

Sovereignty, civic capital, and local development. A historical perspective in economic geography

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Abstract

We combine history with economic geography to shed light on the long-run determinants of territorial development differentials in Italy. Specifically, we study the effects of historical sovereignty change on current local economic development. We measure historical sovereignty change as the yearly number of changes of sovereignty that occurred in the period 1000–1861—that is, until the unification of Italy—and assess its effects on labor productivity in 2018. We estimate a negative effect of historical sovereignty change on current local economic development, and identify—both theoretically and empirically—civic capital as a plausible underlying mechanism.

Keywords: historical sovereignty change; civic capital; local economic development; Italy.

JEL classifications: N00, O43, R11.

Received: 19 February 2025. **Accepted:** 4 April 2026

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1. Introduction

History plays a crucial role in shaping local economic prosperity. Historical productive specializations (Becattini 1990; Glaeser et al., 2015), formal and informal institutions (North 1990), past entrepreneurship (Fritsch et al., 2019), innovations (Oppor and Andersson 2019), and creative talents (Serafinelli and Tabellini 2022), along with events such as climate shocks (Malpede and Percoco 2022) and diseases (Percoco 2013), are key factors to understand the long-term economic evolution of territories.

While the economic geography literature widely acknowledges the long shadow that history casts on local economic development (Boschma and Martin 2007; Liu 2009; Martin 2010; Henning 2019; Martin and Sunley 2022), and a growing body of empirical work documents persistent place-based effects (e.g. Muringani et al., 2021), less progress has been made in identifying and testing the specific mechanisms through which historical change translates into enduring spatial disparities. Much of the existing work is broad in scope and relies heavily on case-based or descriptive evidence (Gertler 2003; Essletzbichler and Rigby 2007; MacKinnon 2008), offering limited guidance on the long-run processes that underpin these patterns.

This article addresses this gap by theorizing and examining empirically the impact of historical (*de jure*) sovereignty changes—our proxy for long-run institutional change—on contemporary local development, and by assessing whether civic capital, defined as the set of norms and values shaping individuals' behavior in society (Guiso et al., 2011), is a plausible mechanism underpinning this relationship (Putnam et al., 1993). We argue that sovereignty transitions can shape the formation and evolution of civic capital within a territory, thereby influencing economic development and spatial disparities.

Sovereignty is generally defined as the authority with ultimate power and legal right to make and change laws independently of external control (Krasner 1999; de Jovenel 2012). Formal institutions “operationalize” sovereignty by serving as the mechanisms that enforce and embody sovereign power. They establish the rules, norms, and (political and administrative) procedures through which sovereignty is exercised. Consequently, changes in sovereignty, such as transitions from one ruling entity to another, can significantly influence institutional changes. Furthermore, changes in sovereignty can give rise to new customs, traditions, cultural values, and social norms—often referred to as informal institutions (North 1990)—and, in some cases, may even entail a shift in the language used in public life. Consequently, such transformations may polarize and fragment the population, eroding civic capital. A crisis of legitimacy surrounding the new sovereignty—especially among groups perceiving the change as externally imposed or elite-driven—can diminish trust both in institutions (i.e. institutional trust) and among individuals within society (i.e. interpersonal trust). Historical evidence suggests that populations often divide into at least two groups: namely, the “friends” and the “enemies” of the new ruler.¹ For this reason, every new change in sovereignty can undermine a territory's civic capital, leading to a readjustment in the dynamics of its long-term economic development: a path-dependent process shaped by the number of sovereignty changes occurred over time.

We rely on data drawn from the *Centennia Historical Atlas Research Edition* (CRE) database to measure historical sovereignty change by counting the annual number of sovereignty changes that occurred in Italian Local Labor Markets (LLM) from 1000 to 1861, and then assessing the long-run effects of historical sovereignty change on labor productivity in 2018.² We thus explore the empirical relationship between

1. For example, with the conclusion of the Neapolitan Republic in 1799 and the subsequent restoration of Bourbon rule in the Kingdom of Naples, a significant number of patriots who were sympathetic to the French were either condemned to death or forced into exile (Rao 2021); conversely, when the French returned to power in 1806, members of the Bourbon elite were themselves exiled (Davis 2006). A recent example is provided by the case of *Brexit* (Christian and Peters 2025): this example illustrates how successive changes in sovereignty can fragmentate a society and diminish trust among individuals.
2. The rationale behind choosing the LLM as the unit of analysis stems from the fact that LLMs are sets of contiguous municipalities wherein the majority of the labor force resides and works within the same geographical area. LLMs are often regarded as superior for capturing the homogeneity of social and cultural values within a geographical area (Becattini 1990). This is for at least three reasons. First, they are deeply intertwined with the surrounding social and political fabric, thus offering a closer picture of cultural norms, traditions, and values prevailing within a local community. Second, LLMs

historical sovereignty change and current local development in Italy, a country characterized by significant geographical heterogeneity in economic development. Additionally, Italy's complex history of sovereignty changes and state fragmentation up to its unification in 1861 further enhances its suitability for such analysis.

We also propose a theoretical framework that connects sovereignty change, civic capital, and local development. This framework helps elucidate the enduring impact of historical sovereignty change on present-day local economic outcomes through an underlying mechanism concerning civic capital (Putnam et al., 1993). First, we model civic capital formation and evolution in response to changes in sovereignty by examining the co-evolution of two types of trust, namely institutional and interpersonal trust (OECD 2017). The central idea is that certain groups within the population interpret a change in sovereignty as a “breach of trust” by the ruling authority. Consequently, a high frequency of sovereignty changes can lead not only to diminished trust in the ruling authority (i.e. institutional trust) but also to reduced trust among individuals (i.e. interpersonal trust), thus suggesting a complementary relationship between these two types of trust.³ Second, we develop a trust-augmented endogenous growth model with fixed labor force participation and a savings coefficient that depends on the trust levels to illustrate the persistent effect of historical sovereignty change on local development.

Our empirical analysis produces several noteworthy results. First, we find a negative effect of historical sovereignty change on current local development by estimating this relationship through both Ordinary Least Squares (OLS) and an instrumental variable (IV) approach, where we exploit exogeneity associated with the variability in the historical availability of subsistence resources. We thus show that present-day local development in Italy tends to be lower in those LLMs where sovereignty changed more frequently over time. Second, we provide evidence of the negative effect of historical sovereignty change on both the institutional and interpersonal dimensions of contemporary civic capital. Finally, we provide evidence of a positive association between contemporary civic capital and economic development based on structural model estimates.⁴

From a broader perspective, our contribution to the economic geography literature is threefold. First, we identify a causal relationship between sovereignty changes over time—our proxy for long-run institutional change—and contemporary local economic outcomes. Second, we show that civic capital is a plausible mechanism underlying this relationship: sovereignty transitions can erode a territory's stock of civic capital and, in turn, reshape its long-run development trajectory. Frequent sovereignty changes may undermine civic capital by weakening trust—both between the ruling authority and the population, and among members of the population. Through this channel, institutional change can have persistent effects on local development. We further provide theoretical evidence that these two types of trust—that is, institutional and interpersonal trust—co-evolve over time and are complementary. To the best of our knowledge, this is among the first studies in economic geography to document these patterns. Third, we contribute to the ongoing debate on the conceptualization of history in economic geography. Specifically, we demonstrate that a local system's civic capital endowment and, consequently, its current economic

operate within specific socio-political contexts, enabling them to adapt to and embody prevailing social and cultural values. Moreover, high levels of community participation and engagement in LLMs foster a sense of collective identity and shared values among workers and employers, contributing to greater homogeneity in social values within the local system (Becattini 1990). Finally, their deep historical roots provide a stable framework within which social, cultural, and political values can persist over time.

3. In the literature on trust, a relationship of substitutability rather than complementarity between institutional trust and interpersonal trust is, in some cases, assumed. For example, in Chiaromonte (Lucania) in the early 1950s, as studied by Banfield (1958), the absence of trust in public officials, the law, and the state in general led to the phenomenon known as “amoral familism.” This term describes the absence of trust among family members toward all individuals outside the family nucleus. However, even in such a context where the two types of trust are substitutes, the short change of sovereignty linked to the French-led Neapolitan Revolution of 1799 (Rao 2021) polarized society in the Italian *Mezzogiorno*, dividing many families between supporters of the French and supporters of the dethroned Bourbons.
4. We also complement the long-run analysis with shorter-term evidence examining the relationship between historical sovereignty change, civic capital, and development in the aftermath of Italian unification.

development are shaped not by a single historical shock, as in basic New Economic Geography (NEG) models (Krugman 1991a,b), but by a sequence of historical events, especially shifts in sovereignty over time. This perspective on historical processes aligns with the concept of regional path dependence (Martin and Sunley 2006) in Evolutionary Economic Geography (EEG), where a sequence of historical events or processes can profoundly influence a region's current economic outcomes, thereby shaping contemporary spatial economic patterns and disparities within a country. Such sequences may lead to path dependence, where regions or local systems follow specific developmental trajectories driven by self-reinforcing mechanisms (Boschma and Lambooy 1999; Martin and Sunley 2006). We argue that these conceptualizations better capture “real history” and its effects on contemporary socio-economic outcomes (Henning 2019). In this way, we align with the EEG view that economic geography is fundamentally a “historical social science” (Martin and Sunley 2022: 67), and with the idea that a less abstract conceptualization of history should be developed (Henning 2019).

The remainder of the paper is organized as follows. We discuss the link between history and local development in the economic geography literature in Section 2. We illustrate the empirical framework in Section 3. We present evidence on the relationship between historical sovereignty change and local development in Section 4. In Section 5, we explore the underlying mechanism by first presenting our theoretical model and then testing the relationship between historical sovereignty change and civic capital. Section 6 concludes the paper.

2. Conceptual framework

2.1 History and local development in economic geography

That history has a long-lasting impact on economic growth is widely recognized in economics—see Nunn (2020) for a review. The enduring influence of history on the spatial distribution of economic activities has also become a key topic in economic geography. Indeed, this literature recognizes the relevance of historical events and past local characteristics in influencing current levels of entrepreneurship, innovation, and development (Fritsch et al., 2019; Oppen and Andersson 2019; Fritsch et al., 2024).

The “historical turn” in economic geography has emerged from two recent strands of literature, that is, NEG and EEG, both of which emphasize history as a key determinant in explaining local economic dynamics and development (Liu 2009; Garretsen and Martin 2010). However, significant differences exist regarding the conceptualization of history and path dependence, and their relationship with local economic development.

In basic NEG models developed to understand uneven spatial development, particularly the phenomenon of spatial agglomeration of economic activities (Krugman 1991a,b), the equilibrium outcome depends on the initial conditions (e.g. the initial location patterns), which capture history (Liu 2009). Different initial conditions can lead to distinct equilibrium landscapes, resulting in multiple stable equilibria. NEG models consider path dependence, but they deny any real historical significance, identifying this concept with the instantaneous movement from one equilibrium to another after an exogenous shock (Garretsen and Martin 2010).

This conceptualization of history is generally regarded as overly simplistic and abstract (Carpataux and Crevoisier 2007; Liu 2009). Since history is merely a “hypothetical history”—that is, “a story about how the economy evolves over time, allowing us to explore only a limited subset of the vast, perhaps infinite, possibilities” (Fujita et al., 1999: 23)—the historical process is seen as a selection process among multiple equilibria, leading to a new equilibrium. Needless to say, this logical and abstract conception of time differs significantly from any real, historical time (Boschma and Frenken 2006; Henning 2019).

The EEG literature (Boschma and Frenken 2006, 2011; Martin and Sunley 2006; Boschma and Martin 2007; MacKinnon 2008; Martin 2010), based on core evolutionary principles such as variety, selection, and retention (Boschma and Lambooy 1999), also takes history seriously by recognizing the relevance of place-specific characteristics and dynamic processes in explaining the temporal evolution of territories.

In EEG, the “historical turn” is primarily associated with the concept of regional path dependence.⁵ The key idea is that initial historical accidents or random events can have long-term consequences through self-reinforcing, increasing returns mechanisms that “lock in” a particular regional development trajectory (Boschma and Lambooy 1999; Martin and Sunley 2006). In other words, current socio-economic outcomes depend on the early characteristics or historical events of a place, as well as on the adjustment processes triggered by these past events. Therefore, these processes can significantly affect contemporary spatial economic patterns and within-country disparities.

In this paper, we also examine the relationship between history and local development. Specifically, we hypothesize that the economic performance of a territory is not influenced by a single historical shock as in NEG basic models, but by a sequence of historical events, particularly changes in sovereignty over time. We argue that each change of sovereignty within a territory sets a new trajectory for local development. Such historical shocks are consistently associated with adjustments in the long-term dynamics of local economic development and, as a result, territories that have undergone different numbers of sovereignty changes—that is, different sequences of historical events—display distinct, path-dependent development trajectories. In this regard, our perspective on the relationship between history and local development aligns more closely with that advanced in recent EEG contributions.

2.2 Civic capital as the underlying mechanism

2.2.1 Historical institutions, sovereignty change, and civic capital

The literature widely recognizes that historical institutions can have long-lasting effects on current social norms, cultural values, and civic capital (Putnam et al., 1993; Nunn 2020). This has been documented through various historical contexts, including the Habsburg Empire (Becker et al., 2016), the Italian city-states of the Middle Ages (Guiso et al., 2016), and the separation and reunification processes in Germany (Fuchs-Schündeln and Schündeln 2005; Alesina and Fuchs-Schündeln 2007; Becker et al., 2020). This literature shows that the emergence of certain historical institutions fostered the development of social and cultural values among the populations living in these territories, and that these “cultural traits” were subsequently transmitted across generations and continue to influence present-day civic capital.

As Acemoglu et al. (2021: 365) note in their discussion on institutional change and institutional persistence, “change is as much a part of our experience as is persistence.” Indeed, institutions can change significantly due to political and administrative reforms or shifts in governance structures. A historical example is Napoleon’s rule over several European countries, including Germany, Spain, and Italy, during the first fifteen years of the nineteenth century. This period brought about radical institutional changes through the introduction of the Napoleonic administrative tradition (Peters 2021; Cainelli et al., 2026) and the implementation of the *Code Napoléon* (Acemoglu et al., 2011).

However, only a few recent studies have thoroughly examined the role and effects of historical institutional change on contemporary social norms, cultural values, and socio-economic outcomes (Abramson et al., 2022). A central issue is identifying appropriate proxies for measuring institutional change from a historical perspective. Without suitable proxies, capturing the complex nature of institutional evolution over time becomes challenging, which impedes our ability to analyze its effects on cultural values, social norms, and economic outcomes. An interesting proposal comes from Abramson et al. (2022), who proxy institutional change through historical border changes at the regional level. Although borders are not institutions *per se*, they are crucial components of the institutional structures that define and regulate a state’s interactions within its territory and with other states (Carter and Goemans 2018). In this sense, borders can be viewed as institutions that delineate jurisdictions and, thus, shape individual behaviors and expectations (Abramson and Carter 2016). Abramson et al. (2022) demonstrate that historical border changes are associated with contemporary measures of people’s political and social trust in Europe.

5. Relational economic geography also emphasizes the role of path dependence, temporal context, and contingency (Bathelt and Glückler 2003).

Individuals living in geographical areas whose borders have changed frequently over time, thus preventing the establishment of stable patterns of social interactions and making it difficult to form a cultural, linguistic, and social identity, tend to exhibit lower levels of political and social trust.⁶ In other words, border changes seem to have played a crucial role in shaping the social norms and cultural values of contemporary societies, as well as in influencing individual decision-making processes through several mechanisms. Specifically, [Abramson et al. \(2022\)](#) identify two mechanisms that can account for these results. The first involves a reduction in the homogeneity of a region's cultural, political, and social values. Frequent changes in borders may lead to the fractionation of the system of social norms and cultural values of a local population. Consequently, greater fragmentation or heterogeneity can lead to reduced trust among the individuals residing in that area. The second mechanism suggests that border changes may inhibit interpersonal relationships and the formation of social networks. Modern-day examples of these phenomena include the Berlin Wall and the separation barriers in Jerusalem, where individuals lost the ability to commute to their jobs or visit family members ([Getmansky et al., 2019](#)). Walls, borders, and other forms of barrier—such as the regulatory obstacles many states impose on immigration—impede the formation of social networks and, consequently, the development of shared norms and values.

An alternative proxy for measuring long-term institutional change is the shift in sovereignty within a geographical area. Sovereignty refers to the authority that holds the ultimate power and legal right to make and change laws independently of external control ([Krasner 1999](#); [de Jouvenel 2012](#)), while institutions—often defined as “the rules of the game” ([North 1990](#): 3)—establish norms, laws, and regulations that operationalize sovereignty. Therefore, changes in sovereignty can significantly impact institutions. Moreover, institutions shape the incentives and constraints faced by individuals, thus influencing their behaviors and decisions and, consequently, their cultural values and social norms ([North 1990](#)).⁷ Some historical examples can support our argument regarding the impact of sovereignty on institutional change. The entry of the French Revolutionary Army into the Kingdom of Naples in February 1806 led to a new organization of the state and the establishment of new administrative institutions ([Davis 2006](#); [Cainelli et al., 2026](#)). Similarly, the transition from Spanish to Austrian control of the Duchy of Milan in the first half of the eighteenth century led to significant institutional reforms across various levels of public administration ([Capra 1987](#)).⁸

These shifts in sovereignty can serve as a meaningful measure of institutional change over time. This is indeed the approach we adopt in our analysis and, to our knowledge, no other paper has utilized this proxy to capture institutional instability over time.

2.2.2 Civic capital and local development

The idea that civic capital is fundamental to local development dates back to the pioneering works of [Coleman \(1988\)](#), [Putnam et al. \(1993\)](#), and [Fukuyama \(1995\)](#).⁹ Civic capital emerges from a historical and geographical experience ([Putnam et al., 1993](#)) as a “community-specific set of productive intangible

6. In a similar vein, [Giuliano and Nunn \(2021\)](#) use data from the United States to demonstrate that the similarity and stability of the environment across different generations contribute to contemporary cultural persistence. They find that individuals residing in geographical areas that experienced significant climate instability in the past exhibit lower levels of persistence in cultural traditions.

7. Of course, this is not the only definition of institutions. In the context of relational economic geography, institutions are defined as “stabilizations of mutual expectations and correlated interactions between individual or collective actors” ([Bathelt and Glückler 2014](#): 341).

8. It is worth noting that there are also some examples of a change in sovereignty that does not result in a change of the overall institutional system. For instance, after the Congress of Vienna, the Bourbons, upon being reinstated in the Kingdom of Naples, maintained the administrative institutions inherited from the “French Decade” (1806–1815) while restoring some institutions of the *Ancient Regime* (e.g. civil status and property rights). Of course, this issue can also be extended to the analysis of borders. For example, the Kingdom of Naples retained its borders largely unchanged over centuries despite being under Angevin, Spanish, Bourbon, and French domination in the period 1282–1860.

9. [Putnam et al. \(1993\)](#) demonstrates that Southern Italy's deficiency in civic capital has resulted in slower economic development compared to Northern Italy, which benefits from a greater endowment of civic capital.

assets” (Ganau and Rodríguez-Pose 2023: 529). These assets are typically associated with a system of shared cultural values and social norms that reduce fragmentation and heterogeneity within the local community.¹⁰ In this regard, the geographical scale at which interactions between individuals (i.e. interpersonal trust) and between individuals and ruling institutions (i.e. institutional trust) primarily occur is the local level (Putnam et al., 1993; Newton and Montero 2007). Indeed, interpersonal trust develops in the presence of frequent personal interactions, which arise only when individuals live and work within the same territory. Trust in institutions develops under the same conditions: the experiences that individuals have with local institutions play a fundamental role in shaping their trust in the national institutional system and, more generally, in those who hold sovereignty (Rodríguez-Pose 1998; Rodríguez-Pose and Storper 2006; Kaasa 2016; Muringani et al., 2024).

We argue that frequent changes in sovereignty can erode civic capital by weakening trust—both between the ruling authority and the population, and among members of the population. This is partly because some segments of the local population may interpret each sovereignty change as a “breach of trust” by the ruling authority. Indeed, a change in sovereignty may lead to changes in institutions, laws, and political-administrative systems, potentially disadvantaging certain segments of the population. Moreover, it can lead to a redistribution of power, whereby former elites lose to newly emerging elites. Finally, a change in sovereignty can redefine a territory’s collective identity: customs, traditions, and even the language used in public life may be altered under the new ruler, fostering distrust among certain segments of the population toward the new ruler and her institutions.¹¹

For this reason, changes in sovereignty can generate a crisis of legitimacy (Newton 2009), polarizing society into a segment of the population supporting the new ruler and institutions and another segment—perceiving the change as imposed by external forces or minority elites—opposing it. This increased heterogeneity and fragmentation of the population translates not only into lower trust in new formal and informal institutions but also into a reduction of interpersonal trust within society, thereby reducing a territory’s overall civic capital and, consequently, lowering its economic development trajectory (Newton 2009).¹²

Civic capital can influence a territory’s economic development through two channels that, in turn, affect the transaction costs faced by economic agents (Trigilia 2001; Rodríguez-Pose and Storper 2006; Trigilia and Burroni 2009; Muringani et al., 2024). First, highly legitimate governments and institutions make their actions more acceptable to the population (Newton 2009). This implies that higher levels of institutional trust may be associated with greater respect for the law and more effective public action (Muringani et al., 2024). Second, a high degree of institutional legitimacy encourages public participation and, consequently, promotes cooperative behavior both between individuals and institutions and across the broader community (Muringani et al., 2024). Both channels, by positively affecting civic capital, tend to reduce transaction costs, thereby influencing the economic development of the territory. Indeed, when civic capital is high, transaction costs are low, enabling large organizations to operate more efficiently and promoting faster financial and economic development (Alesina and La Ferrara 2002; Glaeser et al., 2002). This suggests that low transaction costs are generally associated with high levels of economic performance (Burker and Minerva 2014; Muringani et al., 2021). Conversely, low civic capital increases transaction costs, thus hampering local development.

10. Marshallian industrial districts and, more generally, productive clusters (Becattini 1990) exemplify these kinds of local communities with a high degree of cultural, political, and social homogeneity. This homogeneity, often resulting from long-standing historical traditions, is fundamental in explaining the higher levels of civic capital and lower transaction costs within these local systems. This is one reason for the success of Marshallian industrial districts.

11. We acknowledge that there may be cases in which a change in sovereignty does not produce all the effects described above. It is indeed possible that, in these cases, institutional persistence may prevail over change. Nevertheless, historical evidence appears to support, at least on average, our hypothesis: namely, that changes in sovereignty have played a fundamental role in shaping both formal and informal institutions.

12. Some examples can clarify this relationship. If the endowment of civic capital decreases, agents operating in a pre-industrial society allocate fewer resources—for example, grain—to savings and, consequently, to the investments necessary to increase agricultural productivity. In an industrial or post-industrial society, firms allocate fewer resources to investment in physical capital, with negative effects on capital accumulation and labor productivity.

In recent years, a substantial body of literature has empirically tested this relationship at the country, region, and firm levels. In general, empirical studies find a positive correlation between levels of civic capital and trust—measured in various ways—and socio-economic performance (Knack and Keefer 1997; Zak and Knack 2001; Beugelsdijk et al., 2004; Tabellini 2010; Ganau and Rodríguez-Pose 2023). In other words, civic capital positively affects the economic performance of countries, regions, and firms.

3. Empirical framework

3.1 Empirical modeling

We study whether historical sovereignty change exhibits long-run effects on current local economic development through the following cross-sectional regression equation:

$$\text{Labor Productivity}_l = \alpha + \beta \text{Sovereignty Change}_l + \sum_{k=1}^K \gamma_k X_l^k + \varepsilon_l \quad (1)$$

where the dependent variable captures the labor productivity of LLM $l = 1, \dots, 611$ in the year 2018; α is a constant term; *Sovereignty Change*_{*l*} is the variable capturing the historical sovereignty change in the period 1000–1861, with β being the associated parameter of our interest; X_l^k is a vector of LLM-specific control variables; and ε_l denotes the error term. The rationale for analyzing historical sovereignty change up to the year 1861 is that the process of unification of Italy was completed for most territories at that time—that is, sovereignty remains unchanged for most Italian territories starting from 1861.¹³

3.1.1 Labor productivity

We capture current local economic development through a measure of labor productivity defined as value added (thousand Euros) per employee in 2018, and constructed using data provided by the Italian National Institute of Statistics (ISTAT). Value added and employment figures are available for 610 LLMs existing in 2018, after the LLMs of Corigliano Calabro and Rossano were merged into the LLM of Corigliano–Rossano in that year. We retrieved value added and employment figures for the two merged LLMs by weighting for land area shares, so as to include in our analysis all the 611 LLMs identified by ISTAT in the 2011 *Industry and Services Census*.

3.1.2 Historical sovereignty change

We rely on a measure of historical sovereignty change that captures the yearly number of changes in sovereignty that occurred in the period 1000–1861 at the LLM level. We construct this variable by first identifying the geometric center of the polygon defining the boundaries of each LLM and, second, computing how many times over the relevant period (i.e. 1000–1861) the centroid of each LLM changed sovereignty, defined as a change in ruler with respect to the previous year.¹⁴ The data on sovereignties are drawn from the CRE database, which provides yearly shapefiles of historical sovereignty boundaries starting from year 1000.

13. Specifically, 84.29 percent of the Italian territory—as defined at the current borders—had already been annexed by the House of Savoy to the newborn Kingdom of Italy in 1861; 8.67 percent of it—that is, the Veneto region and some areas belonging to the regions of Friuli-Venezia Giulia, Lombardy, and Trentino-South Tyrol—had been annexed in 1866; 2.29 percent of it—that is, some areas belonging to the regions of Latium, Tuscany, and Umbria—had been annexed in 1870; and 4.75 percent of it—that is, most of Trentino-South Tyrol and some areas of Friuli-Venezia Giulia—had been annexed in 1920.

14. LLMs are mostly convex, such that their geometric centers fall inside their area.

3.1.3 Control variables

We include four sets of controls in the vector X_l^k entering the right-hand side of Equation (1) to relax biases related to unobserved heterogeneity, namely: geographical; demographic and economic; infrastructural; and historical variables.

The set of geographical controls aims at controlling for heterogeneity related to natural conditions that may affect economic development (Rosenthal and Strange 2004). It includes a variable for altitude from the sea level; an index of terrain ruggedness; a variable for the closest distance between the centroid of a LLM and the seacoast; a variable capturing the change in caloric suitability—as a proxy for crop-based potential agricultural output—between the pre- and post-1500 period; and macro-region dummy variables for Northern Italy, Central Italy, Southern Italy, and the two main islands of Sardinia and Sicily.¹⁵

The set of demographic and economic controls—all referring to the year 2011—includes a variable for resident population (thousand inhabitants) to account for the absolute size of a LLM; a variable for employment density defined as the number of employees per square kilometer (km) to account for agglomeration effects; the share of the tertiary-educated population to account for human capital endowment; unemployment rate to account for the conditions of the local labor market; and a dummy variable capturing whether a LLM was identified as an industrial district by ISTAT.¹⁶

The set of infrastructural controls aims at controlling for heterogeneity related to physical endowment that may affect firms' economic performance and, thus, aggregate local development (Glaeser and Gottlieb 2009). It includes variables for the density of navigable rivers, the density of national streets, and the density of railways.

Finally, the set of historical controls aims at controlling for historical initial conditions that may have affected local development in the long run. It includes a variable capturing the density of ancient Roman roads to control for exposure to ancient commercial routes that could have favored the growth of a LLM as a main trading, political, and administrative center (Dalggaard et al., 2022); a variable counting the number of Roman human settlements identified as cities in the period 100 B.C.–A.D. 300 and a dummy variable capturing the existence of a large city—with at least 10,000 inhabitants—in year 1000 to control for early urbanization processes and the early presence of large cities (Bosker et al., 2013); a variable counting the number of bishop seats in the year 1000 to control for the presence of first forms of political and institutional organization and coordination (Guiso et al., 2016); and a set of dummy variables capturing the six sovereignties dominating in the Italian peninsula in year 1859—that is, when the Italian unification process began with the annexation of the Milanese territories of the Kingdom of Lombardy–Venetia to the Kingdom of Sardinia—to control for pre-unification state-level institutional heterogeneity.¹⁷

3.2 Identification strategy

We begin our analysis by estimating Equation (1) via OLS. However, such results could be biased by endogeneity arising from heterogeneity across LLMs related to their attractiveness to potential

15. We consider changes in caloric suitability between the pre- and post-1500 period to account for “the expansion of suitable crops for cultivation [occurred] in the course of the Columbian Exchange” (Galar and Özak 2016: 3065).
16. Becattini (1990: 38) defines an industrial district as “a socio-territorial entity which is characterized by the active presence of both a community of people and a population of firms in one naturally and historically bounded area.” ISTAT identified 141 LLMs as industrial districts in the 2011 *Industry and Services Census*.
17. In 1859, the six sovereignties dominating the Italian pre-unification states were: the House of Bourbon–France in the Duchy of Parma and Piacenza; the House of Bourbon–Two Sicilies in the Kingdom of the Two Sicilies; the House of Habsburg–Este in the Duchy of Modena and Reggio; the House of Habsburg–Lorraine in the Grand Duchy of Tuscany, the Kingdom of Lombardy–Venetia, and the northeastern territories corresponding to the current regions of Friuli-Venezia Giulia and Trentino-South Tyrol that were part of the Habsburg Empire; the House of Savoy in the Kingdom of Sardinia; and the Papal States under Pope Pius IX. Table A1 (Supplementary Appendix A) summarizes the definition and data source of the variables entering Equation (1), while descriptive statistics are reported in Table A2 (Supplementary Appendix A). Fig. A1 (Supplementary Appendix A) reports the spatial distribution of the variables for labor productivity in 2018 and historical sovereignty change in the period 1000–1861.

conquerors. Indeed, the observed degree of historical sovereignty change may depend, *ceteris paribus*, on how attractive and of interest a territory was for conquest. In other words, we can hypothesize that some LLMs have been relatively more exposed to sovereignty changes over time than others due to their relatively higher attractiveness for conquest.

We thus rely on an IV approach and also estimate Equation (1) via Two-Stage Least Squares (TSLS). We instrument the variable for historical sovereignty change with the variability in the historical availability of subsistence resources captured by a variable defined as the LLM-specific standard deviation in the share of crop and pasture land in 100-year intervals over the period 500–1900. The rationale for the identification strategy rests on the idea that a lower variability in the availability of resources at a time when individuals' subsistence was mostly based on agriculture and pastoralism would have made a territory more attractive for conquest: indeed, *ceteris paribus*, the search for new and increased sources of livelihood for the population and the army can reasonably be counted among the reasons behind military invasions. Thus, conditional on observables, variability in the availability of subsistence resources in a period when industrialization had still to take place can be considered a good predictor of historical sovereignty change. In addition, the validity of the identification strategy is guaranteed by the fact that the IV is likely to be exogenous to local economic development in recent times, when the main sources of labor productivity are technological development and education.

We construct our IV using data drawn from the *History Database of the Global Environment* (HYDE, version 3.1), which provides information on human-induced land use changes in 100-year intervals over the period 10000 B.C.–A.D. 2005 with a 5 arc-minute spatial resolution (Klein Goldewijk et al., 2011). Despite the global scale of the database, its spatial coverage prevents us from computing the IV for all 611 LLMs we observe, as we lack information for the LLMs of Capri, Forio, and Ischia located on Ischia Island, and for the LLM of Lipari located on the homonymous island.

4. Evidence on historical sovereignty change and local development

4.1 Main results

Table 1 reports the results of the OLS and TSLS estimation of Equation (1), that point to a negative and statistically significant effect of historical sovereignty change on current local economic development.¹⁸ We estimate that every additional change in sovereignty that occurred in the period 1000–1861 leads to an average reduction in LLMs' labor productivity of approximately 1.02 thousand Euros in value added per employee—see Column (10).

Our results suggest that current local development tends to be lower in those LLMs where sovereignty changed more frequently over time. In other words, historical sovereignty change can be identified as a factor contributing to explain current economic development differentials at the local level.

4.2 Robustness and placebo analyses

We corroborate our results through a series of robustness tests—including the use of alternative dependent variables, inference tests, spatial analyses, and the use of an alternative IV—and placebo exercises, which are discussed in detail—and whose results are presented—in Supplementary Appendix B.

18. Looking at the TSLS results, it is worth noting that the first-stage F statistics on the excluded IV are higher than the conservative cut-off value of 10 in all the estimated specifications, thus suggesting a good predictive power of the chosen IV. Moreover, the estimated first-stage coefficients of the IV are highly statistically significant and show the expected negative sign, meaning that higher variability in the availability of subsistence resources made a territory less attractive for conquest and, thus, less subjected to sovereignty changes.

Table 1. Sovereignty change and local development.

Dependent variable	Labor productivity				
	OLS				
Estimation method	(1)	(2)	(3)	(4)	(5)
Sovereignty change	−0.091 [*] (0.050)	−0.099 [*] (0.059)	−0.111 ^{**} (0.055)	−0.141 ^{***} (0.053)	−0.117 ^{**} (0.057)
Geographical controls	No	Yes	Yes	Yes	Yes
Demographic and economic controls	No	No	Yes	Yes	Yes
Infrastructural controls	No	No	No	Yes	Yes
Historical controls	No	No	No	No	Yes
Observations	611	611	611	611	611
F statistic	129.44	140.64	125.20	103.91	72.33
R ²	0.60	0.60	0.66	0.66	0.68
Estimation method	TSLS				
	(6)	(7)	(8)	(9)	(10)
Sovereignty change	−0.765 [*] (0.408)	−0.710 [*] (0.376)	−0.747 ^{**} (0.325)	−0.907 ^{**} (0.375)	−1.023 ^{***} (0.365)
Geographical controls	No	Yes	Yes	Yes	Yes
Demographic and economic controls	No	No	Yes	Yes	Yes
Infrastructural controls	No	No	No	Yes	Yes
Historical controls	No	No	No	No	Yes
Observations	607	607	607	607	607
F statistic	109.33	102.20	87.61	63.50	44.08
First-stage F statistic on Excluded IV	13.96	16.30	18.28	15.15	19.95
Excluded IV	−15.420 ^{****} (4.127)	−16.460 ^{****} (4.077)	−17.649 ^{****} (4.127)	−15.794 ^{****} (4.058)	−18.032 ^{****} (4.037)

Notes: Robust standard errors in parentheses. All specifications include a constant term.

* $P < .1$; ** $P < .05$; *** $P < .01$; **** $P < .001$.

4.3 Industrial development in the aftermath of Italian unification

We also provide shorter-term evidence by examining industrial development in the aftermath of Italian unification to rule out potential confounding effects related to exogenous shocks—such as industrialization, wars, mass migration—that could have affected Italian local development between 1861 and current times.

We proxy for development in the Kingdom of Italy through the number of employees per 1,000 inhabitants in 1911, with data on employment digitized from the *Censimento degli Opifici e delle Imprese Industriali al 10 Giugno 1911*, published by the Italian Ministry of Agriculture, Industry and Trade in 1913.¹⁹ Employment and population figures are available for 581 LLMs whose constituent territories were part of the Kingdom of Italy in 1911.

Table 2 reports the results of the OLS and TSLS estimation of a modified version of Equation (1), which omits the sets of current LLM-specific demographic, economic, and infrastructural control variables, while controls for population density in 1911. This analysis corroborates the long-run results presented in Table 1: we find evidence of a negative and statistically significant effect of historical sovereignty change on industrial development in 1911. Specifically, we estimate that every additional change in

19. The *Censimento degli Opifici e delle Imprese Industriali al 10 Giugno 1911* was the first industrial census carried out by the Kingdom of Italy, and provides employment figures at the municipality level. We complement employment data with municipality-level population figures drawn from the 1911 *Population Census* provided by ISTAT. We have aggregated municipality-level employment and population data at the level of the LLMs identified by ISTAT in the 2011 *Industry and Services Census*.

Table 2. Sovereignty change and industrial development in the aftermath of Italian unification.

Dependent variable	Employees per 1,000 inhabitants in 1911	
Estimation method	OLS (1)	TSLS (2)
Sovereignty change	−0.019* (0.011)	−0.184** (0.085)
Geographical controls	Yes	Yes
Population density in 1911	Yes	Yes
Historical controls	Yes	Yes
Observations	581	577
F statistic	14.95	16.38
First-stage F statistic on Excluded IV	...	17.43
Excluded IV	...	−15.448**** (3.908)

Notes: Robust standard errors in parentheses. All specifications include a constant term.

*P < .1; **P < .05; *** P < .01; **** P < .001.

sovereignty that occurred in the period 1000–1861 led to an average reduction of approximately 1.84 employees per 10,000 inhabitants—see Column (2).²⁰

5. The underlying mechanism

We now discuss a potential mechanism underlying the link between historical sovereignty change and current local economic development, namely, people’s civic capital, defined as the set of norms and values affecting individuals’ behavior in society (Guiso et al., 2011).

We hypothesize that a high number of changes in sovereignty that occurred over time in a geographical area may have inhibited trust, cooperation, and stable patterns of interaction both between the institutions and the population and within the population, thus resulting in low levels of civic capital (Abramson et al., 2022). Thus, the rationale for civic capital being the “missing link” (Guiso et al., 2011: 417) between historical sovereignty change and current local economic development rests on the idea that reduced trust toward the institutions and reduced homogeneity of a local system in terms of political, cultural, and social values induced by high instability (Giuliano and Nunn 2021) have hampered institutional and social cooperation, as well as the formation of social networks; this, in turn, has discouraged the emergence of shared values among institutional and economic actors (i.e. the government, public authorities, households, workers, entrepreneurs) resulting in increased transaction costs (Burker and Minerva 2014) and low investment levels (Schmitz 2023), with negative effects on local development.

5.1 Modeling persistence of sovereignty changes

We propose a simple theoretical model that links sovereignty change, civic capital, and local economic development. Following Guiso et al. (2011: 418), civic capital can be defined as “the set of values and beliefs that help cooperation,” with mutual trust being a prerequisite for civic capital formation (Bracco et al., 2015). Thus, for simplicity, we model the evolution of two types of trust as a proxy for civic capital formation, that is, institutional trust and interpersonal trust (OECD 2017).²¹

20. The results presented in Table 2 are fully corroborated when accounting for spatial dependence a la Conley (1999) with distance cut-off values in the error structure set at 50 and 200 km, respectively—see Table B13 (Supplementary Appendix B).

21. Figure C1 (Supplementary Appendix C) shows a strong cross-country positive correlation not only between Gross Domestic Product (GDP) per capita and institutional and interpersonal trust, respectively, but also between the two types of trust we consider to model civic capital formation.

5.1.1 Modeling the evolution of trust

We model trust between the sovereignty and the general population (i.e. institutional trust) by borrowing from game theory; that is, we consider the sovereignty and the population as players in an iterated prisoner dilemma.²² Individuals within the population can either cooperate with the ruling sovereignty or defect. Cooperation consists in, for example, paying taxes and following the rules imposed by the sovereign authority without trying to subvert it with violence, while defection represents the opposite behavior. Similarly, a sovereign authority can cooperate with members of the population by providing them with an acceptable standard of living, and peaceful if not prosperous conditions, while it is understood as defecting when it does not meet these requirements.²³

We assume that at any given time t a fraction u of the population is willing to cooperate with the sovereignty, while the remaining members of the population are not. We also assume that a fixed proportion of the cooperating population sees a sovereignty change, when occurring, as a defection, and adopts a tit-for-tat strategy thereby ceasing to cooperate for the time being. We thus model the evolution of the cooperating fraction u of the population as follows:

$$\frac{du}{dt} = f(u) - bu \sum_{i=1}^N \delta(t - t_i) \quad (2)$$

where $0 \leq u(t) \leq 1$ represents the fraction of the population that chooses to cooperate with the ruling sovereignty at time t ; $f(u)$ is a continuous function defined in the interval $[0, 1]$ that determines the slow evolution of cooperation over time due to enculturation phenomena within the population; b is a constant representing the fraction of the population seeing a regime change as a “breach of trust” on the part of the sovereignty; δ denotes the Dirac’s delta function, also known as impulse function, that has a value of zero everywhere except when $t = t_i$, where it spikes to infinity such that $\int_{-\infty}^{\infty} \delta(t - t_i) dt = 1$; t_i is the time at which a sovereignty change occurs.

The choice of $f(u)$ has a crucial impact on the dynamics of societal trust as predicted by the model, as it represents the rate at which trust in institutions spreads from one citizen to another. For instance, setting $f(u) = 0$ identically would result in a constant fraction of the population cooperating with the sovereignty in-between regime changes, with a decay by a factor b at every change of sovereignty. Ultimately, the form of $f(u)$ is an empirical question which can be settled by uniformly measuring institutional trust over time. A reasonable form for $f(u)$, whose parameters may in principle be estimated empirically, is as follows:

$$f(u) = au(1 - u) \quad (3)$$

with a being a fixed coefficient of proportionality. The factor $u(1 - u)$ corresponds to the fraction of pairwise interactions between citizens that hold opposite stances in terms of trust in the institutions. If we assume that cooperators do not trust defectors and vice versa—as it is common in the context of political divisions—, then a measure of “trust in the others” or interpersonal trust as opposed to institutional trust can be defined as follows:

$$v(u) = -u(1 - u) \quad (4)$$

Substituting Equation (3) into Equation (2) yields:

22. Game-theoretical concepts at this stage are used as a starting point for our modeling, but we do not intend to imply that the entire historical evolution of trust and its intricacies can be reduced to a static game.

23. Clearly, whether the counterpart cooperates or defects is partly a subjective judgement, so we will refrain from modeling it in detail here.

$$\frac{du}{dt} = au(1 - u) - bu \sum_{i=1}^N \delta(t - t_i) \quad (5)$$

with Equation (5) predicting a logistic growth of the fraction of cooperating population over time in-between “breach-of-trust events” at times t_i . The appeal of this form derives from the intuitive expectation that cooperative behaviors spread through interpersonal contacts and interactions, such that cooperation increases as the current cooperators (proportional to u in number) spread their values to the current non-cooperators (proportional to $1 - u$ in number). Thus, the parameter a can be interpreted as the speed of propagation of these values in the society.²⁴ Equation (5) shows that the rate of change of trust in institutions (u) is maximal when interpersonal trust (v) is minimal: in other words, politically polarizing change breaks the fabric of society.

In the absence of sovereignty changes, that is, when Dirac’s delta function is equal to zero, the fraction of the population that chooses to cooperate with the ruling sovereignty grows over time (Fig. 1a). Fig. 2a, instead, shows the dynamics of interpersonal trust in the absence of shocks: interpersonal trust hits its minimum as the share of population regaining trust in the ruling sovereignty approaches 0.5. In other words, interpersonal trust is at its lowest when half of the population trusts the ruling sovereignty and another half does not. Eventually interpersonal trust grows.

By contrast, the cooperation level between the ruling sovereignty and the population (i.e. institutional trust) falls abruptly in the case of a sovereignty change (Fig. 1b). The possibility and speed of cooperation level recovery would depend on the frequency of sovereignty changes, the initial level of cooperation in society, the share of the population that sees a regime change as a “breach of trust” (i.e. the parameter b), and the timescale for regaining trust modulated by the parameter a . Fig. 2b, instead, shows the corresponding dynamics of interpersonal trust: the shock hits when interpersonal trust is at its lowest and, thus, has a rather short-lived effect on interpersonal trust recovery.

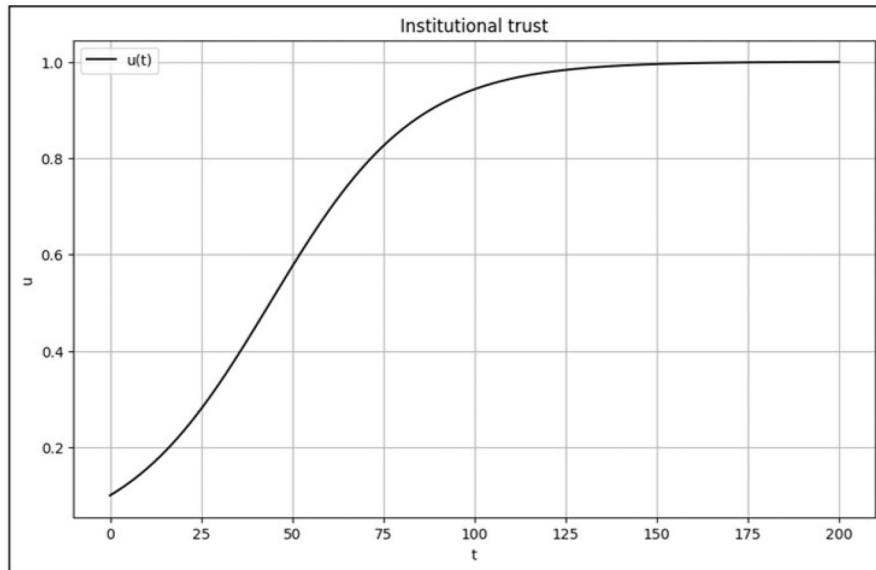
5.1.2 Trust-augmented local economic development

We model the effect of the evolution of institutional trust and interpersonal trust and, therefore, of civic capital on local economic development by relying on a trust-augmented version of Lucas’ (1988) endogenous growth model with fixed labor force participation and the savings coefficient s depending on the trust levels u and v .²⁵ We thus incorporate a historical and institutional dimension into an endogenous growth model, and look at the regional evolution under this novel perspective (Martin and Sunley 1998). The positive relationship between trust and capital accumulation has been shown both theoretically (Zak and Knack 2001) and empirically (Dearmon and Grier 2011) in a cross-country setting. Moreover, firms’ credit access and investment decisions largely depend on the level of mutual trust in society (Knack and Keefer 1997) and result in productivity growth (Ganau and Rodríguez-Pose 2023).

The choice of Lucas’s (1988) model is motivated by our long-term temporal horizon, which necessitates a model capable of capturing the historical exponential growth of output in Italy. Lucas’s (1988) endogenous growth model features human capital that, unlike physical capital, is not limited by diminishing returns. We thus model the evolution of capital per capita (k)—with depreciation rate ρ —as follows:

24. Some support for this functional form can be gleaned from data on municipal waste segregation. Indeed, in the early 2000s, the percentage of segregated municipal waste in Italy had been growing exponentially as in the early part of a logistic curve (Ferraris and Paelari 2013). The percentage of waste segregation can be seen as a measure of cooperation between the general population and the public authority (i.e. the ruling sovereignty) managing waste.
25. Endogenous growth models have been recently used in the field of economic geography to account for the role of social capital (e.g. Ganau and Rodríguez-Pose 2023) and institutions (e.g. Rodríguez-Pose and Di Cataldo 2015; Rodríguez-Pose and Ganau 2022) in explaining innovation patterns and development at the firm and region levels.

(a) Absence of a sovereignty change



(b) Presence of a sovereignty change

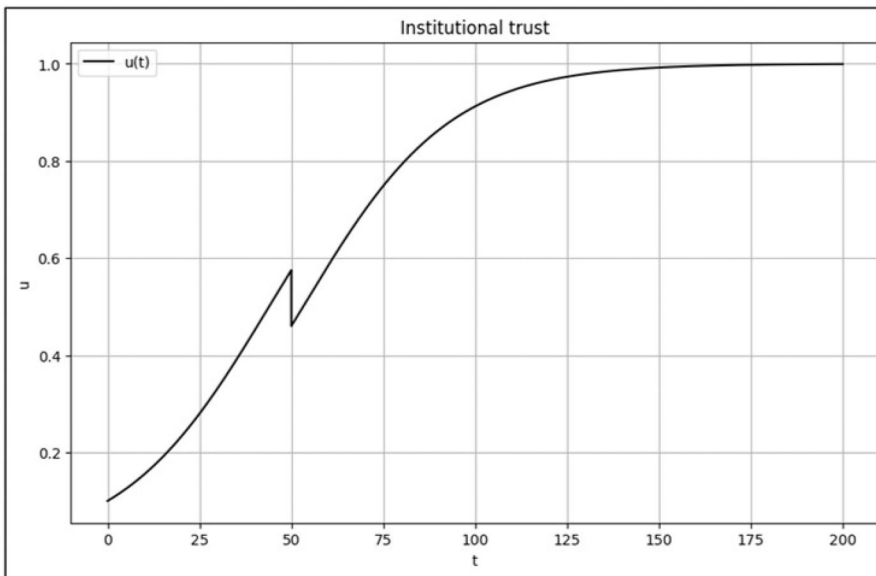
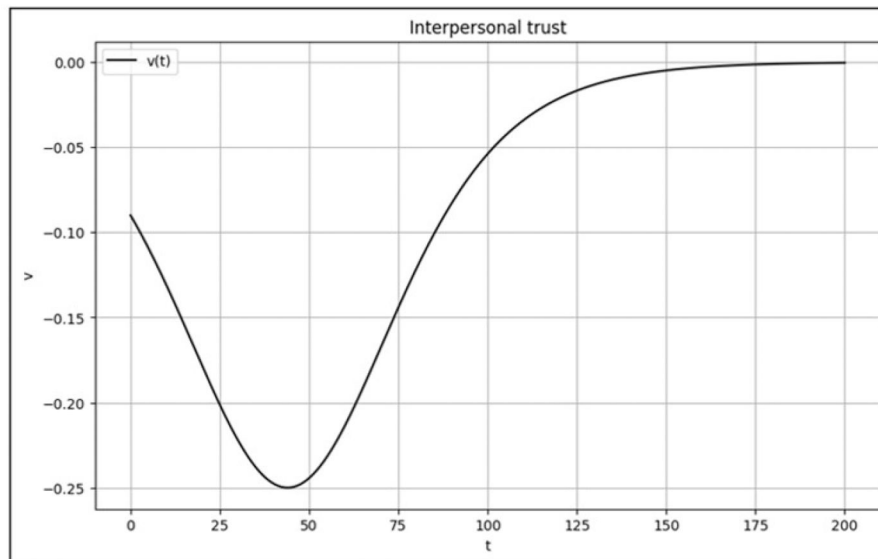


Figure 1. Institutional trust dynamics in the (a) absence and (b) presence of a sovereignty change.

Notes: In Panel (a), if we assume a logistic functional form of the evolution of institutional trust, a society reaches predominant cooperation with the institutions in the absence of regime changes, that is, $u(t)$ reaches the value of 1. In Panel (b), the level of cooperation in the society falls abruptly because of a sovereignty change at time $t = 50$. However, logistic growth continues undisturbed afterward, as the level of u was relatively high at time t . Both curves in the figures correspond to the following parameters of $u(t)$ evolution: $a = 0.02$ and $b = 0.2$.

(a) Absence of a sovereignty change



(b) Presence of a sovereignty change

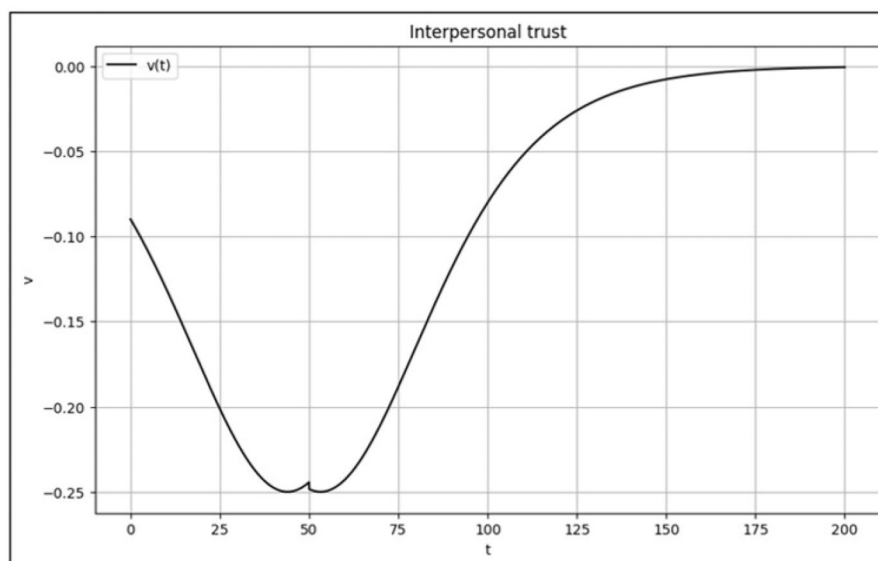


Figure 2. Interpersonal trust dynamics in the (a) absence and (b) presence of a sovereignty change.

Notes: Panel (a) depicts evolution of interpersonal trust $v(t)$ in society, with $v(t)$ reaching its minimum value as institutional trust $u(t)$ is at 0.5, that is when society is fractured in half regarding institutional trust. Eventually, as $u(t)$ increases above 0.5 to 1, $v(t)$ also increases and reaches its highest value. In Panel (b), a sovereignty change that occurs at time $t = 50$ impact $v(t)$ through its relationship with institutional trust. However, the effect is short-lived, as the shock occurred when $v(t)$ was already around its minimum. Both curves in the figures correspond to the following parameters of $u(t)$ evolution: $a = 0.02$ and $b = 0.2$.

$$\frac{dk}{dt} = s(u, v)k^\alpha h^{1-\alpha} - \rho k \quad (6)$$

with $s(u, v) = u + v$ for simplicity, implying that institutional and interpersonal trust contribute additively to the savings rate. We can thus calculate the output per capita (y) as follows:

$$y = k^\alpha h^{1-\alpha} \quad (7)$$

In this model, h represents human capital accumulation that, for a fixed Φ , results in an exponential growth as follows:

$$\frac{dh}{dt} = \Phi h \quad (8)$$

Bearing in mind that the logistic growth of $u(t)$ is subject to sovereignty change shocks, we consider the system of ordinary differential Equations (5), (6), and (8) and solve it numerically using the Euler method with a time step of 10^{-3} years by integrating from the year 1000 (set as $t = 0$) to the year 2000.²⁶ We then rely on sovereignty change data drawn from the CRE database to study the evolutionary path of two similar LLMs that have experienced different sequences of sovereignty change shocks—that is, that have experienced low and high historical sovereignty change—in the period 1000–2000, respectively. We specifically model the evolution until the year 2000 in order to highlight the persistence of differences in the outcomes of interest, even though the two LLMs' most recent historical changes—that is, from around the Italian unification, which occurred in 1861—follow the same pattern. The results concerning the evolution of institutional and interpersonal trust in the presence of two different shock sequences are shown in Fig. 3, and highlight a persistent gap in the level of trust between the two LLMs. The results concerning the evolution of output per capita—defined in terms of GDP—are shown in Fig. 4: it is evident that, despite sharing the same history of stability since the Italian unification, the model still predicts a standing difference in GDP per capita between the two LLMs today.

5.2 Testing the link between historical sovereignty change and civic capital

We test the proposed mechanism empirically by relying on alternative proxies to capture the two dimensions underlying civic capital formation, that is, institutional and interpersonal trust. We do not have data allowing us to measure the two types of trust directly at the LLM level and, therefore, we can only rely on sets of variables capturing cooperative behaviors between the institution and the population and among individuals in society, respectively.²⁷

We proxy the institutional dimension of civic capital formation through three variables: voter turnout at the Italian referendum of June 2011; TV tax evasion in 2014; and waste recycling in 2013. We consider referendum voter turnout as it captures “the extent to which people in a community are willing to pay a personal cost to enhance the common good” without receiving any “direct economic payoff to voting” (Guiso et al., 2011: 453). In this respect, referendum voter turnout captures people's trust in and willingness to cooperate with institutions (Putnam et al., 1993; Guiso et al., 2004). We consider the share of households not paying the mandatory, fixed-rate TV licensing fee (i.e. *canone*) as its evasion can be considered a good proxy for individuals' propensity to free-ride and elude institutions, as its payment is “a pure public good contribution with almost no incentive to comply” (Buonanno et al., 2023: 4), capturing individuals' “sense of civic duty” (Buonanno and Vanin 2017: 164). We consider the percentage of urban waste recycled as, similarly to voter turnout and TV tax evasion, can be considered a good proxy for

26. The initial conditions of the integration process are set as $h(0) = 1$, $k(0) = 1$, and $u(0) = 0.1$, while the coefficients are set as $\delta = 0.05$, $\Phi = 0.005$, $\alpha = 0.6$, $\alpha = 0.01$, and $b = 0.1$.

27. We present suggestive evidence by relying on survey-based trust measures in Supplementary Appendix C.

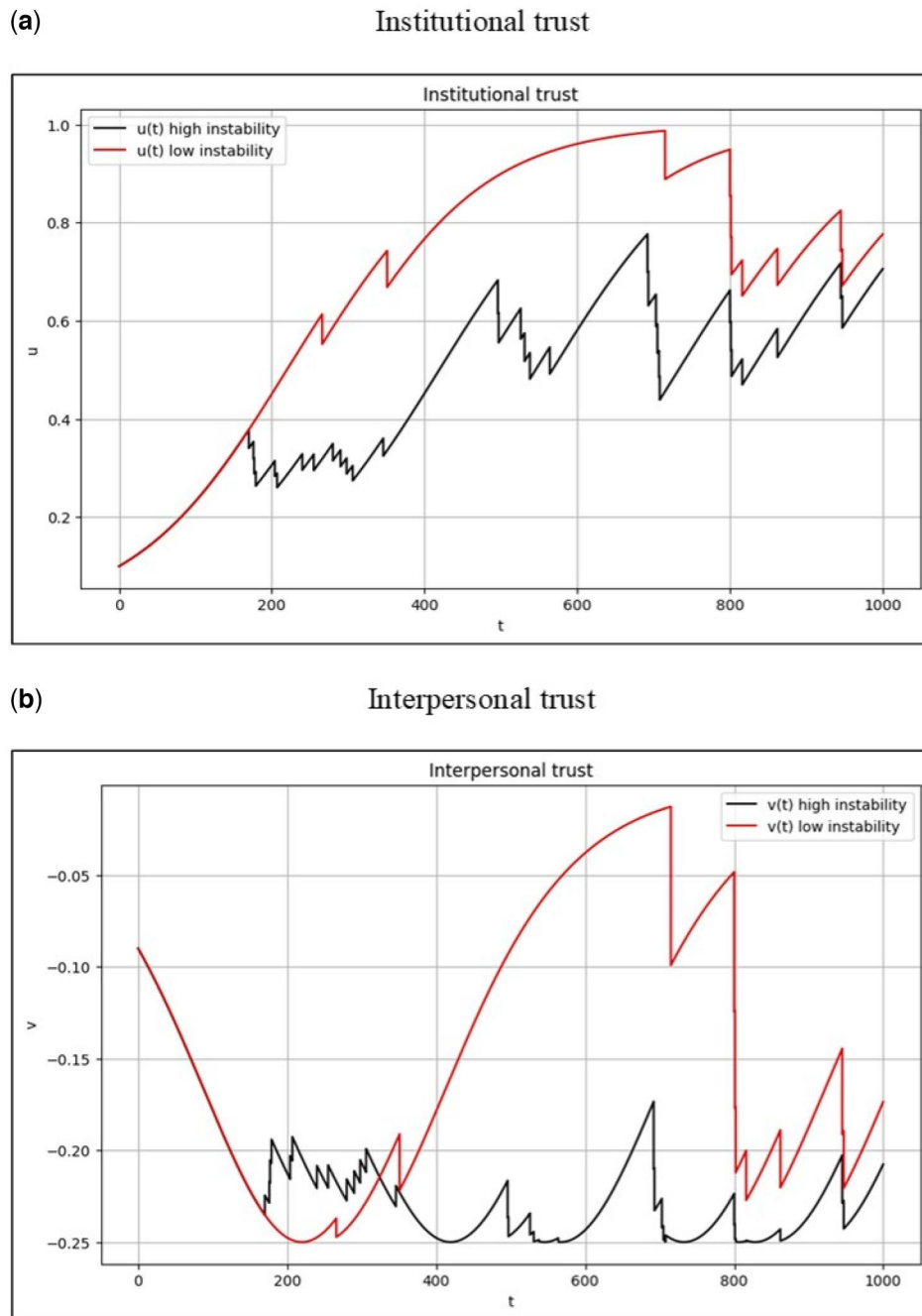


Figure 3. Long-term evolution of trust under two sequences of sovereignty shocks. (a) Institutional trust and (b) interpersonal trust.

Notes: In Panel (a), the red line depicts the evolution of u in a LLM that has experienced ten sovereignty changes, while the black line refers to a LLM that has experienced thirty-three sovereignty changes in a 1,000-year period. In Panel (b), the red line depicts the evolution of v in a LLM that has experienced ten sovereignty changes, while the black line refers to a LLM that has experienced thirty-three sovereignty changes in a 1,000-year period.

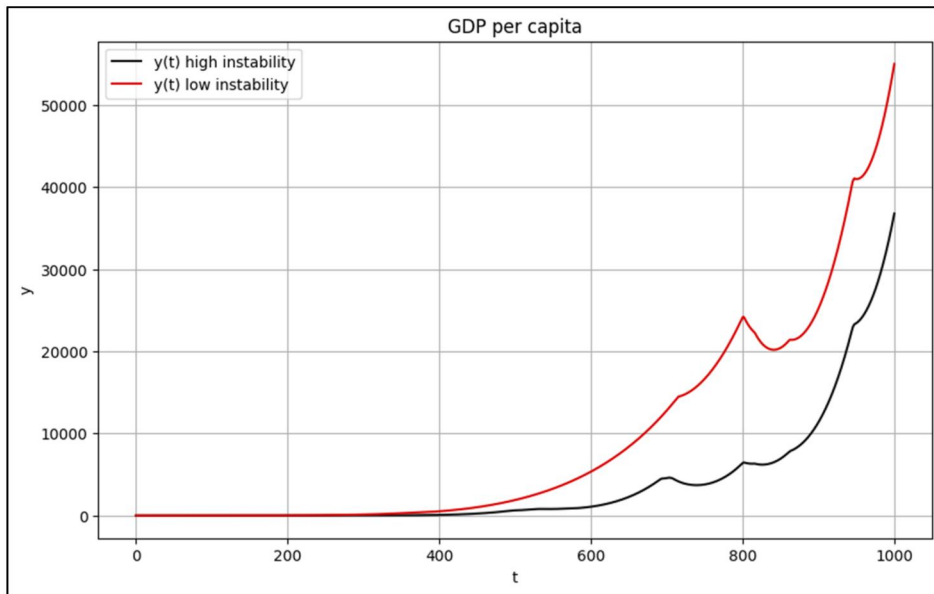


Figure 4. Long-term evolution of trust-augmented GDP per capita.

Notes: A higher number of sovereignty changes (black line) results in a lower long-term economic development level.

individuals' sense of civic duty and willingness to cooperate for the common good and, especially, with the public authority managing waste at the local level.²⁸

We proxy the interpersonal dimension of civic capital formation through two variables capturing individuals' altruistic behavior in society based on non-profit associationism (Putnam et al., 1993), namely the number of unpaid voluntary workers in non-profit organizations per 1,000 inhabitants in year 2011 and the presence of a local section of the *Associazione Italiana per la Donazione di Organi* (AIDO)—that is, the leading association for organ donation in Italy. These two variables have been widely employed in the literature (e.g. Guiso et al., 2016; Buonanno et al., 2022; Buonanno et al., 2023), as the absence of economic payoffs in doing unpaid voluntary work or donate organs “can be seen as a direct measure of how much people internalize the common good” (Guiso et al., 2011: 453) and adopt behaviors of cooperation with respect to other members of society.

We also construct a synthetic index of civic capital based on the abovementioned variables, as well as two sub-indices aimed at capturing its institutional and interpersonal dimensions separately.²⁹

We thus modify Equation (1) by considering the individual proxy variables and synthetic indexes of civic capital as the dependent variables, and estimate it via both OLS and TSLS. The results reported in Table 3 confirm our theoretical prediction. Looking at the TSLS results concerning the individual proxy variables of civic capital, we estimate that every additional change in sovereignty that occurred in the period 1000–1861 is associated with a 0.5 percent reduction in voter turnout, a 2 percent increase in the share of households evading the TV tax, a 2.8 percent reduction in the share of recycled waste, a decrease of approximately 3.1 volunteers per 1,000 inhabitants, and a 0.5 percent reduction in the likelihood of hosting a section of AIDO. Such a negative relationship is confirmed when we consider the three

28. Information on waste recycling is available for 610 out of 611 LLMs, as we lack data for the LLM of Ayas in the Aosta Valley region.

29. We provide details on the data and variables we rely on to proxy civil capital in [Supplementary Appendix C](#).

synthetic indexes of civic capital: we estimate that civic capital diminishes by approximately 2.1–3.1 percent for every additional change in sovereignty that occurred in the period 1000–1861.³⁰

5.3 Civic capital in the aftermath of Italian unification

We complement the analysis of current civic capital with some historical evidence to rule out potential confounding effects related to exogenous shocks that could have affected civic capital formation between 1861 and current times.

We capture civic capital in the aftermath of Italian unification by leveraging information on the number of members of mutual aid societies as of 31 December 1894, with data digitized from the *Elenco delle Società di Mutuo Soccorso*, published by the Italian Ministry of Agriculture, Industry and Trade in 1898.³¹ We thus proxy civic capital through the number of members of mutual aid societies in 1894 per 1,000 inhabitants, with population figures referring to year 1881. Such information is available for 581 LLMs whose constituent territories were part of the Kingdom of Italy in 1894.

Table 4 reports the results of the OLS and TSLS estimation of a modified version of Equation (1), which omits the sets of current LLM-specific demographic, economic, and infrastructural control variables, while controls for population density in 1881. This analysis corroborates the long-run results presented in Table 3: we estimate that every additional change in sovereignty that occurred in the period 1000–1861 led to an average reduction of approximately 9.86 members of mutual aid societies per 10,000 inhabitants—see Column (2).³²

5.4 Historical sovereignty change, civic capital, and local development

We conclude our empirical analysis by relying on a structural estimation approach to study the relationship between contemporary civic capital and current economic development, while accounting for the role of historical sovereignty change as the underlying driver of civic capital formation through the evolution of institutional and interpersonal trust.

We estimate a multiple-equation model via Maximum Likelihood, where the dependent variables are labor productivity, civic capital, and historical sovereignty change, respectively. Formally, we define the multiple-equation system as follows:

$$\begin{cases} \text{Labor Productivity}_l = \alpha_0 + \alpha_1 \text{Civic Capital}_l + \alpha_2 \mathbf{X}_l^g + \alpha_3 \mathbf{X}_l^{de} + \alpha_4 \mathbf{X}_l^i + \alpha_5 \mathbf{X}_l^h + \varepsilon_l \\ \text{Civic Capital}_l = \beta_0 + \beta_1 \text{Sovereignty Change}_l + \beta_2 \mathbf{X}_l^g + \beta_3 \mathbf{X}_l^{de} + \beta_4 \mathbf{X}_l^i + \beta_5 \mathbf{X}_l^h + \eta_l \\ \text{Sovereignty Change}_l = \gamma_0 + \gamma_1 \text{Attractiveness}_l + \gamma_2 \mathbf{X}_l^g + \gamma_3 \mathbf{X}_l^h + \omega_l \end{cases} \quad (9)$$

where $\mathbf{X}_l^g$ denotes the vector of geographical controls; $\mathbf{X}_l^{de}$ denotes the vector of demographic and economic controls; $\mathbf{X}_l^i$ denotes the vector of infrastructural controls; $\mathbf{X}_l^h$ denotes the vector of historical

30. We present robustness exercises in [Supplementary Appendix C](#).

31. Mutual aid societies—similar to British *Friendly Societies*—were founded as worker-led organizations characterized by a spirit of association and mutuality, with the aim of providing social assistance to members in the event of illness, disability, and financial need, as well as promoting the community. We acknowledge that membership in mutual aid societies represents only a partial proxy of civic capital, as it captures only its underlying dimension of interpersonal trust. The *Elenco delle Società di Mutuo Soccorso* lists the mutual aid societies existing on 1 January 1895, also indicating the municipality in which they are based. We complement mutual aid societies data with municipality-level population figures drawn from the 1881 *Population Census* provided by ISTAT; indeed, we do not have population data available for the year 1891 because no census was carried out due to financial difficulties of the Kingdom of Italy (Ciccarelli and Fenoaltea 2013). We have aggregated municipality-level data at the level of the LLMs identified by ISTAT in the 2011 *Industry and Services Census*.

32. The results presented in Table 4 are fully corroborated when accounting for spatial dependence a la Conley (1999) with distance cut-off values in the error structure set at 50 and 200 km, respectively—see Table C5 (Supplementary Appendix C).

Table 3. Mechanism analysis—sovereignty change and civic capital.

Civic capital dimension	Institutional				Interpersonal			
	Voter turnout		TV tax evasion		Waste recycling		Volunteering	
	OLS	TSLs	OLS	TSLs	OLS	TSLs	OLS	TSLs
Dependent variable								
Estimation method								
Sovereignty change	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Geographical controls	−0.002 ^{****}	−0.005 ^{**}	0.002 ^{****}	0.020 ^{****}	−0.008 ^{****}	−0.028 ^{****}	−1.435 ^{****}	−3.144 ^{**}
Demographic and economic controls	(0.000)	(0.002)	(0.001)	(0.005)	(0.001)	(0.008)	(0.276)	(1.504)
Infrastructural controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Historical controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	611	607	611	607	610	606	611	607
F statistic	19.59	18.98	16.50	9.44	32.10	22.74	54.54	46.96
First-stage F statistic on Excluded IV	...	19.95	...	19.95	...	19.91	...	19.95
Excluded IV	...	−18.032 ^{****}	...	−18.032 ^{****}	...	−18.078 ^{****}	...	−18.032 ^{****}
		(4.037)		(4.037)		(4.052)		(4.037)
Dependent variable								
Civic capital								
Estimation method								
Sovereignty change	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Geographical controls	−0.006 ^{****}	−0.029 ^{****}	−0.006 ^{****}	−0.031 ^{****}	−0.003 ^{****}	−0.021 ^{****}	...	...
Demographic and economic controls	(0.001)	(0.007)	(0.001)	(0.008)	(0.001)	(0.007)	...	...
Infrastructural controls	Yes	Yes	Yes	Yes	Yes	Yes	...	...
Historical controls	Yes	Yes	Yes	Yes	Yes	Yes	...	...
Observations	610	606	610	606	611	607	...	...
F statistic	48.93	28.41	31.67	19.72	39.42	25.90	...	...
First-stage F statistic on Excluded IV	...	19.91	...	19.91	...	19.95	...	...
Excluded IV	...	−18.078 ^{****}	...	−18.078 ^{****}	...	−18.032 ^{****}	...	...
		(4.052)		(4.052)		(4.037)		(4.037)

Notes: Robust standard errors in parentheses. All specifications include a constant term.

* $P < .1$; ** $P < .05$; *** $P < .01$; **** $P < .001$.

Table 4. Mechanism analysis—sovereignty change and civic capital in the aftermath of Italian unification.

Dependent variable Estimation method	Members of mutual aid societies per 1,000 inhabitants in 1894	
	OLS (1)	TSLS (2)
Sovereignty change	−0.095* (0.052)	−0.986** (0.434)
Geographical controls	Yes	Yes
Population density in 1881	Yes	Yes
Historical controls	Yes	Yes
Observations	581	577
F statistic	15.62	64.53
First-stage F statistic on Excluded IV	...	12.86
Excluded IV	...	−15.900**** (3.894)

Notes: Robust standard errors in parentheses. All specifications include a constant term.

* $P < .1$; ** $P < .05$; *** $P < .01$; **** $P < .001$.

controls; and *Attractiveness_{*i*}* is the variable capturing the variability in the share of crop and pasture land over the period 500–1900.³³

The results of this exercise are reported in Table 5, and fully corroborate our previous evidence. Indeed, they highlight the role of civic capital as a channel explaining the relationship between historical sovereignty change and current economic development, as we find evidence that LLMs where civic capital is higher are also experiencing higher economic development levels.³⁴

6. Conclusions

History materializes in different ways, one of which is through the succession of sovereignties within a territory over time. Each of these sovereignties introduces not only a system of social norms and cultural values but also a new institutional framework. This phenomenon was evident, for instance, in the early nineteenth century when the Bourbons were replaced by the French in the Kingdom of Naples, and in the eighteenth century when the Austrians took over from the Spanish in the Duchy of Milan.

In this article, we have attempted to show how changes in sovereignty over time can shape the formation and evolution of civic capital within a territory, thereby influencing contemporary local economic development. Combining theory and evidence, we document that historical (*de jure*) sovereignty changes—used here as a proxy for long-run institutional change—are negatively associated with present-day civic capital, and that lower civic capital is in turn linked to weaker current local economic performance. By doing so, we contribute to the economic geography literature by advancing a mechanism-based account linking sovereignty change, civic capital, and local development (Putnam et al., 1993).

Although the relationship between civic capital and local development has been extensively examined in recent economic geography literature (e.g. Muringani et al., 2021; Ganau and Rodríguez-Pose 2023), the impact of historical sovereignty changes on contemporary economic development represents a novel contribution of this study. We demonstrate that a change in sovereignty—by provoking a crisis of institutional legitimacy and, in turn, undermining social cohesion—can negatively affect the developmental

33. The vector $\mathbf{X}_i^h$ does not include the dummy variables for sovereignties in the year 1859 in the equation for historical sovereignty change in the period 1000–1861.

34. We provide additional evidence—including TSLS estimates and historical analyses—in Supplementary Appendix D.

Table 5. Sovereignty change, civic capital, and economic development—structural model estimates.

Model	(1)			(2)			
Dependent variable	Sovereignty change	Civic capital—interpersonal and institutional dimensions	Labor productivity	Sovereignty change	Civic capital—institutional dimension	Civic capital—interpersonal dimension	Labor productivity
Attractiveness	−15.857 ^{****} (4.048)	...	...	−15.860 ^{****} (4.049)	...	...	...
Sovereignty change	...	−0.081 ^{****} (0.018)	...	...	−0.086 ^{****} (0.018)	−0.072 ^{****} (0.021)	...
Civic capital—interpersonal and institutional dimensions	...	...	18.288 ^{****} (2.580)	...	...	...	...
Civic capital—institutional dimension	...	...	...	...	...	...	12.502 ^{****} (2.260)
Civic capital—interpersonal dimension	...	...	...	...	...	...	7.126 ^{***} (2.244)
Geographical controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic and economic controls	No	Yes	Yes	No	Yes	Yes	Yes
Infrastructural controls	No	Yes	Yes	No	Yes	Yes	Yes
Historical controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	606			606			
Log-likelihood	−4,269.09			−4,588.76			

Notes: Maximum Likelihood estimates. Robust standard errors in parentheses. All specifications include a constant term.

* $P < .1$; ** $P < .05$; *** $P < .01$; **** $P < .001$.

trajectory of the territory. We have also demonstrated that these processes mainly take place at the local level as cooperation and trust arise from interactions among individuals and between individuals and institutions, thus establishing the legitimacy of governments and institutions. In this sense, our analysis—situated within the broader debate in economic geography—aims to emphasize that the mechanisms underpinning the relationship between institutional change and economic development mainly operate at the sub-national level.

At first glance, our article suggests that history leaves little “room for policy” (Nunn 2020: 5). In other words, it raises the question of how deterministic regional development can become. Our intuition is that, while policymakers cannot directly modify the past, they can shape the mechanisms through which historical legacies influence patterns of local development.³⁵ That is, policy interventions may partially mitigate the enduring effects of history. First, policymakers can promote cooperation and trust. Building civic capital is not an easy task; it remains an ongoing topic of research across anthropology, sociology, and economics. Potential policy interventions include fostering forms of volunteering—such as blood and organ donor associations—and introducing fiscal or financial incentives to support social cooperatives, among other measures. Second, policymakers may adopt policies aimed at strengthening institutional legitimacy. Such measures could include encouraging citizen engagement in political and electoral processes (Schneider 2008) and promoting more effective collaboration between society and state institutions (Bartoletti and Faccioli 2016; Acemoglu et al., 2021). Institutional legitimacy—understood as the extent to which the population recognizes and accepts the authority of its sovereign and institutions—is a central factor in building social consensus, fostering interpersonal trust, and ultimately supporting economic development. This suggests that the absence—or significant erosion—of institutional legitimacy can impose considerable costs on a given territory, undermining both social cohesion and economic growth. Put differently, a lack of institutional legitimacy can impose significant economic costs on a society. In our view, this represents the main takeaway point of our analysis.

Our study aims to open a new line of inquiry in economic geography by integrating historical and geographical perspectives to shed light on the long-run determinants of territorial development differentials. In this regard, future studies could build upon our analysis by addressing some of its current limitations. First, as with many models of complex social processes, our theoretical framework does not incorporate all relevant factors—for example, it does not explicitly model the displacement or destruction of physical capital and population resulting from international or domestic conflicts. Nonetheless, despite these simplifications, our model contributes to clarifying the mechanisms and dynamics underlying the persistence of historical shocks. Second, a key methodological choice in our study concerns the proxy employed to capture institutional change from a historical perspective. Capturing the complex nature of institutional evolution over time is difficult without an appropriate proxy. In our analysis, we employ the number of sovereignty changes that occurred over an extended historical period within a given geographical area as a proxy for institutional change. This measure offers important advantages—most notably, its availability over very long-time spans. However, this approach has notable limitations, since a change in sovereignty does not necessarily entail a corresponding institutional change. Indeed, there are historical cases in which this does not occur; that is, a shift in sovereignty did not result in any substantial transformation of the institutional framework. Future research could therefore test the theoretical and empirical propositions advanced in this study by employing alternative proxies for institutional change.

35. It is worth noting that some regional policies, aimed at mitigating inequalities and disparities between different territories within a country or even across Europe, assign a specific role to the historical characteristics of a territory and to the path-dependent nature of its development trajectory. For example, the Smart Specialization Strategy (S3) assumes that the sectors of specialization within a region are generally the result of long-term historical processes, which often involve mechanisms of regional path-dependence (Di Cataldo et al., 2022; Rigby et al., 2022). Moreover, other regional policies can lead to significant deviations from the long-term development trajectories of a local system (Iammarino et al., 2019): for example, the territorial policies implemented by the Italian government between the 1950s and 1970s in favor of the southern regions, known as the *Cassa per il Mezzogiorno*, significantly reduced the North–South divide (Accetturo and de Blasio 2022).

Acknowledgments

We are grateful to the editor, James Faulconbridge, and three anonymous reviewers for many helpful comments and suggestions. We are also grateful to Jan Auerbach, Adelaide Baronchelli, Angela Stefania Bergantino, Alfredo Del Monte, Juan Manuel Figueres, Stefano Galavotti, Simona Iammarino, Per Botolf Maurseth, Anna Mignosa, Raffaele Paci, Mario Pianta, Andrés Rodríguez-Pose, Domenico Scalera, Zack Taylor, and the participants at the AISRe Conference (September 2023), the SIEPI Conference on “The Italian Industry in the 1920s” (December 2023), the RCEA–ICEEF Conference (May 2024), the ERSa Conference (August 2024), the GRINS Spoke 7 Meeting in Bari (May 2025), and the RSA Regional Futures Conference (November 2025). All errors and omissions are our own.

Supplementary material

[Supplementary material](#) is available at *Journal of Economic Geography* online.

Conflicts of interest. None declared.

Funding

We acknowledge precious financial support from the Department of Economics and Management “Marco Fanno” of the University of Padova under the SID 2020 grant scheme, and the Italian Ministry of University and Research under the PRIN 2022 grant scheme (grant number 2022Z4L3HK).

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