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The reactionary origins of social capital

Abstract

This article explores the roots of social capital, challenging the view that it emerges only under the egalitarian conditions of civic communities (Putnam, 1993). We argue that strong communal ties can generate social capital in hierarchical, unequal contexts. This conjecture is tested through the exam of Spanish Carlism, a major traditionalist movement in 19th-century Europe, hypothesizing that municipalities with stronger Carlist support show higher contemporary levels of social capital. Given Carlism's ideology, we expect social capital to be predominantly of the bonding type. Using municipal and individual data in a multilevel analysis, we find a robust association between Carlism and present-day social capital. We employ instrumental variables linked to pre-industrial economic structure to dispel endogeneity concerns. Additional tests suggest that post-treatment channels do not bias our results. Our findings reveal that social capital can have reactionary origins, expanding the understanding of its diverse historical pathways beyond those linked solely to egalitarian traditions.

Introduction

Where does social capital come from? We know that social capital has consequences of all kinds: it is associated with greater government effectiveness (Putnam, 1993), higher economic development (Knack and Keefer, 1997; Tabellini, 2010) and stronger democratic regimes (Paxton, 2002). There is also work on the dark side of social capital, showing that it contributed to the expansion of Fascism (Berman, 1997; Satyanath et al., 2017). However, we know much less about its origins (Guiso et al., 2011, pp. 459-467).

One of the most original aspects of Putnam's *Making Democracy Work* (1993) was his attempt to locate the origins of Italian social capital in political and social practices that went back to the late medieval period. Putnam found higher levels of social capital in those regions

in which republican values and practices were more widespread eight centuries ago. In his account, horizontal social relationships and decentralized decision-making generated social capital that has persisted until today, surviving sweeping historical change.

Putnam's analysis is based on the assumption that social capital is created when conditions of equality are present. This intuition has been extensively developed in the literature on the origins of social capital (see, for instance Radnitz et al. 2009, p.709). Apart from Putnam (1993)'s own argument on political equality and self-government, other authors have focused on egalitarian distribution of land (Beltrán Tapia, 2012; Mariella, 2022; Oto-Peralías, 2023), and administrative equality, that is, an impartial and non-discriminatory state (Becker et al., 2016; Buggle, 2016). When these conditions are absent, a deficit in social capital is observed (Drelichman et al., 2021; Jacob and Tyrell, 2010; Nunn and Wantchekon, 2011).

We propose here a different mechanism of social capital formation. Although we do not question the findings about the positive effect of equality on social capital, we believe that this is not the only possible pathway. As shown in this article, the formation of social capital can be found in a highly unlikely scenario: that of reactionary movements contesting the advance of liberalism in the nineteenth century. These movements resisted and opposed the transformations brought about by modernity (secularization, individualism, destruction of traditional forms of life) and tried to preserve the hierarchical, unequal social order of the ancien régime. By promoting a strong sense of community, they were able to generate social capital.

There were several of these reactionary movements in Europe throughout the nineteenth century, but none can be compared with the Spanish Carlist movement in terms of duration, rebelliousness, and popular support. The Carlists triggered three civil wars in Spain (1833-40, 1846-49, and 1872-76) and still played a role in the 1936-39 Civil War. According to our argument, the Carlists' spirit of community, embodied in the close cooperation between its members, generated social capital that is observable still today. The Carlists wanted to create a sort of parallel society in which the old customs and life forms of the ancien régime survived. By cooperating in the creation and maintenance of their traditionalist communities, they generated social capital that has survived until the present. They created, using the concept formulated

by (Colombo and Dinas, 2023), "networks of grievances" against modernity with long-lasting effects.

The analysis focuses on Carlism in Catalonia (one of the two strongholds of Carlism, the Basque Country being the other one). We create an index of Carlist support at the municipal level based on several indicators taken from the Third Carlist War (1872-76) and the post-war period. Using municipal-level data, we demonstrate that standard indicators of social capital (e.g., associations, electoral participation, blood donations, and waste recycling) are higher in those municipalities in which Carlism was stronger historically.

Since associations is perhaps the most direct indicator of social capital, we carry out a more granular analysis of membership in associations combining individual and municipal data. We have merged 65 surveys over a long period of time (1989-2024) in order to have a sufficient number of individuals per municipality. Thanks to these data, we can observe what types of associations people belong to. Following the distinction between bridging and bonding social capital (Putnam, 2000), we expect Carlism to have produced mostly social capital of the bonding type.

By controlling for municipal and individual traits, we put highly demanding conditions for a long-past phenomenon to be associated with today's levels of social capital. That is, we estimate the effect of Carlism net of individual sociodemographic and political characteristics (gender, age, education, ideology, religious practice) and contemporaneous and historical municipal variables. However, since the data are observational, we cannot entirely avoid omitted variable problems. To alleviate this concern, we offer a number of additional analyses.

Firstly, we address the most serious problem, namely the possibility of Carlism being an effect of previous levels of social capital. Although we cannot fully exclude some relationship between pre-Carlist social capital and the emergence of Carlism, we re-estimate the municipal analysis using an instrumental variable, the presence of industrial wool looms in 18th century, assuming that the disruption caused by early industrialization had a positive effect on Carlism. The presence of wool looms was not a consequence of previous levels of social capital and therefore the assumption of exogeneity is justified. The instrumental variable exercise confirms

the basic results.

Secondly, we show that the effect of Carlism is not driven by post-Carlism bias. Thus, we consider the possibility that Carlism is associated with social capital because Carlist municipalities remained homogeneous while the others became heterogeneous due to immigration and tourism.

Finally, we present evidence that the effect of Carlism was also present when indicators of social capital in the 1930s are employed. An implication of this analysis is that the effect of Carlism cannot be attributed to changes produced during the Civil War or under the long Francoist period (such as a potential favorable treatment of municipalities with a Carlist tradition as opposed to municipalities that were more liberal or leftist).

Taken together, the empirical analyses point to a specific historical legacy of Carlism on current levels of social capital.

This article makes several contributions. First, it shows that social capital may emerge in traditional, hierarchical communities. Second, it adds to the body of research that finds remote origins of social capital. Third, it offers a new conceptualization of the bridging versus bonding distinction, disentangling the dimensions that are frequently conflated in its characterization. Fourth, it brings to light the Carlist movement, which so far has received little attention in comparative research despite its historical relevance as the most powerful reactionary movement in 19th-century Western Europe (the only exception is Criado et al. 2024, who study the Basque Country). Finally, the empirical analysis goes beyond the usual division between aggregate and individual analyses in studies of social capital. The availability of both types of data in our case study makes a more fine-grained analysis possible.

The article is divided into five sections. Section 1 presents the theory and hypotheses. Section 2 provides a summary description of Carlism and some qualitative evidence that illustrates the main argument. Section 3 describes the research design of the study. Section 4 offers the main empirical analysis. And section 5 discusses alternative explanations. A brief conclusion ends the article.

Theory and hypotheses

We adopt Putnam's rather minimalist definition of social capital as "features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions." (Putnam, 1993, p. 167) In later work, Putnam (2000, p. 16) simplified the concept, reducing it to connections between individuals, that is, networks and norms of reciprocity and trustworthiness. The theory suggests that once these elements are in place, virtuous circles are set into motion. The more people cooperate in collective endeavors, the stronger social capital becomes. Because of this self-reinforcing process, social capital is expected to exhibit high persistence.

While the theory on social capital can make clear predictions about its consequences, transmission, and persistence, the issue of origins remains largely enigmatic. How is social capital created in the first instance? The literature tends to assume that social capital is produced thanks to 'positive' experiences of social interaction and government. By 'positive', scholars typically mean some form of egalitarian, horizontal or impartial initial conditions (for instance, Rothstein and Uslaner, 2005). Regarding political equality, Putnam (1993) argues that social capital stems from the historical configuration of civic communities in which individuals enjoy equal rights and obligations. By participating in the public life of these communities, people build trust, cooperation, and reciprocity. In the specific case he studies, that of Italy, the civic communities were embodied in the Italian communal cities of the 12th-14th centuries, when proto-democratic forms of self-government were implemented. This political arrangement, in turn, reinforced civic republican values. Although the historical analysis of *Making Democracy Work* has often been criticized as a sort of ad hoc explanation, Guiso et al. (2016) confirmed Putnam's hypothesis econometrically.

As for economic equality, Mariella (2022) explores an alternative account of the North-South variation in social capital in Italy by comparing three different land tenure arrangements. The more egalitarian scheme (based on a long-lasting relationship between owner and tenant) is associated with higher levels of social trust. Beltrán Tapia (2012), Montolio and Tur-Prats

(2018), and Oto-Peralías (2023) provide evidence that communal land contributed significantly to the creation of sustained cooperative practices among villagers, strengthening social capital within each local community.

A third dimension of equality concerns the existence of an impartial state administration that avoids discrimination and privilege. Becker et al. (2016) investigate the origins of trust in bureaucratic institutions such as the police and courts, finding that the Habsburg Empire's decentralized and impartial administrative practices fostered trust in the system. In a similar vein, Buggle (2016) examines the short-lived introduction of the Civil Code by Napoleon in 19th century Germany, demonstrating that impartial legal enforcement can foster local norms of trust and cooperation.

Self-government, land equality, and impartial bureaucracy are all positive initial conditions. There is also a parallel literature showing that negative initial conditions lead to lower levels of social capital. Thus, Nunn and Wantchekon (2011) conclude that mistrust in African countries today is associated with a greater impact of slave trade in the past. Xue and Koyama (2018) reports a negative impact of political persecution in imperial China in the 17th and 18th centuries. Drelichman et al. (2021) find a negative effect of the Spanish Inquisition on contemporary social capital. Bustikova and Corduneanu-Huci (2017) argue that lack of state competence in the past leads to lower trust and stronger clientelism.

Based on previous contributions, it might be concluded that social capital only emerges when social interactions and governance are characterized by egalitarian cooperation among individuals. However, alternative possibilities exist. In her discussion of Putnam's work, Levi (1996, p.52) pointed out that "under certain circumstances, vertical relationships may also facilitate trust, reciprocity and, certainly, coordination." We explore this possibility in some depth. Following Levi's suggestion, we argue that egalitarian conditions are not necessary for the development of social capital. Thus, we examine a historical context in which, according to the egalitarian versions of the theory, social capital would have been unlikely to emerge. Specifically, we focus on forms of resistance to the political and economic transformations brought about by 19th-century liberalism. This opposition sought to preserve traditional ways

of life rooted in hierarchical and unequal social relations, as well as profound religiosity. Such dynamics fostered tight-knit communities in which social capital flourished.

Liberalism was the driving force behind political modernization in 19th-century Europe. Its core principles included limited government, fundamental rights, division of power, and the rule of law. Liberalism clashed with the old order, which institutionalized inequality and derived its legitimacy from tradition and religion. Four transformations were especially central to the liberal project. First, liberal regimes centralized authority to dismantle the privileges and special jurisdictions that structured and fragmented local life under the ancien régime. The principle of equality before the law and efforts to remove barriers to market exchange were crucial elements in the liberal credo (Epstein, 2000). Second, liberalism entailed a sharp redefinition of property rights, privileging private ownership over communal or corporate forms (North et al., 2009). Third, liberalism as a doctrine was grounded in an individualistic conception of social relations, envisioning society as composed of autonomous individuals entering a contract to secure mutual protection. This perspective contrasted sharply with the old order, in which individuals occupied fixed, institutionally defined roles (Lukes, 1974). Finally, liberalism was associated with secularization: the Church was compelled to relinquish its central role as an agent of socialization, and religion gradually shifted from the public to the private sphere (Bulutgil, 2022).

These four pillars -power centralization, property rights, individualism, and secularization- disrupted traditional forms of life and dislocated local communities (Polanyi, 1944). Traditional authority was eroded, and long-standing social norms were destabilized. In some cases, resistance to these changes emerged, often violently. The Vendée uprising during the French Revolution was the first major episode (Tilly, 1964), but many others followed throughout 19th-century (see next section). Among these, the Carlist movement in Spain was by far the stronger and more persistent one. The slogan of the Carlists was "God, Fatherland, King, and Local Rule." There was no better way of capturing what resistance to liberalism was about: it rejected centralization in favor of local rule, individualism in favor of the monarchy and the fatherland as the foundational values of society, and secularization in favor of God.

Carlism lasted for more than a century and triggered three civil wars in nineteenth century. While the experience of war was significant, our argument extends beyond the legacy of violence. Thus, we do not rely exclusively on the mechanism of exposure to violence, according to which civil violence may produce enduring pro-social behavior (see Walden and Zhukov 2020 for a review). Among other things, we do not make the assumption that non-Carlist civilians hit by the violence of the Carlist wars developed higher social capital. Rather, we analyze mechanisms that generate social capital, both in times of violence and in peaceful times. Our focus is on municipalities that resisted liberalism, either politically or taking arms. These communities developed forms of cooperation that are consistent with the mechanism of social capital formation described by Bowles and Gintis (2002). According to them, social capital is not a resource *per se*, but a set of cooperative practices embedded in community life. In their view, social capital rests on the "willingness to live by the norms of one's community and to punish those who do not" (Bowles and Gintis, 2002, p. 419). Notably, equality plays no necessary role in this process: as long as community norms are respected, social capital may emerge, even in hierarchical settings. Bowles and Gintis (2002, p.420) conceive communities broadly, as groups of people "who interact directly, frequently and in multi-faceted ways", ranging from neighborhoods to workplaces, friendship networks, or professional associations.

This framework of community-generated social capital applies well to our case. The organization of resistance to liberalism likely fostered reciprocal cooperation and solidarity. As communities mobilized to defend traditional ways of life, they relied on norms of trust and mutual support. In municipalities where Carlism became strong, community ties became tighter and stronger. By preserving the hierarchies and lifestyles within an increasingly liberal environment, these localities cultivated solid patterns of community cooperation. This leads to our first hypothesis:

H1: Municipalities in which support for Carlism was stronger have higher levels of social capital today.

The hierarchical and exclusionary nature of these communities likely shaped the type of social capital that emerged. Putnam (2000) distinguishes between *bonding* and *bridging* so-

cial capital. Bonding social capital refers to strong, inward-looking ties that reinforce group solidarity, while bridging social capital entails outward-looking connections that link diverse groups and facilitate information exchange. In his own words, bonding is "inward looking and tends to reinforce exclusive identities and homogeneous groups" (Putnam, 2000, p.20). As prior research shows, these types have different implications for social and economic outcomes (Chetty et al., 2022). Given Carlism's inward-looking and traditionalist character, we expect the resulting social capital to be predominantly of the bonding type:

H2: Municipalities in which support for Carlism was stronger tend to exhibit bonding rather than bridging social capital today

Carlism

This section introduces Carlism, an important yet understudied political movement in European history. It is divided into three parts. The first one provides a cursory description of Carlism. The second demonstrates the movement's persistence and its influence on local life. The third illustrates these dynamics through a comparison of two towns that are similar in many respects but exhibit dramatic differences in Carlism and contemporary social capital. Together, these elements contextualize our hypotheses and establish the foundations for the subsequent analyses.

The Carlist movement

Carlism emerged as part of a broader wave of counterrevolutionary movements that swept across 19th century Europe in response to the socioeconomic upheavals and state centralization brought about by liberalism. Similar reactionary movements opposing liberal transformations appeared throughout Europe: legitimism in France, Miguelism in Portugal, Sanfedism in Italy (Dháibhéid et al., 2023). Among these, Carlism was by far the strongest and most enduring European reactionary movement, developing a comprehensive traditionalist ideology and attracting followers for over a century.

Throughout the 19th century, Spain experienced violent clashes between liberal and traditionalist forces. The first reactionary militias emerged during the brief liberal interlude of 1820-23, successfully establishing a reactionary shadow government in Seu d'Urgell, located in northern Catalonia (Arnabat, 2022; Torras, 1976). In 1827, a new conflict erupted in Catalonia, where reactionary armed groups composed of peasants and artisans fought against the state, which they considered excessively reform-oriented (the War of the Aggrieved or *Guerra dels Malcontents* in Catalan). These conflicts were clear precedents of Carlism.

Carlism was triggered by a dynastic succession crisis. In September 1833, king Ferdinand VII died without a male heir, prompting his brother Carlos Maria Isidro (a staunch traditionalist) to claim the Spanish throne. However, because the Salic law had been abolished in 1830, Ferdinand's daughter Isabel was proclaimed Queen of Spain. This dynastic dispute culminated in the outbreak of the First Carlist War (1833-1840). After seven years of brutal conflict claiming over 125,000 deaths (Sarkees, 2010), Carlist forces were defeated and liberalism prevailed.

The period from 1833 until the Bourbon restoration in 1876 marked the height of Carlist presence and influence in Spain, sustained by continuous military campaigns. These included the 'Early Risers War' or Second (Catalan) Carlist War (1846-1849), failed uprisings in Catalonia in 1855 and 1860, and the Third Carlist War (1872-1876), which engulfed the entire country. The main strongholds of Carlist support were concentrated in the north of Spain, particularly the Basque Country, Navarre, and Catalonia.

The combatants of this 'discontinuous but persistent civil war' (Canal, 2004, p.49) represented two fundamentally contrasting visions of society. On one side, the liberals favored a centralized state, a constitutional monarchy with division of powers, and shared sovereignty between monarch and parliament. On the other side, Carlists constituted the last bulwark of traditional and collective ways of life, threatened by political modernization and industrialization (Canal, 2000; Toledano, 2021). As the prominent Carlist, Antonio Taboada de Moreto, wrote in 1834,

> The new despotism called centralization [...] has changed all the protective insti-

> tutions of our freedom; and in spite of their fatuous protests, without respecting *fueros*, customs or privileges, it has destroyed the respectable patrimony of our grandparents." (In Bullón de Mendoza 2002, p. 920)

Father Vicente Pou, one of Carlism's early ideologues, emphasized in his 1842 book *La España en la presente crisis* (*Spain under the current crisis*) the importance of preserving "the good uses and the healthy customs" of the people:

> A truly wise and paternal government respects and enforces respect for religion as the first basis of society, and the richest source of all good; it protects public morals by means of a polite and careful education; it makes a law to preserve the good uses and healthy customs that are like a second nature of the people. (Pou, 1842, p. 147)

These quotations vividly capture the core mindset of Carlism, characterized by the apprehension that modernity would dismantle the traditional life organized around religion and hierarchy. Traditionalism attracted a remarkably broad and heterogeneous coalition of social groups. Research on Carlism's social composition reveals a highly diverse class profile combining traditional elites (landowners, the clergy, petty nobles) and commoners (primarily peasants and artisans) (Anguera, 1995; Canal, 2004; Fontana, 1980; Toledano, 2021). In his seminal study of the Vendée, Tilly (1964) also found a cross-class coalition united by the appeal of traditional values.

Following defeat in the 1872-76 war, Carlism transformed into a more institutionalized movement with centralized organization, led by the pretender in exile and a national delegated leadership exercising top-down control (Canal, 2006). Local organizations, known as 'Carlist circles', became central to both the social and political life of Carlism. They served as venues for decision-making and operational coordination, but also as spaces for debate, socializing, and recreation (Canal, 1993; Valverde, 2017). Circles were conceived as safe spaces, parallel societies that countered growing secularization, social fragmentation, and the influence of leftist ideologies. The following description of circle activities is particularly relevant to our argument

about the formation of social capital within cohesive communities:

> The centers facilitated community outreach and served as a kind of inter-class mirror and grassroots base. [. . .] Plays and choirs were held in the circles; there was room for political speeches and leisure areas where members could have a coffee or liqueur, along with reading and billiard rooms. Later on, these activities were joined by banquets and literary soirées, night classes and charitable works. (Toledano, 2021, p. 81)

Carlism maintained a significant presence during the 1936-39 Civil War (Blinkhorn, 1975). Under Francoism, the remnants of the Carlist movement were absorbed into Francisco Franco's single party, the National Movement, coexisting with the Falange and other groups. By the end of Franco in 1975, Carlism was on the brink of extinction. When it first run in the elections of 1979, it obtained 0.28 per cent of the vote (and only 0.17 in Catalonia).

The persistence of Carlism

The staggering persistence of Carlism over more than a century is crucial to understand its long-term impact on social capital. Had Carlism been an ephemeral movement, it might not have left a legacy at all. One key factor explaining this persistence is the central role played by wealthy and noble families in the reproduction of the movement across generations. Oftentimes, these families lived in so-called *pairal* houses that served as centers of economic and social life in small and medium municipalities (Vives, 1958, pp.120-121). The *pairal* house was a type of manor house inherited by the first-born male, who bore responsibility for maintaining and expanding the family estate. As the main landowners of the area, they generated a stable system of tenant farming based on hierarchical yet cooperative relationships. Tenant farming was more developed in Catalonia than elsewhere in Spain and generated an important agrarian middle class.

Given their central position in the social structure, these noble lineages possessed the

resources and influence required to mobilize the lower classes. Moreover, local life was dominated by the *pairal* families. As a historical illustration, we examine an influential lineage, the Solà-Morales, in the town of Olot (province of Girona), a Carlist stronghold. Olot contained five *pairal* houses in total, four of which were owned by Carlist families (the Solà-Morales, the Vayreda, the Ventós, and the Bolós); the fifth, the Trinxeria, was the only liberal family with a *pairal* house (de Camps, 1969).

We focus on the Solà-Morales family, who owned a *pairal* house in the town center and extensive landholdings in the countryside. The origins of the Solà family date back to 11th-century in a small village near to Olot. The Solà moved to Olot in 1781. The *pairal* lord at the time, Ignasi Solà, was a military officer who participated in the royalist militias of the 1820s, the preceding group of Carlism; he was a traditionalist opposed to liberalism (Pujiula, 1997, p.103). Having no male heir, his daughter, Juliana Solà, married Olot's notary, Jacint Morales, and they combined their family names as part of their prenuptial agreements, becoming the Solà-Morales family. The first-born son, Josep de Solà-Morales (b.1835), became mayor of Olot. He continued the political trajectory of his grandfather and emerged as a prominent member of the Carlist movement. He served as the aid guard of Alfonso Carlos de Borbón, brother of the royal pretender, Carlos VII; Alfonso Carlos commanded the Carlist army in Catalonia during the Third Carlist War. Olot fell under Carlist control in 1874. The Carlist general Rafael Tristany used the balcony of the Solà-Morales' *pairal* house to proclaim the restoration of the Catalonia's regional rights or *fueros* (Grabolosa, 1972, pp.282-284). The balcony was decorated with portraits of the pretender and his wife, painted by the artist Josep Berga i Boix, himself a noted Carlist in Olot.

In the fourth generation of traditionalists, Joaquín (b.1865), the first-born, stands out. His adult life was free from the combat experienced by his predecessors. Joaquín was an MP in the Spanish parliament for three terms, representing *Comunión Tradicionalista* (Traditionalist Communion), the Carlist party. He was also a member of the *Mancomunitat*, the first regional body representing Catalonia in 20th century. Joaquín was deeply involved in Olot's public life: he directed the Olot Popular Choir, served as president of the Agrarian Union, and held

a position on the board of the local savings bank (Mayans and Puigvert, 2018, p.87). This exemplifies how Carlist elites became embedded in local networks, fostering the formation of social capital. Clearly, he was a central knot in the networks that articulated the town's social life.

Joaquín had six children, all born already in the 20th century. None was a Carlist leader, though one later became a Francoist MP (Jaén and Lucchini, 2019, p.76). Although the Carlist tradition was discontinued, the town's social structure was by then well established.

Wealthy sagas played a crucial role in the creation of Carlist communities. They not only wielded social influence in their municipalities, but also acted as political entrepreneurs and local leaders, forging connections and promoting activities that generated social capital. Next, we illustrate these dynamics by comparing two towns.

A comparison of two towns

According to our argument, the networks of Carlists generated forms of social capital that survived the movement itself. To illustrate this point, we compare two Catalan towns, Vic and Blanes, that are remarkably similar across many characteristics but differ starkly in their exposure to Carlism. Vic and Blanes are both medium-sized municipalities (see Table 1). Vic has 42,000 inhabitants; Blanes, 39,000. Their income is also similar, 20,000 euros per capita in Vic and 18,000 in Blanes. The Gini index is almost identical, 32.8 in Vic and 33.7 in Blanes. In terms of development and inequality, the two municipalities are clearly comparable. Besides, the percentage of Catalan speakers (often considered a good proxy for the strength of Catalan nationalism) differs only marginally: 78 percent in Vic and 74 percent in Blanes. Both places are equidistant from Barcelona (around 70 km.), though Blanes is coastal while Vic is located inland.

Fishing and shipbuilding were the main economic activities in 19th-century Blanes, with agriculture (vine production) also playing an important role. In 1877, Blanes was smaller than Vic (5,295 inhabitants compared with 13,095 in Vic). However, during the 20th century,

Table 1. Comparison of Vic and Blanes

	Vic	Blanes
Social Capital		
Associations per capita	9.0	7.7
Participation in regional elections	68.7	60.4
Blood donations	134.3	104.3
Waste recycling	44.7	27.7
Carlist Factor	1.30	-0.43
Control Variables		
Distance to Barcelona (km)	71.4	72.9
Population size	42,498	39,132
Income	20,339	17,771
Gini	32.8	33.7
% Catalan speaking	77.8	74.0
Literacy 1860	34.0	21.0

population increased considerably thanks to an important textile factory (SAFA) and tourism. Vic, in contrast, is well known for livestock, meat industry, and leather production. During the early industrial period, there was significant textile production, but it began declining after 1850 (Feijoo, 2023, p.243). Moreover, Vic has maintained a weekly market since medieval times, making the city an important commercial hub.

Carlism was far more intense in Vic than in Blanes. In the 1871 elections, the Carlist party won an overwhelming 82 percent of the vote in Vic (Feijoo, 2023, p.235). In contrast, Blanes was entirely untouched by Carlism. Table 1 shows the values of the Carlist index we built for the quantitative analysis (it is described below). The index is standardized, so Vic is 1.3 standard deviations above the mean level of Carlism while Blanes is 0.4 standard deviations below.

We submit that this stark difference in Carlist influence largely explains the variation we observe in social capital. Table 1 includes values for several social capital indicators used in our statistical analysis: electoral participation in regional elections, blood donations and waste recycling. In every case, these indicators are higher in Vic than in Blanes, despite similarities in economic development, inequality, Catalan language, and distance to Barcelona.

This relationship between Carlism and social capital is borne out by a closer look at associational life in the two towns. Vic developed a rich associational life, particularly of the religious type (Cao, 2014). Among the associations, two were outstanding: the *Centre Catolicomonàrquic* (Catholic-Monarchical Centre), created in 1870, and the *Acadèmia de la Joventut Católica* (Catholic Youth Academy), in 1879. Both were Carlist bastions: "probably, no other political family in the town managed to formalize its sociability to the same level as the local Carlists." (Cao, 2014, p. 111) Relying on a historical dataset of civic associations for the period 1800-1940, we find a striking difference: 258 associations in Vic, compared with only 34 in Blanes. Using the 1877 population figures, the rate of associations per 1,000 inhabitants is 19.7 in Vic and 6.4 in Blanes. In more recent times, the Catalan general register of associations reports 601 associations in Vic and 382 in Blanes.[1]

In sum, Vic was a Carlist stronghold while Carlism was absent from Blanes. Every indicator reveals higher levels of social capital in Vic than in Blanes. Given how similar these municipalities are today across numerous dimensions, it is compelling to attribute the variation in social capital to differences in their Carlist traditions. Our statistical analysis confirms this conjecture.

Research design

Our hypotheses establish that municipalities historically exposed to Carlism exhibit higher levels of social capital. To test these claims, we restrict our analysis to Catalan municipalities. This choice is motivated on two grounds. First, Catalonia was among the regions (together with the Basque Country and Navarre) with the strongest and most enduring Carlist support. Second, data availability is significantly better for the Catalan case. We possess more detailed data both Carlism and social capital in Catalonia, and the region's large number of municipalities (947, compared with only 252 in the Basque Country and 272 in Navarre) facilitates robust statistical analysis. Limiting the study to Catalonia also helps to hold constant broader historical and

[1]Historical data is sourced from the Database of Contemporary Catalan Associationalism or *Base de Dades de l'Associacionisme Català Contemporani* in Catalan (https://www.irmu.org/base-de-dades-associacionisme). Contemporary data on association comes from the Catalan Register of Associations or *Registre d'Entitats.*

cultural factors specific to the region.

We conduct our analysis at both municipal and individual levels. To link individual and municipal data, we merge 65 surveys conducted between 1989 and 2024 by the Center for Sociological Research (*Centro de Investigaciones Sociológicas*). These surveys include questions on associational membership. Altogether, our merged dataset comprises 40,333 respondents across 587 Catalan municipalities (out of the total 947). Because each survey covers only a small subset of municipalities, combining multiple surveys maximizes coverage. Since municipalities are randomly selected in the surveys, selection bias is not a major concern, even if some municipalities are excluded. To control for survey idiosyncrasies, survey-year fixed effects are included in all models.

The empirical analysis proceeds in three steps. The first one is purely ecological, examining the municipal-level correlation between Carlism and social capital while controlling for confounding variables. We use here several aggregate indicators of social capital, including associational density, electoral participation, blood donations, and selective waste collection. This ecological analysis has two key advantages: it allows the use of multiple outcome measures and includes nearly all municipalities in the analysis. The second step adopts a mixed design, incorporating individual-level data on associational membership and type of association. This is the most powerful test of our hypotheses, allowing us to analyze individual social capital while controlling for both personal and contextual factors. The trade-off, however, is that fewer municipalities are represented in the mixed analysis. The third step explores potential pre- and post-Carlist factors that could confound the relationship between Carlism and contemporary social capital.

Below, we describe our variables in detail. A comprehensive description of measurement, data sources, and descriptive statistics is provided in Table A1 and Table A2.

Outcome variables

At the municipal level, we use four outcome variables: associational density, electoral participation, blood donation, and selective waste collection. Associational density and electoral participation figure prominently in Putnam's classic analysis of civic traditions, capturing what he terms "civic vitality" (Putnam, 1993, p.92). Blood donation was introduced as an indicator of social capital by Guiso et al. (2004), while selective waste collection was first used in this context by Tsai (2008). Both of these latter measures reflect the strength of community norms that help resolve collective action problems.

Associational density is measured as the logarithm of associations per capita during the period 1984-2020. For electoral participation, we calculate the average participation in regional elections for the period 1979-2019. Blood donations capture the number of blood bag donations per 1000 inhabitants between 2018 and 2022. Selective waste collection reflects the percentage of total waste recycled for the 2000-2021 period. We also construct a latent social capital variable as the principal factor extracted from all municipal social capital indicators via factor analysis (see Table A3). In the mixed analysis, we focus on individual membership in at least one association.

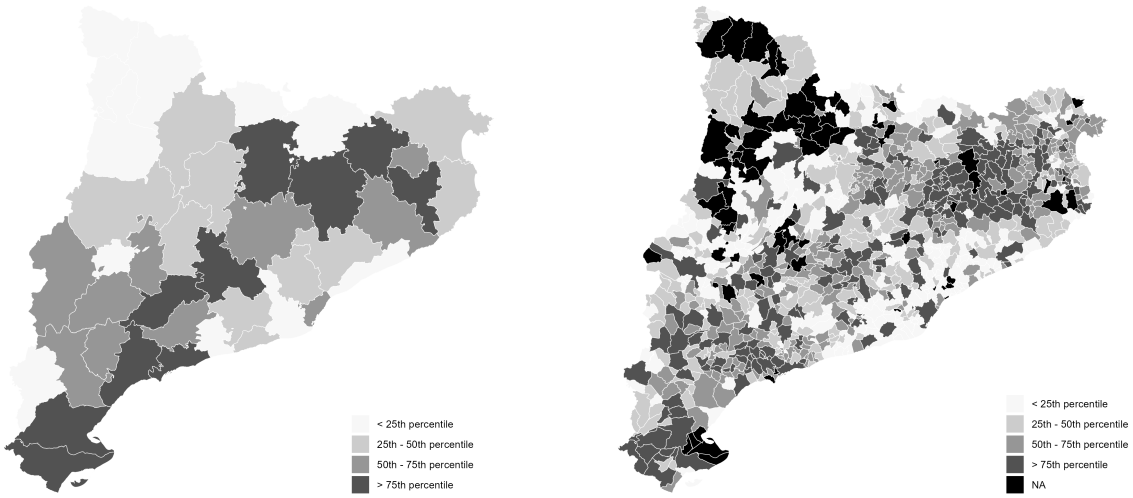
Carlism

Given that data on Carlism are imperfect and fragmented, we employ four indicators. The first one is a database of 10,500 Carlist fighters from the 1868-1876 period, compiled and analyzed by Toledano (1999, 2004).[2] We compute the percentage of Carlists in each municipality relative to the 1860 census population. The second indicator is a binary variable with value 1 for those municipalities where at least one Carlist military leader emerged during the war according to Toledano, 2004, Map XIV). There are 87 municipalities with at least one Carlist leader. Inasmuch as Carlist *partidas* (groups of armed people) were locally organized and led by

[2]We thank Ferrán Toledano for sharing this database.

prominent figures (e.g., priests, noblemen, etc.), the presence of a leader signals local Carlist strength. The third indicator is the presence of a Carlist circle in 1896, according to the list published in the Carlist periodical *El Correo Español*. The fourth indicator is the average electoral support for Carlist candidates in general elections from the advent of universal male suffrage in 1890 to 1923, just before the Primo de Rivera's authoritarian spell.[3]

Each measure captures different facets of the Carlist phenomenon. The first two reflect wartime activity, while the latter two capture social and political strength in the post-war period. Given potential measurement error in each individual indicator, we construct a latent variable -the Carlist factor- using factor analysis (Table A3). Figure 1 depicts the spatial distribution of Carlism at both the *comarca*[4] and municipal levels. A sort of North-South corridor emerges, stretching from the mountainous Pyrenean regions (*comarcas* such as Bages, Berguedá, Garrotxa and Osona) to the areas around the Ebro Delta in the south (Baix Ebre and Montsiá).



(a) Index of Carlism per comarca **(b)** Index of Carlism across municipalities

Figure 1. Geographical distribution of Carlism in Catalonia

We acknowledge that our measures largely capture the later phases of Carlism. Ideally, we would analyze municipal-level data from Carlism's earlier period. Unfortunately, such data are

[3]There are not electoral records at the municipal level before this date.

[4]The *comarca* is a geographical unit smaller than the province but bigger than the municipality. There are 41 *comarcas* in Catalonia.

unavailable. Nonetheless, we incorporate partial data from Santirso (1995) documenting the number of imprisoned and pardoned Carlists in 1835, in the middle of the First Carlist War. As shown in Table C.2.1, our municipal-level results remain significant and in the expected direction even when using this early indicator, although the results are somewhat weaker.

Control variables

Contemporary, historical, and geographic controls are used at the municipal level. As for contemporary controls, we include variables widely used in the literature (Knack and Keefer, 1997; Putnam, 1993): population size, per capita income, and income inequality. Larger municipalities may face greater obstacle to building social capital. Economic development, captured by per capita income, may facilitate civic engagement as people with greater resources have better opportunities to participate in associations and develop links in social networks. Income inequality may have a negative effect since equality has often been linked to cooperation and civic engagement. To these standard controls, we add a variable that measures the proportion of Catalan-speaking population in order to capture ethnic and cultural homogeneity. Municipalities with higher proportions of Catalan speakers often experienced less immigration during the major internal migration waves of 1959-1975, potentially preserving local culture and traditions (see Additional results for a more thorough analysis of this issue).

The main historical control is literacy rates from the 1860 census. This variable captures levels of modernization before the 1872-76 Carlist War. In cross-national analysis, past levels of education have a positive effect on contemporary social capital (Guiso et al., 2011, Table 6). Higher literacy may signal earlier socioeconomic development, which could foster social capital irrespective of Carlism. We also control for average altitude in the municipality, as higher areas tend to be more isolated and self-sufficient, with lower presence of the state. Thus, it might be case that these municipalities have stronger social capital, particularly of the bonding type. Moreover, Carlism is historically associated with mountainous regions rather than coastal or lowland areas (Caridad, 2018; Toledano, 2004).

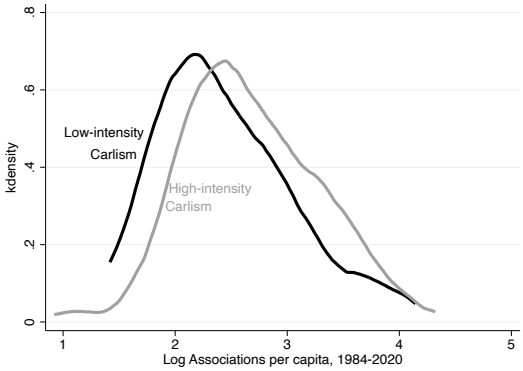
At the individual level, the models incorporate standard sociodemographic and political controls: age, gender, education, religiosity, left-right ideology, and employment status. These variables are commonly used in research on social capital based on survey data (Brehm and Rahn, 1997; Paxton, 2007; Putnam, 1995; Schyns and Koop, 2010). Religiosity is particularly salient in this context, given that much of Carlism's ideological foundation is intertwined with Catholic traditionalism. Thus, individual religiosity could absorb some of Carlism's long-term influence. A similar logic applies to ideology: since Carlism was a reactionary movement, individual's ideology might partly explain the observed association between Carlism and social capital. The exhaustive battery of municipal and individual controls thus leaves little unexplained variance, setting a demanding test for any hypothesized effect of Carlism on present-day social capital.

Analysis

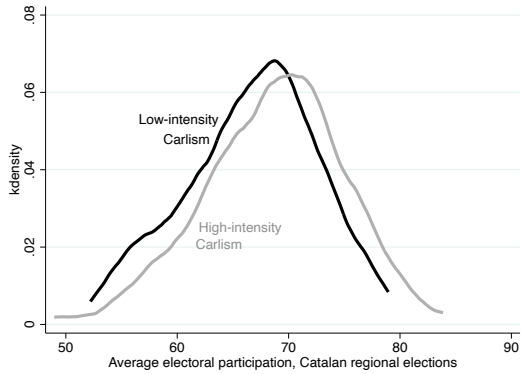
Aggregate analysis

This section motivates our main hypotheses connecting past support for Carlism to current social capital by looking at the ecological correlations between Carlism intensity and proxies for social capital across all Catalan municipalities. We first use a composite social capital index based on associational density, electoral participation in regional elections, blood donations, and waste recycling. Figure 2 provides visual evidence of differences in various social capital indicators between municipalities with high and low levels of Carlist support. Figure 2a compares the kernel density distribution of associational density in municipalities in the lowest and highest quartiles of the Carlism indicator. Figure 2b shows the kernel density distributions of participation in regional elections for the same groups of municipalities. Finally, Figure 2c displays the kernel density distributions for the percentage of waste recycled. As seen in these graphs, these indicators of social capital tend to be higher in municipalities in the highest quartile of Carlism intensity (in gray) than in those in the lowest quartile (in black).

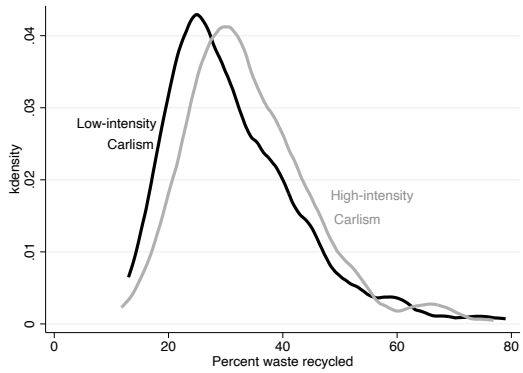
At the same time, municipalities in the "low" and "high" Carlism groups might differ in other



(a) Log Associations per capita, 1984–2020.



(b) Average electoral participation in Catalan elections.



(c) Percent waste recycled.

Figure 2. Kernel density distributions of social capital indicators in municipalities in the lowest and highest levels of intensity of Carlism.

characteristics that could also predict social capital. We therefore employ regression analysis to control for alternative pathways to greater social capital formation. All analyses in the main text assume a linear effect of the Carlist variable. In Table C.1.2, we replicate the main analyses using a non-linear specification decomposing the Carlism variable into quartiles.

Table 2 presents the main coefficients from our OLS regressions. Column (1) reports results using the principal factor of our social capital indicators as the dependent variable. Columns (2)

to (5) list the coefficients from regressions using associational density, electoral participation, blood donations, and waste recycled as dependent variables.

Table 2. Ecological regressions explaining social capital, municipal level

	Dependent variable					
	(1) Social Capital factor	(2) Social Capital factor	(3) Log associations per capita	(4) Participation Catalan elections	(5) Blood donations per capita	(6) % waste recycled
Carlism	0.139***	0.103***	0.097**	1.035***	31.957***	0.877
	(0.024)	(0.023)	(0.038)	(0.236)	(8.000)	(0.586)
Municipal controls		✓	✓	✓	✓	✓
R^2	.04	.168	.110	.422	.085	.109
N	885	841	841	841	841	841

Notes: ***, p<.001, ** p<.05, * p<.1. Robust standard errors in parentheses. Municipal controls include literacy (1860), income per capita (2015), log population (2014), Catalan-speaking population (2011), Gini index (2015), and mean altitude.

As seen in Table 2, there is a close association between past levels of Carlism intensity and our indicators of social capital, with the exception of recycled waste. A one standard deviation increase in the Carlist indicator raises the social capital index by about 0.06, equivalent to approximately 15 percent of its standard deviation. For the indicators in columns (2) through (5), a one standard deviation increase in Carlist intensity increases the number of associations per capita by 4 percent of the standard deviation of the log of associations per capita; electoral participation by 10 percent of its standard deviation; and blood donations by 15 percent. Table C.1.2 in the Appendix shows that these effects are concentrated in the third and, especially, the fourth quartiles of Carlist intensity.

Turning to the control variables, many coefficients in Table 2 have the expected signs and are generally statistically significant. Literacy rates in 1860 are consistently positive across specifications, confirming the importance of controlling for historical education levels in predicting social capital today. Average income in 2010 is mostly positively associated with social capital, as expected, except in the cases of the log of associations and blood donations. The coefficients for the log of population in 2014 are mixed. As expected, the percentage of people speaking Catalan has positive coefficients in all models except for the log of associations per capita, suggesting that more cohesive and homogeneous municipalities are linked to higher social capital. Inequality, measured by the Gini coefficient in 2015, generally has negative

coefficients, consistent with prior expectations. Finally, the coefficients for the log of altitude are inconsistent, positive for most indicators of social capital but negative for blood donations.

Overall, the ecological analysis provides preliminary evidence in favor of the main hypothesis. Next, we turn to the addition of individual data.

Mixed analysis

In this section, we offer a more fine-grained analysis. Thanks to the availability of individual data, we directly test our hypotheses about whether individuals living in municipalities with a stronger Carlist past are more likely to participate in associations (particularly bonding associations) and have lower level of interpersonal trust, controlling for both individual and municipal characteristics.

As explained above, the outcome variables is membership in associations. We distinguish between bridging and bonding associations. Our theoretical argument presumes that Carlism generated social capital of the bonding type rather than the bridging type (H2). Originally, Putnam (2000) defined these two forms based on the distinction between outward vs. inward-looking social action. In a similar vein, Chetty et al. (2022) conceptualize bridging as a form of connectedness and bonding as a form of cohesiveness.[5] In later work, however, Putnam and Goss (2002) reformulated somewhat the original definition introducing another dimension, social homogeneity. Now, bonding is about connecting individuals who share the same sociodemographic characteristics while bridging is about linking heterogeneous people.

For analytical clarity, two dimensions of associations can be identified: orientation and composition. Orientation refers to whether associations reinforce the in-group (inward-looking) or establish links with out-groups (outward-looking). Composition, by contrast, concerns the social homogeneity of an association's membership. Orientation and composition are not necessarily correlated. As an illustration, an entrepreneurial association might be outward-looking in orientation (aiming to influence government policy and collaborate with various

[5] See also Lancee (2010) and Patulny and Svendsen (2007).

actors) yet highly homogeneous in composition, with similar income and education levels among members. In contrast, orientation and composition can align, as in the case of a gentlemen's club whose members share similar backgrounds and whose purpose is to promote bonding between members.

Our hypothesis is about the orientation of associations. Specifically, we surmise that Carlism fostered associations reinforcing local communities and strengthening in-group bonds, in contrast to out-groups linked to the "liberal" world. Accordingly, we classify associations based on whether their activities are confined to the local community (bonding) or oriented beyond it (bridging). The former are community-based associations, while the latter pursue goals that transcend the local community. From this perspective, examples of bonding are neighborhood, culture and arts, elderly, youth, recreational, and agrarian associations; examples of bridging are political parties, NGOs, unions, human rights groups, social movements (environmental, women's rights, pacifist, etc.), and professional associations. Table A4 in the Appendix presents our full classification. For comprehensiveness, we also explore an alternative classification based on whether associations have political goals. We expect a larger effect of Carlism on non-political associations, which are typically more inward-looking, than on political ones (again, see Table A4 for more details).

Although our classification is theoretically grounded, we also experimented with a composition-based classification, computing the coefficient of variation for the education level of association members.[6] Associations with a coefficient equal to or greater than 1 are coded as bridging, while those below 1 are coded as bonding. Lastly, we conduct a placebo test in which types of associations are divided alphabetically into two groups.

We begin testing H1. The outcome variable is membership in any association, controlling for the individuals' sociodemographic and political attributes as well as municipal characteristics. The analysis is restricted to municipalities with at least ten respondents, leaving 375 municipalities out of the 587 with at least one individual observation.[7] Apart from methodological considerations, another reason for this cutoff is that very small municipalities, which

[6] We follow the analysis of Satyanath et al. (2017).

[7] The Appendix replicates the results including all municipalities with at least one respondent (Table C.2.4).

tend to be noisy, are usually excluded from the analysis.

We estimate multi-level (mixed) models logit with random intercepts. Regressions are replicated in the Appendix using the quartile decomposition of the Carlist variable (Tables C.1.4 and C.2.2).

Table 3. Carlism and associational membership

	(1)	(2)
Carlism	0.096***	0.116***
	(0.035)	(0.039)
Individual controls	✓	✓
Municipal controls		✓
Individuals	27,497	27,497
Municipalities	302	302

Notes: *** p<.001, ** p<.05, * p<.1. Logit estimates. Robust standard errors in parentheses. Survey-year fixed effects included in all specifications. Column (1) includes individual-level controls (education, ideology, age, religiosity, gender, job). Column (2) additionally includes municipal-level controls. Only municipalities with at least 10 respondents.

We present results for H1 in Table 3. The dependent variable is whether an individual belongs to at least one association. The first model includes only individual-level controls; model 2 adds municipal-level controls. The effect of the Carlism factor is positive and significant in both models, confirming the hypothesis. Figure 2 shows the change in the probability of being a member of at least one association as the Carlist factor increases (based on model 2) from its minimum to maximum. The total effect is an increase of .14 points, going from .42 to .56, when other variables are held at their means (a 33% increase). Although this effect is sizable, it becomes even larger when we distinguish between bonding and bridging associations.

As in Table 2, richer and more equal municipalities exhibit higher levels of associational membership. Other municipal controls are not significant. At the individual level, results in Table 3 are in line with previous research: more educated individuals are more likely to participate in associations; individuals with political ideologies, especially those on the Left, are more likely to join associations than those with no stated ideology; men participate more than

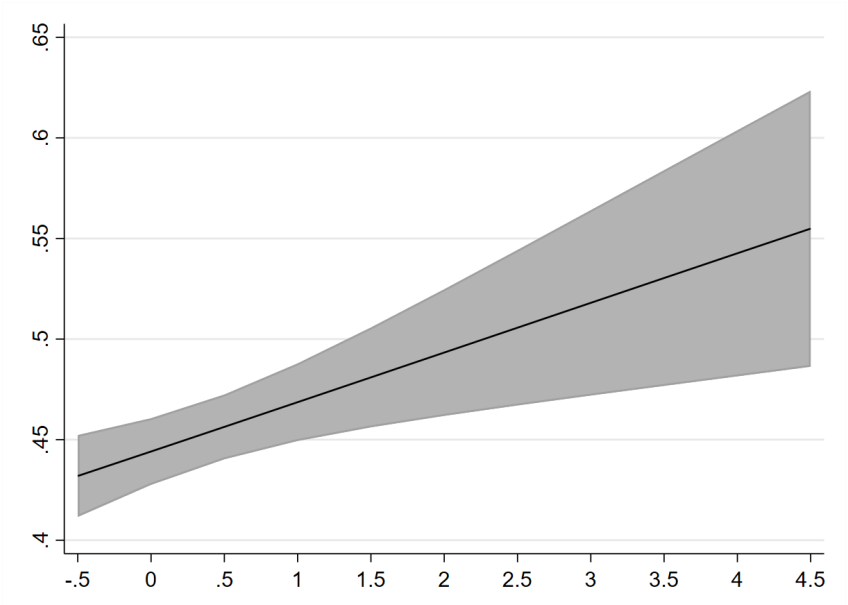


Figure 3. Marginal effects of Carlism on any type of association. 95% CIs.

women; and religiosity strongly predicts associational membership. No significant relationship emerges between age and participation.

Because Carlists were deeply Catholic, one might suspect that our results are driven by membership in religious associations. However, we replicate the results excluding religious associations from the dependent variable and results remain robust (see Table C.2.2). Therefore, our findings pertain to general social capital rather than merely "religious social capital".

Table 4. Effects of Carlism on different types of association

Panel A: Bonding and bridging associations (orientation)				
	Local (bonding) (1)	Supralocal (bridging) (2)	Non-political (bonding) (3)	Political (bridging) (4)
Carlism	0.132***	-0.005	0.143***	-0.024
	(0.044)	(0.036)	(0.042)	(0.038)
Individuals	22,083	22,584	22,092	22,621
Municipalities	270	270	270	270
Test for equal coefficients	$Chi^2 = 11.15$, $p = 0.0008$		$Chi^2 = 14.62$, $p = 0.0001$	
Panel B: Bonding and bridging associations (composition) and placebos				
	Homogeneous (bonding) (5)	Heterogeneous (bridging) (6)	Placebo 1 (7)	Placebo 2 (8)
Carlism	0.109**	0.080*	0.103**	0.085**
	(0.045)	(0.048)	(0.045)	(0.037)
Individuals	22,734	22,260	22,637	22,664
Municipalities	274	270	270	270
Test for equal coefficients	$Chi^2 = 1.79$, $p = 0.18$		$Chi^2 = 0.20$, $p = 0.65$	

Notes: *** p<.001, ** p<.05, * p<.1. Logit estimates in all models. Municipalities with at least 10 respondents. Individual and municipal controls and survey-year fixed effects included. Robust standard errors in parentheses

Table 4 tests H2. Models (1) and (2) distinguish between bonding and bridging associations

based on orientation, that is, local or inward-looking associations versus supralocal or outward-looking associations.[8] As expected, the effect emerges only for bonding associations, not for bridging ones. A comparison of the coefficients of Carlism in models 1 and 2 confirms that they are significantly different.[9] Consistent with Carlism's role as a resistance movement against liberal change, its historical presence is linked to bonding-oriented, inward-looking associations. Similar patterns appear in models 3 and 4, where we distinguish between politically and non-politically oriented associations. Carlism affects only non-political associations.

In Panel B, models 5 and 6 test the effect of Carlism on a composition-based classification of associations. As explained above, we classify associations by the homogeneity (heterogeneity) of their members' educational levels. The effect is somewhat stronger for homogeneous associations, but the coefficients of Carlism in the two models are not statistically different (p = .18). Therefore, the composition of associations, although relevant in some studies (e.g., Satyanath et al. 2017), does not appear to play a significant role in this context. This null result aligns with the observation that Carlism was largely a cross-class movement focused on preserving traditional lifestyles within the community rather than promoting the interests of any particular group. These findings likewise hold when using the quartile quartile decomposition of the Carlist variable (Table C.1.5).

Given the inherent subjectivity in classifying associations, we conduct a placebo test, dividing associations according to their initial character in Spanish (group 1 from A to E, group 2 from E to Z), each containing an equal number of associations. Results appear in Panel B, models 7 and 8. The coefficients for the Carlist variable are indistinguishable across these groups (p = .65).

[8] A potential concern is the confounding effect of individuals who belong to both bonding and bridging associations. This overlap might attenuate the estimates of Carlism. In the appendix (Table C.2.3, the results of Table 4 are replicated excluding individuals who are members of both types of associations.

[9] This difference is tested via a chi-squared test based on seemingly unrelated regression results. The test is conducted under the same specification, though without accounting for the mixed-model structure.

Additional results

So far, we have demonstrated a robust association between the intensity of the Carlist movement and social capital. This association is significant for both municipal and individual variables. We have argued that the community-oriented tradition of Carlism explains the strength of social capital in these municipalities. Carlist circles and other forms of self-organization account for the strength of social capital, especially of the localist, bonding type.

However, although the statistical association between Carlism and social capital is robust, the mechanism that we propose linking the Carlist movement to current social capital may be confounded by several pre- and post-Carlist variables that can affect current social capital and correlate with past Carlism. If this were the case, the estimated positive relationship between Carlism and social capital could be spurious.

Regarding pre-Carlist biases, the most obvious candidate is social capital before the advent of Carlism. Because Carlism had a strong traditionalist and religious component, pre-Carlist social capital, particularly of religious origin, may correlate with Carlism. In fact, the correlation between Carlism intensity and the number of religious associations before 1833 is 0.15, statistically significant at the 1 per cent level.[10] Since early 19th-century religious social capital can be correlated with current social capital, Carlism might then be an intermediate variable connecting pre-1833 social capital with current social capital.

To address this issue, we instrument local Carlism strength with the number of wool looms in 1760, which captures variation in proto-industrial economic structure in Catalonia. Mid-eighteenth-century wool production was organized through small-scale, household, and workshop manufacturing concentrated mostly in rural interior areas (Nadal i Oller et al., 2012, p.44). These locations later faced relative decline during nineteenth-century industrialization, as cotton-based factory production agglomerated along the coast and a modern wool industry developed in Sabadell and Terrassa, much closer to the main market in Barcelona (Benaul i Berenguer, 1992, 1994). The persistence of artisanal social relations and limited integration in

[10] We choose pre-1833 religious associations because 1833 is the year of the first Carlist war.

regional labor markets made these areas more receptive to Carlism's opposition to centralization, market liberalization, and secular reform. In addition, wool loom density in 1760 is not correlated with the log of associations before 1833 (correlation coefficient is -0.017) or the log of religious associations before 1833 (coefficient of -0.030).

The instrument is plausibly exogenous because the spatial distribution of wool looms in 1760 was determined by access to water, livestock suitability, and proximity to markets, rather than by political preferences or institutions related to nineteenth-century conflict. The instrument predates the emergence of Carlism and the liberal–absolutist cleavage by several decades, ruling out reverse causality. Moreover, pre-industrial economic activities vanished in the 19th century and cannot affect current social capital directly. Therefore, once we control for geographical factors that could correlate with pre-industrial economic sectors and with current social capital, pre-industrial manufacturing impacts current social capital only through Carlism, consistent with the exclusion restriction.[11]

In order to motivate the use of the instrument, Table 5 reports the reduced-form estimates, substituting the log of wool looms in 1760 for our indicator of Carlism intensity. Column (1) reports the coefficient when the first principal component of social capital is used as the dependent variable, the log of associations per capita in column (2), electoral participation in column (3), blood donations per 1,000 inhabitants in column (4) and the percentage of waste recycled in column (5). In four out of the five regressions, the reduced-form coefficient for the log of wool looms is positive and statistically significant, indicating the relevance of the instrument.

Next, we move to IV regressions in panel B of Table 5. The first stage predicting our endogenous regressor of Carlism displays a positive, statistically significant coefficient on the log of looms in 1760 (coefficient is 0.075, with a standard error of 0.027). However, the partial F of excluded instruments is around 8, which points at a problem of weak instruments. For this reason, we adopt weak-instrument robust methods and employ both the Limited Information Maximum Likelihood (LIML) and the Fuller IV estimators. The full set of weak-instrument

[11] We control by log of altitude in the main specifications, but adding longitude and latitude does not alter the main results. Extra results with longitude and latitude in Table C.2.5.

Table 5. Reduced-form and IV estimates

	(1) Social Capital factor	(2) Log Associations per capita	(3) Participation Catalan Elections	(4) Blood donations per 1,000	(5) % waste recycled
A. Reduced form:					
Log looms 1760	0.055***	0.047**	0.915***	15.819***	0.099
	(0.017)	(0.022)	(0.152)	(5.352)	(0.493)
Municipal controls	✓	✓	✓	✓	✓
R^2	0.156	0.116	0.411	0.075	0.105
B. Fuller IV est ($\alpha = 5$):					
First stage:					
Log looms 1760	0.075***				
	(0.027)				
Municipal controls	✓				
F stat excluded instruments	7.79				
Second stage					
Carlism	0.460***	0.492	6.946***	130.958***	1.949
	(0.203)	(0.458)	(2.630)	(64.091)	(4.773)
Municipal controls	✓	✓	✓	✓	✓
Anderson-Rubin F	9.02	1.69	16.46	6.71	0.19
p-value	0.003	0.194	0.0001	0.010	0.667
Anderson-Rubin χ^2	9.10	1.71	16.62	6.78	0.19
p-value	0.003	0.193	0.0000	0.009	0.667
Stock-Wright χ^2	9.00	1.70	16.30	6.72	0.19
p-value	0.003	0.192	0.0001	0.010	0.665
F (2^{nd} Stage)	16.69	13.66	52.80	5.67	18.54
N	841	841	841	841	841

diagnostics is reported in the Appendix (Tables C.2.6-C.2.10). The reported coefficients are typically much smaller than the straightforward IV estimators, which suggests weak-instrument bias. In all cases, the Fuller IV estimate is positive and it is statistically significant at standard levels of significance in three out of the five columns.

Given that weak-instrument bias makes IV estimates unreliable, we report weak-instrument-robust Anderson-Rubin and Stock-Wright tests against the null of no causal effect of Carlism on current social capital. In three out of the five columns, the tests confirm the presence of a positive effect of Carlism on social capital, despite the presence of a weak instrument. In these cases, the null of no effect is rejected (p-values smaller than 0.003), backing the results from the reduced-form specifications. Column (2) presents weaker test results (p-value around 0.2),

but the direction of the effect is consistent with the hypothesis and the reduced-form coefficient (and given the point estimates, the true coefficient would be 0 in 2 out of 10 draws of the sample estimator). Finally, in the case of the percentage of waste recycled, there is no evidence of a causal effect, which also coheres with the insignificant coefficient in the reduced-form equation.

Taken together, these results suggest that the exogenous variation in Carlism intensity, induced by negative economic shocks (industrial decline), positively predicts greater social capital today. While we do not rule out alternative channels linking pre-Carlist social capital, especially of the religious type, to both Carlism and later social capital, the IV results indicate that the pathway running from industrial decline to Carlist mobilization and subsequent modern social capital can be partially isolated in the data. In our view, these patterns lend support to the interpretation that Carlism itself contributed to long-run social capital formation, rather than merely reflecting pre-modern endowments of social capital.

We move now to potential post-Carlist alternative explanations, based on the idea that shocks occurring *after* the spread of Carlism may correlate with both Carlism and current social capital. Here we consider two possibilities.

One alternative explanation runs as follows: most Carlist towns were located in mountainous areas in inner Catalonia, away from coastal areas, which typically had more industry and tourism and boomed in the second half of the twentieth century. Fast population growth after 1950 was driven by migrants from other provinces, typically speaking Spanish rather than Catalan (Alcaide, 2007, p.133). These demographic changes generated internal divisions in these towns. In contrast, the slow-growing inner regions of Catalonia did not attract population from the rest of Spain to the same extent and, as a result, these municipalities remained more socially homogeneous. In the literature, higher ethnic, racial, or linguistic cohesion is associated with greater participation and social capital (Alesina and La Ferrara, 2000; Putnam, 2007). Therefore, if Carlism is ultimately correlated with social homogeneity after 1960, the correlation between Carlism and social capital can be potentially spurious.

To address this objection, we use the percentage of individuals self-identifying as Catalan speakers as a proxy for the degree of social homogeneity in Catalan municipalities. We also

add the change in population between 1950 and 2020 as another potential confounder, since population change is related to the degree of social homogeneity.

As shown in Table C.2.11, adding the control variables proxying social homogeneity reduces the coefficient of Carlism, but the changes are modest and the coefficient does not lose its statistical significance. Therefore, these results suggest that only a small part of the association between Carlism and current social capital flows through the intermediate, post-Carlist channel of linguistic and social homogeneity.[12]

Finally, we show that Carlism operates as expected when an intermediate measurement of social capital is used. We employ social capital indicators from the 1930s and we also find a clear effect of Carlism. This is interesting evidence for two reasons. Firstly, because it shows that there is nothing idiosyncratic in contemporary social capital that might be related to Carlism for spurious reasons. And secondly, because a positive effect of Carlism on 1930s social capital rules out the possibility of the Civil War and the long Francoist period having an effect on social capital that is somehow associated to previous levels of Carlism. For instance, it might be argued that Francoism invested more in more traditionalist (Carlist) municipalities, which were more loyal to the regime, and this contributed to social capital formation; or that the regime repressed more heavily leftist municipalities, destroying existing levels of social capital, which only survived in places with Carlist experience.

To test these possibilities, we use the number of associations per capita in the period 1900-1939 and the number of co-operatives in 1936 as indicators of pre-Francoist social capital.[13] We regress the log number of associations per capita in the period (1900-1936) on our measure of Carlism, controlling for a set of municipal variable. We perform similar regressions using the log number of cooperatives in 1936 as the dependent variable. In Table 6, the estimated coefficients on Carlist intensity are reported.

The results indicate that municipalities with higher Carlism were already associated with higher levels of social capital in the period preceding Francoism. Although the conclusions

[12]Tables C.2.12 and C.2.13 replicate this analysis using the multi-level models and results hold.

[13]Data on associations come from the Database of Contemporary Catalan Associationism. Cooperative data were kindly shared by the authors of Medina-Albaladejo et al. (2021).

Table 6. Social capital and Carlism intensity *before* Franco

	(1) Log Associations per capita, 1900–39	(2) Log Co-operatives in 1936
Carlism	0.705***	0.162***
	(0.229)	(0.041)
Municipal controls	✓	✓
N	871	871

Notes: *** p<0.001, ** p<0.05, * p<0.1. Robust standard errors in parentheses. Municipal controls include: literacy rates in 1860, logged mean elevation, and population in 1936. Only coefficients on the Carlist intensity indicators are reported.

we can draw from these regressions are limited given potential measurement error in historical associational data, these findings weaken the claim that the relationship we document between Carlism and today's social capital is driven by the political changes after the demise of the Second Republic.

This section has examined potential confounders in the association between Carlism and present-day social capital. Our analysis shows that biases arising from omitted variables correlated with both Carlism and the outcome variable are unlikely to account for our main results.

Conclusions

We have shown a robust and important association between past Carlism and contemporary social capital. The association holds across various model specifications, including rigorous mixed-effects estimations that simultaneously account for both individual and municipal-level controls. Furthermore, we have explored alternative explanations, yet none appears as compelling or influential as the legacy of Carlism. The estimation via an instrumental variable confirms that Carlism is not driven by previous levels of social capital.

The findings are striking because most existing literature on the historical origins of social capital assumes that it emerges under conditions of political or economic equality. Prevailing theories emphasize horizontal social relations, limited concentration of power, impartial ad-

ministration, equitable land distribution, and political self-government as factors that promote social capital. In contrast, our study has looked elsewhere, shifting the focus to a 19th-century reactionary movement that actively resisted liberalism and sought to preserve an older social order marked by social hierarchy and inequality. Carlism was a powerful and belligerent movement, responsible for instigating three civil wars throughout 19th-century. To our knowledge, no prior work has proposed that such a movement might foster social capital. However, the intense spirit of community forged through collective resistance to liberalism appears to have generated enduring forms of social capital.

In line with our theoretical framework, we find that the social capital linked to Carlism is primarily of the bonding type. This is consistent with theories of social capital formation emphasizing the role of community ties and its norms of cooperation. Our findings suggest that civic republicanism represents only one pathway for the development of social capital. Social capital may also emerge from reactionary origins, revealing a more complex and diverse set of historical origins than previously recognized.

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Appendix

Summary statistics and description of main variables

Table A1. Description of variables and sources

Variable	*Description*	*Source*
Individual-level variables		
Member of any association	Individual is a member of at least one association.	Own elaboration using data from the *Centro de Investigaciones Sociológicas* (CIS).
Member of a locally-oriented association	Individual is a member of an association with a local focus.	Own elaboration using data from the CIS.
Member of a supralocally-oriented association	Individual is a member of an association with a supra-local focus.	Own elaboration using data from the CIS.
Member of a non-political association	Individual is a member of a non-political association.	Own elaboration using data from the CIS.
Member of a political association	Individual is a member of a political association.	Own elaboration using data from the CIS.
Bonding association (composition-based)	Individual is a member of an association with low educational diversity, measured using the coefficient of variation in education levels.	Own elaboration using data from the CIS.
Bridging association (composition-based)	Individual is a member of an association with high educational diversity, measured using the coefficient of variation in education levels.	Own elaboration using data from the CIS.
Member of any association (1st placebo)	Individual is a member of a placebo category of associations.	Own elaboration using data from the CIS.
Member of any association (2nd placebo)	Individual is a member of a placebo category of associations 2.	Own elaboration using data from the CIS.
Interpersonal trust (0–10 scale)	Interpersonal trust measured on a scale from 0 to 10. For surveys reporting binary responses (0 = "You can never be too careful when dealing with others" 1 = "Most people can be trusted"), we recode 0 as 1 and 1 as 9. For four-category responses (ranging from high level to low level trust), we recode: 1 $\rightarrow$ 8, 2 $\rightarrow$ 6, 3 $\rightarrow$ 4, and 4 $\rightarrow$ 2.	Own elaboration using data from the CIS.
Extreme left	Binary indicator for political self-identification as extreme left.	CIS.
Left	Binary indicator for political self-identification as left.	CIS.
Center	Binary indicator for political self-identification as center.	CIS.
Right	Binary indicator for political self-identification as right.	CIS.
Extreme right	Binary indicator for political self-identification as extreme right.	CIS.
No education	Binary indicator for no formal education.	CIS.
Primary education	Binary indicator for primary education.	CIS.
Secondary education	Binary indicator for secondary education.	CIS.
Higher education	Binary indicator for tertiary education.	CIS.
Age $<$ 25	Binary indicator for under 25 years old.	CIS.
Age 25–34	Binary indicator for between 25 and 34 years old.	CIS.
Age 35–44	Binary indicator for between 35 and 44 years old.	CIS.
Age 45–54	Binary indicator for between 45 and 54 years old.	CIS.
Age 55–65	Binary indicator for between 55 and 65 years old.	CIS.
Age $>$ 65	Binary indicator for over 65 years old.	CIS.
Sex (1 = Male)	Binary indicator for male respondents.	CIS.
Having a job	Binary indicator for employment status.	CIS.
No religious practice	Binary indicator for no religious practice.	CIS.
Occasional religious practice	Binary indicator for occasional religious practice.	CIS.
Frequent religious practice	Binary indicator for frequent religious practice.	CIS.
Municipal-level variables		
Literacy 1860	Municipal literacy rate in 1860.	Beltrán Tapia et al. (2023).
Log mean altitude	Logarithm of municipal average elevation.	Oto-Peralías (2018).
Catalan speaking population 2011	Percent of population that can speak Catalan in 2011.	*Institut d'Estadística de Catalunya*.
Log population 2014	Logarithm of municipal population in 2014.	Own elaboration using data from *Instituto Nacional de Estadística*.
Log income per capita 2010	Logarithm of taxable income per capita in 2010.	*Institut d'Estadística de Catalunya*.
Gini index 2015	Measure of income inequality in 2015.	*Institut d'Estadística de Catalunya*.
Principal-factor social capital	Factor score from principal component analysis of social capital indicators.	Authors' calculation.
Log associations per capita 1984-2020	Number of associations created between 1984 and 2020 per 1000 inhabitants	Authors' calculation from *Generalitat de Catalunya*
Average participation in European elections 1987–2019	Mean turnout in European elections over 1987–2019.	Own elaboration from electoral records.
Blood donations per capita 2018–2021	Number of blood donations per 1000 inhabitants	*Banc de sang i de teixits de Catalunya*.
Percent of recycled waste 2000	Share of waste recycled over total waste	*Institut d'Estadística de Catalunya*.
Principal-factor Carlism	Factor score of Carlism indicators.	Authors' calculation.
Share of Carlist fighters 1868–1876	Percent of Carlist fighters involved in third Carlist war.	Drelichman et al. (2021) from Toledano (1999).
Carlist circle 1896	Binary indicator for presence of Carlist local association in 1896.	Drelichman et al. (2021) from Toledano (1999).
Presence of a Carlist leader 1868–1876	Binary indicator for presence of a Carlist leader in municipality in the third Carlist war.	Toledano (1999).
Average electoral support for Carlism 1890–1923	Average Carlist vote share in general elections over 1890-1923.	Own elaboration from Vall-Prat (2021).
Share of rural laborers 1787	Share of rural laborers over total population	Own elaboration from Floridablanca (1787).
Pairal manor	Binary indicator for presence of manor house	de Camps (1969)
Type of pre-modern jurisdiction	Type of medieval jurisdiction or lordship: royal domain, secular, ecclesiastical, abbey, and military order	Frígola (1824)

Table A2. Summary statistics

Variable	*Mean*	*SD*	*Min*	*Max*	*N*
Panel A: Individual-level variables					
Member of any association	0.44	0.50	0	1	37101
Member of a locally-oriented association	0.42	0.49	0	1	29935
Member of a supralocally-oriented association	0.25	0.43	0	1	30816
Member of a non-political association	0.44	0.50	0	1	29945
Member of a political association	0.22	0.41	0	1	30867
Bonding association (composition-based)	0.42	0.49	0	1	30986
Bridging association (composition-based)	0.23	0.42	0	1	30460
Member of any association (1st placebo)	0.38	0.49	0	1	30910
Member of any association (2nd placebo)	0.32	0.47	0	1	30927
Interpersonal trust (0-10 scale)	5.24	2.49	0	10	9554
Ideological Self-Placement					
Extreme left	0.15	0.36	0	1	40343
Left	0.28	0.45	0	1	40343
Center	0.25	0.43	0	1	40343
Right	0.06	0.24	0	1	40343
Extreme right	0.02	0.12	0	1	40343
Education					
No education	0.07	0.25	0	1	39141
Primary education	0.28	0.45	0	1	39141
Secondary education	0.46	0.50	0	1	39141
Higher education	0.20	0.40	0	1	39141
Demographics					
Age <25	0.09	0.29	0	1	40080
Age 25-34	0.17	0.38	0	1	40080
Age 35-44	0.20	0.40	0	1	40080
Age 45-54	0.18	0.38	0	1	40080
Age 55-65	0.15	0.35	0	1	40080
Age >65	0.22	0.41	0	1	40080
Sex (1 = Male)	0.46	0.50	0	1	40341
Having a job	0.51	0.50	0	1	38612
Religiosity					
No religious practice	0.77	0.42	0	1	33073
Occasional religious practice	0.15	0.35	0	1	33073
Frequent religious practice	0.09	0.28	0	1	33073
Panel B: Municipal-level variables					
Literacy 1860	14.34	6.48	1.47	66.90	920
Log mean altitude	1.04	1.10	-3.47	3.06	945
Catalan speaking population share 2011	84.61	12.36	0	100	946
Log population 2014	7.13	1.70	3.37	14.29	947
Log income per capita 2010	9.77	0.22	8.76	10.73	946
Gini index 2015	31.16	3.58	21.70	45.90	910
Principal-factor social capital	0.00	0.94	-2.95	2.64	945
Log associations per capita 1984-2020	2.5	1.47	-9.21	4.94	947
Average participation in regional elections 1980-2021	68.17	5.96	48.96	86.36	947
Blood onations per capita 2018-2021	97.99	128.35	0	1666.67	946
Percent of recycled waste 2000-2021	32.17	10.75	7.93	79.00	945
Principal-factor Carlism	0.00	0.60	-0.46	4.29	886
Share of Carlist fighters 1868-1876	0.01	0.02	0	0.20	944
Carlist circle 1896	0.10	0.30	0	1	944
Presence of a Carlist leader 1868-1876	0.09	0.29	0	1	948
Average electoral support for Carlism 1890-1923	4.56	7.23	0	36.29	889

Table A3. Factor analysis results (main factors only)

Panel A: Social capital		
Variables	*Factor 1*	*Uniqueness*
Electoral participation (regional)	0.285	0.91
Log associations per capita 1984-2020	0.107	0.95
Blood donations per capita	0.239	0.935
% Selective waste collection	0.294	0.905
Eigenvalue	0.237	
Proportion explained	0.06	
N	945	
$\chi^2(3)$	39.69	$p < 0.001$
Panel B: Carlism		
Variables	*Factor 1*	*Uniqueness*
Share Carlist fighters	0.423	0.821
Presence of a Carlist leader	0.406	0.835
Presence of a Carlist circle	0.272	0.926
Electoral support for Carlist candidates	0.317	0.900
Eigenvalue	0.518	
Proportion explained	0.13	
N	886	
$\chi^2(6)$	118.48	$p < 0.001$

Notes: Factor analysis performed using principal factors method. Panel A shows results for social capital measures. Panel B shows results for Carlism with 1 retained factor.

Table A4. Types of Associations

Classification	*Associations included*
Locally Oriented Associations	Agricultural associations, Business associations, Charitable organizations, Cultural and artistic organizations, Cultural centers, Local or regional societies, Neighborhood associations, Parent-Teacher Associations (PTAs), Recreational clubs, Religious organizations, Retiree and pensioner organizations, Sports clubs, Student associations, Youth organizations
Supra-Locally Oriented Associations	Anti-globalization movements, Citizen platforms, Consumer rights organizations, Environmental groups, Human rights organizations, Minority rights organizations, Non-governmental organizations (NGOs), Patient advocacy groups, Peace movements, Political parties, Professional associations, Red Cross, Trade unions, Women's rights organizations
Political Associations	Anti-globalization movements, Citizen platforms, Environmental groups, Human rights organizations, Minority rights organizations, Non-governmental organizations (NGOs), Peace movements, Political parties, Trade unions, Women's rights organizations
Non-Political Associations	Agricultural associations, Business associations, Charitable organizations, Consumer rights organizations, Cultural and artistic organizations, Cultural centers, Local or regional societies, Neighborhood associations, Parent-Teacher Associations (PTAs), Patient advocacy groups, Professional associations, Recreational clubs, Red Cross, Religious organizations, Retiree and pensioner organizations, Sports clubs, Student associations, Youth organizations
Bonding Associations[1]	Business associations, Consumer rights organizations, Cultural and artistic organizations, Environmental groups, Human rights organizations, Non-governmental organizations (NGOs), Parent-Teacher Associations (PTAs), Political parties, Professional associations, Sports clubs, Women's rights organizations, Youth organizations
Bridging Associations[2]	Charitable organizations, Citizen platforms, Local or regional societies, Neighborhood associations, Recreational clubs, Religious organizations, Retiree and pensioner organizations, Trade unions
1st Placebo Associations	Agricultural associations, Anti-globalization movements, Charitable organizations, Citizen platforms, Consumer rights organizations, Cultural and artistic organizations, Cultural centers, Environmental groups, Human rights organizations, Parent-Teacher Associations (PTAs), Patient advocacy groups, Professional associations, Red Cross, Sports clubs
2nd Placebo Associations	Business associations, Civic tide movements, Employer associations or professional guilds, Local or regional societies, Neighborhood associations, Non-governmental organizations (NGOs), Peace movements, Political parties, Recreational clubs, Religious organizations, Retiree and pensioner organizations, Student associations, Trade unions, Women's rights organizations, Youth organizations

[1] *Bonding associations in terms of composition based on a coefficient of variation in the education level below 1.*
[2] *Bridging associations in terms of composition based on a coefficient of variation in the education level above 1.*

Graphical visualization

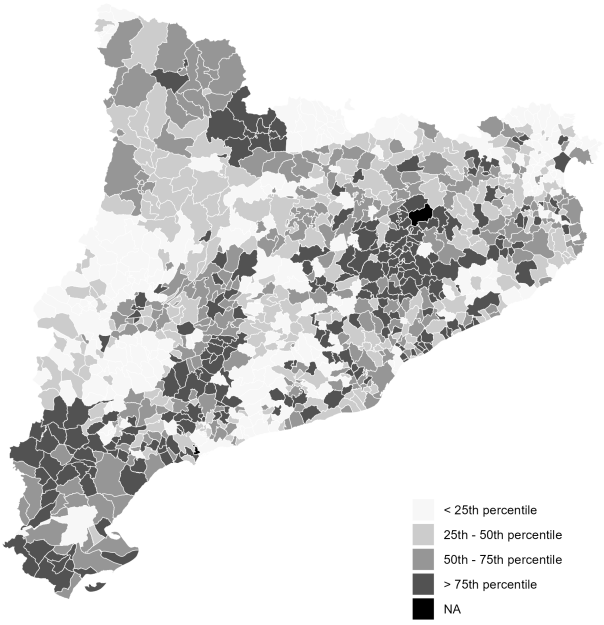

Figure B1. Percentage of collection over total waste 2000-2021

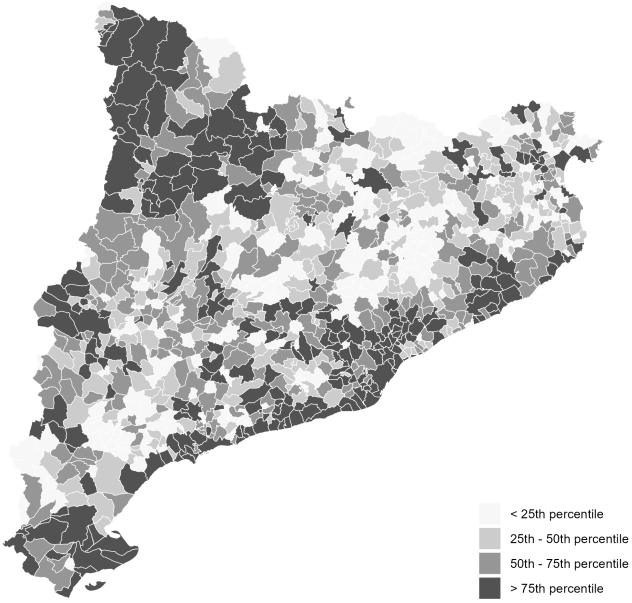

Figure B2. Average electoral turnout in regional elections (1980-2019)

Complementary analyses

Results using Carlism in quartiles

Table C.1.1. Ecological regressions explaining social capital, municipal level

	Dependent variable					
	(1) Social Capital factor	(2) Social Capital factor	(3) Log associations per capita	(4) Participation Catalan elections	(5) Blood donations per capita	(6) % waste recycled
Carlism	0.139***	0.103***	0.097**	1.035***	31.957***	0.877
	(0.024)	(0.023)	(0.038)	(0.236)	(8.000)	(0.586)
Literacy 1860		0.008***	0.005	0.137***	0.878	0.099*
		(0.002)	(0.004)	(0.026)	(0.584)	(0.060)
Income per capita 2015		0.291***	-0.315***	6.167***	-53.082**	8.394***
		(0.078)	(0.118)	(0.873)	(27.041)	(1.995)
Log population 2014		0.017	-0.185***	-1.784***	20.602***	1.374***
		(0.013)	(0.021)	(0.164)	(3.842)	(0.330)
Catalan-speaking population 2011		0.013***	-0.004	0.157***	1.839***	0.223***
		(0.003)	(0.003)	(0.034)	(0.476)	(0.065)
Gini index 2015		-0.018***	-0.005	-0.212***	-2.470**	-0.316***
		(0.004)	(0.019)	(0.052)	(1.097)	(0.111)
Mean altitude		0.022	0.041	0.025	-4.111	1.195***
		(0.014)	(0.040)	(0.176)	(4.334)	(0.378)
Constant	0.010	-3.632***	7.342***	12.148	386.038	-71.559***
	(0.014)	(0.712)	(1.479)	(7.752)	(235.443)	(19.467)
R^2	.04	.168	.110	.422	.085	.109
N	885	841	841	841	841	841

Notes: ***, p<.001, ** p<.05, * p<.1. Robust standard errors in parentheses.

Table C.1.2. Ecological regressions explaining social capital, municipal level. Carlism variable in quartiles

	Dependent variable				
	(1) Social cap. factor SC	(2) Log Associations per capita	(3) Participation Catalan elections	(4) Blood donations per 1000	(5) % waste recycled
Carlism (quartiles)					
Q2	0.056	0.157	0.150	30.747***	0.061
	(0.035)	(0.122)	(0.447)	(10.038)	(0.980)
Q3	0.089**	0.205*	0.582	30.487***	0.962
	(0.036)	(0.113)	(0.441)	(9.596)	(1.058)
Q4	0.199***	0.270***	1.724***	57.513***	2.326**
	(0.038)	(0.095)	(0.428)	(12.229)	(1.045)
Literacy 1860	0.007***	0.004	0.137***	0.786	0.095
	(0.002)	(0.004)	(0.026)	(0.589)	(0.059)
Income per capita 2015	0.300***	-0.285**	6.166***	-48.573*	8.439***
	(0.077)	(0.121)	(0.876)	(26.442)	(1.974)
Log population 2014	0.018	-0.180***	-1.778***	21.702***	1.360***
	(0.014)	(0.022)	(0.164)	(4.005)	(0.336)
Catalan-speaking population (2011)	0.013***	-0.004	0.154***	1.843***	0.214***
	(0.003)	(0.003)	(0.034)	(0.492)	(0.064)
Gini index 2015	-0.018***	-0.005	-0.210***	-2.490**	-0.308***
	(0.004)	(0.019)	(0.052)	(1.098)	(0.111)
Mean altitude	0.023	0.040	0.036	-4.385	1.212***
	(0.014)	(0.040)	(0.174)	(4.294)	(0.378)
Constant	-3.791***	6.884***	11.649	306.306	-72.161***
	(0.705)	(1.427)	(7.846)	(228.998)	(19.341)
N	841	841	841	841	841
R^2	0.176	0.116	0.424	0.087	0.114

Notes: ***, p<.001, ** p<.05, * p<.1. Robust SE in parentheses.

Table C.1.3. Carlism and associational membership

	(1)	(2)
Individual-level variables		
Education (ref: no education)		
Primary	0.348***	0.345***
	(.071)	(.071)
Secondary	0.931***	0.928***
	(.063)	(.063)
Higher	1.721***	1.719***
	(.076)	(.077)
Ideology (ref: no ideology)		
Ext. Left	1.070***	1.067***
	(.078)	(.078)
Left	0.793***	0.791***
	(.046)	(.047)
Center	0.509***	0.509***
	(.048)	(.048)
Right	0.675***	0.676***
	(.068)	(.068)
Ext. Right	0.511***	0.510***
	(.093)	(.093)
Age (ref: <25)		
25-34	-0.155***	-0.155***
	(.042)	(.042)
35-44	0.091*	0.091*
	(.050)	(.050)
45-54	0.063	0.063
	(.050)	(.050)
54-65	0.095	0.093
	(.060)	(.059)
>65	0.010	0.008
	(.058)	(.058)
Religiosity (ref: no religious practice)		
Occasionally	0.196***	0.195***
	(.035)	(.035)
Often	0.543***	0.543***
	(.086)	(.086)
Gender (0 female)	0.447***	0.447***
	(.024)	(.024)
Job (0 No)	0.238***	0.235***
	(.035)	(.035)
Municipal-level variables		
Carlism	0.096***	0.116***
	(.035)	(.039)
Catalan speaking 2011		-0.001
		(.005)
Log population 2014		-0.047
		(.030)
Log income per capita 2010		0.284
		(.173)
Gini coefficient 2015		-0.020**
		(.008)
Literacy 1860		0.002
		(.004)
Log mean altitude		0.008
		(.030)
Individuals	27497	27497
Municipalities	302	302

Notes: *** p<.001, ** p<.05, * p<.1. Logit estimates. Only municipalities with at least 10 respondents. Survey-year FE included in every model. Robust SE in parentheses.

Table C.1.4. Carlism (quartiles) and associational membership

	(1)	(2)
Individual-level variables		
Education (ref: no education)		
Primary	0.348***	0.345***
	(.071)	(.071)
Secondary	0.932***	0.929***
	(.063)	(.063)
Higher	1.720***	1.719***
	(.076)	(.077)
Ideology (ref: no ideology)		
Ext. Left	1.069***	1.066***
	(.078)	(.078)
Left	0.793***	0.791***
	(.046)	(.046)
Center	0.509***	0.508***
	(.048)	(.048)
Right	0.676***	0.676***
	(.068)	(.068)
Ext. Right	0.510***	0.509***
	(.093)	(.093)
Age (ref: <25)		
25–34	-0.154***	-0.154***
	(.042)	(.042)
35–44	0.091*	0.091*
	(.050)	(.050)
45–54	0.063	0.063
	(.050)	(.050)
54–65	0.095	0.094
	(.060)	(.059)
>65	0.010	0.007
	(.059)	(.058)
Religiosity (ref: no religious practice)		
Occasionally	0.197***	0.196***
	(.035)	(.035)
Often	0.543***	0.542***
	(.086)	(.086)
Gender (0 female)	0.446***	0.446***
	(.024)	(.024)
Job (0 No)	0.238***	0.235***
	(.035)	(.035)
Municipal-level variables		
Carlism (quartiles) (ref: Q1)		
Q2	0.039	0.034
	(.060)	(.061)
Q3	0.269**	0.323***
	(.135)	(.123)
Q4	0.129**	0.165**
	(.060)	(.072)
% Catalan speaking 2011		-0.002
		(.005)
Log population 2014		-0.055*
		(.031)
Log income per capita 2010		0.302*
		(.177)
Gini coefficient 2015		-0.020**
		(.008)
Literacy 1860		0.002
		(.004)
Log Mean altitude		0.010
		(.030)
Individuals	27,497	27,497
Municipalities	302	302

Notes: *** p<.001, ** p<.05, * p<.1. Logit estimates. Only municipalities with at least 10 respondents. Survey-year FE included in every model. Robust SE in parentheses.

Table C.1.5. Effects of Carlism (quartiles) on different types of association

Panel A: Bonding and bridging associations (orientation)				
	Local (bonding) (1)	Supralocal (bridging) (2)	Non-political (bonding) (3)	Political (bridging) (4)
Carlism (quartiles):				
2nd quartile	0.068	0.037	0.085	-0.013
	(0.066)	(0.063)	(0.068)	(0.067)
3rd quartile	0.285**	0.020	0.292**	-0.081
	(0.142)	(0.120)	(0.133)	(0.123)
4th quartile	0.231***	-0.032	0.251***	-0.105
	(0.083)	(0.074)	(0.083)	(0.080)
Individuals	22,083	22,584	22,092	22,621
Municipalities	270	270	270	270
Test for equal coefficients	Chi^2 = 11.22, p = 0.0008		Chi^2 = 14.6, p = 0.0001	
Panel B: Bonding and bridging associations (composition) and placebos				
	Homogeneous (bonding) (5)	Heterogeneous (bridging) (6)	Placebo 1 (7)	Placebo 2 (8)
Carlism (quartiles):				
2nd quartile	0.011	0.011	0.020	0.053
	(0.069)	(0.073)	(0.071)	(0.067)
3rd quartile	0.305*	-0.011	0.188	0.144
	(0.157)	(0.139)	(0.152)	(0.152)
4th quartile	0.177**	0.064	0.167**	0.149*
	(0.086)	(0.088)	(0.084)	(0.079)
Individuals	22,734	22,260	22,658	22,674
Municipalities	274	270	272	271
Test for equal coefficients	Chi^2 = 1.79, p = 0.18		Chi^2 = 0.21, p = 0.65	

Notes: *** p<.001, ** p<.05, * p<.1. Logit estimates in all models. Municipalities with at least 10 respondents. Individual and municipal controls and survey-year fixed effects included. Robust standard errors in parentheses

Additional robustness tests

Table C.2.1. Ecological regressions using First Carlist War indicator

	Dependent variable				
	(1) Social capital factor	(2) Log assoc. per capita	(3) Participation	(4) Blood donations per 1000	(5) % waste recycled
Carlism 1835	0.152***	0.945	1.247***	18.453*	3.595**
	(0.034)	(0.789)	(0.404)	(10.135)	(0.935)
Literacy 1860	0.009***	0.060	0.150***	1.283**	0.099*
	(0.002)	(0.044)	(0.027)	(0.587)	(0.058)
Income per capita 2015	0.351***	-5.491***	7.146***	-39.053	8.746***
	(0.074)	(1.851)	(0.856)	(26.266)	(1.946)
Log population 2014	0.013	-3.690***	-1.822***	20.695***	1.271***
	(0.013)	(0.287)	(0.165)	(3.682)	(0.333)
Catalan-speaking population (2011)	0.013***	-0.048	0.164***	1.870***	0.232**
	(0.003)	(0.045)	(0.033)	(0.474)	(0.063)
Gini index 2015	-0.020***	0.297**	-0.270***	-3.293***	-0.287***
	(0.004)	(0.116)	(0.052)	(1.068)	(0.110)
Mean altitude	0.018	1.809***	-0.160	-4.715	1.258***
	(0.014)	(0.313)	(0.176)	(4.172)	(0.362)
Constant	-4.207***	89.000***	3.627	260.032	-76.686***
	(0.677)	(16.633)	(7.576)	(232.575)	(18.775)
N	877	877	877	877	877
R^2	0.167	0.386	0.404	0.070	0.051

Notes: *** p<.001, ** p<.05, * p<.1. Robust standard errors in parentheses.

Table C.2.2. Carlism and associational membership excluding religious associations

	(1)	(2)	(3)	(4)
	Individual-level variables			
Education (ref: no education)				
Primary	0.385***	0.385***	0.382***	0.382***
	(0.074)	(0.074)	(0.074)	(0.074)
Secondary	0.976***	0.976***	0.973***	0.974***
	(0.070)	(0.070)	(0.070)	(0.070)
Higher	1.777***	1.777***	1.776***	1.775***
	(0.083)	(0.083)	(0.084)	(0.084)
Ideology (ref: no ideology)				
Ext. Left	1.094***	1.094***	1.091***	1.090***
	(0.080)	(0.080)	(0.080)	(0.080)
Left	0.821***	0.821***	0.819***	0.819***
	(0.048)	(0.048)	(0.049)	(0.049)
Center	0.536***	0.536***	0.535***	0.534***
	(0.051)	(0.051)	(0.051)	(0.051)
Right	0.660***	0.660***	0.661***	0.661***
	(0.070)	(0.070)	(0.070)	(0.070)
Ext. Right	0.519***	0.518***	0.519***	0.518***
	(0.088)	(0.088)	(0.089)	(0.088)
Age (ref: <25)				
25-34	-0.147***	-0.147***	-0.147***	-0.146***
	(0.043)	(0.043)	(0.043)	(0.043)
35-44	0.104**	0.105**	0.105**	0.105**
	(0.051)	(0.051)	(0.051)	(0.051)
45-54	0.076	0.076	0.076	0.076
	(0.052)	(0.052)	(0.052)	(0.052)
54-65	0.104*	0.104*	0.103*	0.103*
	(0.059)	(0.059)	(0.059)	(0.059)
>65	0.021	0.021	0.019	0.019
	(0.060)	(0.060)	(0.059)	(0.059)
Religiosity (ref: no practice)				
Occasionally	0.151***	0.152***	0.150***	0.150***
	(0.037)	(0.036)	(0.036)	(0.036)
Often	0.287***	0.287***	0.287***	0.286***
	(0.080)	(0.080)	(0.080)	(0.080)
Gender (0 female)	0.471***	0.471***	0.471***	0.471***
	(0.025)	(0.025)	(0.025)	(0.025)
Job (0 No)	0.246***	0.246***	0.243***	0.243***
	(0.035)	(0.035)	(0.035)	(0.035)
	Municipal-level variables			
Carlism (factor)	0.073**		0.086**	
	(0.034)		(0.037)	
Carlism (quartiles)				
Q2		0.030		0.021
		(0.059)		(0.060)
Q3		0.234*		0.274**
		(0.130)		(0.120)
Q4		0.099*		0.124*
		(0.059)		(0.070)
Catalan speaking 2011			-0.000	-0.001
			(0.004)	(0.005)
Log population 2014			-0.032	-0.041
			(0.028)	(0.029)
Log income per capita 2010			0.243	0.259
			(0.173)	(0.179)
Gini coefficient 2015			-0.019**	-0.019**
			(0.008)	(0.008)
Literacy 1860			0.000	0.000
			(0.004)	(0.004)
Log mean altitude			0.016	0.016
			(0.028)	(0.029)
Individuals	27,497	27,497	27,497	27,497
Municipalities	302	302	302	302

Notes: *** p<.01, ** p<.05, * p<.10. Multilevel logit estimates. Columns (1) and (3) use continuous Carlism measure; columns (2) and (4) use quartiles. Models (3)-(4) include municipal controls. Only municipalities with at least 10 respondents. Survey-year FE included in all models. Robust SE in parentheses.

Table C.2.3. Carlism and types of associations excluding double membership

Panel A: Local (bonding) vs. Supralocal (bridging) associations

	Local			Supralocal		
	(1)	(2)	(3)	(4)	(5)	(6)
Carlism	0.159***	0.169***	0.146***	-0.012	-0.021	-0.028
	(0.053)	(0.054)	(0.055)	(0.059)	(0.058)	(0.058)
Individuals	17,269	17,113	16,477	12,825	12,718	12,281
Municipalities	478	389	270	457	383	270
Restricting n per municipality	1	5	10	1	5	10

Panel B: Non-political (bonding) vs. Political (bridging) associations

	Non-political			Political		
	(7)	(8)	(9)	(10)	(11)	(12)
Carlism	0.159***	0.170***	0.151***	-0.068	-0.085	-0.098
	(0.050)	(0.050)	(0.051)	(0.071)	(0.068)	(0.070)
Individuals	18,124	17,960	17,288	12,421	12,319	11,896
Municipalities	481	389	270	454	383	270
Restricting n per municipality	1	5	10	1	5	10

Notes: *** p<.001, ** p<.05, * p<.1. Models exclude individuals participating in both types of associations. All specifications include individual and municipal controls and survey-year fixed effects. Robust standard errors in parentheses.

Table C.2.4. Regressions with different minimum observations per municipality

Panel A: All associations, and bonding and bridging associations (orientation)

	Any association		Local		Supralocal		Non-political		Political	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Carlism	0.122***	0.125***	0.129***	0.147***	-0.006	-0.003	0.135***	0.156***	-0.016	-0.023
	(0.038)	(0.038)	(0.044)	(0.044)	(0.035)	(0.035)	(0.043)	(0.043)	(0.037)	(0.038)
Individuals	28,642	28,471	23,188	22,944	23,673	23,431	23,197	22,953	23,719	23,475
Municipalities	513	436	508	392	504	390	508	392	506	391
Min. obs / mun.	1	5	1	5	1	5	1	5	1	5

Panel B: Bonding and bridging associations (composition) and placebos

	Homogeneous		Heterogeneous		Placebo 1		Placebo 2	
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Carlism	0.107**	0.123***	0.088**	0.086*	0.093**	0.120***	0.086**	0.082**
	(0.045)	(0.045)	(0.044)	(0.046)	(0.043)	(0.044)	(0.036)	(0.037)
Individuals	23,814	23,571	23,337	23,089	23,748	23,490	23,769	23,517
Municipalities	508	393	506	388	508	390	506	390
Min. obs / mun.	1	5	1	5	1	5	1	5

Notes: *** p<.001, ** p<.05, * p<.1. Logit estimates in all models. Robust SE errors in parentheses. All specifications include individual, historical, and contemporary controls.

Table C.2.5. Instrumental-variable estimates of the relationship between past Carlism and contemporary social capital

	(1) Social capital factor	(2) Log associations per capita	(3) Participation Catalan elections	(4) Blood donations per 1,000	(5) % waste recycled
First stage					
Log looms 1760	0.075**				
	(0.030)				
Carlism	0.868**	0.926*	12.096**	203.075**	7.940
	(0.384)	(0.495)	(4.823)	(100.807)	(7.039)
Municipal controls	✓	✓	✓	✓	✓
F (excluded instrument)	6.39	6.39	6.39	6.39	6.39
Model F	12.83	18.28	27.20	6.70	13.47
N	841	841	841	841	841

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors in parentheses. The excluded instrument is the log number of looms in 1760. Municipal controls include literacy (1860), income per capita (2015), log population (2014), Catalan-speaking share (2011), Gini coefficient (2015), mean altitude, latitude, and longitude.

Table C.2.6. Weak-instrument diagnostics for IV estimates: Social capital factor

	2SLS (robust)	Fuller (5)
IV estimate		
Carlism intensity	0.686 (0.323)	0.460 (0.203)
First-stage relevance		
Kleibergen–Paap rk Wald F statistic	6.50	–
Cragg–Donald Wald F statistic	8.03	8.03
Stock–Yogo critical values (single endogenous regressor)		
10% maximal IV size	16.38	–
15% maximal IV size	8.96	–
20% maximal IV size	6.66	–
25% maximal IV size	5.53	–
10% maximal Fuller relative bias	–	19.36
20% maximal Fuller relative bias	–	15.64
30% maximal Fuller relative bias	–	12.71
Underidentification test		
Kleibergen–Paap rk LM χ^2 (p-value)	6.26 (0.012)	–
Anderson canon. corr. LM χ^2 (p-value)	–	8.03 (0.005)
Weak-instrument-robust inference		
Anderson–Rubin F statistic (p-value)	9.40 (0.002)	9.02 (0.003)
Anderson–Rubin χ^2 (p-value)	9.49 (0.002)	9.10 (0.003)
Stock–Wright LM S χ^2 (p-value)	8.60 (0.003)	9.00 (0.003)
Observations	841	841
Controls included	✓	✓

Notes: The table reports weak-instrument diagnostics for IV estimates of the effect of Carlism on the social capital factor, instrumented by log wool looms in 1760. In the 2SLS column, Kleibergen–Paap statistics and weak-instrument-robust tests are heteroskedasticity-robust. In the Fuller(5) column, homoskedasticity-consistent diagnostics are reported. Stock–Yogo critical values assume i.i.d. errors and are reported for reference. Inference is based on weak-instrument-robust tests (Anderson–Rubin and Stock–Wright). Standard errors in parentheses.

Table C.2.7. Weak-instrument diagnostics for IV estimates: Log associations per capita (1984–2020)

	2SLS (robust)	Fuller (5)
IV estimates (second stage)		
Carlism intensity	0.779	0.492
	(0.424)	(0.458)
First-stage relevance		
Kleibergen–Paap rk Wald F statistic	6.70	8.03
Cragg–Donald Wald F statistic	8.27	8.03
Stock–Yogo critical values (single endogenous regressor)		
10% maximal IV size	16.38	–
15% maximal IV size	8.96	–
20% maximal IV size	6.66	–
25% maximal IV size	5.53	–
10% maximal Fuller relative bias	–	19.36
20% maximal Fuller relative bias	–	15.64
30% maximal Fuller relative bias	–	12.71
Underidentification test		
Kleibergen–Paap rk LM χ^2 (p-value)	6.43 (0.011)	8.03 (0.005)
Weak-instrument-robust inference		
Anderson–Rubin F statistic (p-value)	6.59 (0.010)	1.69 (0.194)
Anderson–Rubin χ^2 (p-value)	6.65 (0.010)	1.71 (0.192)
Stock–Wright LM S χ^2 (p-value)	9.34 (0.002)	1.70 (0.192)
Observations	841	841
Controls included	✓	✓

Notes: The table reports IV estimates and weak-instrument diagnostics for the effect of Carlism on log associations per capita (1984–2020), instrumented by log wool looms in 1760. Robust statistics are heteroskedasticity-consistent. Fuller(5) estimates use homoskedasticity-consistent inference. Stock–Yogo critical values assume i.i.d. errors and are reported for reference. Inference relies on weak-instrument-robust tests (Anderson–Rubin and Stock–Wright). Standard errors in parentheses.

Table C.2.8. Weak-instrument diagnostics for IV estimates: Regional electoral participation

	2SLS (robust)	Fuller (5)
IV estimates		
Carlism intensity	10.685	6.947
	(4.290)	(2.630)
First-stage relevance		
Kleibergen–Paap rk Wald F statistic	6.50	8.03
Cragg–Donald Wald F statistic	8.03	8.03
Stock–Yogo critical values (single endogenous regressor)		
10% maximal IV size	16.38	–
15% maximal IV size	8.96	–
20% maximal IV size	6.66	–
25% maximal IV size	5.53	–
10% maximal Fuller relative bias	–	19.36
20% maximal Fuller relative bias	–	15.64
30% maximal Fuller relative bias	–	12.71
Underidentification test		
Kleibergen–Paap rk LM χ^2 (p-value)	6.26 (0.012)	8.03 (0.005)
Weak-instrument-robust inference		
Anderson–Rubin F statistic (p-value)	28.70 (0.000)	16.46 (0.000)
Anderson–Rubin χ^2 (p-value)	28.98 (0.000)	16.62 (0.000)
Stock–Wright LM S χ^2 (p-value)	22.57 (0.000)	16.30 (0.000)
Observations	841	841
Controls included	✓	✓

Notes: The table reports weak-instrument diagnostics for IV estimates of the effect of Carlism on regional electoral participation, instrumented by log wool looms in 1760. In the 2SLS (robust) column, Kleibergen–Paap statistics and weak-instrument-robust tests are heteroskedasticity-robust. In the Fuller(5) column, homoskedasticity-consistent diagnostics are reported. Stock–Yogo critical values assume i.i.d. errors and are reported for reference. Inference is based on weak-instrument-robust tests (Anderson–Rubin and Stock–Wright). Standard errors in parentheses.

Table C.2.9. Weak-instrument diagnostics for IV estimates: Blood donations per capita

	2SLS (robust)	Fuller (5)
IV estimates		
Carlism intensity	193.56	130.96
	(95.91)	(64.09)
First-stage relevance		
Kleibergen–Paap rk Wald F statistic	6.50	8.03
Cragg–Donald Wald F statistic	8.03	8.03
Stock–Yogo critical values (single endogenous regressor)		
10% maximal IV size	16.38	–
15% maximal IV size	8.96	–
20% maximal IV size	6.66	–
25% maximal IV size	5.53	–
10% maximal Fuller relative bias	–	19.36
20% maximal Fuller relative bias	–	15.64
30% maximal Fuller relative bias	–	12.71
Underidentification test		
Kleibergen–Paap rk LM χ^2 (p-value)	6.26 (0.012)	8.03 (0.005)
Weak-instrument-robust inference		
Anderson–Rubin F statistic (p-value)	7.34 (0.007)	6.71 (0.010)
Anderson–Rubin χ^2 (p-value)	7.42 (0.007)	6.78 (0.009)
Stock–Wright LM S χ^2 (p-value)	7.46 (0.006)	6.72 (0.010)
Observations	841	841
Controls included	✓	✓

Notes: The table reports weak-instrument diagnostics for IV estimates of the effect of Carlism on selective waste recycling rates, instrumented by log wool looms in 1760. In the 2SLS column, Kleibergen–Paap statistics and weak-instrument-robust tests are heteroskedasticity-robust. In the Fuller column, homoskedasticity-consistent diagnostics are reported. Stock–Yogo critical values assume i.i.d. errors and are reported for reference. Inference is based on weak-instrument-robust tests (Anderson–Rubin and Stock–Wright). Standard errors in parentheses.

Table C.2.10. Weak-instrument diagnostics for IV estimates: Selective waste recycling

	2SLS (robust)	Fuller (5)
IV estimates		
Carlism intensity (2nd stage coef.)	2.628	1.949
	(6.442)	(4.773)
First-stage relevance		
Kleibergen–Paap rk Wald F statistic	6.50	8.03
Cragg–Donald Wald F statistic	8.03	8.03
Stock–Yogo critical values (single endogenous regressor)		
10% maximal IV size	16.38	–
15% maximal IV size	8.96	–
20% maximal IV size	6.66	–
25% maximal IV size	5.53	–
10% maximal Fuller relative bias	–	19.36
20% maximal Fuller relative bias	–	15.64
30% maximal Fuller relative bias	–	12.71
Underidentification test		
Kleibergen–Paap rk LM χ^2 (p-value)	6.26 (0.012)	8.03 (0.005)
Weak-instrument-robust inference		
Anderson–Rubin F statistic (p-value)	0.17 (0.682)	0.19 (0.667)
Anderson–Rubin χ^2 (p-value)	0.17 (0.681)	0.19 (0.665)
Stock–Wright LM S χ^2 (p-value)	0.17 (0.679)	0.19 (0.665)
Observations	841	841
Controls included	✓	✓

Notes: The table reports weak-instrument diagnostics for IV estimates of the effect of Carlism on selective waste recycling rates, instrumented by log wool looms in 1760. In the 2SLS column, Kleibergen–Paap statistics and weak-instrument-robust tests are heteroskedasticity-robust. In the Fuller column, homoskedasticity-consistent diagnostics are reported. Stock–Yogo critical values assume i.i.d. errors and are reported for reference. Inference is based on weak-instrument-robust tests (Anderson–Rubin and Stock–Wright). Standard errors in parentheses.

Table C.2.11. Carlism in municipal regressions predicting social capital

	(1)	(2) With % Catalan speaking	(3) With % Catalan speaking & pop growth 1950–2020
Dep. variable: Social capital			
Carlism	0.123***	0.103***	0.089***
	(0.023)	(0.023)	(0.024)
N	841	841	841
Dep. variable: Log assoc per cap			
Carlism	0.092**	0.097**	0.085**
	(0.037)	(0.038)	(0.037)
N	842	841	841
Dep. variable: Electoral participation			
Carlism	1.277***	1.035***	.820***
	(0.232)	(0.236)	(0.237)
N	842	841	841
Dep. variable: Blood donations			
Carlism	34.754***	31.957***	27.969***
	(7.912)	(8.000)	(8.235)
N	841	841	841
Dep. variable: % waste recycled			
Carlism	1.216**	0.877	0.818
	(0.585)	(0.586)	(0.592)
N	841	841	841

Notes: *** p<.001, ** p<.05, * p<.1. Robust SE in parentheses. Municipal controls included. Only coefficients on the Carlist intensity indicators are reported.

Table C.2.12. Regression models controlling for post-treatment bias

	(1)	(2)	(3)
Carlism	0.113***	0.116***	0.114***
	(0.038)	(0.039)	(0.039)
Individual controls	✓	✓	✓
Municipal controls	✓	✓	✓
% Catalan speaking		✓	✓
% Population growth 1950–2020			✓
Individuals	27,497	27,497	27,497
Municipalities	302	302	302

Notes: *** p<0.001, ** p<0.05, * p<0.1. The dependent variable is a binary indicator for associational membership (1 = member, 0 = non-member). Logit estimates in all models. Municipalities with at least 10 respondents. Individual and municipal controls and survey-year fixed effects included. Robust standard errors in parentheses.

Table C.2.13. Regression models controlling for post-treatment bias

Panel A: Localist (bonding) associations			
	(1)	(2) With % Catalan speaking	(3) With % Catalan speaking & pop growth 1950–2020
Carlism	0.130***	0.132***	0.128***
	(0.042)	(0.044)	(0.043)
Individual controls	✓	✓	✓
Municipal controls	✓	✓	✓
Individuals	22083	22083	22083
Municipalities	270	270	270
Panel B: Non-political (bonding) associations			
	(1)	(2) With % Catalan speaking	(3) With % Catalan speaking & pop growth 1950–2020
Carlism	0.141***	0.143***	0.141***
	(0.041)	(0.042)	(0.042)
Individual controls	✓	✓	✓
Municipal controls	✓	✓	✓
Individuals	22092	22092	22092
Municipalities	270	270	270

Notes: *** p<.001, ** p<.05, * p<.1. Logit estimates in all models. Municipalities with at least 10 respondents. Individual and municipal controls and survey-year fixed effects included. Robust standard errors in parentheses.