic capital.

In the first three columns of Table 2, Panel B, we repeat the estimation using our second measure of civic capital, the presence of an organ donation association. Again the effect of the city-state experience is positive and statistically significant in all the specifications. Having been an independent city-state increases the probability of having an organ donation association by 41%.

[10] Of course the fact that some very wealthy towns in the South, such as Salerno and Palermo, even richer than Northern towns, did not become free cities suggests that what was driving independence was historical accident more than unobserved prosperity.

In the remaining three columns of Table 2B we run the estimate using our measure of cheating. Here the effect is negative and statistically significant in all specifications. Having been a free city-state decreases our standardized measure of cheating by 13% of the mean.[11]

The concentration of free city-states among the larger cities suggests the possibility that our sample is too heterogeneous and that even controlling for size and size squared, the coefficient of our explanatory variable might be a spurious effect. Accordingly, we select the 400 largest cities. To minimize possible survivorship bias they are selected according to the earliest Census data (immediately after national unification in 1861). Table A1, Panel A, in the Appendix shows that the effect is roughly halved when the sample is restricted to these cities, but it still remains both quantitatively meaningful and statistically significant.

The advantage of this reduced sample is the availability of more sophisticated controls for the towns' history: a dummy for being located at an ancient Roman crossroads, one for being along the itinerary of Emperor Henry IV (who in 1083 came down to Italy to assert the Imperial power), one for having been a Roman colony, one for having belonged to a marquis and, finally, two dummies for medium and large size in 1300. The effect of the free city-state variable on all three measures of civic capital is unchanged.

As an additional robustness test (Table A1, Panel B), for each measure of civic capital we report the main specification estimated by Ordinary rather than Weighted Least Squares. The results are substantially the same, except that the city-state experience is not statistically significant for the gauge based on cheating. This result is not too surprising, however, given the large amount of noise in this measure (especially for small towns), which reduces the level of statistical significance when not appropriately weighted.

Finally, in Table A1, Panel C, we check the robustness of the result to the definition of the set of free cities by combining the definitions as of 1176 and as of 1300. The results are substantially unchanged.

3.2 More detailed history

Thus far we have treated all the free city-state experiences as comparable. For a number of reasons, however, this approach is inadequate. First, the length of the period of independence varied considerably. Second, the towns' history after the end of the city-state differed: some were dominated by neighboring towns, others were transformed from commune into Signoria. Finally,

[11] The estimated coefficient is significant also in all the other specifications reported in Table 2A except that in which we drop the largest towns. While this sample eliminates only 19 observations, 17 represent former city-states, reducing the sample of these by 26%.

the quality and degree of autonomy of the free institutions were very different from place to place. In this section we explore whether these differences affect the various municipalities' civic capital today.

Table 3 starts by analyzing the effect of the duration of independence (Panel A). As noted, this measure is very noisy, insofar as the exact date of independence is often a matter of judgment. Since many of the factors that determined the formation of the city-states also determined the duration of independence, in order to isolate the effect of the latter we use a two-step Heckman estimator. As we show in section 3.3, there are several variables that help predict the achievement of independence, but all of them -- except for being a diocesan seat -- are likely to affect its duration as well. Accordingly our identifying restriction is that the local presence of a bishop helped to overcome the initial coordination problem but did not affect a city's ability to remain independent.

The first column shows the results of the estimates for the number of non-profit organizations. The duration of independence has a positive and statistically significant effect on this measure of civic capital. However, the effect is small: starting with 206 years of independence (the sample mean) and increasing it by one standard deviation (about 100 years) raises the number of non-profit organizations by 2.3% of the average among the formerly independent cities. Given that this measure is quite noisy, it is possible that our estimates are biased downwards and are actually a lower bound of the true effect.

The second column shows civic capital as measured by organ donation organizations. Here, although the estimated coefficient is again statistically significant, the effect is even smaller: at the sample mean a 100-year lengthening of independence raises the probability of having an organ donation organization by only 9 percentage points. The duration of independence also predicts the probability that students will cheat. These results are qualitatively similar to those described above.

In Panel B we study the effect of having become a Signoria after being a free commune. Those that did not evolve into a Signoria generally lost their independence to another commune or Signoria, which entailed the demolition of the local communal institutions and the abrogation of many of the associated rights. We therefore expect the communes that did not evolve into a Signoria to show lower persistence of civic capital.

Having experienced a period of Signoria adds to the level of civic capital (column 1). Ex-Signoria towns have 1.2 more associations per thousand inhabitants than other former free city-states, practically doubling the effect of the latter. The same holds when civic capital is gauged by

organ donation (column 2) but it does not have a significant impact on cheating on the math test (column 3).

In Panel C the variable considered is the *degree* of independence, notoriously hard to measure. As a proxy we use the side that the city took in the struggle against Emperor Frederick I in the middle of the twelfth century. In 1158 Frederick claimed direct Imperial control over Italy. Twenty-four cities in the North formed the Lombard League to combat this claim. We take active participation in the Lombard League as an indicator of the strength of a city's independence. This is especially true by comparison with other free city-states in the North that chose to ally with the Emperor. Finally, twenty-five city-states (mostly located more towards the center of Italy and thus somewhat more sheltered from the Imperial threat) chose to remain neutral. Panel C decomposes the free city-state effect in these three categories.

When we measure civic capital as number of non-profit organizations (column 1), the positive effect of the free city is strongest for Lombard League towns, second for neutral towns, third for Imperial allies. The pattern using organ donation organizations is similar (column 2). In fact, the effect of cities that were part of the Lombard League is 28% greater than that of neutral city-states and almost twice as great as that of the Emperor's allied states. However, when the gauge used is cheating on the math test (column 3) the largest effect is produced by the neutral cities.

That today's civic capital is correlated not only with the free city-state experience but also with the nature of that experience is additional evidence for the causal link between the two phenomena.

3.3 The instrumental variable estimates

While geographical conditions within the Northern part of Italy are broadly similar (especially when we control for the four major sub-regions in the last column of Table 2), it is still possible that some subtler characteristics could affect both civic capital and the probability of having been a free-city-state.

To overcome this objection we need to find an instrument that affects the probability of independence but does not directly affect civic capital. To find such an instrument we go more deeply into the history. As observed in section 1.4, three factors may explain heterogeneity in outcomes in the North. The first (the strong presence of the Imperial army) is tricky. We do not know whether this is cause or effect: at the time of Charlemagne all of Northern Italy was divided into marches, so the survival of strong marches could be the cause of the absence of free city-

states as well as its effect. On the other hand, these indicators would be highly clustered and very closely correlated with our sub-regions.

This leaves two other potential determinants as possible instruments. The first is whether the city was the seat of a bishopric: many historians (Reynolds, 1997; Milani, 2005; Jones, 1997; Tabacco, 1987; Pirenne, 1956) have held that the presence of a religious authority fostered the necessary coordination to acquire independence. The second is whether the city was founded by the Etruscans, as a proxy for strategic location. The example of the Etruscan capital Orvieto, with its cliff-top location, is most suggestive in this regard (see Figure A.1).

Table 4 analyses the explanatory power of these historical instruments. Regressing a free-city dummy on bishopric status and Etruscan origin, both instruments have the expected sign and are highly significant. Towns that had been founded by the Etruscans were 28% more likely to have been free city-states. Similarly, towns that were the seats of bishoprics are 58% more likely to have become free city-states. This result has some independent interest. While the role played by religious authorities in the formation of the communes is mentioned in the writings of many historians, they tend not to present any empirical supporting evidence for it.

We also include a set of geographical controls (column 2). Towns in the mountains are less likely to have been city-states, but so are towns along the coast. The effect of our two instruments, however, is unchanged.

Finally, column 3 includes all the additional controls, making it the first stage in our IV regression of civic capital on the free city-state experience. The F-test for the excluded instruments is 60, reassuring us there is no weak-instrument problem. For a more detailed discussion of the orthogonality of the instruments, see section 4.2. For now, note that having two instruments, we can use the test of over-identifying restrictions to check the validity of these conditions, one at a time.

Table 5 presents the IV estimates for our three measures of civic capital. For number of non-profit organizations (column 1), the positive effect of the free city experience is similar to the WLS estimate and statistically significant at the 1% level. In this case, the test of over-identifying restrictions cannot reject the exogeneity of the instruments. Taking organ donation organizations (column 2), the coefficient estimated by IV is twice as high as the WLS coefficient. By this measure, however, the over-identifying restrictions test is not passed. Finally, when we measure civic capital as the standardized frequency of cheating on the math test (column 3), the negative effect of the free city experience doubles in absolute magnitude with respect WLS. The test of over-identifying restrictions rejects the exogeneity of the instruments.

4. Validating the instruments

A more direct validation of our instruments exploits our knowledge of how history in the South evolved. Since even in the presence of favorable conditions, southern cities could not become independent, we can test the key identifying assumption of our instruments: namely, that they do not have a direct effect on today's civic capital. In other words, if our two instruments are really orthogonal to the dependent variable, we must see that in the South (where they could not affect the formation of free cities) they are uncorrelated with the current level of civic capital, whereas in the North they are correlated.

Table 6, Panel A, presents the results of this test. The first three columns report the reduced-form regression of the instruments on our North sample. As expected, both instruments have a positive and statistically significant effect on our first two measures of civic capital. As to the cheating measure, "bishopric" has (as expected) a negative and statistically significant sign, while Etruscan origin has an effect that is nil both in significance and in magnitude.

The next three columns repeat these regressions for the South sample. Etruscan cities have *less* rather than more civic capital. Overall, we cannot reject the orthogonality of the two instruments to non-profit associations. For organ donation associations, the two instruments have contrasting effects. Bishopric status has a positive and Etruscan origin a negative effect; both are statistically significant. In this case we can reject the instruments' orthogonality to organ donation organizations. Finally, when we use cheating as our measure of civic capital, both instruments are insignificant. In this case, we cannot reject the orthogonality of the two instruments to cheating in math in the South sample.

One further validity check for at least one of our instruments – the bishopric indicator – is to examine the effect of having become a diocesan seat *after* the free city-state period, which as such could not have impacted on the city's achievement of independence. If there is some positive impact of being the seat of a bishopric not linked to the communal experience, it should be observable also in cities that became diocesan seats in the last 800 years. But if bishopric cities have more civic capital today exclusively because the presence of the bishop in the year 1000 CE had facilitated the emergence of the commune, then we should find no positive effect on civic capital in the cities in which bishoprics were created *after* the commune period.

Sixty-three cities in our North sample became the seats of a diocese after the end of the communal experience, i.e. after 1400 CE. In Table 7, Panel B, we report the reduced-form regressions that include as a control the post-medieval bishopric seats. In all cases, the indicator is statistically insignificant, while all the other variables essentially retain their previous coefficients.

That is, this test tends to confirm the thesis that the effect of being a seat of a bishopric arises not directly but through the increased probability of becoming a city-state.

5. The transmission mechanism

It is a well-established thesis that despotic regimes induce lower contemporaneous economic growth, while more participatory regimes are associated with higher growth (see among others De Long and Shleifer, 1993). In recent years, however, attention has shifted to the long-run effects of protracted despotism. So far the focus has been on the legal institutions created by despotic governments (Acemoglu et al, 2001), but despotism may affect people's mind-set as well. To the extent that such effects are transmitted across generations, can they explain the differences in civic capital we have described?

5.1 The Concept of Helplessness

To address this question, we build on an intuition of Banfield (1958) and combine it with the theory of learned helplessness advanced by Mayer and Seligman (1976). In describing the prevalent attitudes of the Italian South (*la miseria*), Banfield (1958) talks about the helpless feeling of the typical peasant. Modern psychological theory has found that this feeling can be the consequence of a traumatic experience. In one famous experiment, Seligman and Maier (1967) subjected 150 dogs to random electric shocks. After a number of inescapable shocks, the dogs did not try to escape from these shocks even when they were given the chance, that is, they became helpless. Nor is the evidence limited to dogs. Nolen-Hoeksema et al. (1986) report that children who have experienced a major uncontrollable event (such as the divorce of their parents) exhibit more signs of helplessness than those who have experienced fewer such events.

There is also evidence that such a trauma, deriving from an adverse historical experience, can impact on an entire population. Oettinger and Seligman (1990) find that before the fall of the Berlin Wall, East Berliners were systematically more helpless than West Berliners even when controlling for factors such as socioeconomic status.

To measure helplessness, psychologists generally use an attributional style questionnaire (Peterson et al., 1982) that elicits how people explain positive or negative events to themselves. People who blame themselves for negative events and ascribe positive ones to luck have a tendency to believe that negative events will persist indefinitely (they are unlikely to disappear insofar as they are caused by one's own defects), while positive ones will be rarer, more fleeting. In fact, psychologists also term this attitude the "pessimistic" or "negative" attributional style.

By decreasing the perceived chances of success, this pessimistic style diminishes the spur to exert effort and makes the individual feel helpless. As Seligman (1995) shows, helplessness tends to lead to depression and lack of resiliency. All the more so, then, a negative attributional style should be expected to undermine the incentive to make an effort to contribute to the common good (i.e., to behave with civic spirit) or to participate actively in a team.

5.2 Attributional Style and Civic Capital

In Guiso, Sapienza and Zingales (2011) we define civic capital as "those persistent shared beliefs and values that help a group overcome the free rider problem in the pursuit of socially valuable activities." To understand how the attributional style can affect civic capital, we therefore need to see how it affects the private provision of a public good. As an example, let us analyze a simple example of provision of a public good: cleaning a park. Each of the *n* users exerts an effort e_i to clean the park. The sum of all these cleaning efforts produces a level of cleanliness equal to $f(\sum_{i=1}^{n} e_i)$. The total welfare generated by this cleanliness equals to $W = \sum_{i=1}^{n} U_i = nU_i$ if all the individuals have the same utility. Each individual maximizes utility, given by $U_i - e_i$, or $\frac{f(\sum_{i=1}^{n} e_i)}{n} - e_i$. If $f'(0) < n$, then the private provision of the public good is zero.

One way to explain the positive contribution that we find in the real world is to assume that private provision of the good is observable and posit some form of social pressure (Daughety and Reinganum, 2010), so that $\frac{de_j}{de_i} > 0$. Hence, each individual's first order condition is given by

$$f'(\sum_{i=1}^{n} e_i) + \sum_{j=1}^{n}\left[f'(\sum_{i=1}^{n} e_j)\frac{de_j}{de_i}\right] \leq n, \qquad [1]$$

which can lead to a positive amount of private provision of the public good, even if $f'(0) < n$. This game features strategic complementarity among individual contributions: the more one contributes, the more others contribute in response.

Our aim here is to find a role for attributional style in this game. We assume that individuals have diverse beliefs concerning the impact of their own actions on the willingness of others to respond positively. Each subjective assessment on this score is the individual's attributional style. Equation [1] implies that individuals with a more positive style contribute more to the public good, because they presume that they have more of an impact on the conduct of others.[12] Therefore, communities with above-average positive attributional styles will have a higher level of provision of public goods, because everyone expects to have an appreciable effect on other people's actions.

To demonstrate that this link is important in practice, we need to plug several logical and empirical gaps. First, we need to explain how the historical experience of self-rule can alter the attributional style of a population. Second, we have to show how these altered values and beliefs can be transmitted across generations. Third, we should show that the links exist empirically: that is, that the inhabitants of cities that experienced a period of independence during the Middle Ages have more positive attributional styles and that when a town's people have such a style they also have higher levels of civic capital. In what follows, we tackle these issues.

5.2 The Effects of Historical Experience on Helplessness

A negative event over which an individual has no control –a misfortune – can generate persistent cognitive, emotional, and motivational effects (Maier and Seligman, 1976). By contrast, enabling people to exercise at least some control, even over trivial aspects of their lives (e.g., which movie people in a retirement home can watch), reduces their sense of helplessness (Seligman, 1995). We conjecture that an experience of self-rule, even if limited, gives people a sense of being in control and reduces their average feeling of helplessness, whereas the experience of despotism makes them more helpless. This conjecture is consistent with the cited study of East and West Berliners before 1989 (Oettinger and Seligman, 1990), which indicates that historical shocks can in fact create generalized helplessness. In our context, the relevant factor is the free city-state experience or its absence. As our brief primer in Section 1 illustrates, in the late Middle Ages the successful foundation of a city-state provided a sense of being in control, which could reduce the feeling of helplessness. In the period of decadence of the Carolingian Empire, the peripheral towns were vulnerable to banditry, invasion and conquest, looting and sacking. The military protection afforded by the independent city-states shielded their populace from some of these scourges. And even where they were unsuccessful in sparing their citizens, the participatory system nevertheless

[12] In theory, attributional style may also affect individuals' assessments of the direct impact of their own contributions ($f'(e_i)$). This additional effect will only strengthen our results.

gave them some sense of being in control. In 1176 a league of city-states actually defeated the Emperor, which may well have boosted the sense of empowerment in the members of the league. The memory of that victorious battle, passed down in the oral and written tradition, cultivated the sense of empowerment among the people of those cities for generations. (This tradition is so strong that today in Italy there is even a political party that chose to call itself League after this historical coalition).

5.2 The Intergenerational and Social Transmission of Helplessness

The foregoing discussion suggests that in the Middle Ages inhabitants of free city-states should have had a more positive attributional style than their neighbors, on the analogy of West and East Germans before the fall of the Berlin Wall. The question becomes how this attitude could be transmitted over the centuries.

The psychological literature has shown that helplessness can be transmitted among people and across generations. Seligman et al. (1984), comparing the attributional styles of mothers and their children, found a correlation of 0.39 in attributions of negative events. And although in this particular case it may be hard to rule out genetic causes, there is evidence that this correlation is due in part to cultural transmission. Dweck et al. (1978), for instance, show that that young students' causal attributions concerning their classroom performance are correlated with their teachers'.

Intergenerational transmission can be strengthened and amplified by social transmission. If an entire town or region is hit by the same negative shock, all its inhabitants may well transmit helplessness to their children. Not only will children be raised with a negative attributional style, they will be socialized into it. Furthermore, this diffuse sense of helplessness will translate into reduced cooperation and probably less adequate institutions, further aggravating the feeling of inability to cope with adverse events. This vicious circle from helplessness to backwardness to helplessness is beautifully described by Banfield (1958).

5.3 Identifying Helplessness from Students' Questionnaires

We now see how a historical event more than five hundred years ago may still be affecting the attitude of a people. At this point we want to produce evidence consistent with this interpretation. Ideally, we would like to measure the transmitted component of helplessness and relate it to each town's historical experience. Fortunately, some questions bearing on attributional style have

recently been included in the Italian national examination taken by fifth-graders.[13] Since fifth-graders have a limited direct experience of life, much of their attributional style can be presumed to depend on what they are taught at home and in school. While individuals' attributional style varies with genetic and other idiosyncratic factors, there is no reason why the average bias in attributional style should vary systematically across towns. In particular, we are interested in the common component of these attitudes at the town level, which we define as culturally transmitted bias.

We use examination data for the 2009-2010 school year, covering 534,135 students in 7,549 schools distributed over 3,430 cities, of which 1,932 are in the North, the others in the South. Each student was also asked a set of questions deriving from the attributional style questionnaire and others on family background. Data on family demographics and on the occupation and education of the parents were also collected but are missing for about 190,000 cases.

The central thesis of the learned helplessness model is that people have a particular tendency (style) in assigning the causes of bad and good events. While one's performance on a given test may be due either to luck or to skill depending on the circumstances, when an attribution is *pervasive* across different tasks it is likely to constitute an "explanatory style" rather than an objective description of reality. An individual displays a negative attributional style when he blames bad events on inner causes (say, lack of effort) and ascribes good ones to external causes (say, luck). By the same token, an individual with a positive attributional style ascribes good events to internal causes and bad events to external causes. As Table 7 shows, effort is the cause most commonly chosen in both the positive and the negative domain. In the positive domain, the next most common cause cited is skill, followed closely by luck and difficulty.

According to Seligman (1995), an individual's negative attributional style (NAS) is the difference between the average attribution to internal causes in the negative and in the positive event domains. Let R_i^n (R_i^p) be the percentage of events attributed to internal causes in the negative (positive) domain by individual *i*. Then, NAS is computed as

$$NAS_i = R_i^n - R_i^p.$$

Averaging out across individuals in a community, if the communities are sufficiently large we get the negative attributional style of a community NAS_c.

[13] As is explained by Peterson et al. (1982), one of the weaknesses of this approach is the difficulty in mapping the answers unambiguously either to external or to internal causes.

The problem with these questions is mapping children's answers unambiguously to either internal or external causes. While there is little doubt that effort is an internal cause and that luck, difficulty, and help are external, the classification of skill is more ambiguous. To address this problem, we let the data speak and choose the classification that best corresponds to the North-South divide.

Table 8, Panel A, uses both effort and skill as indicators of internal causes, Panel B effort only. As we can see from column (1), the explanatory power of the North-South divide is greater when the NAS measure comprises only effort as internal cause (R^2 of 0.09 vs. 0.05). In Panel A the South dummy explains 49% of the standard deviation of NAS, in Panel B 66%. If instead of city averages we take the city fixed effect as dependent variable in a regression that controls also for differences in the characteristics of pupils' parents, the results do not change (column 2). Accordingly we use the effort-only measure.

5.5 The City-State Experience and Attributional Style

We are now in a position to test whether the historical experience of the independent city-state has effects on helplessness today. Table 9 gives the results for regressions of our measure of negative attributional style on the city-state indicator. This is the same specification used in Table 2 for civic capital.

We find that fifth-grade students in the former free cities have a less negative attributional style; that is, they are more likely to ascribe good events to their own effort and less likely to attribute failures to their own shortcomings. This result is robust to excluding large cities or province capitals from the sample and to controlling for differences in cities' per capita income (4^{th} column) or inserting area dummies. The results are also unchanged if the dependent variable is the city fixed effect of NAS in a regression that controls also for differences in the characteristics of pupils' parents (last column). In magnitude, the difference is large. The free-city dummy explains as much as 27% of the variation in the negative attributional style within the North.

Appendix Table A3 reports a number of robustness checks. The first column shows unweighted regressions, the second uses the combined definition of commune, the third restricts the sample to the largest 400 cities at national unification in 1861. The effect of communal history on the negative attributional style is always comparable in magnitude and strongly significant. The fourth column replaces the commune dummy with the duration of independence. Again there is a negative and significant effect: the cities with longer histories of independence have students with a less negative attributional style. The results are not altered when the city-

state dummy variable is instrumented with Etruscan origin and diocesan status (column 5). Finally, the reduced-form regression in the last column shows that the presence of a bishop has an effect only where the bishopric was established before 1000 CE. This suggests that this factor does not affect the attributional style directly but only through its importance for the formation of independent city-states as such.

5.6 Attributional Style and Civic Capital

To close the circle, we need to show that the cities with more negative attributional styles are also those with less civic capital. This is done in Table 10. The first two columns, with number of non-profit associations as the gauge of civic capital, show that the negative attributional style has a negative and significant effect on civic capital. This result holds both when attributional style is the sole explanatory variable and when it is accompanied by the control used in Table 2. A one-standard-deviation increase in negative attributional style decreases the number of non-profit associations per inhabitant by 6% of the sample mean.

This correlation also holds when the gauge of civic capital is the presence of an organ donation organization. A one-standard-deviation increase in negative attributional style decreases the probability of having an organ donation organization by 41% of the sample mean. Finally, NAS has a positive effect on cheating. A one-standard-deviation increase increases the measure of cheating on the national math exam by 18% of the sample mean.

In summary, as predicted, negative attributional style reduces all three measures of civic capital.

6. Conclusion

Acemoglu and Robinson (2012) claim that shocks to institutions can affect outcomes over prolonged periods of time. Yet, they do not distinguish whether this impact is the direct effect of formal institutions' persistence or the indirect effect produced by institutional shocks on people's psyche and culture. In other terms is culture or are formal institutions the source of long term persistence?

In this paper we try to disentangle the two by looking at an institutional shock whose formal institutions have long gone: Italian free-city states. We examine the different levels of civic capital today between the towns that during the Middle Ages were free city-states and those that were not. Not only the establishment but also the duration and degree of independence of the historical free states affect today's civic capital positively. This effect persists even correcting for the endogeneity of the emergence of free cities.

We then consider one possible source of this persistence, linking the theory of learned helplessness (Seligman, 1972) to the generation of civic capital, with two new approaches. First, we extend the theory of helplessness from individual to community level. Psychology tells us that people who are subjected to a negative event without any chance to react are more likely to suffer a sense of helplessness, to develop a negative attributional style, and to transmit this style to their children. We apply this notion to entire populations (communities), on the hypothesis that the successful formation of a free city-state made their inhabitants feel more in control of their fate in the face of adversities and so less helpless.

Second, we posit a mechanism of linkage between attributional style and the generation of civic capital. Attributional style affects the personal belief of each individual concerning the effect of his or her contribution on the willingness of others to contribute. Consistent with this interpretation, we find empirically that more negative attributional style is associated with lower levels of civic capital.

Intergenerational transmission at individual level can be strengthened and amplified by social transmission. If an entire town is affected by a negative shock, all its inhabitants can be expected to transmit helplessness to their children. And the children will not only be raised with a negative attributional style but also socialized into it. This vicious circle between helplessness and backwardness, described by Edward Banfield (1958), can explain the historical persistence of the phenomenon.

Our interpretation of low social capital as society-level helplessness offers a gleam of hope for overcoming the cultural legacy of backwardness. As positive psychology can help individuals to overcome their negative attributional style personally, its application at community level might possibly succeed in reversing the negative historical legacy of a people.

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Table 1: Summary Statistics

Panel A. Civic capital measures (Center North sample; N=5,362)

	Mean	Median	Standard deviation	1st percentile	99th percentile
Number of non-profit organizations (per 1,000 people)	6.39	4.82	14.15	1.30	26.60
City has an organ donation association? (Yes=1)	0.044	0	0.20	0	1
Cheating in math	2.05	1.22	7.50	0.36	11.47

Panel B. Historical variables (Center North sample; N=5,362)

	Mean	Median	Standard deviation	1st percentile	99th percentile
Commune at time of war against Frederick I (1167 C.E.)	0.012	0	0.11	0	1
Commune in 1300 C.E.					
Commune: combined definition	0.014	0	0.12	0	1
City was an independent Signoria	0.011	0	0.105	0	1
Year independence was acquired (conditional on independence)	1,130	1,150	62	950	1,300
Year independence was lost (conditional on independence)	1,327	1,315	79	1,216	1,650
Length of independence conditional on independence (# of years)	196	175	100	47	488
(log) Length of independence	0.73	0	1.81	0	5.91
City belonged to the Lombard League (among the 66 free cities)	0.34	0	0.48	0	1
City was allied to the Emperor Frederick I (among the 66 free cities)	0.22	0	0.42	0	1

Panel C. City geography (Center North sample; N=5,362)

	Mean	Median	Standard deviation	1st percentile	99th percentile
Elevation (thousand meters)	0.34	0.27	0.30	0.003	1.36
Max difference in elevation within city territory (thousand meters)	0.66	0.34	0.72	0.004	2.74
City located on the coast	0.03	0	0.18	0	1
City located more than 5 kilometers from the sea	0.03	0	0.14	0	1
Population after unification in 1871 (million people)	0.002	0.003	0.009	0.0003	0.026
Current Population 2001 (million people)	0.0062	0.0023	0.027	0.00013	0.061

Panel D. Economic Variables (Center North sample; N=5,362)

	Mean	Median	Standard deviation	1st percentile	99th percentile
Disposable income per capita (*'000* euros)	13.26	13.24	2.30	8.05	18.95
Gini land ownership inequality index	0.56	0.58	0.18	0.12	0.94
Gini income inequality index	0.38	0.38	0.04	0.30	0.50

Panel E. Historical variables that predict Commune (Center North sample; N=5,362)

	Mean	Median	Standard deviation	1st percentile	99th percentile
Seat of a Bishop before 1000 C.E.? (Yes=1)	0.033	0	0.18	0	1
City founded by the Etruscans? (Yes=1)	0.009	0	0.09	0	0
City population above 10K in 1300 C.E.? (Yes=1)	0.006	0	0.08	0	0
City population between 1K and 10K in 1300 C.E.? (Yes=1)	0.004	0	0.06	0	0
New seat of a Bishop after 1400? (Yes=1)	0.006	0	0.08	0	0

Panel F. Summary statistics for then sample of largest Northern 400 cities at unifications (N=400)

	Mean	Median	Standard	1st percentile	99th percentile

			deviation		
Number of non-profit organizations(per 1,000 people)	5.58	4.29	11.86	0.95	22.3
City has an organ donation association? (Yes=1)	0.04	0	0.20	0	1
Cheating in math	2.34	1.22	9.00	0.37	21.2
Free city	0.15	0	0.35	0	1
Altitude	0.35	0.29	0.30	0.004	2.63
City located on the coast	0.08	0.0	0.27	0	1
City located more than 5 kilometers from the sea	0.03	0	1.18	0	1
City located at intersection of Roman roads	0.108	0	0..31	0	1
Current Population 2001 (million people)	0.007	0.002	0.028	0.00014	0.068
Gini land ownership inequality index	0.60	0.60	0.17	0.15	0.94
Gini income inequality index	0.38	0.37	0.04	0.28	0.49
City was a Roman colony	0.05	0	0.22	0	1
City was on the itinerary of the emperor	0.06	0	0.23	0	1
City belonged to a marches	0.21	0	0.09	0	1
City population above 10K in 1300 C.E.? (Yes=1)	0.006	0	0.076	0	0
City population between 1K and 10K people in 1300 C.E.? (Yes=1)	0.006	0	0.08	0	0

Panel G. Social capital indicators (South sample; N= 2,175)

	Mean	Median	Standard deviation	1st percentile	99th percentile
Number of non-profit organizations (per 1,000 people)	3.49	3.08	2.02	0.64	10.38
City has organ donation association? (Yes=1)	0.042	0.00	0.20	0.00	1.0
Cheating in math	2.58	1.14	10.87	0.43	24.16

Panel H. Historical variables that predict Commune (South sample; N= 2,175)

	Mean	Median	Standard deviation	1st percentile	99th percentile
Elevation	0.40	0.39	0.28	0.004	1.17

Max difference in elevation within city territory	0.70	0.62	0.51	0.013	2.29
Seat of a Bishop before 1000 C.E.? (Yes=1)	0.07	0	0.25	0	1
City was founded by the Etruscans? (Yes=1)	0.004	0	0.06	0	0
City population above 10K in 1300 C.E.? (Yes=1)	0.006	0	0.08	0	0
City population between 1K and 10K in 1300 C.E.? (Yes=1)	0.019	0	0.14	0	1

Panel I. Attribution style indicators

North-south sample (N= 3430)

	Mean	Median	Standard deviation	1st percentile	99th percentile
Skill	0.58	0.59	0.18	0.13	1.05
Luck	0.12	0.12	0.10	-0.13	0.39
Help	0.06	0.06	0.06	-0.08	0.24
Effort	0.83	0.84	0.24	0.18	1.40

North sample (N= 1983)

	Mean	Median	Standard deviation	1st percentile	99th percentile
Skill	0.57	0.57	0.15	0.16	0.95
Luck	0.14	0.14	0.09	-0.09	0.39
Help	0.07	0.07	0.06	-0.06	0.23
Effort	0.90	0.90	0.20	0.34	1.41

Table 2. Effect of communal history on civic capital

The table shows OLS estimates of the effect of having been an independent city on measures of civic capital in the sample of all Italian cities in the Center-North. In Panel the left hand side variable is the number of non-profit organizations per inhabitant in the city; in Panel B is an indicator of cheating in math among the grade 8 students in the city; in Panel C it is a dummy for the existence of an organ donation organization (AIDO) in the city. Regressions are weighted using city population. Regressions are run on the whole sample of cities located in the Center-North of Italy. Robust standard errors are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Panel A: Number of non-profit organizations

	Whole sample	Whole sample	No large towns	No provincial capitals	Whole sample	Whole sample
Commune	2.04***	1.84***	1.77***	1.86***	1.53***	1.84***
	(0.34)	(0.33)	(0.37)	(0.42)	(0.28)	(0.26)
Elevation	1.94***	1.97***	1.65***	1.64***	2.36***	3.21***
	(0.51)	(0.50)	(0.51)	(0.55)	(0.45)	(0.54)
Max difference in elevation	1.43***	1.39***	1.54***	1.51***	1.35***	1.19***
	(0.24)	(0.24)	(0.21)	(0.24)	(0.22)	(0.23)
City is on the coast	0.34	0.25	0.35	0.69***	0.61**	0.60**
	(0.33)	(0.31)	(0.24)	(0.23)	(0.24)	(0.27)
City is more than 5km from the coast	0.96	1.08*	1.22**	1.34**	1.50**	0.97
	(0.63)	(0.64)	(0.62)	(0.61)	(0.62)	(0.64)
Population (million people)	-3.49	-4.22*	-59.86***	-63.42***	-6.93***	-4.10**
	(2.73)	(2.47)	(9.85)	(8.25)	(1.84)	(1.88)
Population squared	1.43	1.41	622.40***	441.95***	3.11**	1.73
	(2.05)	(1.83)	(110.56)	(90.54)	(1.37)	(1.39)
Gini inequality index of Land ownership		0.65	0.34	0.23	1.22**	-0.01
		(0.55)	(0.38)	(0.33)	(0.48)	(0.46)
Gini income inequality index		10.02***	9.61***	7.63***	0.56	9.58***
		(2.22)	(1.75)	(1.50)	(2.24)	(1.91)
Income per capita					0.35***	
					(0.04)	
Area dummies	NO	NO	NO	NO	NO	YES
R-squared	0.08	0.08	0.09	0.08	0.10	0.10
Observations	5,360	5,360	5,341	5,298	5,360	5,360

Panel B: Existence of organ donation organization and Cheating in math

	Existence of organ donation organization			Cheating in math		
	Whole sample	Whole sample	Whole sample	Whole sample	Whole sample	Whole sample
Commune	0.41***	0.37***	0.39***	-0.23***	-0.19**	-0.30***
	(0.06)	(0.06)	(0.06)	(0.085)	(0.10)	(0.10)
Elevation	-0.28***	-0.23***	-0.25***	0.97**	0.90**	1.33**
	(0.07)	(0.07)	(0.08)	(0.453)	(0.45)	(0.60)
Max difference in elevation	0.03	0.03	0.03	0.22	0.23	0.20
	(0.03)	(0.03)	(0.03)	(0.148)	(0.15)	(0.16)
City is on the coast	0.04	0.09	0.04	-0.09	-0.16	-0.05
	(0.06)	(0.05)	(0.06)	(0.133)	(0.15)	(0.18)
City more than 5km from the coast	0.05	0.10	0.05	-0.16	-0.24	-0.16
	(0.07)	(0.07)	(0.07)	(0.217)	(0.24)	(0.23)
Population (million people)	1.60***	1.26***	1.65***	-2.66***	-2.24***	-2.38***
	(0.46)	(0.40)	(0.44)	(0.715)	(0.63)	(0.72)
Population squared	-1.25***	-1.03***	-1.26***	2.48***	2.20***	2.41***
	(0.34)	(0.30)	(0.33)	(0.620)	(0.54)	(0.59)
Gini inequality index of land own.	0.20*	0.27***	0.15	-0.15	-0.27	-0.48
	(0.10)	(0.09)	(0.10)	(0.451)	(0.41)	(0.47)
Gini income inequality index	2.48***	1.27***	2.51***	-9.80***	-8.02***	-9.59***
	(0.42)	(0.34)	(0.42)	(2.52)	(1.82)	(2.47)
Income per capita		0.04***			-0.06	
		(0.01)			(0.04)	
Areas dummies	NO	NO	YES	NO	NO	YES
R-squared	0.53	0.56	0.53	0.02	0.02	0.02
Observations	5,372	5,372	5,372	1,890	1,890	1,890

Table 3: Digging deeper into history

Panel A shows the second stage results of a two-step Heckman estimates of the effect of the length of independence of free cities on civic capital today. The first stage uses an indicator for whether the city was the seat of a Bishop and whether it was founded by the Etruscans to achieve identification. The Mill's ratio is obtained from the first-step probit regression. In Panel B we insert an indicator variable for whether the city evolved into an independent Signoria as an additional regressor. In Panel C we decompose the commune indicator variable depending on whether the commune was "neutral," "allied with the Emperor" or "belonging to the Lombard League" in the war for independence against Emperor Frederick I. Regressions are run on the sample of all cities located in the Center-North. All regressions include the standard controls of Table 2, second column. For brevity they are not reported. The regressions with all controls are reported in Appendix, Table A2. Robust standard errors are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Panel A. Effect of the length of independence on civic capital

	Non-profit organiz.	Organ donation organiz.	Cheating in math
Log of length of independence	0.23**	0.09***	-0.11***
	(0.09)	(0.02)	(0.03)
STANDARD CONTROLS	YES	YES	YES
	(1.57)	(0.35)	(0.53)
Mill's ratio	-0.89***	0.01	0.12
	(0.29)	(0 .07)	(0.10)
F-test for the two instruments=0 in selection equation	99.8	100.8	95.7
Observations	5,353	5,519	5,519

Panel B: The role of Signoria

	Non-profit organiz.	Organ donation organiz.	Cheating in math
Commune	1.48***	0.36***	-0.19**
	(0.32)	(0.07)	(0.08)
Signoria	1.21***	0.14**	0.01
	(0.31)	(0.07)	(0.11)
STANDARD CONTROLS	YES	YES	YES
Observations	5,344	5,538	1,911
R-squared	0.09	0.54	0.02

Panel C: The role of the Lombard League

	Non-profit organiz.	Organ donation organiz.	Cheating in math
Neutral city	1.62***	0.39***	-0.41**
	(0.41)	(0.08)	(0.18)
Part of the Lombard League	2.48***	0.50***	-0.10
	(0.33)	(0.06)	(0.16)
Allied to Emperor Fredrick I	1.11**	0.27**	-0.09
	(0.49)	(0.12)	(0.17)
STANDARD CONTROLS	YES	YES	YES
Observations	5,360	5,538	1,912
R-squared	0.09	0.55	0.02

Table 4: Correlations with instruments and first stages

The table shows estimates of a linear probability model for whether the city was a Commune (first two columns) and the first stage estimates of the IV for the IV estimates of civic capital reported in Table 5. Estimates are run on the whole sample of the cities located in the Center-North. Robust standard errors are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	only instruments	Instruments and geography	First stage: non profit organizations	First stage: organ donation	First stage: cheating in math
Bishop city	0.58***	0.61***	0.30***	0.31***	0.31***
	(0.09)	(0.08)	(0.05)	(0.05)	(0.05)
Etruscan city	0.28***	0.26***	0.34***	0.33***	0.32***
	(0.10)	(0.09)	(0.07)	(0.07)	(0.07)
Elevation		-0.17*	-0.10	-0.11*	-0.20**
		(0.09)	(0.06)	(0.06)	(0.09)
Max difference in elevation within city territory		-0.00	0.04	0.04	0.05
		(0.05)	(0.03)	(0.03)	(0.04)
City is on the coast		-0.23**	-0.19***	-0.21***	-0.22***
		(0.09)	(0.06)	(0.06)	(0.06)
City is more than 5km from the coast		-0.08***	-0.02	-0.02	-0.02
		(0.02)	(0.02)	(0.02)	(0.02)
Population (million people)			1.70***	1.72***	1.71***
			(0.28)	(0.28)	(0.28)
Population squared			-0.96***	-0.99***	-1.00***
			(0.22)	(0.22)	(0.22)
Gini inequality index of land ownership			-0.25***	-0.23***	-0.28***
			(0.08)	(0.08)	(0.11)
Gini income inequality index			0.84***	0.87***	1.27***
			(0.31)	(0.30)	(0.43)
Observations	5,535	5,535	5,357	5,535	1,911
R-squared	0.57	0.60	0.74	0.74	0.73
F-test of excluded instruments	127.71	169.14	60.55	60.63	60.69

Table 5: Instrumental variable estimates

The table shows IV estimates of the effect of having been an independent city on measures of current civic capital. Instruments used for the estimates are an indicator of whether the city was a Bishop city in 1000 C.E. and an indicator of whether the city was founded by the Etruscans. The bottom of the table shows the *F*-test for the excluded instruments in the first stage regression and the *p*-value of the Hansen J test for the validity of the excluded instruments. Estimates are run on the sample of the largest 400 towns located in the Center-North of Italy. Robust standard errors are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Non-profit organizations	Organ donation organization	Cheating in math
Commune	3.66***	0.96***	-1.10***
	(0.53)	(0.13)	(0.21)
Elevation	2.32***	-0.15*	0.68
	(0.55)	(0.08)	(0.45)
Max difference in elevation within city territory	1.30***	0.00	0.27*
	(0.27)	(0.04)	(0.15)
City is on the coast	0.58*	0.15*	-0.28*
	(0.35)	(0.08)	(0.15)
City is more than 5km from the coast	1.21*	0.09	-0.24
	(0.63)	(0.07)	(0.22)
Population (million people)	-9.76***	-0.06	-0.12
	(2.86)	(0.55)	(0.66)
Population squared	5.06**	-0.15	0.76
	(2.02)	(0.39)	(0.51)
Gini inequality index of land ownership	0.86	0.25**	-0.26
	(0.60)	(0.11)	(0.44)
Gini income inequality index	6.80***	1.47***	-7.55***
	(1.91)	(0.50)	(2.38)
F test for excluded instruments	60.55	60.63	60.69
Hansen test of OVR, p-value	0.205	0.0033	0.0023
Observations	5,357	5,535	1,911

Table 6: Validating the instruments

Panel A shows reduced form regressions of social capital in the North (first four columns) and in the South (last four columns); Panel B reports reduced form and I.V. estimates on social capital in the North sample controlling for cities that became seat of a bishop after 1400 C.E.. In Panel A, columns (1) and (6) and in Panel B columns (1)-(3) social capital is measured with the number of non-profit organizations per 1000 inhabitants. Columns (2) and (5) of panel A and (4)-(6) of Panel B measure the referenda turnout and columns (3) and (6) of Panel A and (7)-(9) of Panel B with the existence of an organ donation organizations. Late Bishop city is equal to 1 if a Bishop city was created after 1400 C.E. and zero otherwise. Robust standard errors in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

A. Reduced form regressions of social capital in the South and in the North

	North sample			South sample		
	Non-profit org.	Organ donation org.	Cheating in math	Non-profit org.	Organ donation org.	Cheating in math:
Bishop city	1.41***	0.44***	-0.62***	0.16	0.21***	-0.05
	(0.23)	(0.05)	(0.11)	(0.14)	(0.07)	(0.32)
Etruscan city	0.86***	0.12**	0.01	-0.39*	-0.27***	0.13
	(0.27)	(0.06)	(0.10)	(0.22)	(0.08)	(0.30)
Elevation	1.99***	-0.25***	0.92**	-0.18**	0.01	0.73
	(0.47)	(0.06)	(0.44)	(0.07)	(0.02)	(0.54)
Max difference in elevation	1.40***	0.02	0.26*	-0.08	-0.04	0.06
	(0.22)	(0.03)	(0.15)	(0.10)	(0.03)	(0.15)
City is on the coast	-0.18	-0.07*	0.02	0.09	-0.03	0.13
	(0.25)	(0.04)	(0.12)	(0.12)	(0.04)	(0.11)
City more than 5km from coast	1.15*	0.07	-0.21	-0.02	-0.03	1.47
	(0.63)	(0.07)	(0.23)	(0.15)	(0.05)	(1.10)
Population (million people)	-3.91***	1.40***	-1.69***	-9.78***	1.14*	-3.51
	(1.51)	(0.27)	(0.44)	(2.61)	(0.60)	(2.86)
Populations squared	1.68	-1.03***	1.76***	6.74***	-0.90*	4.49
	(1.16)	(0.21)	(0.41)	(2.31)	(0.48)	(2.82)
Gini income inequality index	-0.05	0.03	0.03	3.38**	2.04***	-21.66***
	(0.44)	(0.07)	(0.43)	(1.51)	(0.53)	(5.65)
Gini inequality index of land ownership	9.54***	2.14***	-8.51***	1.85***	0.29***	1.77
	(1.87)	(0.38)	(2.32)	(0.37)	(0.10)	(1.35)
Test for both instruments = 0 (*p*-value)	0.000	0.000	0.000	0.169	0.001	0.910
Observations	5,357	5,535	1,911	2,175	2,178	1,210
R-squared	0.09	0.59	0.02	0.32	0.58	0.03

B. Reduced form regressions in the North controlling for cities that became a seat for the bishop after 1400 C.E.

	Non-profit organizations: North sample	Organ donation organization: North sample	Cheating in math: North sample
Bishop city	1.44***	0.44***	-0.59***
	(0.24)	(0.05)	(0.10)
Etruscan city	0.85***	0.12**	0.00
	(0.27)	(0.06)	(0.10)
Post medieval Bishop city	-0.18	0.03	-0.16
	(0.50)	(0.09)	(0.10)
Elevation	1.99***	-0.25***	0.91**
	(0.47)	(0.06)	(0.44)
Max difference in elevation within city territory	1.40***	0.02	0.26*
	(0.22)	(0.03)	(0.15)
City is on the coast	-0.18	-0.07*	0.02
	(0.25)	(0.04)	(0.12)
City is more than 5km from the sea	1.15*	0.07	-0.21
	(0.63)	(0.07)	(0.23)
Population (million people)	-4.04***	1.42***	-1.79***
	(1.52)	(0.27)	(0.47)
Population squared	1.76	-1.04***	1.82***
	(1.17)	(0.21)	(0.43)
Gini land inequality index	-0.02	0.02	0.07
	(0.43)	(0.07)	(0.45)
Gini income inequality index	9.57***	2.13***	-8.45***
	(1.87)	(0.38)	(2.30)
Observations	5,357	5,535	1,911
R-squared	0.09	0.59	0.02

Table 7. Statistics on helplessness indicators

The table shows the average frequency, the standard deviation and coefficient of variation of different causes to which grade five students attribute positive and negative outcomes.

	Positive domain					Negative domain				
	Mean	median	Sd	cv: cross section	Cv: median individual	Mean	median	sd	Cv: cross section	cv: median individual
Help	0.03	0.0	0.08	2.7	1.9	0.02	0.0	0.09	4.5	1.3
Luck	0.06	0.0	0.12	2.0	1.8	0.06	0.0	0.16	2.7	1.3
Difficulty	0.18	0.2	0.17	1.00	1.7	0.21	0.0	0.25	1.2	1.2
Skill	0.19	0.2	0.19	1.00	1.6	0.10	0.0	0.19	1.9	1.3
Effort	0.54	0.6	0.27	0.50	0.9	0.60	0.67	0.34	0.55	0.6

Table 8: Selecting the helplessness indicator: North South gaps in Negative Attributional Style

The table shows OLS estimates of the difference between North and South in the cultural component of negative attributional style by grade five students. In Panel A the negative attributional style is measured defining as internal skill and effort as internal causes; in Panel B internal cause is effort. Robust standard errors are reported in parentheses. The first column uses simple city means of individual negative attributional bias measures; the second column uses the city effect in a regression of individual negative attributional bias controlling for student gender, availability of internet and books at home and for parent nationality and their level of education; *** significant at less than 1%; ** significant at 5%; * significant at 10%.

A: Internal cause definition: skill and effort

	(1)	(2)
	NAS city averages	NAS: city fixed effec parents controls
South	0.050***	0.055***
	(0.005)	(0.005)
Constant	-0.055***	-0.012***
	(0.0024)	(0.004)
Observations	3,420	3,156
Mean left hand side variable	-0.032	0.123
Sd left hand side variable	0.121	0.131
R-squared	0.05	0.03

A: Internal cause definition: effort

	(1)	(2)
	NAS city averages	NAS: city fixed effects and controls
South	0.038***	0.039***
	(0.002)	(0.003)
Constant	0.051***	0.014***
	(0.0012)	(0.0008)
Observations	3,420	3,156
Mean left hand side variable	0.066	0.003
Sd left hand side variable	0.058	0.080
R-squared	0.09	0.06

Table 9: Effect of communal history on Negative attributional style

The table shows OLS estimates of the effect of having been an independent city on the values attributed to effort in determining own success and failure by elementary school students in the city. Regressions are weighted using city population. Estimates are run on the whole sample of cities located in the Center-North of Italy. Robust standard errors are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Whole sample	No large towns	No province capitals	Whole sample	Whole sample	Whole sample
			Negative attributional style			NAS fixed effect
Commune	- 0.015***	- 0.013***	- 0.029***	- 0.012***	- 0.009**	- 0.015***
	(0.004)	(0.004)	(0.007)	(0.004)	(0.004)	(0.004)
Elevation	0.05***	0.05***	0.05***	0.04***	0.02**	0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Max difference in elevation within city territory	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***	-0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
City is on the coast	0.01*	0.01***	0.01***	0.00	0.00	0.01*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
City is more than 5km from the coast	0.01	0.01	0.01	0.00	0.00	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Population (million people)	0.04*	0.58***	0.56***	0.07***	0.03*	0.05*
	(0.02)	(0.16)	(0.15)	(0.02)	(0.02)	(0.03)
Population squared	-0.01	-4.73***	-3.27**	-0.03**	-0.01	-0.02
	(0.02)	(1.72)	(1.43)	(0.01)	(0.01)	(0.02)
Gini inequality index of Land ownership	-0.01	-0.01	-0.01	-0.02*	-.00	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gini income inequality	0.00	-0.03	-0.03	0.13***	0.01	-0.03
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Income per capita				-0.00***		
				(0.00)		
Area dummies	NO	NO	NO	NO	YES	
Observations	1,961	1,942	1,899	1,961	1,961	1,928
R-squared	0.06	0.05	0.05	0.10	0.13	0.05

Table 10`: Negative attribution style and civic capital

The table shows OLS regressions of measures of civic capital in the cities in the Center/North and the negative attribution style measure in the city. The left hand side variable in the first two columns is the number of voluntary association per capita, in column three and for a dummy for the presence of an organ donation organization, and in the last two columns the average cheating . Estimates are run on the whole sample of cities located in the Center-North of Italy. Robust standard errors are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	Number of associations	Number of associations	Presence of organ donation	Presence of organ donation	Cheating in math	Cheating in math
Negative attribution style	-7.14***	-6.73***	-0.30***	-0.31***	6.38**	6.91**
	(1.72)	(1.70)	(0.11)	(0.10)	(3.09)	(3.32)
Elevation		1.58***		-0.08**		0.96
		(0.52)		(0.04)		(1.11)
Max difference in elevation within city territory		1.17***		0.02		0.55
		(0.24)		(0.01)		(0.40)
City is on the coast		0.52**		-0.06**		0.14
		(0.20)		(0.03)		(0.43)
City is more than 5km from the coast		2.57		0.05		-0.32
		(2.33)		(0.05)		(0.40)
Population (million people)		2.82		7.10***		-17.82***
		(2.51)		(0.73)		(3.94)
Population squared		-2.33		-5.66***		15.58***
		(2.18)		(0.84)		(3.81)
Gini inequality index of land ownership		-0.37		-0.05		0.86
		(0.84)		(0.04)		(1.29)
Gini income inequality index		2.27		0.65***		-8.92*
		(1.94)		(0.24)		(5.11)
Observations	1986	1985	1986	1985	1842	1841
R-squared	0.01	0.09	0.00	0.24	0.00	0.01

Appendix: Variables definitions

A. Measures of civic capital

Number of non-profit organizations: the measure is obtained from the National Statistical Institute (Istat) 2001 census which collects data on all types of non-profit and voluntary organizations existing in Italy at times of census. It reports data on the total number of non-profit organizations, and separately on the number of voluntary associations, social cooperatives and foundations. The total number of non-profit organizations includes all the above types; voluntary organizations are the bulk of the total.

Cheating in math: Indicator of cheating in math computed by Invalsi for the 2009 Invalsi test among the population of grade 8 Italian students. Invalsi uses measures of average performance and of concentration in performance to identify cheating behavior in the test at the level of the school. Our indicator is the mean index of cheating in the city standardized with its standard deviation.

Presence of an organ donation organization: The indicator of existence of an organ donation organization in the city was obtained from the 2005 Provincial Register of Voluntary Organizations. The registry reports the name, mission and address of the voluntary organizations located in the province. Registering with the Registry is not compulsory and since not all voluntary associations register, they provide an incomplete picture of the voluntary organizations in the municipality. Furthermore, in several regions in the South, the Registry is not yet available. However, for all regions in the Center-North in our sample we have been able to obtain a copy of the Registry from the Ministry of Labor and Social Policies and identified the presence of a branch of AIDO – the only organ donation organization in Italy – in the municipality. For the South sample we obtained the information by contacting directly each AIDO organization in the province capital and asking for the list of cities in their province with an AIDO association. AIDO was founded in 1973, thus much later than the blood donation association, and is present in about 2060 municipalities (out of 8,000 in the country) and counts 1,129,662 donors.

B. Historical variables

Commune: this is an indicator variable equal to 1 if the town was a commune according to two historical maps of Italy contained in "Atlante Storico De Agostini" (2007), Istituto Geografico De Agostini, Novara pp. 61-62. We use two maps. The first map shows lists of free cities around the time of the war between the communal cities and the Emperor of the Holy Roman Empire Frederick I "Barbarossa" in the year 1167. This map is reported in Figure A2 (corresponding to map 28 in Atlante Storico De Agostini). The red line in the map marks the border of the Kingdom of Italy under the Holy Roman Empire. Communes are those marked with a black dot. The map also distinguishes which cities joined the Lombard League (names written in red) in the war for independence against the Emperor and which were allied to the Emperor (names written in blue). The remaining cities were neutral. This constitutes our first measure of free cities. The second measure is

obtained from the map of Italy around the year 1300, as shown in Figure A3 (map 29 in Atlante Storico De Agostini); free cities are those that have a territory. A third measure is constructing as the union of the previous two measures.

Length of independence: Information on when independence was acquired and when it was lost has been obtained through a search from different sources: the main one is the "Istituto Enciclopedia italiana per le Regioni"; when the information was not available in "Istituto Enciclopedia italiana per le Regioni" we relied on the Touring Club guide which reports a brief historical summary of the cities listed in the guide and the historical summary on the official web page of the various cities.

City was a seat of a Bishop before 1000 C.E.: This identifier is obtained from the map "Italia altomedioevale: sedi vescovili" that reports the Bishop cities in the late Middle Ages. Bishop cities were mostly formed between the first and the third century AD, as the Christian movement spread out.

City was a seat of a Bishop after 1400 C.E.:. This variable is equal to 1 if a city has become a bishop city after year 1400, roughly after end of the communal experience. Late bishop cities have been identified from the full list of the Italian Bishop cities as listed in the following link http://it.wikipedia.org/wiki/Elenco_delle_diocesi_italiane which also summarizes their history and reports the year or century in which the bishop city was founded. Since some bishop cities that were active in the XI century were subsequently discontinued or moved somewhere else (as for instance Udine and Gorizia which replaced Aquileia) we have used the map "Italia altomedioevale: sedi vescovili" from Atlante Storico Treccani, Volume I, Roma 2007, maps n. 152, 153 , 154, 155 to identify the old bishop cities and the list of current bishop cities to identify those created after the year 1400.

Etruscan city: is an identifier for whether the city was founded by the Etruscans and was part of the Etruscan "nation". Moving from Etruria – the region between the river Arno and the river Tiber (corresponding approximately to today's regions of Tuscany, Umbria and northern Lazio) – Etruscans founded two other city clusters, one north of Tuscany, in Romagna, and in Campania, South of Lazio. Since the Etruscans thought that number 12 had a magic power, these clusters included 12 cities each, though some uncertainty still remains on the exact list of Etruscan cities. Etruscans were organized as a system of independent and self-governed cities, which tended to coordinate their policies in an annual meeting that took place in Orvieto – the Etruscans capital. Data on Etruscan cities have been provided by Dr. Antonello Montesanti, an archeologist who has rigorously mapped and classified all the Etruscan and Roman cities and who has kindly made his files available to us. The table below lists the three clusters of 12 Etruscan cities in the three areas where they expanded. Cities in italics have no counterpart today. In the Etruscan cluster of Etruria two cities – Fiesole and Roselle – were added to replace cities that decayed progressively under the Romans.

Cluster of Etruscan cities in Etruria	**Cluster of Etruscan cities in Romagna**	**Cluster of Etruscan cities in Campania**
Veio	Bologna (capital)	Capua (capital)
Cerveteri	Mantova	Nola
Tarquinia	Ravenna	*Urina*
Montalto di Castro	*Cesena*	*Velsu*
Arezzo	*Rimini*	*Irnthi*
Vetulonia	Modena	Pontecagnano
Populonia	Parma	Sorrento
Volterra	*Piacenza*	Pompei
Orvieto (capital)	*Spina*	Ercolano
Chiusi	Marzabotto	Nocera
Perugia	Adria	Acerra
Cortona		

Size of city in year 1300 C.E.: We have classified two indicators for the size of cities in theyear 1300: *Large* is a dummy variable equal to 1 if the city population exceeds 10,000 people in year 1300; *Medium* is a dummy variable equal to 1 if the city population is between 1,000 and 10,000 people in that year. The information on city size is obtained from Bairoch, Batou and Chevre (1988, pp. 40-49) who report the population of European cities from year 800 up to year 1850 at a frequency of about every 100 years. The criteria for including a city in the list is that it must have had at least 5,000 inhabitants once between 800 and 1850. Needless to say, the more one goes back on time the more difficult it is to find information on population, which results in a missing observation. We have chosen the population in the year 1300 to balance the need to go as far back as possible and closer to year 1,000 while at the same time being able to have enough information on city population. The year 1300 is the first for which missing data appear to be limited.

City located at an intersection of Roman roads: is equal to 1 if the city is located on a relevant Roman road or at the intersection between two or more Roman roads. Roman roads are identified from the Touring Club Historical Atlas of Italy and from the "Reference Map of Ancient Italy" and then by comparing today location of the city using Google Maps with the map of the Roman cities.

C. City controls and measures of economic development

The main source for several city controls and variables is the database "Le Misure dei Comuni", 2003-2004 Edition. This database is assembled by Ancitel, the association of municipal administrations and reports about 320 variables measuring various items at the level of the city ranging from population to income, bank deposits and households.

City elevation: It is measured in meters from the sea level. Source: "Le Misure dei Comuni"

Max difference in elevation: It is the difference between the highest and the lowest point in the city territory, in meters. Source: "Le Misure dei Comuni"

Current Population: number of inhabitants according to the 2001 census. Source: "Le Misure dei Comuni"

Population at unification: number inhabitants in 1871 according to the 1871 census. Source: Istat, "Census Data"

Number of visitors: number of people that visited the city either in hotels or other premises in a year, scaled by city population. Source: "Le Misure dei Comuni"

Gross per capita disposable income: level of disposable income per capita: euros in the year 2000; the figure is obtained from tax filings at the city level and the original source is the Ministry of Finance. Source: "Le Misure dei Comuni"

Per capita household wealth: sum of property wealth and bank deposits divided by the city population; property wealth is estimated by Ancitel and refers to 1999; bank deposits are referred to 2002. The figure is in euros. Source: "Le Misure dei Comuni"

Gini land owenership inequality index: computed using data on the size distribution of agricultural firms in the year 2000 based on information from the 2001 census. Source: "Le Misure dei Comuni".

D. Attributional style variables

The attribution style measures are obtained from the answers to the 8 question below asked in the questionnaire submitted to 5th grade student as part of the Invalsi test in the academic year 2009-2010. Questions 1,3,4,6 and 8 are in the domain of successes; questions 2,5 and 7 in the domain of failures.

"The situations described below can happen at school. Image you find yourself in one of them. Please choose the answers that fits you best"

1. Your teacher has asked to make a drawing. You do it very well. How did you do? I received help; b) I was lucky; c) it was easy; d) I am clever; e) I put effort

2. Your teacher asks you to write an essay. You make several mistakes. Why? Nobody helped; b) I was unlucky; c) it was difficult; d) I am not good; e) I did not put effort
3. Your teacher asked to repeat a story that you read in class. You tell it very well. How did you do? a) I received help; b) I was lucky; c) it was easy; d) I am clever; e) I put effort
4. The first day of class your teacher asked to describe how you spent you vacation. You tell it so well that all your classmates are amused. How did you do? a) I received help; b) I was lucky; c) it was easy; d) I am clever; e) I put effort
5. Your teacher asked to recite a poem you studied in class. But you do not remember it well and do a poor job. How did you do? a) I received no help; b) I was unlucky; c) it was difficult; d) I am not good; e) I did not put effort
6. Your do an end-of-year play and you performs so well that all applauded. How did you do? a) I received help; b) I was lucky; c) it was easy; d) I am clever; e) I put effort
7. Your teacher asks to complete a project for Christmas but you do so badly that you have to do it again. How did you do? a) I received no help; b) I was unlucky; c) it was difficult; d) I am not good; e) I did not put effort
8. Your teacher asks you to solve a math problem on the blackboard and you do it very well. How did you do? a) I received help; b) I was lucky; c) it was easy; d) I am clever; e) I put effort

Online Appendix

Online Appendix

Figure A1. Orvieto's strategic advantage

A picture of Orvieto, showing the superior military location of the capital of the Etruscan nation

Figure A2 – Historical map of Italy at around year 1167

The figure shows the map of Italy at around year 1167. The red line marks the borders of the country that where the Holy Roman Empire of Germany. All the towns marked with a full dot were commune. Towns in red were commune that belonged to the Lombard League, those in blue were allied to the Emperor. The green areas mark the territories of various Principati and Feudi. The Southern part of Italy not belonging to the Empire was under the Norman Kingdom of Sicily. http://www.scuola.com/storialocale/medioevo.htlm

Figure A3 – Historical map of Italy at around year 1300

The figure shows the map of Italy at around year 1300. It shows the communes and their territory (contado), as well as the principati that were ruling in various areas.

Table A1: Robustness

Panel A reports regressions of the effects of free cities on civic capital on the sample of the largest 400 cities in the Center- North of Italy (as of 1871) using the same specification as in Table 2/a/c (first three columns) and expanding the set of historical controls (remaining columns); Panel B shows non-weighted OLS estimates of the effect of having been an independent city on measures of civic capital today. Panel C shows the estimates on the total sample of Center-North cities for a Commune identifier obtained as the union of the free cities in 1167 C.E. and in 1300 C.E. Robust standard errors are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

A. Sample of 400 largest northern cities

	Non-profit org.	Organ donation org.	Cheating in math	Non-profit org	Organ donation org.	Cheating in math
Commune	1.10**	0.13**	-0.21***	1.26**	0.14**	-0.13**
	(0.33)	(0.06)	(0.05)	(0.39)	(0.06)	(0.05)
Elevation	0.23	-0.22	0.27	1.37	-0.19	0.31
	(0.85)	(0.18)	(0.21)	(0.78)	(0.18)	(0.21)
Max difference in elevation within city territory	0.74*	-0.07	0.05	0.47	-0.06	0.01
	(0.31)	(0.05)	(0.05)	(0.27)	(0.05)	(0.05)
City is on the coast	-0.31	0.05	-0.11*	-0.20	0.03	-0.06
	(0.36)	(0.06)	(0.06)	(0.36)	(0.07)	(0.06)
City is more than 5km from the coast	-0.65*	0.08	-0.24**	-1.26**	0.05	-0.29**
	(0.26)	(0.18)	(0.12)	(0.32)	(0.18)	(0.12)
Population (million people)	-3.67*	0.83***	-0.69***	-4.99**	0.95***	-0.89***
	(1.77)	(0.21)	(0.25)	(1.75)	(0.24)	(0.25)
Population squared	0.41	-0.73***	0.71***	1.91	-0.82***	0.84***
	(1.32)	(0.16)	(0.19)	(1.35)	(0.19)	(0.19)
Gini inequality index of land ownership	1.59	-0.09	-0.45**	1.81	-0.17	-0.36*
	(1.02)	(0.16)	(0.18)	(0.95)	(0.15)	(0.19)
Gini income inequality index	17.82**	3.02***	-4.06***	12.31**	2.98***	-3.97***
	(5.08)	(0.74)	(0.99)	(4.48)	(0.82)	(1.07)
At cross with roman roads				0.77*	-0.03	0.06
				(0.33)	(0.05)	(0.05)
City on the itinerary of emperor Henry IV				-0.46	-0.03	-0.11*
				(0.38)	(0.06)	(0.06)
Roman colony				-0.01	-0.04	-0.02
				(0.35)	(0.06)	(0.06)
City belongs to a marquis				1.15**	0.10*	0.03
				(0.29)	(0.06)	(0.06)
City size in 1300: medium				0.31	0.15	-0.15**
				(0.45)	(0.11)	(0.06)
City size in 1300: large				0.12	0.03	-0.08**
				(0.38)	(0.05)	(0.04)
Observations	400	400	379	400	400	379
R-squared	0.27	0.25	0.21	0.38	0.27	0.22

B. OLS non-weighted regressions

	Non-profit organizations	Organ donation organization	Cheating in math
Commune	2.91**	0.31***	0.01
	(0.44)	(0.07)	(0.20)
Elevation	8.96**	-0.02***	0.83
	(2.30)	(0.01)	(0.99)
Max difference in elevation within city territory	0.79	0.00	0.52
	(0.50)	(0.00)	(0.38)
City is on the coast	2.65**	-0.01	0.18
	(0.84)	(0.02)	(0.41)
City is more than 5km from the coast	4.20*	0.03	-0.33
	(1.70)	(0.02)	(0.39)
Population (million people)	-18.15*	6.34***	-17.77***
	(8.28)	(0.77)	(4.06)
Population squared	14.81*	-5.21***	15.68***
	(7.05)	(0.85)	(3.89)
Gini inequality index of land ownership	-5.76*	-0.01	0.72
	(2.82)	(0.01)	(1.18)
Gini income inequality index	-0.14	0.17***	-9.95*
	(4.71)	(0.04)	(5.75)
Observations	5,360	5,538	1,912
R-squared	0.04	0.30	0.01

Panel C: Alternative definition of commune (combined definition)

	Non-profit organizations	Organ donation organization	Cheating in math
Commune: combined definition	2.18***	0.45***	-0.31***
	(0.27)	(0.06)	(0.08)
Elevation	2.00***	-0.28***	0.96**
	(0.46)	(0.07)	(0.45)
Max difference in elevation within city territory	1.38***	0.03	0.22
	(0.22)	(0.03)	(0.15)
City is on the coast	0.18	0.02	-0.09
	(0.27)	(0.05)	(0.13)
City is more than 5km from the coast	1.13*	0.06	-0.17
	(0.63)	(0.07)	(0.22)
Population (million people)	-5.63***	1.40***	-2.39***
	(2.08)	(0.41)	(0.67)
Population squared	2.44	-1.09***	2.28***
	(1.56)	(0.30)	(0.59)
Gini inequality index of Land ownership	0.53	0.17*	-0.14
	(0.51)	(0.10)	(0.45)
Gini income inequality index	9.40***	2.40***	-9.61***
	(2.08)	(0.40)	(2.48)
Observations	5,360	5,372	1,890
R-squared	0.09	0.55	0.02

Table A2: Digging deeper into history

Panel A shows the second stage results of a two-step Heckman estimates of the effect of the length of independence of free cities on civic capital today. The first stage uses an indicator for whether the city was the seat of a Bishop and whether it was founded by the Etruscans to achieve identification. The Mill's ratio is obtained from the first-step probit regression. In Panel B we insert an indicator variable for whether the city evolved into an independent Signoria as an additional regressor. In Panel C we decompose the commune indicator variable depending on whether the commune was "neutral," "allied with the Emperor" or "belonging to the Lombard League" in the war for independence against Emperor Frederick I. Regressions are run on the sample of all cities located in the Center-North. Robust standard errors are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

Panel A. Effect of the length of independence on civic capital

	Non-profit organizations	Organ donation organization	Cheating in math
Log of length of independence	0.23**	0.09***	-0.11***
	(0.09)	(0.02)	(0.03)
Elevation	3.52**	-0.73**	-0.64
	(1.57)	(0.35)	(0.53)
Max difference in elevation within city territory	-0.11	0.18	-0.32*
	(0.53)	(0.12)	(0.18)
City is on the coast	0.27	-0.08	-0.21
	(0.62)	(0.13)	(0.21)
City is more than 5km from the coast	-4.53	-4.53	-4.57
	(0.00)	(0.00)	(0.00)
Population (million people)	-6.35*	0.76	-0.72
	(3.24)	(0.68)	(1.05)
Population squared	3.13	-0.75	0.60
	(2.77)	(0.57)	(0.88)
Gini inequality index of Land ownership	-1.02	0.60*	0.08
	(1.65)	(0.36)	(0.58)
Gini income inequality index	-4.71	3.75**	-0.76
	(8.56)	(1.89)	(2.85)
Mill's ratio	-0.89***	0.01	0.12
	(0.29)	(0 .07)	(0.10)
F-test for the two instruments=0 in the first stage selection equation	99.8	100.8	95.7
Observations	5,353	5,519	5,519

Panel B: The role of Signoria

	Non-profit organizations	Organ donation organization	Cheating in math
Commune	1.48***	0.36***	-0.19**
	(0.32)	(0.07)	(0.08)
Signoria	1.21***	0.14**	0.01
	(0.31)	(0.07)	(0.11)
Elevation	2.16***	-0.26***	0.79
	(0.59)	(0.07)	(0.49)
Max difference in elevation within city territory	1.11***	0.03	0.14
	(0.24)	(0.03)	(0.17)
City is on the coast	0.21	0.06	-0.07
	(0.25)	(0.06)	(0.13)
City is more than 5km from the coast	1.01	0.06	-0.12
	(0.63)	(0.07)	(0.21)
Population (million people)	-6.25***	1.53***	-2.97***
	(2.25)	(0.46)	(0.70)
Population squared	2.54	-1.23***	2.72***
	(1.65)	(0.34)	(0.61)
Gini inequality index of land ownership	-0.21	0.17*	-0.18
	(0.47)	(0.09)	(0.59)
Gini income inequality index	10.31***	2.37***	-9.92***
	(1.96)	(0.41)	(2.87)
Observations	5,344	5,538	1,911
R-squared	0.09	0.54	0.02

Panel C: The role of the Lombard League

	Non-profit organizations	Organ donation organization	Cheating in math
Neutral city	1.62***	0.39***	-0.41**
	(0.41)	(0.08)	(0.18)
Part of the Lombard League	2.48***	0.50***	-0.10
	(0.33)	(0.06)	(0.16)
Allied to Emperor Fredrick I	1.11**	0.27**	-0.09
	(0.49)	(0.12)	(0.17)
Elevation	2.04***	-0.26***	0.99**
	(0.47)	(0.07)	(0.45)
Max difference in elevation within city territory	1.47***	0.04	0.21
	(0.22)	(0.03)	(0.15)
City is on the coast	0.29	0.04	-0.08
	(0.24)	(0.06)	(0.13)
City is more than 5 km from the coast	1.10*	0.05	-0.16
	(0.63)	(0.07)	(0.21)
Population (million people)	-3.57*	1.76***	-2.95***
	(1.93)	(0.40)	(0.92)
Population squared	0.87	-1.37***	2.61***
	(1.42)	(0.30)	(0.73)
Gini inequality index of land ownership	0.74	0.20**	-0.05
	(0.47)	(0.09)	(0.47)
Gini income inequality index	7.81***	2.09***	-9.78***
	(1.91)	(0.38)	(2.73)
Observations	5,360	5,538	1,912
R-squared	0.09	0.55	0.02

Table A3: Effect of communal history on Negative attributional style: robustness

The table shows several OLS robustness and IV estimates of the effect of having been an independent city on the values attributed to effort in determining own success and failure by elementary school students in the city. Instruments used for the IV estimates are an indicator of whether the city was a Bishop city in 1000 C.E. and an indicator of whether the city was founded by the Etruscans. The bottom of Panel B shows the *F*-test for the excluded instruments in the first stage regression, and the *p*-value of the Hansen J test for the validity of the excluded instruments. Except in the first column, regressions are weighted using city population. Except in the third column, estimates are run on the whole sample of cities located in the Center-North of Italy. Robust standard errors are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%.

	No weights	Combined definition of free city	400 cities sample	Length of independence	IV	Reduced form and late bishop cities
Commune	- 0.011***	- 0.012**	- 0.011**		- 0.028***	
	(0.004)	(0.005)	(0.004)		(0.008)	
Length of independence				- 0.003***		
				(0.001)		
Elevation	0.02***	0.05***	0.07***	0.05***	0.04***	0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Max difference in elevation within city territory	-0.01***	-0.01***	-0.01**	-0.01**	-0.01***	-0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
City is on the coast	0.01**	0.01***	0.01*	0.01*	0.01	0.01**
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
City is more than 5km from the coast	0.01	0.01	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Population (million people)	0.06	0.57***	0.04*	0.05*	0.08***	0.03*
	(0.04)	(0.16)	(0.02)	(0.03)	(0.03)	(0.02)
Population squared	-0.04	-4.60***	-0.01	-0.02	-0.04**	-0.02
	(0.03)	(1.72)	(0.02)	(0.02)	(0.02)	(0.01)
Gini inequality index of Land owner.	-0.01	-0.01	-0.00	-0.00	-0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gini income inequality index	-0.00	-0.04	0.04	-0.01	0.03	-0.00
	(0.04)	(0.04)	(0.07)	(0.04)	(0.04)	(0.04)
Bishop city						- 0.007*
						(0.004)
Etruscan city						- 0.02***
						(0.00)
Late bishop city						- 0.006
						(0.006)
Observations	1,982	1,942	400	1,981	1,981	1,982
R-squared	0.01	0.04	0.15	0.06		0.07