Crisis and Absolutism

A Design-Based Analysis of the Thirty Years' War*

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Abstract

We examine how the Thirty Years' War (1618–48), the largest conflict in pre-modern Europe, contributed to the rise of absolutism. We use planned troop movements from secret military communications to estimate the effect of town-level troop presence on the expansion of ruler-controlled fiscal and military capacity and the dismantling of parliaments. During the war, troop presence increased the value of delegating resource mobilization to rulers. After the war, rulers used this capacity, in collaboration with landed elites, to weaken parliaments. Courts and city leagues limited parliamentary decline by reducing contracting frictions in resource mobilization. With parliaments eliminated, militarized absolutist regimes persisted for centuries. Our findings highlight a dynamic trade-off in the concentration of executive power during states of emergency.

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I Introduction

When the value of coordination rises sharply, societies face a trade-off. Centralizing power may improve coordination, but it also raises the risk of institutional capture. From Roman emergency dictatorships to modern expansions of state authority, the consequences of delegating extraordinary powers have been contested. Some argue that such powers facilitate executive entrenchment (Tocqueville, 1835); others view them as limited and reversible (Machiavelli, 1531; Rousseau, 1762). Despite the prominence of this debate, empirical evidence on the mechanisms and consequences of emergency powers remains limited.

We study the concentration of executive power in Central Europe over the long run. By 1500, most European polities had developed representative assemblies that constrained rulers and controlled taxes and war.[1] By 1700, however, this institutional landscape had shifted. Assemblies were increasingly sidelined as rulers relied on their own administrations to collect taxes and raise armies. This transformation marked the onset of the "Age of Absolutism."[2]

We link the rise of absolutism to local variation in the Thirty Years' War (1618–48), the largest conflict in pre-modern Europe and a turning point toward modern warfare based on large-scale resource mobilization (Parker, 1988). The war coincided with the "Military Revolution," a transformation in military technology and army size that increased both the cost of war and the threat of violence (Rogers, 1995; Gennaioli and Voth, 2015). Initially a local revolt, it became a conflict over European hegemony between pro- and anti-Habsburg forces. At its peak, 300,000 soldiers were under arms. Locally, armies imposed severe demands on towns: where troops passed, towns were expected to supply them under threat of plunder. Across Europe, the war brought repeated military incursions as territories became sites of a wider struggle during the "Crisis of the Seventeenth Century" (Hobsbawm, 1954).

Our setting is well suited to trace how localized war shocks shifted power toward rulers. Within a narrow geographic region, it combines fine-grained variation in troop presence generated by long-range army movements with institutional variation across hundreds of sovereign states. This setting allows us to examine both the mechanisms and the long-run

[1] Historians emphasize that these institutions were "parliaments in the proper sense of the term" (Francis Ludwig Carsten, 1959), sometimes predecessors of modern parliaments (Bosl, 1977; Oestreich, 1979), and thus forms of "early democracy" (Stasavage, 2020). We provide further discussion in Section II.

[2] Brandenburg-Prussia exemplifies this transformation. In 1600, parliament controlled taxation, troops, laws, and policing. By 1667, Prince Frederick William famously noted "I have become convinced that I owe the preservation of my position (...) to God, and next to God, to my army" (Fay, 1917, p. 772f.).

consequences of these shocks during a radical reorganization of the state: the introduction of permanent taxes and standing armies, and the widespread dismantling of parliaments.

To study the local emergence of absolutist rule during and after the Thirty Years' War, we assemble an annual town-level panel for 2,230 towns in 478 states from 1500 to 1789. Our main outcomes capture three dimensions of absolutist rule: parliament elimination, ruler taxes, and military notables. We relate these outcomes to town-level troop presence during the war, when armies imposed substantial provisioning demands on towns.[3]

A central empirical challenge is that troop movements were not random. Our baseline analysis therefore absorbs town and year fixed effects, tests for pre-trends, and examines robustness to alternative controls, matching procedures, and outcome measures.[4] Across specifications, troop presence is consistently associated with a higher incidence of parliament elimination, ruler taxes, and military notables. In our baseline, towns with troop presence during the war exhibit a 61% higher probability that the parliament representing them had been eliminated, relative to the mean among constituencies that ever convened one. Relative to the full-sample mean, they exhibit an 89% higher incidence of ruler taxes and an 84% higher value of military notables.

We complement this baseline analysis with an empirical design that aims to identify towns that were ex ante similarly likely to lie near troop movements but differed in realized troop presence. We build on two features of early modern warfare: military leaders sought to move armies as quickly as possible between fortified towns, and those destinations were not fixed in advance. Realized troop movements were therefore only one of several plausible routes (Wilson, 2009). We operationalize this approach by combining a least-cost-path instrument with the recentering logic of Borusyak and Hull (2023). We first use detailed military information to reconstruct troop movements between fortified towns and, for each town, measure proximity to the implied least-cost paths.[5] This measure of "in-between-ness"

[3]Our main measures of absolutism are local, reflecting substantial within-state variation in both the reach of rulers and war exposure (Beloff, 1954). Although parliamentary constituencies often comprised multiple towns, they were typically small; Appendix Section C examines spillovers and shows robustness to alternative aggregations, outcome measures, estimation methods, and standard-error choices. For ruler taxes, we focus on the main ruler-controlled taxes, the assessment (*Schatzung*) and contribution (*Kontribution*), which were typically distinct from levies imposed by the Estates and thus proxy for local absolutist fiscal capacity (Ullmann, 2005).

[4]A balance exercise shows that predictors of troop presence are slow-moving or time-invariant, consistent with evidence from present-day conflict settings (Bazzi et al., 2022). Because foreign intervention accounted for many major troop movements, routes were shaped by strategic and geographic constraints.

[5]A campaign comprises all troop movements under a given military leader in a given year. Least-cost

need not itself be quasi-random, but may instead capture systematic geographic differences across towns, such as centrality.

We therefore condition on expected exposure to troop movements using classified military communications. We reconstruct documented alternative troop movements, compute the expected value of the least-cost-path instrument across these alternatives, and recenter realized exposure by subtracting this expectation. The identifying variation comes from towns whose realized troop distance differs from what would have been expected given the feasible set of troop movements; towns that were almost certain to be exposed, or almost certain not to be exposed, contribute little. In this sense, our approach is design-based: it uses the historical structure of troop movements to model troop presence (Abadie et al., 2023). The identifying assumption is that, conditional on expected least-cost-path exposure, residual variation in realized least-cost-path distance reflects campaign contingencies rather than local characteristics.[6] Our findings are similar in sign and significance to the baseline under this empirical design, with larger magnitudes.[7]

We next examine how troop presence during the conflict contributed to the local rise of absolutism. Local troop presence may have weakened executive constraints through multiple channels: it increased demands for resources and protection while also bringing armed actors capable of coercion and destruction. We therefore do not interpret the estimates as isolating a single channel. Historical evidence points to one central feature of the war that may have reshaped state organization: the emergence of systems of extraction for troop logistics.

paths between an origin and destination predict realized routes well when more granular information is available (Appendix Figure A.8).

[6]Consistent with this interpretation, balance tests show a much weaker relationship between least-cost-path distance and a broad range of town characteristics once conditioning on expected exposure. The design treats campaign occurrence (a military leader in a given year) as fixed and permutes routes only across documented alternatives within campaigns, in the spirit of the within-cluster permutation classes in Borusyak and Hull (2023). Conditioning on campaigns restricts the identifying variation but does not by itself bias the design; what must be correctly specified is the distribution over the documented alternatives at each juncture. To assess this requirement, we run balance tests and robustness checks to broader alternative sets and to non-uniform route probabilities, reported in Section IV.C and Appendix Section C.7. We also restrict attention to confirmed alternative routes, excluding less well-documented contingencies such as navigational errors. In robustness checks for Section IV.C, we show that broader but still plausible alternatives, such as campaigns targeting neighboring fortified towns or peace negotiations succeeding before 1648, widen the set of towns with ex ante exposure variation. Results are also robust to using these alternative movements to construct propensity scores directly for the main OLS specification (Appendix Table C.30) and to including flexible geographic controls, a standard least-cost-path adjustment (Faber, 2014; Banerjee et al., 2020) (Appendix Table C.26).

[7]The design weights compliers, towns whose exposure depended on contingent campaign choices; these were plausibly more peripheral places, for which troop presence implied a larger increase in fiscal and military extraction. Section IV.C develops this local-average-treatment-effect interpretation.

Because early modern armies relied on local provisioning, troop presence imposed large, localized demands on towns, backed by the threat of plunder if those demands were not met. We assemble quantitative evidence that this troop presence generated severe local crises. This increased the value of centralized resource mobilization. Rulers, in turn, developed institutions that organized resource flows between towns and armies (Hintze, 1910).

To clarify this mechanism, we develop a two-period framework of crisis governance. We adapt the parliamentary frameworks of Stasavage (2011) and Angelucci et al. (2024) to analyze how contracting frictions shape the allocation of authority between a town and a ruler (Grossman and Hart, 1986). A town can either administer its own affairs and interact with the ruler through parliament (*Separation*) or cede administration to the ruler (*Delegation*).[8] A *crisis* occurs when (i) a resource demand exceeds local capacity and (ii) failure to meet it poses an existential threat. Delegation becomes optimal when such a shock occurs under contracting frictions that make future compensation imperfectly enforceable.[9] Delegation transfers residual control rights, such as tax registers and collection infrastructure, to make claims on future revenue credible.

We examine three implications of this argument. First, the delegation mechanism implies that the results should not be confined to towns most exposed to physical destruction, even though troop presence bundled provisioning demands, coercion, and violence. We therefore re-estimate the baseline specification after progressively excluding towns near major battles, and separately exclude towns affected by territorial annexations. The estimates remain stable even after omitting towns within 80 kilometers of a battle, roughly four days' march for an army, which excludes three quarters of the sample.

Second, a delegation channel implies that higher ruler provisioning costs reduce the scope

[8] A core result of Angelucci et al. (2024) is that parliamentary communication occurs if and only if towns are administratively separated. We therefore abstract from modeling an additional communication margin. This aligns with the evidence in Section II, where local administration and parliamentary existence tended to move together.

[9] The town-level delegation mechanism we study operated within two broader scope conditions. First, war itself: the "Military Revolution" (Parker, 1976) and competition among the major European powers made large-scale conflict pervasive, fought by armies that were larger and more mobile and against which local resistance was infeasible (Guthrie, 2002). Second, rulers' incentives shifted toward larger armies and greater control: a more threatening external environment raised the returns to centralized provisioning, and rulers had reason to preserve the military infrastructure created during the war. Garrisons, recruitment districts, commissarial offices, and officer networks thus became the basis of a territorial standing army (Clark, 2006). Within these conditions, we highlight how an urban fiscal crisis caused by localized wartime pressure reshaped European institutions. We discuss external validity in Appendix Section B.1.

for delegation. Empirically, troop presence should have weaker effects when organizing wartime provisioning with military leaders is more costly for the ruler. We examine this implication using military coalition mismatch, defined as the presence of troops outside the ruler's military coalition. Such mismatch likely increased the cost of organizing provisioning between ruler officials and outside military leaders, whose interests were less aligned with the ruler, even though coalition and non-coalition forces used the same contributions system (Redlich, 1959; 1964). We therefore interact troop presence with coalition mismatch. The interaction is negative and statistically significant across all three main outcomes, indicating that mismatch attenuated the effects of troop presence.[10]

Third, stronger town contracting capacity should weaken the delegation response to troop presence by making separation easier to sustain. We proxy this margin with pre-war access to the Imperial High Court and membership in city leagues, both of which strengthened towns' ability to contract, borrow, and coordinate outside ruler administration. In both cases, the effect of troop presence on parliament elimination is attenuated.

The results therefore do not imply a uniform shift toward absolutism in response to war, nor that representative institutions were generally inferior at raising revenue.[11] Rather, war favored delegation where centralized provisioning was feasible and outside contracting weak. More generally, our framework indicates that institutional responses to crises depend on who faces the binding capacity constraint and which promises are hard to credibly contract on. Thus, in other contexts where *rulers* face asymmetric shocks requiring cooperation to finance war, the same logic can support representative concessions.

Finally, we examine how rulers sustained absolutism after the war. Early modern technological and fiscal constraints made local intermediaries essential for wartime provisioning and post-war tax collection. Historical accounts identify landed elites as central to both. In the framework, this creates an additional problem of elite collaboration: rulers

[10]Outright destruction was also more likely under military coalition mismatch (Appendix Table A.7), so mismatch may have raised both the cost of organizing provisioning and the likelihood of plunder. The pattern is consistent with historical accounts in which absolutism expanded through institutions of wartime provisioning (Saito, 2020).

[11]Württemberg illustrates the non-absolutist path, as do the Dutch Republic, England, and the Swiss Confederacy. Francis Ludwig Carsten (1959, p. 146) argues that its parliament "proved that the machinery of the Estates could be adapted to the needs of a more modern state," worked "efficiently and cheaply," and showed that neither "the creation of a large bureaucracy" nor "absolute monarchy" was necessary for this transition.

must secure elite support by credibly offering them a share in the gains from absolutism.[12] Consistent with this logic, in towns with wartime troop presence we find that municipal functions shifted toward ruler-appointed outsiders; nobles increasingly took up court and military positions in the ruler's service; and the absolutist state became more visible locally through increases in prints and portraits, consistent with historical accounts of new elites accumulating "symbolic capital" (Bourdieu, 1972) in the emerging absolutist state.

We conclude by examining the long run. The gap in militarization between treated and untreated towns that opened during the Thirty Years' War persisted into the twentieth century. In a cross-section around 1900, treated towns had more military notables, a higher military share, and below-median life expectancy.

These findings make three contributions. First, we examine a critical juncture in the development of modern warfare and the state. The Thirty Years' War is often described as the "first state-formation war" (Burkhardt, 2018), contributing to the rise of the modern state system.[13] Contemporary observers and later scholarship have linked the ubiquity of warfare in this period to arguments for undivided sovereignty and the rise of absolutism (Hobbes, 1651; Hobsbawm, 1954). Yet despite its importance, systematic evidence on the long-run institutional consequences of the war remains limited.[14] We contribute to this literature by providing the first comprehensive quantitative analysis of the conflict. Our results suggest that the war drove state consolidation while shifting authority from representative bodies to rulers. In doing so, we speak to the broader early modern decline of parliaments (Stasavage, 2020) and to the deep roots of militarism that turned into one of the most serious threats to global stability in the twentieth century (Rosenberg, 1958).[15]

[12] This is consistent with Angelucci et al. (2024), who similarly argue that "limited state capacity forced rulers to delegate administrative control to local elites" (p. 1).

[13] More strikingly, it has been characterized as the "inferno that produced the modern world" and the "benchmark to measure all later wars" in Europe (Wilson, 2009, p. 28ff.).

[14] Gierok (2023) and Schaff (2024) examine 17 towns and the town of Nördlingen, respectively, documenting declines in civic wealth and increases in within-town inequality after the war. Our findings, which show expanded ruler taxation and a reallocation of authority from towns to territories, are consistent with these patterns. Heinz et al. (2023) study the war's effect on crime in a nineteenth-century cross-section.

[15] Appendix Section B.1 discusses the trajectories of other European states during this period in greater detail, underscoring that "unilinear notions of 'political development"' are largely inappropriate in the European context (Tilly, 1975, p. 21). This reallocation of princely power was nonetheless not confined to the Holy Roman Empire and formed part of "a distinct form of monarchy that dominated the European continent and defined an entire age" (Wilson, 2000): the "Age of Absolutism." Across much of Europe, rising fiscal capacity was accompanied by this shift (Ertman, 1997). Our setting therefore complements accounts centered on parliamentary constraints and limited government, often drawn from England, the Netherlands, and self-governing commercial cities (North and Weingast, 1989; DeLong and Shleifer, 1993; Acemoglu et al.,

Second, we provide evidence on the link between crises and autocracy. A longstanding argument holds that executives can coordinate states under duress more effectively: from Machiavelli (1531), Bodin (1576), Rousseau (1762), and Tocqueville (1835) to recent formal treatments (Djankov et al., 2003; Aghion et al., 2004; Gratton and Lee, 2024).[16] We thus complement empirical work on the origins of state capacity (Sánchez de la Sierra, 2020; Mayshar et al., 2022; Allen et al., 2023; Chambru et al., 2024) by identifying a dynamic trade-off: capacity initially developed to provide security ultimately gave rise to autocracy. In this sense, we document mechanisms that push states off the "narrow corridor" and that keep them on it (Acemoglu and Robinson, 2019).

Finally, our results speak to the connection between war and state capacity (Tilly, 1990; Besley and Persson, 2010; Gennaioli and Voth, 2015). By focusing on one crucial conflict, our setting does not permit cross-war comparison.[17] It does, however, allow us to study in detail a central but often overlooked mechanism of wartime state-building: the development of logistical infrastructure for resource mobilization, which is especially relevant for modern warfare (Weber, 1922). This complements the more common emphasis on battles and territorial conquest.[18] More broadly, we add to empirical work that focuses on the extent of state capacity by foregrounding its *allocation*: war can shift capacity within the state, with long-run consequences for political participation, militarization, and public goods.

Our findings and framework suggest that the institutional effects of war are not mechanical. On average, our main results indicate that local troop presence favored the executive.[19] At the same time, we find that these effects were limited when contracting

2005; Stasavage, 2011), by identifying a different but historically important path of wartime state-building.

[16] In modern history, a focal point is Emergency Article 48 of the Weimar Constitution, widely viewed as facilitating the Nazi seizure of power (Agamben, 2003). Related work in public finance studies crisis-driven "ratchet effects" in government (Peacock and Wiseman, 1961; Rasler and Thompson, 1985; Higgs, 1987).

[17] In this respect, our detailed analysis of the Thirty Years' War complements Cantoni et al. (2024) and Becker et al. (2025), who study all recorded conflict incidents in our study area over a long time horizon, at the territory or grid-cell level. In the same data, the Thirty Years' War nevertheless accounts for 42% of all recorded conflict incidents between 1000 and 1789.

[18] On this imbalance, Tilly (1990, p. 81) observes that "the great seventeenth-century organizers of war involved themselves in supply as much as in battle." Parrott (2011) similarly emphasizes the primacy of logistics, describing the war as "less a question of military tactics than of military organisation." We examine the role of battles and territorial conquest empirically in Section V.B.

[19] This is consistent with modern evidence linking warfare to democratic backsliding; see Benmelech and Monteiro (2026) and references therein. Their heterogeneity results also accord with our framework: autocratization is more likely where conflict is asymmetric and localized (intrastate rather than interstate warfare), and where commitment problems are likely strongest (first conflicts rather than recurrent ones, low-capacity democracies rather than entrenched autocracies, and fractionalized societies).

frictions were lower.[20] This suggests that the institutional response to war depends on who bears the crisis and on the severity of the contracting frictions this actor faces.[21]

II Institutional Background

This section reviews key features of parliamentary and absolutist rule, introduces the Thirty Years' War and its effects on towns, and discusses the rise of absolutism. Appendix Section B.2 presents additional historical evidence.

II.A State Organization: Princes and Parliaments

Our study examines institutional development in Central European states before and after the Thirty Years' War (1618–1648). Political organization within these states rested on two pillars: the ruler and the "Estates," representing towns and the landed nobility.[22] A central divide separated absolutist regimes, in which power was concentrated in the ruler, from parliamentary systems, in which representative institutions exercised substantial authority (Ertman, 1997).

Parliamentary Rule. Before the war, many states exhibited elements of parliamentarism, primarily through regional assemblies where Estates met with rulers to negotiate taxation and voice grievances. While less comprehensive than modern legislatures, "the assemblies of the Estates of many German principalities were indeed 'Parliaments' in the

[20] By studying ex ante institutional differences across towns, our paper relates to work linking initial conditions to institutional bifurcation after conflict (Karaman and Pamuk, 2013; Dincecco and Wang, 2018; Kenkel and Paine, 2023; Cox et al., 2025).

[21] Our results therefore mirror Stasavage (2003): rulers with wartime fiscal needs often conceded political rights to borrow credibly. The history of our region shows both sides of this logic. Rulers' revenue needs helped sustain late-medieval parliaments; towns' revenue needs later helped bring about absolutism (Francis Ludwig Carsten, 1959). This contrast also clarifies our relation to Becker et al. (2025), who show that noble feuds increased tax sophistication and city council size. There, rulers needed towns to finance war, strengthening urban representation. Here, towns bore the direct burden of war. Unprecedentedly large, more mobile armies during the Thirty Years' War made local defense and finance harder, increasing delegation to rulers. This logic is consistent with work showing that mass warfare can require political concessions to induce citizens to fight (Scheve and Stasavage, 2010; Jha and Wilkinson, 2012; 2023; Ottinger and Rosenberger, 2023; Grosjean et al., 2024; Ang and Chinoy, 2026). Our empirical analysis also examines the cultural consequences of war: rulers used prints and portraits to consolidate power, leaving a persistent cultural legacy of conflict. This relates to work linking war to collective memory, heroism, and gender norms (Tur-Prats and Valencia Caicedo, 2020; Cagé et al., 2023; Gupta et al., 2024).

[22] Our analysis focuses on territorial states, including prince-bishoprics and secular territories. We use the term "ruler" to subsume the specific titles held by the leaders of these states, such as prince-bishop or prince-elector.

proper sense of the term, and their functions in the sixteenth, seventeenth, and eighteenth centuries were very similar to those of the English Parliament" (Francis Ludwig Carsten, 1959, p. 444).[23]

Initially formed around irregular taxation requests by the ruler, parliaments took on a permanent and central role in the governance of states. Estates controlled a wide array of governing functions: they administered taxes, recruited and salaried troops, appointed officials, and presided over law and policing (Clark, 2019). These functions were closely guarded against ruler overreach.[24]

Absolutist Rule. In contrast to parliamentarism, absolutist rule had three defining features: the absence of parliamentary constraints on the ruler (*legibus absolutus*), a fiscal apparatus controlled by the sovereign rather than the Estates, and a standing army (Anderson, 1974).

This independent fiscal apparatus rested on local direct taxes, commonly called assessment (*Schatzung*) or contribution (*Kontribution*).[25] These taxes were levied without parliamentary approval. The ruler's central administration fixed separate lump-sum assessments for each town, and revenues were not earmarked. Early absolutist regimes relied primarily on such direct taxes (Ullmann, 2005). Only later did a more sophisticated fiscal instrument emerge: the excise (*Akzise*), an indirect tax levied more uniformly across towns in a ruler territory.[26]

Military organization was similarly uneven in space. Standing forces relied on locally embedded elite officers, who were central to recruitment and command (Beloff, 1954).[27]

[23] While mostly drawing representatives from towns and landed elites, these bodies could encompass a broad cross-section of society: burghers, clerics, and sometimes peasants (Francis Ludwig Carsten, 1959; Blickle, 1997). In Bavaria, the Estates represented 5,534 noble lineages, 90 market towns, and 34 towns (Lanzinner, 1980, p. 18). Where these parliaments endured, "they preserved the spirit of constitutional government and liberty in the age of absolute monarchy" (Francis Ludwig Carsten, 1959, p. 444), became precursors to modern German state parliaments (Grube, 1957), and shaped a participatory political culture (Habermas, 1962).

[24] Appendix Figure A.1 shows a stylized illustration of parliamentary rule. A similar regularization of fiscal constitutionalism in England has been studied, for example, by Pasquet (1914) and Angelucci et al. (2022).

[25] "In most states, [assessment] (*Schatzung*) and [contribution] (*Kontribution*) were synonymous umbrella terms" (Schomburg, 1992, p. 331f.).

[26] These ruler-controlled taxes were conceptually and semantically distinct from parliamentary taxes, which declined in importance as representative institutions were sidelined. They were also distinct from local urban taxes, which were increasingly subsumed into the absolutist state, and from Imperial taxes, which the Emperor levied on territorial rulers rather than directly on towns and which had largely lost importance by the second half of the seventeenth century.

[27] "Even though the officers were now appointed directly by the territorial ruler to manage company administration, the regiments retained internal autonomy and the regimental economy remained largely

As a result, the reach of the standing army varied across towns within the same polity. Only gradually were these personalized structures replaced by barracks and more impersonal regimental organization.

Taken together, these features concentrated authority in the ruler's hands, but unevenly. Early absolutist rule therefore varied not only across polities, but also across towns within the same state.[28] Over the seventeenth century, many territories moved in this direction, though the pace and extent of change differed markedly across and within regions.[29]

II.B The Thirty Years' War

We summarize the Thirty Years' War in the layers most relevant to our analysis (Wilson, 2009; Münkler, 2017). Sustaining the war's armies required continuous inflows of food, fodder, quarters, and cash contributions, drawn through local extraction. Troop movements therefore imposed exceptional burdens on towns, triggering local crises.

We distinguish four layers of the conflict: *military coalitions and war parties*, *military leaders and campaigns*, *troop movement logistics*, and *troop effects on towns*. Appendix Table A.2 lists the war parties active in our study area, their military coalition, their principal military leaders, and the years in which those leaders were active.[30] Section III explains how we measure each layer in our data.

Military Coalitions and War Parties.

The Thirty Years' War was fought by two broad military coalitions, each comprising war parties from both within and beyond the Holy Roman Empire. On one side stood the Habsburg monarchy, supported by allied war parties within the Empire. On the other stood an anti-Habsburg military coalition. This opposition was initially led mainly by Protestant rulers resisting Habsburg authority, but later also included Catholic France. The

independent well into the 18th century. In Prussia, the company economy (*Kompaniewirtschaft*) — that is, the company commander's own responsibility for equipping his unit with certain items of gear — did not disappear until the military reforms at the beginning of the 19th century" (Kroener, 2013).

[28]This echoes broader treatments of the "uneven reach of the state" in more recent settings, which new data increasingly make measurable (Agneman et al., 2025).

[29]Reflecting on the ascent of absolutism in Prussia, King Frederick II noted that before the Thirty Years' War, the Estates had still been "masters of the government" (Clark, 2019, p. 88). By contrast, when visiting Württemberg as late as 1800, the English statesman Charles James Fox praised the "constitutionalism" he encountered (Grube, 1957, p. 2).

[30]The overview covers leaders who campaigned within the geographical boundaries of our study area. Discontinuities reflect either the dismissal or death of a leader, or the absence of a main army in the region.

conflict began in Bohemia, where Protestant elites revolted against Habsburg rule amid rising confessional tensions.[31] Although the Habsburg victory at White Mountain in 1620 crushed the Bohemian revolt, the war quickly spread.

After 1620, anti-Habsburg military leaders displaced from Bohemia, especially Ernst von Mansfeld and Christian of Brunswick, continued the fighting in the Rhineland and Lower Saxony. Their campaigns widened the geography of the war and drew in Denmark, which intervened to check further Habsburg expansion within the Empire. After Denmark's defeat at Lutter in 1626, pro-Habsburg forces advanced northward toward the Baltic coast. That advance, in turn, helped trigger Swedish intervention in 1630. Under Gustavus Adolphus, Swedish armies penetrated deep into the Empire, reaching as far south as the Alpine regions.

The Swedish defeat at Nördlingen in 1634 led many Protestant estates to accept the Peace of Prague in 1635, which formally ended the war among the Empire's main internal confessional parties. By then, however, the conflict had already become a broader European struggle over Habsburg power.[32] France, despite being Catholic, entered the war openly on the anti-Habsburg side to support Sweden and to limit Habsburg predominance. What began as a revolt in Bohemia thus developed into a wider war across much of Central Europe, ending only with mutual exhaustion and the Peace of Westphalia in 1648.

Military Leaders and Campaigns.

Each war party fielded armies under one or more principal military leaders. These leaders conducted campaigns that typically ran from spring, when troops assembled, to winter, when they dispersed or entered quarters.

We illustrate the logic of campaigning with the Swedish entry into the war in 1630–31. Figure I maps the routes of the main Swedish army under Gustavus Adolphus across parliamentary constituencies in the Holy Roman Empire.[33] Campaigns were organized around strategic destinations, above all fortified towns. In a note dictated to his secretary, the Swedish king listed the "occupation of fortified places" as the first priority for future action (Wilson, 2010, p. 132); more generally, the Thirty Years' War has been described as "the first pure fortifications war" (Menne, 1939, p. 47).

[31] Bohemia, and most Habsburg territories, lie outside our analysis region.

[32] Wilson (2009, p. 9) notes that "the war was religious only to the extent that faith guided all early modern public policy and private behaviour. [...] [but religious] militants remained the minority."

[33] We describe the data collection effort underlying the construction of these maps in Section III.B.

The 1630 Swedish campaign began with the landing on the Baltic coast and the securing of fortified towns near Stettin (Panel A). By autumn, the army advanced inland toward the fortress of Frankfurt (Oder). Between fortifications, armies generally tried to move along the shortest practicable path, often relying on "handwritten lists of settlements in sequential order along known routes between major destinations" (Wilson et al., 2023, p. 1057). In practice, however, terrain, local conditions, and even basic geographic information were often imperfectly known.[34] Upon landing, the Swedish army initially relied on a map that extended only as far as Frankfurt (Oder). Advancing farther into central Germany, Gustavus Adolphus wrote to Stockholm in 1631 that "All our maps stop here," and requested that mapmakers be sent from Sweden to survey and map further target towns (Gäfvert, 1998, p. 309). Thus, movement between strategic destinations contained substantial contingency.

After the decisive Swedish victory at Breitenfeld in September 1631, contingency extended beyond march routes to strategy itself. With the Empire open before them, Gustavus and his war council debated whether to march on Vienna or instead turn south against the Catholic prince-bishoprics. In a narrow decision, they chose the latter course. The Swedish army then advanced into southern Germany, captured Schweinfurt in October 1631, and wintered in Mainz (Panel B) (Lundblad, 1823, p. 41).[35]

More generally, military leaders regularly chose among alternative routes and objectives. Written orders often specified march routes and quarters in detail (Kaiser, 1999, p. 47), while secret correspondence and council minutes show military leaders weighing competing options before deciding.[36] For our purposes, this implies contingency at two levels: in the

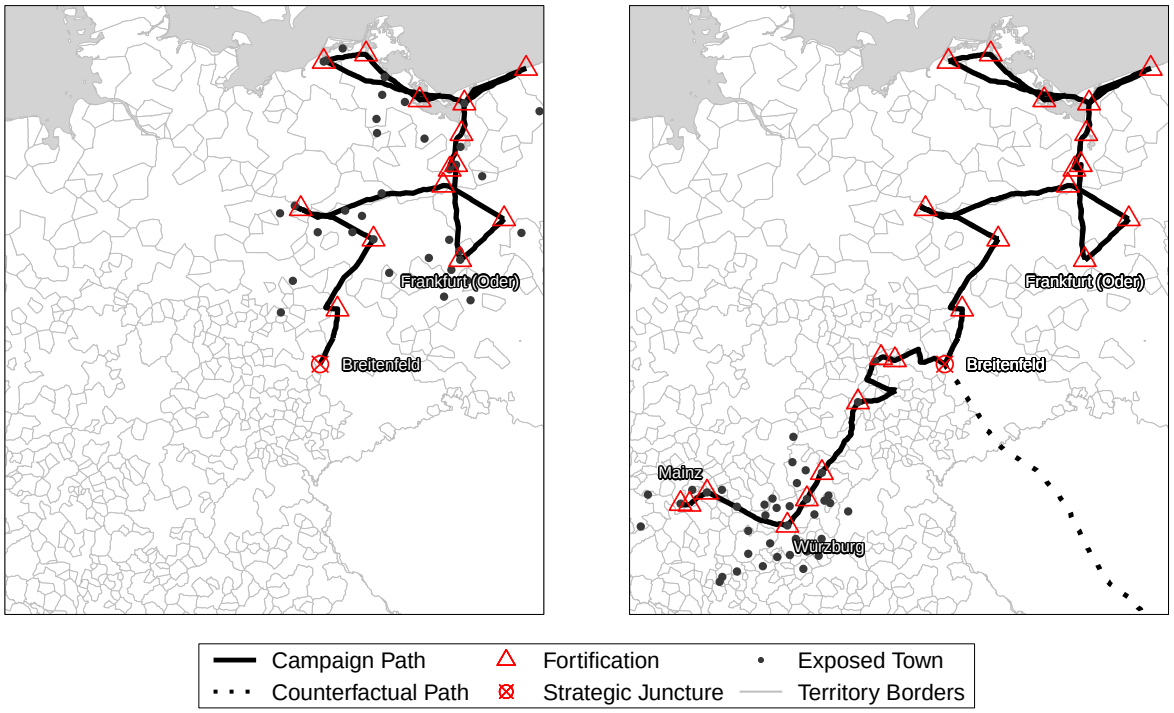
[34]In 1645, for example, General Hatzfeldt found some of his own soldiers "struggling across the very obstacles he intended to disrupt the enemy's advance [...] Above all, soldiers were largely outsiders, without local knowledge of hiding places or an area's real wealth." (Wilson, 2009, p. 404)

[35]The decision was closely contested within the war council and remained so in retrospect. In a letter to Chancellor Oxenstierna shortly after the battle, Gustavus Adolphus wrote: "Now that God the Most High has been pleased to grant us this glorious victory over the enemy ... we have now resolved to shape the state of the war as follows: namely, that we ourselves with the army shall move into Thuringia ... arranging matters so that we may have our winter quarters there ... and, by God's grace, seek to overrun certain bishoprics in Franconia and bring them under contribution." Speaking before the Senate in Stockholm twenty years later, Oxenstierna reiterated his view that a march on Vienna would have been preferable (Dodge, 1895). Clausewitz (1837) later echoed this assessment.

[36]For example, in a biography of Gustavus Adolphus, Dodge (1895, p. 335) writes: "Gustavus did not, like Caesar, write commentaries at the close of his campaign, in which he could state motives which accorded with the event; he wrote as and when he thought, in the midst of the utter uncertainty of events, and he voiced his every idea. The apparent indecision was a mere habit of thinking aloud. (...) What we know of Gustavus is largely drawn from his own letters written at the moment." After Gustavus' death in battle in 1632, Chancellor Oxenstierna remained closely involved throughout the 1630s and 1640s in coordinating troop movements and communicating strategic plans by letter, including, for example, General Torstensson's

Figure I: The Thirty Years' War: Swedish Invasion (1630–31)

A: July 1630 – September 1631 B: September – December 1631



Note These maps show main army troop movements, fortified towns, towns exposed to troops, and a strategic juncture of the first two campaigning years (1630–31) during the Swedish invasion in the Thirty Years' War. The military leader is Gustavus Adolphus, King of Sweden. The dotted line in Panel B indicates the alternative campaign path to Vienna after the Battle of Breitenfeld. The base map shows parliamentary constituency boundaries. Details on the data underlying the maps are given in Section III.B.

routes taken between strategic destinations, and in the choice of the destinations themselves.

Troop Movement Logistics: The Army.

With long-range troop movements and foreign intervention came a fundamental change in military organization. Large armies were sustained primarily through local extraction, in friendly and enemy territory alike. In this decentralized logistical system, towns were required to pay, feed, and house soldiers, and to provide recruits.[37]

This shifted the burden of troop upkeep onto the towns through which armies moved. Distant rulers could therefore finance war without relying on central treasuries.

Troop presence was also a lasting burden. Armies frequently stayed in towns for extended periods, and even after the main force moved on, armies often continued to draw supplies and payments from the towns left behind.[38]

ultimately unrealized transfer from Schleswig to Sjælland in 1644.

[37]Figure I highlights town-level troop presence associated with the Swedish campaigns in 1630 and 1631. Treated towns that lie off the main campaign path reflect troops roaming into neighboring towns.

[38]First-hand accounts by soldiers and townspeople describe, for example, stays lasting from January to

Crucially, military leaders sought to make this extraction orderly. They had an interest in preserving a steady flow of supplies over time rather than exhausting the local resource base (Wilson, 2018).[39]

First, leaders aimed to restrain plunder.[40] Second, an orderly system of taxation developed. During troop presence, "supply ordinances" specified both what towns were required to provide and how troops were required to behave in quarters.[41] Similar arrangements governed extraction after the main force had departed.[42]

Because it relied on the physical presence of armies, town-level troop presence was highly spatially concentrated. Thus, war effects were "more intensely felt along the paths of troop movements than in areas further removed from the army routes" (Haude, 2014, p. 268). Given the narrow radius of early modern armies, these effects were often confined to only a few kilometers.[43]

Troop Movement Logistics: Towns and Rulers.

For towns, the arrival of troops posed a major organizational challenge. Ordinances often demanded payments and supplies that exceeded local resources. Under Swedish presence, "Mainz was given only twelve days' notice to raise 80,000 fl. in December 1631, or eighteen times its usual tax" (Wilson, 2009).

Falling short posed an existential threat: troops could respond with violence and plunder,

June 1639 in Neumarkt (Kraus, 2021) and twenty weeks in Lauterbach in Hesse (Wilson, 2009). After a brief occupation of the Seligenporten abbey in 1631, twelve soldiers were left behind to ensure continued extraction throughout 1632. In general, Creveld (1977, p. 34f) writes that "lacking exact figures, it is not possible to say just how long an army was able to stay in any given area."

[39]This is consistent with a "stationary bandit" logic: while uncontrolled plunder increased short-run consumption, it depleted the local resource base available for future extraction (Olson, 1993; Sánchez de la Sierra, 2020). An additional concern was the erosion of troop discipline that plunder brought.

[40]In the Swedish army, which was not exceptional in this regard, "plundering by individuals was punished by death" (Dodge, 1895, p. 78).

[41]As an example of this quasi-legal framework, General Tilly's 1623 supply ordinance for the town of Coesfeld survives, specifying daily rations, fodder, and supplies by military rank; Appendix Figure A.2 reproduces a page and details the schedule. Such demands could be substantial: soldiers often traveled in large cohorts with families, servants, and livestock (Kraus, 2021, p. 215), and General Wallenstein's 1627 occupation of Pomerania required food and fodder for 22,000 men.

[42]For example, a treaty regulating the withdrawal of Swedish troops from Brandenburg in 1644 stipulated that "the Swedish garrisons that are withdrawn, regardless of their destination, are to receive 2,333 and 1/3 talers punctually each month, paid to the Swedish receiver at Landsberg or to whoever is designated by Sweden for that purpose" (Wilson, 2010). To secure these payments, soldiers were often left behind, and hostages were sometimes taken.

[43]In 1632, the Swedish and Imperial armies, at that point the two largest armies in the field, passed each other in opposite directions without noticing one another while remaining within 25 kilometers of each other (Wilson, 2009, p. 507).

while effective resistance was often impossible.[44] Changes in military technology associated with the "Military Revolution" (Parker, 1976) produced armies of unprecedented size and made city walls increasingly ineffective (Guthrie, 2002).[45]

Meeting these demands therefore required mobilizing resources beyond the town itself, especially from the surrounding countryside. Towns could try to do so on their own, or they could rely on provisioning organized by the ruler's administration.

Self-financing was possible, for example through credit-financed provisioning, but difficult in practice. First, it imposed substantial organizational costs.[46] Second, and more importantly, these demands were often unprecedented and therefore hard to contract on. In many towns, formal credit markets were thin; parliaments were designed to organize joint taxation for the ruler rather than cross-financing across towns; and default risk was high in an uncertain environment.[47]

Two institutional arrangements could mitigate some of these contracting frictions. First, towns could turn to the Imperial High Court of the Holy Roman Empire to mediate disputes between creditors and debtors over troop burdens.[48] Second, city leagues could help cover financing shortfalls among their members. Magdeburg, for example, received a large transfer from the Hanseatic League (*Hanse*) to finance troop provisioning.

The alternative was to rely on provisioning organized by local rulers. Ruler officials would then assign quarters, apportion supplies, and raise the necessary taxes. This required towns to cede control over parts of their fiscal and administrative infrastructure. Rulers had strong incentives to establish such arrangements, both to prevent the ruin of their territories and

[44] Wallenstein's occupation terms with Pomerania, for example, make this threat explicit: "In order to preserve better discipline and to prevent the complete ruin of the country, we amicably request that Your Grace makes arrangements to provide the troops with the necessary sustenance." (Wilson, 2010, p. 107)

[45] Of the Werra region in Hesse, Theibault (1995, p. 142) notes that "active resistance was the hardest to justify [...] the balance of forces was so unequal that such attacks were suicidal." No record survives that civilians "ever tried to fend off occupation by force [...] most adopted the option of passive acceptance" (Theibault, 1995, p. 143).

[46] The town of Neumarkt, for example, sent an emissary on foot to Nuremberg, 40 kilometers away, to negotiate a reduction in required provisions with Sweden (Kraus, 2021).

[47] Credible contracting was an issue even in the Free Imperial Cities in our study region. These towns, of which around 50 remained on the eve of the Thirty Years' War, were self-governing and thus not subject to a territorial ruler or to the regional parliaments studied here. Armies also moved through these cities. Although they generally had more developed borrowing channels than most towns in our sample, interest rates rose drastically during the war and could force towns to cede assets to sustain access to credit (Wilson, 2009, p. 803).

[48] Appendix Figure A.10, Panels A and B, show cases before the Imperial High Court concerning credit and troop burdens, which spike during the war; Panels C and D compare frequent words in court cases from 1587–1617 and 1618–1658, showing a marked shift toward issues of debt repayment.

to gain access to local infrastructure that towns guarded closely.

To manage troop presence, ruler administrations became the interface between civilians and the military.[49] They also organized continued extraction after the troops had moved on.[50]

These arrangements required cooperation between rulers and military authorities. Repeated interaction and a longer time horizon made such cooperation easier. This was more likely where armies and territories belonged to the same broader military coalition.[51] Local troop presence thus integrated exceptional wartime governance into regular administration. Historical accounts accordingly locate the seeds of absolutist rule in these local administrative changes: by 1648, a "threshold of taxation" had been crossed (Hintze, 1910; Asch, 1997).

II.C The Rise of Absolutism

Technological limits on early modern administration made the consolidation of absolutism a problem of local collaboration. This applied not only to wartime provisioning, but also to the continued extraction of post-war taxation.

In practice, this collaboration centered on the landed nobility. Troop provisioning depended on rural surplus, while the assessment and collection of contributions relied on actors embedded in the countryside.[52] Historical accounts accordingly identify the nobility as a central local pillar of absolutist rule (Press, 1988; Whaley, 2012).[53]

[49] In this context, *war commissars* were central (Hintze, 1910). In addition to organizing provisioning, they were instructed to ensure that "those who rob or plunder provisions and other victuals, or even commit murder, are punished exemplarily" (Saito, 2020).

[50] For example, the terms of the 1644 Swedish troop withdrawal from Brandenburg required ruler officials to continue collecting taxes and remit them to the Swedish receiver at Landsberg, under threat of renewed occupation of the towns if payments fell into arrears (Wilson, 2010). Similarly, in the Upper Palatinate, taxation continued through the ruler's administration after the field army had moved on, already by 1623 (Saito, 2020).

[51] Another indication of the importance of repeated interaction is that, once the Treaty of Hamburg of 1641 made the end of the war more tangible, both sides had stronger incentives to maximize short-run extraction rather than preserve a longer-run provisioning relationship (Parrott, 2011). In this sense, the system of troop provision "had deteriorated significantly by the 1640s," and this "new style of warfare" increasingly favored "direct extortion" over systematic taxation toward the end of the war (Parrott, 2011). Consistent with this pattern, the effects of troop presence are weaker for towns first exposed from 1641 onward: the interaction with late first exposure is negative across all three main outcomes (Appendix Table A.9). We consider this timing evidence as primarily descriptive, since the timing of first exposure is not randomly assigned.

[52] In the Upper Palatinate, for example, officials relied on nearby landed elites to avoid the "long and dangerous" transport of goods (Kraus, 2021).

[53] Greif (2008) and Angelucci et al. (2024) similarly argue that limited state capacity forced rulers to delegate administrative control to local elites. Hobsbawm (1954, p. 38) identifies the "three basic problems" of territorial states as obedience over space, large lump-sum finance, and the maintenance of their own

Rulers addressed this problem by linking extraction to new avenues of office. Municipal functions were increasingly transferred to ruler-appointed outsiders. Commissarial and administrative offices created during the war often outlived the emergencies that had produced them, while military organization opened new career paths for nobles and tied them more closely to ruler armies and administrations (Hintze, 1910; Wilson, 2009). Absolutism thus did not eliminate noble influence so much as redirect it into state service: rulers stabilized centralized authority by drawing nobles into military and administrative office at court, on which their status and advancement now more directly depended (Elias, 1969; Beik, 1985).

These material incentives were reinforced by symbolic ones. By attaching honor and visibility to military and administrative service, rulers endowed cooperating elites with new forms of symbolic capital within the emerging absolutist state (Bourdieu, 1972). This cultural dimension of state formation is emphasized in accounts of court society, representation, and the political uses of prestige (Elias, 1969; Blanning, 2002). Print media were especially important in this respect, circulating militaristic imagery and ruler portraiture that elevated both ruler authority and the standing of those associated with it (Marin, 1981; Burke, 1992; Zanger, 1997).

Where local provisioning had required local collaboration in taxation, rulers thus sought to stabilize that collaboration by making service to the absolutist state materially rewarding and symbolically prestigious.

Our empirical analysis traces how the Thirty Years' War affected towns, reshaped local elites, and translated into long-run institutional consequences.

III Data

To analyze the impact of the Thirty Years' War on state organization, we construct a dataset that integrates novel information on core state functions, detailed historical records of troop presence, and the consolidation of absolutist governance.[54]

armies.

[54] We report summary statistics in Appendix Table A.1.

III.A State Organization

Our main outcomes consist of three new measures capturing absolutist rule across 2,230 towns and their surrounding countryside within the Holy Roman Empire.[55]

To measure parliament elimination, we map each town to its parliamentary constituency. We identify 130 such constituencies through a systematic survey of regional historical works.[56] For each town and year, we first construct an indicator equal to one if its constituency had a parliament that year, and zero otherwise.[57] We then define Parliament Eliminated as an absorbing indicator that equals one in every year from the year the parliament representing the town is eliminated onward, and zero otherwise. No constituency in our sample regains a parliament after elimination. The vast majority of towns in our sample (87%) belonged to a constituency that had a parliament at some point during our period of analysis.[58]

We then measure fiscal and military capacity under absolutist rule.[59] Because both varied strongly across towns, we first construct measures of their local manifestations. We also measure the more uniform institutions that emerged as absolutist states matured. For each dimension, we use a direct measure of its main manifestation, as discussed in Section II.

To measure ruler taxes, we draw on a comprehensive catalog of 3,885 town-level account books compiled in the Index of Town Books (*Index Librorum Civitatum*) (Ranft et al., 2023). This source provides metadata on each book, including its classification and years of coverage.[60] We focus on the 734 account books that explicitly reference the assessment

[55] We include all towns as depicted in the German Town Book (*Deutsches Städtebuch*) (Keyser et al., 1939). This source covers all settlements within the 1937 German borders that ever obtained town status. We exclude East Prussia because it is an exclave. We also exclude all towns that were ruled by Imperial cities. Neither choice affects our empirical results.

[56] Towns map to 173 constituency units in total, the level at which we cluster standard errors for the parliament outcome (Appendix Table C.3); 130 of these units convened a parliament during our period.

[57] Following the historical literature, we do not count deputation diets or other limited committee meetings as full parliamentary meetings.

[58] Despite the overall trend toward parliamentary decline, some constituencies *formed* a parliament during our period of analysis. We therefore do not omit towns that were not yet represented in a parliament at the beginning of the sample. Our results are robust to excluding towns that never became part of a parliament (Appendix Table C.25). In Appendix Section C, we also conduct robustness checks to account for the fact that a typical constituency comprised multiple towns.

[59] Here and throughout, our measures are best understood as inputs into absolutist state capacity, rather than direct measures of output capacity.

[60] The Index is an ongoing project, and some German regions have yet to be incorporated. We exclude these regions from regression analyses that rely on the Index. The corresponding regressions therefore use a restricted sample of 1,458 towns.

(*Schatzung*) or contribution (*Kontribution*) taxes.[61] Based on these records, we construct an indicator for whether a ruler tax was levied in a given town-year.[62]

We complement these local measures with constituency-level introduction dates of the excise (*Akzise*) from the Repertory of Early Modern Police Ordinances (*Repertorium der Policeyordnungen der Frühen Neuzeit*) (Härter and Stolleis, 2023), a multi-volume repertory that systematically catalogs early modern ordinances across numerous territories. Using its subject index, we identify the earliest ordinance introducing an excise (*Akzise*) in each parliamentary constituency.

To measure military notables, we focus on their town-level presence. As discussed in Section II, early standing forces relied on elite officers with strong local ties, who were central to recruitment and command. We therefore use granular biographical data from the Integrated Authority File (*Gemeinsame Normdatei*, GND), the comprehensive authority file maintained by the German National Library (Deutsche Nationalbibliothek, 2025; Historische Kommission bei der Bayerischen Akademie der Wissenschaften, 2026). This source contains records on 1,689,677 individuals, including their professions. We identify as military notables all individuals with a profession in the military.[63] We link each individual to the nearest town within 25 kilometers of the place of activity or, if none is recorded, of the place of death or birth. We classify these individuals as "active" from age 25 until death and construct a town-year panel of active military notables, yielding 6,554 individuals. In the regressions, the military notables variable is the inverse hyperbolic sine of the number of military notables linked to a town and active in a given year.

To capture military build-up, we complement these local measures with information on all early modern regiments from Tessin (1986), which we link to parliamentary constituencies and years of activity.

We gather information on town geography by measuring agricultural suitability (Lehner

[61] As discussed in Section II, these taxes were the principal source of ruler revenue. They also have the advantage that, in our setting, they identify taxes accruing to the ruler, whereas other tax labels could but need not do so, since they might also be used by other stakeholders. This makes them our preferred measure. Appendix Table C.13 instead uses the classification of taxes into simple and complex taxes based on keywords in Becker et al. (2025). Troop presence increases taxes along both margins, consistent with the view that absolutism also expanded fiscal capacity on the extensive margin.

[62] Their years of coverage show that these taxes persisted and expanded after 1648, consistent with the delegation of tax collection to rulers described in Section II.B.

[63] In Appendix Table A.4, we report the most frequent exact profession strings among military notables. The majority are high-ranking officers, consistent with our aim to measure the officer backbone of early standing armies.

and Philippe, 2025), terrain ruggedness, and distance to the coast and the nearest navigable river (Kunz, 1999). We also construct an indicator for whether a town was on a trade route and record the number of markets (Cantoni et al., 2020), public and private construction events (Cantoni and Weigand, 2020), the predominant religious denomination (Cantoni and Weigand, 2024), and the yearly mapping of towns to their rulers from 1500 to 1789 (Cantoni et al., 2019).

III.B Troop Presence

We introduce data quantifying troop presence across towns during the Thirty Years' War. Our baseline town-level troop presence data come from Keyser et al. (1939) and local historical sources. For each event, we record the identity of the troops and, where possible, the exact year. Appendix Figure A.3 highlights all 863 troop-exposed towns in our data.

We then assemble original data on troop movements, strategic destinations, and alternative troop movements.

Our coding proceeds in three steps. First, for each year of the war, we identify the main war parties active in our study region and assign them to the pro- or anti-Habsburg military coalition. For each war party, we then identify the principal military leader in that year and trace that leader using primary and secondary sources. We define one campaign as one leader-year, consistent with the timing of early modern campaigning discussed in Section II. Appendix Table A.2 summarizes the resulting coding.

We trace the locations of 18 leaders across 55 campaigns and identify 548 distinct troop movements between locations. We restrict the data to campaigns conducted within the geographical boundaries of our study area. The panel therefore covers only the years in which a given leader's main army campaigned in the region; discontinuities reflect dismissal or death, or the absence of a main army from the study area. Appendix Figures A.6 and A.7 display all coded troop movements, separately for the anti- and pro-Habsburg military coalitions.[64]

Second, we identify the strategic destinations between which leaders moved their armies. For this, we use the systematic inventory of fortifications in the Holy Roman Empire

[64]Because leaders typically resumed campaigning in spring after a winter pause, often by recruiting and reassembling troops locally, the end point of one campaign need not coincide exactly with the start point of the next.

assembled by Klöffler (2024). We identify 331 towns that had permanent fortifications at the outset of the Thirty Years' War. Because knowledge of fortified towns may itself have been incomplete, especially for foreign military leaders, we additionally collect information on all places shown in maps compiled by the Swedish military during the war from the Swedish National Archives (Riksarkivet, 2024).

Third, we construct alternative troop movements. To obtain a set of plausible alternatives, we identify these movements within campaigns while taking the occurrence of campaigns themselves as given. We draw the alternative troop movements from three bodies of sources: the letters of the Swedish chancellor Axel Oxenstierna, the correspondence of Maximilian of Bavaria and his allies, and the secondary literature on the war's campaigns, listed in Appendix Table A.3. A large language model reads every letter and every passage and extracts each troop movement that the source describes as planned, ordered, or considered. We keep the movements of the commanders in our data that were not carried out and discard those that follow the realized route. Each remaining movement joins the commander's realized route where the source places the army or, failing that, at the point of the same month nearest to the plan's first destination. Appendix Section C.6 documents this processing, including the prompt.

We then map each documented alternative as a least-cost route that follows the realized campaign path to the observed juncture and continues to the documented destination. In total, we document 371 alternative troop movements. Figure I, Panel B, illustrates the alternative troop movement debated by Gustavus Adolphus at the strategic juncture of Breitenfeld.

Finally, we collect data on violent wartime events. First, for each troop-presence event, we record whether the corresponding entry in the German Town Book (*Deutsches Städtebuch*) mentions physical destruction, such as the burning of a town, or mass violence, such as shootings. Second, we proxy the human toll of the war. Because consistent population data are unavailable for our sample, we instead draw on collections of birth and baptism records from Verein für Computergenealogie (2025).[65] We precisely geolocate all three million records with non-missing birth and death years. Based on these, we identify 13,893 individuals born in 479 towns in our dataset between 1590 and 1618. For each town, we compute the mean

[65]These data were collected by a large set of genealogical associations, digitizing Church archives.

age at death for individuals born in this pre-war cohort and construct an indicator for low life expectancy. To capture the most intense violent episodes, we also geolocate 89 major battles of the Thirty Years' War (Bodart, 1908). Finally, we record which towns were annexed as a consequence of the war.

III.C Mechanism Data

To proxy for the ruler's coordination advantage in provisioning troops, we collect information on military coalitions: for each military leader and each town's ruler, we code whether they belonged to the pro- or anti-Habsburg military coalition in a given year. Combining this information with our data on troop presence, we construct an indicator for whether exposed troops belonged to the local ruler's military coalition. We then define coalition mismatch as an indicator for whether exposed troops were outside the ruler's military coalition.

We rely on two proxies of town-level contracting capacity. First, we measure Imperial High Court access by drawing on data from the Imperial High Court. We observe all surviving 40,797 high court cases (Schildt and Amend-Traut, 2022), restrict our attention to two decades prior to the Thirty Years' War (between 1600 and 1618), and match litigating parties to the towns in our data.[66] This measure is an indicator for whether a town was involved in a case before the Imperial High Court during 1600–1618. Second, we measure city league membership using information from the German Town Book (*Deutsches Städtebuch*). This measure is an indicator for whether a town was a member of a city league during 1600–1618.

We gather data on the consolidation of absolutist rule. Four variables capture the local consolidation of absolutist rule: ruler appointments, noble state service, militaristic prints, and ruler and court portraits. First, we gather new data on printed portraits in German-speaking Europe between 1500 and 1800, including over 280,000 portraits in 2,000 places.[67] The source metadata allow us to identify rulers and their state officials, which we use to

[66] These cases were archived centrally at the location of the Imperial High Court, so they do not exhibit place-specific selection.

[67] Data sourced from the Digital Index of Early Modern Printed Portraits (*Digitaler Portraitindex druckgraphischer Bildnisse der Frühen Neuzeit*) (Bildarchiv Foto Marburg, 2023). The index systematically catalogs printed portraits of rulers and other notable persons. Our portrait data mainly encompass print engravings (*Kupferstiche*), which were widely disseminated. The data are available at https://www.portraitindex.de.

construct ruler and court portraits. Second, we construct new data on printed text. We gather evidence on all known prints in German-speaking Europe between 1500 and 1800: 618,480 publications printed in 1,000 places.[68] Using a dictionary-based approach from Just (2012), we classify print titles that mention rulers in militaristic contexts; this yields militaristic prints.

From Keyser et al. (1939), we record ruler appointments and related infringements of local institutions, such as the appointment of a town mayor through the ruler. We construct ruler appointments as a count of such instances in a given town and year.

We measure noble state service as the inverse hyperbolic sine of the number of nobles from a town who held court or military positions in a given year.[69]

III.D Long-Run Data

We assess the long-run effects of the war on militarization in the nineteenth and twentieth centuries. Using the 1907 occupation census of the German Empire (Kaiserliches Statistisches Amt, 1910), we construct military share, the share of military personnel in the working population. These data cover 2,230 towns, the entire sample.[70]

We additionally collect military notables in 1918 and below-median life expectancy over the 1815–1910 period. Using the birth records from Verein für Computergenealogie (2025), we pool all births between 1815 and 1910 and classify towns by whether life expectancy was above or below the sample median; given the increased coverage in this later period, this covers 375,913 individuals in 1,905 towns. Of these, the towns in our sample enter the analysis.

[68] Data sourced from the Registers of Printed Works Published in the German-Speaking Lands in the 16th, 17th, and 18th Centuries (*Verzeichnis der im deutschen Sprachraum erschienenen Drucke des 16./17./18. Jahrhunderts*; VD 16, VD 17, VD 18) (Bayerische Staatsbibliothek, 2024; Verbundzentrale des Gemeinsamen Bibliotheksverbunds, 2023).

[69] In addition to the classification of a person as being in the military, the GND also indicates nobility status for 6,687 individuals during our study period.

[70] We would like to thank Felix Kersting for kindly sharing these data. The military measure uses the census category "Army and navy, including army and naval administration (including military doctors)."

IV Main Results: The Rise of Absolutism

IV.A Empirical Setting

We begin by estimating how wartime troop presence affected three dimensions of absolutism at the town level: parliament elimination, ruler taxes, and military notables, all defined in Section III. As discussed in Section II, both troop presence and absolutist rule were spatially uneven, so the town is our main unit of analysis.[71]

Our descriptive evidence suggests a structural shift in state organization around the Thirty Years' War. Figure II, Panel A, plots troop presence events, which spike during the war. Panels B–D plot the raw outcomes (parliament elimination, ruler taxes, and military notables) by troop presence. The pre-war trends are similar, but they diverge thereafter. Before the war, 85% of towns were represented in a parliament, with similar shares in both groups; by 1700, this share had fallen to 58% overall, and to 52% among towns exposed to troops. Panel B plots the share of towns represented in parliaments, a continuous view of this decline, while the regressions below summarize it through Parliament Eliminated, an absorbing town-level indicator. Although parliamentary representation declined more broadly during this period, the decline is markedly steeper in towns exposed to troops.[72] We observe similar shifts in ruler taxes and military notables. Both outcomes roughly double in incidence, display a clear break around the Thirty Years' War, and remain persistently higher in towns exposed to troops.[73]

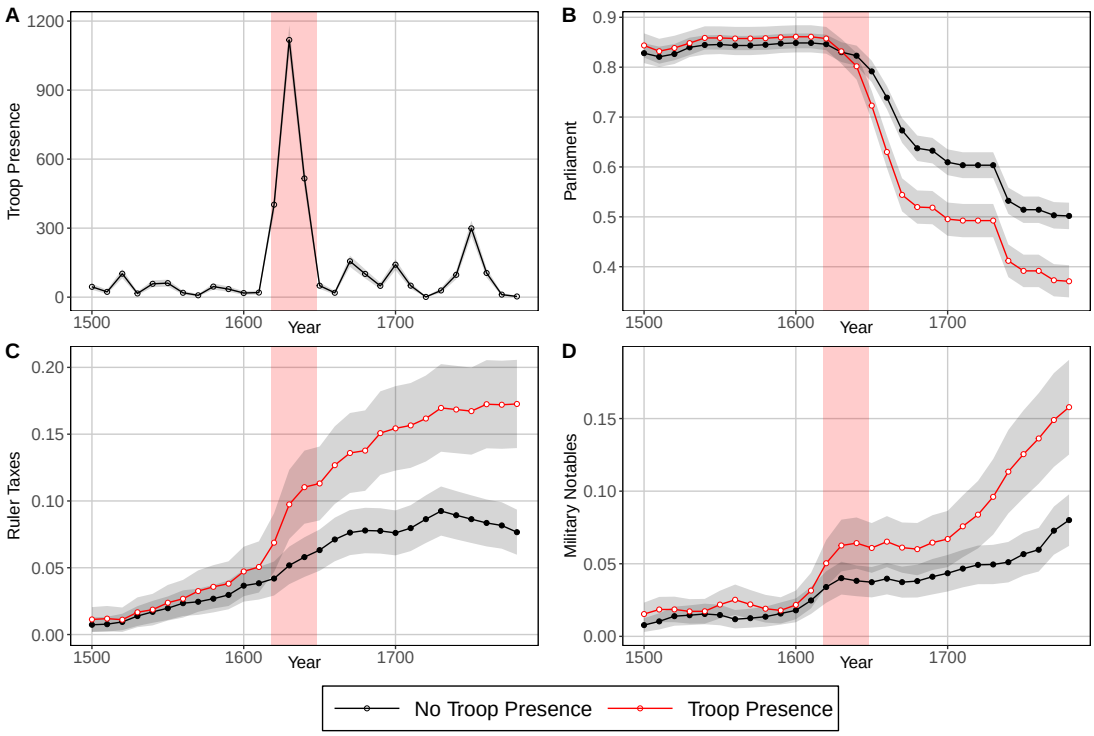
A key concern in regressing state outcomes on local troop presence is that

[71] One outcome, parliament elimination, is measured at the constituency level. We therefore follow Abadie et al. (2023), who recommend clustering at the coarser level of the treatment or the outcome, and cluster standard errors at the constituency level for this outcome throughout. For outcomes measured at the town level, we cluster at the town level. The median constituency in our data is not large: it comprises six towns. In Section C.1, we examine the role of aggregation and clustering more systematically, including specifications that aggregate both treatment and outcomes to the constituency level. Appendix Figure A.4 illustrates the data structure.

[72] We discuss the implications of the broader "Military Revolution" for absolutism in Section II. We also place this transformation in a wider European perspective by combining data on representative institutions from Abramson and Boix (2019) with conflict data from Brecke (1999). Appendix Figure A.5 shows similar patterns: parliaments declined and conflict deaths rose in the seventeenth century. We discuss comparative case studies in Appendix Section B.1.

[73] Our design identifies the within-war association between troop presence and absolutism; it does not identify the aggregate effect of the war. Two patterns nonetheless connect the local estimates to the aggregate rise. Parliamentary coverage is stable for more than a century before 1618 and declines only after the outbreak (Figure II). Across Europe, the decline of parliaments coincides with the seventeenth-century surge in conflict (Appendix Figure A.5).

Figure II: The Thirty Years' War and the Rise of Absolutism



Note This plot presents raw data on our main outcomes, with 95 percent confidence intervals. Observations are at the town-year level, with the number of towns indicated in Table I. The sample comprises 290 years. The dependent variables are (A) troop presence events in year t, (B) the share of towns represented in regional parliaments in year t, (C) the share of towns with ruler taxes in year t, and (D) military notables, the inverse hyperbolic sine of military notables active in year t.

unobserved variables might influence both treatment and outcomes, confounding the causal interpretation of the estimates. Military considerations may have correlated with state organization outcomes. For example, military leaders might have aimed to take fortified towns, which also had better taxation infrastructure. Appendix Table A.5 allows for a first assessment of these concerns. We predict troop presence based on a number of town characteristics potentially tied to strategic considerations using a Probit model. All significant predictors are time-invariant or slow-moving.[74] Historical evidence from Section II further suggests that much of the realized troop presence resulted from wartime contingency,

[74]Such persistent factors have also been identified as key predictors of conflict in present-day settings (Bazzi et al., 2022). In an exercise predicting conflict incidents in Colombia and Indonesia, "the most predictive risk factors tend to be slow moving or time invariant. [...] Surprisingly, predictive accuracy improves little when we add time-varying factors." In our context, three factors stand out. First, the importance of foreign intervention shaped the broad campaign path: towns closer to the fringes of the Holy Roman Empire on the coast or in the south were more likely to be exposed to troops. Second, fortified towns were more likely to be treated, reflecting their strategic value. Third, static town characteristics mattered: towns on trade routes, in territories with a sixteenth-century fiscal Chamber (Cantoni et al., 2024), or in less rugged areas had a significantly higher propensity for troop presence. By contrast, local economic trends, captured by the number of markets or private and public buildings added between 1600 and 1618, are not significantly correlated with troop presence.

given shifting campaign plans and limited local knowledge.

IV.B Baseline Empirical Strategy

We take several steps to assess whether the war caused these shifts in state organization. Our baseline specification is

$$Absolutism_{it} = \beta Treated_i \times Post1618_t + \alpha_i + \alpha_t + \varepsilon_{it}. \quad (1)$$

$Absolutism_{it}$ denotes either parliament elimination, ruler taxes, or military notables. $Treated_i$ indicates whether a town was exposed to troops during the Thirty Years' War, while $Post1618_t$ is an indicator for the period after 1618.[75] α_i and α_t denote town and year fixed effects. These fixed effects absorb time-invariant characteristics, such as a town's location on a trade route, that may have influenced troop movements.

We cluster standard errors at the constituency level for parliament elimination, which is defined at that level, and at the town level for the remaining outcomes, which vary at the town level.

In Appendix C, we assess the robustness of our baseline findings by varying the level of aggregation, clustering, and spatial spillover assumptions (Appendix Section C.1), by considering alternative estimation strategies and outcome definitions (Appendix Section C.2), and by investigating potential omitted-variable bias with richer controls and more comparable control groups (Appendix Section C.3).

Table I reports the estimates. Column 1 indicates that troop presence is associated with a significant reduction in the probability that a town's constituency has a parliament in a given year, by 10.75 percentage points. For comparison, in the full sample, 29% of town-years have no parliament, while in the subsample of towns whose constituencies ever convened a

[75] We date treatment from the common outbreak of the war. The timing and intensity of initial exposure are measured less precisely than the extensive margin. Roughly one-quarter of entries report troop presence during the war without specifying a year. We date these entries individually using the exposing armies' campaign itineraries and supporting evidence from secondary sources, assigning each treated town a documented first year. Earlier exposure cannot, however, be ruled out. Dating treatment from 1618 therefore compares towns on whether they were ever exposed—a margin we measure more reliably than its timing—rather than on when exposure began, which is measured with error. An event study centered on the documented first year would consequently conflate dating error with treatment dynamics. Reassuringly, results are qualitatively unchanged in a staggered specification using first-presence years, when undated first years are shifted earlier to the first-presence year of the nearest treated town, and when heterogeneity-robust estimators are applied to the staggered timing (Appendix Section C.2).

Table I: Troop Presence and Absolutism

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1075***	0.0626***	0.0337***
	(0.0356)	(0.0129)	(0.0091)
R^2	0.70	0.56	0.39
Observations	646,700	422,820	646,700
Town Units	2,230	1,458	2,230
Outcome Mean	0.29	0.07	0.04
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1). Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

parliament during our period the corresponding share is 19%.[76]

Column 2 shows that troop presence is associated with a statistically significant increase in ruler taxes equal to 89% of the sample mean. Finally, column 3 shows an increase in military notables equal to 84% of the sample mean.

We next assess whether treated towns were already on different trends before the war. We estimate event-study analogs of equation (1):

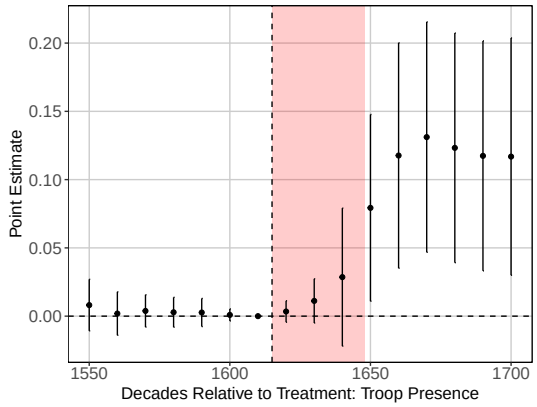
$$Absolutism_{it} = \sum_{\tau=-7}^{8} \beta_\tau Treated_i \times RelativeDecade_{\tau(t)} + \alpha_i + \alpha_t + \alpha_{s(i,t)} + \varepsilon_{it} \qquad (2)$$

with all variables as defined above, $RelativeDecade_t$ denoting decades before and after 1618, and $\alpha_{s(i,t)}$ denoting fixed effects for the state to which town i belongs in year t. Results are shown in Figure III. The increases in all three outcomes are persistent and not led by pre-trends (Panels A–C). The effect of the war on parliaments (Panel A) takes hold gradually. For taxes and military notables, the effect is immediate and grows over time (Panels B

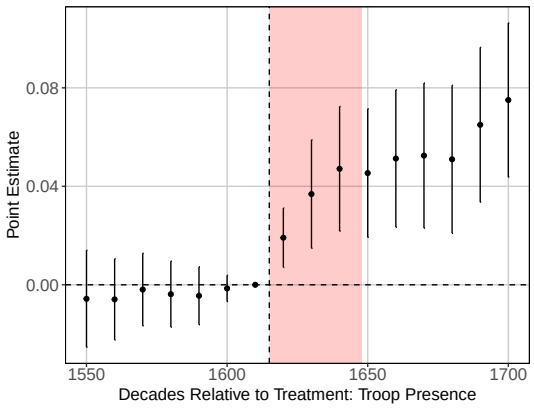
[76]Both comparisons are informative: the full sample captures the overall prevalence of parliamentarism across towns, whereas the ever-represented subsample captures the set of towns whose constituencies could subsequently lose parliamentary representation. Estimated on the ever-represented subsample, the coefficient is 0.116 (standard error 0.039), 61% of the subsample mean.

Figure III: Troop Presence and Absolutism (Event Studies)

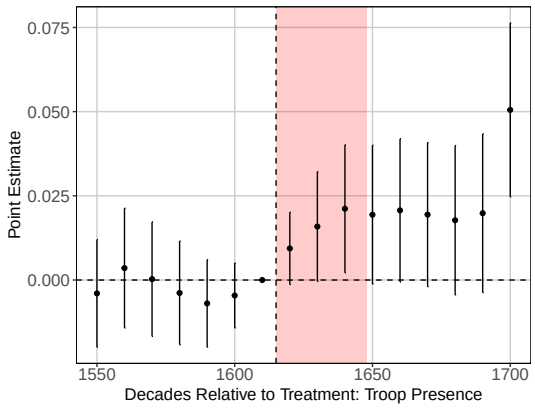
A: Parliament Eliminated



B: Ruler Taxes



C: Military Notables



Note This plot shows results of estimating the event study regression in equation (2), with 95 percent confidence intervals. Observations are at the town-year level, with the number of towns indicated in Table I. The sample comprises 290 years. The dependent variables are (A) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (B) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (C) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. The area shaded in red indicates the duration of the war. Standard errors are clustered at the constituency level (A) or at the town level (B–C).

and C).[77] In sum, treated and untreated towns did not display differential trends of state organization prior to the outbreak of the war. Strategic considerations of armies took into account mainly constant or slow-moving town characteristics, which would influence the level of state organization rather than its trend. We devote Appendix Section C.3 to robustness checks that support this claim.

[77]Section V provides a detailed examination of the mechanisms underlying the gradual dismantling of parliaments.

IV.C Instrumental Variable

The event studies imply that any remaining omitted variable would have to vary across towns and over time, coincide with the outbreak of the war, and generate an immediate and persistent change in state organization. We next examine this possibility more directly through a design-based framework.

Specifically, we compare towns that were ex ante similarly likely to lie near troop movements but differed in realized troop presence. This approach uses two features of early modern warfare: military leaders aimed to move armies as quickly as possible between fortified towns, yet those destinations were not predetermined. As a result, realized troop movements represented only one of several plausible routes (Wilson, 2009). We implement this strategy by combining a least-cost-path instrument with the recentering logic of Borusyak and Hull (2023).

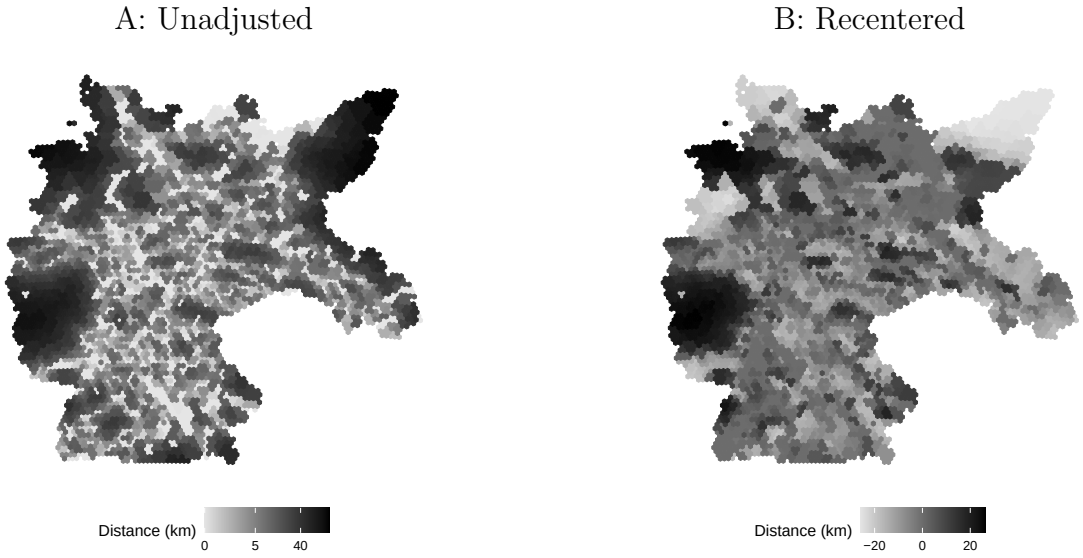
IV.C.1 Baseline Instrument

Our starting point is the concern that realized troop movements may reflect campaign strategy in ways correlated with later state outcomes, as discussed in Section IV.A. We therefore proceed in two steps. We first construct a baseline instrument based on least-cost troop movements. We then recenter this instrument to account for the fact that some towns were ex ante more likely than others to lie near major troop movements.

Our baseline instrument follows the logic of standard least-cost-path designs (Faber, 2014; Banerjee et al., 2020). For each campaign, defined as one leader-year, we identify the sequence of troop movements between fortified towns. We then replace each observed movement by the corresponding least-cost route between its origin and destination. For every town in our sample, we measure the distance to the nearest such least-cost troop movement and take its inverse hyperbolic sine. Figure IV, Panel A, shows the spatial distribution of this instrument. The instrument is relevant: the first-stage F statistic, computed on the estimation panel with standard errors clustered by constituency, is 48, indicating that realized troop movements closely tracked least-cost routes between strategic targets.[78] The exclusion restriction requires that distance to the nearest least-cost troop movement affects

[78] Appendix Figure A.8 shows, for the Swedish campaign of 1630–31, that the least-cost troop movements closely match our more finely coded movement data.

Figure IV: Campaign Distance Instrument (Unadjusted and Recentered)



Note This map shows the spatial distribution of the unadjusted instrument (Panel A), and the recentered instrument, which is obtained by subtracting from the realized instrument its expected value, computed from 1,000 simulations (Panel B). Appendix Figure A.9 shows the expected instrument. Details on the construction of the simulations are given in Section III.B and Appendix Section C.5.

state outcomes only through actual troop presence. We discuss this assumption below.

In Table II, Panel A, we estimate equation (1) using this instrument. The estimates have the same sign as in Table I and remain statistically significant at the 1% level. They are also larger in magnitude than the OLS estimates. We view this pattern through the lens of heterogeneous treatment effects. The instrument isolates variation from major troop movements, whereas our baseline measure also includes smaller troop presence events. Since wartime contributions were "levied on the basis of the effective [...] strength of troops" (Ritter, 1903; Redlich, 1959), larger armies should have had larger effects. Under the exclusion restriction, the IV coefficients also have a local-average-treatment-effect interpretation: they capture towns whose exposure depended on lying on the least-cost route of a major campaign. These were plausibly more peripheral towns, for which troop presence implied a larger increase in fiscal and military extraction than in already central places. Examples from the period are consistent with this interpretation. For the small town of Kitzingen, exposed to Gustavus Adolphus on his way between the fortified towns of Nuremberg and Erfurt, "wartime contributions constituted a 1,000% increase on peacetime tax burdens" (Wilson, 2018, p. 237). Likewise, Wallenstein's occupation terms in Farther Pomerania in 1627 generated more than five times annual pre-war tax revenue (Wilson,

Table II: Troop Presence and Absolutism (Instrumental Variable)

	Parliament Eliminated	Ruler Taxes	Military Notables
	(1)	(2)	(3)
Panel A: Unadjusted Instrument			
Troop Presence	0.4551***	0.2615***	0.5175***
	(0.169)	(0.087)	(0.107)
R^2	0.70	0.56	0.39
Panel B: Recentered Instrument			
Troop Presence	0.6582**	0.4484**	0.3500**
	(0.327)	(0.222)	(0.171)
R^2	0.70	0.56	0.39
Number of Observations	646,700	422,820	646,700
Number of Towns	2,230	1,458	2,230
Outcome Def.	(0/1)	(0/1)	(ihs)
Town FE	✓	✓	✓
Year FE	✓	✓	✓
Cluster	Constituency	Town	Town

Note This table presents results of estimating equation (1), using an instrumental variable based on the distance of a town to the closest campaign least-cost path (Panel A), or the recentered instrumental variable, which is obtained by subtracting from the realized instrument its expected value, computed from 1,000 simulations (Panel B). Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

2009).

IV.C.2 Recentered Instrument

The baseline instrument leaves open a further concern: measured "in-between-ness" need not itself be quasi-random. First, because the instrument is built from routes between fortified towns, it may partly reflect proximity to strategic destinations themselves. Second, towns near least-cost troop movements may simply have been more central in the overall geography of war.[79]

To address this issue in a unified way, we recenter the instrument using an ex ante distribution of plausible troop movements, following Borusyak and Hull (2023).[80] Intuitively, this discounts variation from towns that would have been close to (or far from) major troop

[79] A canonical approach in least-cost-path studies is to address this concern by conditioning on geographic controls (Faber, 2014). Our results are robust to including flexible controls (Appendix Table C.26).

[80] Appendix Section C.5 discusses our implementation of Borusyak and Hull (2023) in detail.

movements in almost any plausible scenario, and retains variation from towns whose exposure depended on contingent wartime decisions.

We construct this distribution from documented alternatives. Using the alternative troop movements described in Section III.B, we vary troop movements only at documented strategic junctures and only along confirmed alternatives from the historical record, treating the occurrence of campaigns themselves as given. The design thus conditions on campaigns occurring and permutes routes within them. This implements the within-cluster permutation of Borusyak and Hull (2023). This choice has two consequences. First, it increases demands on instrument relevance, since towns reached in every coded scenario do not contribute identifying variation. Second, validity requires that the distribution over the documented alternatives be correctly specified. If commanders weighed routes missing from the record at a coded juncture, or weighed the coded routes unequally, the expected instrument is computed under an incorrect distribution and the recentered instrument might retain a component predictable from town characteristics. Validity then rests on coded routes encompassing the relevant feasible continuations, on the routes being correctly weighted, and on route choices within campaigns being unrelated to the potential outcomes of towns. The balance tests below, the robustness to broader alternative sets, and the sensitivity to non-uniform route probabilities in Appendix Section C.7 probe specific departures from these conditions. While the conditions themselves are ultimately untestable, these checks, together with the matched comparisons on documented-but-unrealized paths (Appendix Table C.29), are consistent with them.[81]

Implementation is by simulation. For each movement, a scenario follows either the realized route or one of the documented alternative routes. We combine these choices across movements into 1,000 campaign scenarios, recompute the instrument in each, and average across scenarios to obtain the expected instrument. Recentering subtracts this expected instrument from the realized one.[82] Figure IV, Panel B, shows the resulting recentered

[81] A possible asymmetry is that realized paths can include mid-campaign adjustments, whereas coded alternatives fix the documented destination. If similar adjustments would have occurred under the alternative, expected exposure is noisy. This changes which towns receive complier weight, but not the design unless such adjustments sort towns by potential institutional outcomes conditional on expected exposure. The balance and robustness exercises in Appendix Section C.7 address this narrower concern using observable characteristics.

[82] This permutation-based approach follows Section 4 of Borusyak and Hull (2023).

instrument.[83]

An example illustrates the logic. Frankfurt (Oder) and Würzburg, shown in Figure I, both lie on a realized troop movement and therefore have an unadjusted instrument value of zero. Frankfurt (Oder), however, was a central node for movements from the Baltic coast into the Empire and is reached in all coded scenarios. Here, the restriction on the alternative set matters: there were likely broader wartime scenarios in which Frankfurt would not have been reached by troops, but in our restrictive set of coded scenarios, its recentered instrument is zero. Würzburg was less central and is not reached in all coded scenarios; its expected instrument is therefore six kilometers larger than its realized value.

In Table II, Panel B, we estimate equation (1) using the recentered instrument. The coefficients remain similar in sign and statistical significance to those in Panel A, supporting the interpretation that troop presence affected taxation, militarization, and parliament elimination. The recentered instrument remains a relevant predictor of troop presence, with a first-stage F statistic of 13; the reduction relative to the unadjusted instrument is expected, since recentering discards the component of exposure predictable from the ex ante distribution of routes. By construction, the recentered instrument places more weight on towns whose exposure was more contingent across the coded troop movements, that is, on "compliers." The larger coefficients for taxation and parliament elimination therefore suggest stronger effects among these towns.[84] In Appendix Section C.7, we provide evidence on how the set of compliers responds to broadening the alternative set. We do so by considering broader but still plausible alternatives, such as campaigns targeting neighboring fortified towns or peace negotiations succeeding before 1648. We then show that the set of compliers uniformly expands when these additional contingencies are allowed. Our results are also robust to using the alternative troop movements to construct propensity scores directly for our main OLS specification (Appendix Table C.30).

[83]Recentering can move the instrument in either direction: some towns were exposed more than expected, while others were exposed less than expected relative to the simulated scenarios.

[84]The recentered estimates are imprecise, and their 95 percent confidence intervals contain the OLS estimates; we therefore read them as evidence on the sign of the effect, not its size. Given the limitations of early modern data, misclassification of troop exposure may also contribute to the difference from the OLS estimates.

V Mechanism

Local troop presence may have weakened executive constraints through multiple channels. The shock increased local resource demands, but it also brought armed actors into towns. Troops could therefore weaken local institutions directly through violence or indirectly by raising the value of centralized provisioning. These mechanisms are not mutually exclusive, and both may have operated in practice.[85] For a parsimonious analysis, we focus on the channel most prominent in the historical record of the Thirty Years' War.

The historical evidence in Section II points to ruler organization of provisioning as the central channel. Military authorities increasingly relied on negotiated contributions backed by coercion rather than on battle alone. "The pressure exerted by the ability to sustain armies year after year could break the will and capacity of the enemy more surely than the chance of battle" (Parrott, 2011). Because towns were often unable to resolve the resulting provisioning crisis on their own, they relied on rulers to organize and secure supply. Historical accounts accordingly identify the bureaucracy created for wartime provisioning as a central instrument in the construction of the absolutist military state (Hintze, 1910; Redlich, 1959).

Section V.A formalizes this mechanism in a two-period framework. Sections V.B–V.C evaluate the empirical implications of the framework as well as the alternative channel of direct violent weakening of representative institutions. In Section V.D, we examine the role of local elites in the entrenchment of absolutism; Section V.E concludes with an analysis of absolutism in the long run.

V.A Framework

We develop a framework of crisis governance motivated by the historical evidence in Section II. In the framework, a crisis arises when (i) a resource requirement exceeds local capacity and (ii) failure to meet it poses an existential threat. Whether the crisis leads to delegation then depends on the contracting environment: future compensation for externally supplied resources is imperfectly enforceable. Appendix Section B.2 presents additional historical case studies that support the core assumptions of the framework. Appendix Section D.1 provides formal proofs, and Appendix Section D.2 extends the analysis to

[85] A set of recent contributions centers on isolating 'demand-side' (coordination-based) from 'supply-side' sources of state capacity; see, for example, Besley (2020), Allen et al. (2023), and Caprettini and Voth (2023).

incorporate the role of elites in supporting regime change.

Framework Set-Up

Players and timing. The framework has two agents: a Town, T, and a Ruler, R. Time runs for two periods, $t \in \{1, 2\}$. Both agents are risk-neutral and do not discount the future. In each period, agent $j \in \{T, R\}$ receives income $Y_{j,t} = 1$.

Crisis and Regimes. In period $t = 1$, the Town faces an exogenous shock of size $d > 1$: it must provision troops passing through the town. The shock must be met in full in period 1. If the shock is met, the Town survives and produces $Y_{T,2} = 1$ in period 2. If the shock is not met, the Town is destroyed: all period-1 income is lost, period-2 income is not realized, and the Town's continuation payoff is zero. The crisis can be managed under one of two regimes. Under *Separation*, the Town retains administrative autonomy. Under *Delegation*, the Town cedes administrative control to the Ruler.[86]

Regime 1: Separation

Under Separation, the Town finances the crisis through external lenders.[87] Doing so requires a fixed town cost $\kappa_T \geq 0$. The period-1 requirement is the shock plus this cost, $d + \kappa_T$. The Town contributes its full period-1 income, $Y_{T,1} = 1$, and borrows the remainder, $b \equiv d + \kappa_T - 1$. The Town promises repayment r in period $t = 2$. Enforcement is imperfect: with probability $\pi \in (0, 1]$, repayment is enforced and lenders receive r; with probability $1 - \pi$, the Town defaults and lenders receive 0.

Regime 2: Delegation

Alternatively, the Town may delegate administration to the Ruler, ceding key elements of local tax capacity, such as tax registers and collection infrastructure. Because the Ruler then collects period-2 revenue directly, his claim does not depend on the Town's imperfectly enforceable promise.[88]

In period $t = 1$, the Town again contributes $Y_{T,1} = 1$. The Ruler finances the remaining requirement, the shock shortfall plus his fixed cost, $(d - 1) + \kappa_R$, where $\kappa_R \geq 0$.

[86] Local administrative autonomy and parliamentary participation tended to move together, as discussed in Section II. Parliament therefore enters the model through administrative separation rather than a separate communication margin. Similarly, in Angelucci et al. (2024), parliamentary communication occurs if and only if towns remain administratively separate.

[87] Separation should be read as collective provisioning through channels other than the Ruler.

[88] This logic is closely related to the incomplete-contracts view of ownership as an allocation of residual control rights. For the broader argument that commitment problems prevent efficient political bargains and can strengthen the executive, see also Acemoglu (2003), Maskin and Tirole (2004), and Aghion et al. (2004).

In period $t = 2$, the Ruler uses administrative control to extract revenue from the Town. Total extraction is $\kappa_R + \tau$, where κ_R compensates the Ruler for the fixed cost and τ captures the additional revenue the Ruler can maximally seize using ceded local tax capacity.[89]

Equilibrium

The Town chooses the regime that maximizes expected consumption subject to feasibility and participation constraints.

Separation. To borrow b, the Town must promise repayment $r = (d+\kappa_T-1)/\pi$.[90] Separation is feasible if and only if promised repayment can be paid from period-2 income, $r \leq Y_{T,2} = 1$:

$$\pi \geq d + \kappa_T - 1. \tag{3}$$

If (3) holds, the Town finances the crisis under Separation at expected cost $b = d + \kappa_T - 1$. If (3) fails, Separation is infeasible and, absent Delegation, the Town is destroyed.

Delegation. Delegation requires ruler feasibility and participation by both agents. Ruler feasibility requires that the Ruler can finance the intervention from period-1 income $Y_{R,1} = 1$, so that $(d-1) + \kappa_R \leq 1$, or equivalently $d + \kappa_R \leq 2$. Ruler participation requires that the period-2 net transfer covers the period-1 shock shortfall, $\tau \geq d - 1$.

Town participation depends on the Town's outside option. If Separation is feasible, the outside option is independent crisis finance under Separation. In this case, the Town strictly prefers Delegation when

$$\kappa_R + \tau < d + \kappa_T - 1. \tag{4}$$

If Separation is infeasible, the outside option is Destruction. In this case, the Town accepts Delegation if and only if it retains non-negative period-2 consumption:

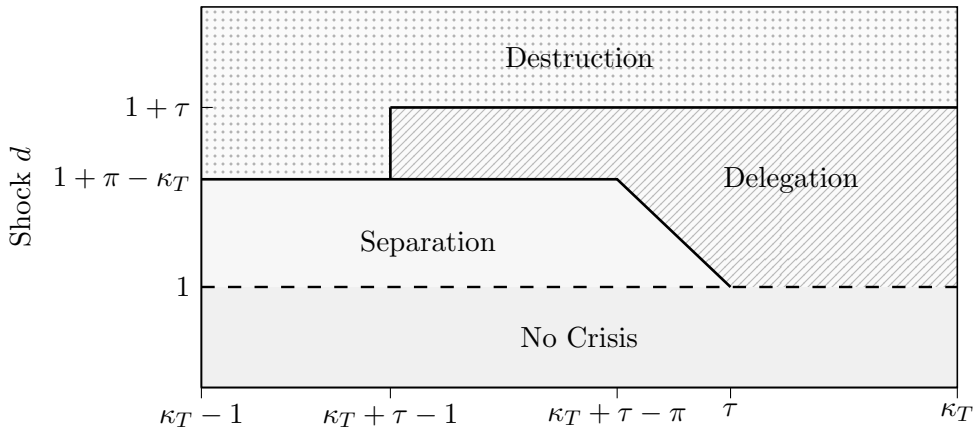
$$\kappa_R + \tau \leq 1. \tag{5}$$

Comparative statics. Delegation is implementable only if the Ruler can finance the intervention, $d + \kappa_R \leq 2$, and is willing to participate, $\tau \geq d - 1$. When these constraints fail and Separation is infeasible, the Town is destroyed.

[89] Empirically, τ corresponds to the absolutist inputs into fiscal and military capacity described in Section III.

[90] Lenders are risk-neutral and competitive, so the zero-profit condition is $\pi r = b$. Allowing lenders to charge a markup strengthens the case for Delegation.

Figure V: Framework



Note The figure shows institutional outcomes as the shock d and the ruler coordination advantage $\kappa \equiv \kappa_T - \kappa_R$ vary. The vertical axis is d. The horizontal axis is κ, ranging from $\kappa_T - 1$, where $\kappa_R = 1$, to κ_T, where $\kappa_R = 0$. If $d \leq 1$, no crisis occurs. Parameters are $\kappa_T = 0.55$, $\pi = 0.7$, and $\tau = 0.25$; proofs are in Appendix Section D.1.

We define the ruler coordination advantage as $\kappa \equiv \kappa_T - \kappa_R$, the amount by which addressing the crisis is cheaper through ruler administration than through town administration.

Figure V plots the resulting outcome regions as the shock d and the ruler coordination advantage κ vary. The vertical axis is d. The horizontal axis is κ, ranging from $\kappa_T - 1$, where $\kappa_R = 1$, to κ_T, where $\kappa_R = 0$. The figure fixes $\pi = 0.7$, $\tau = 0.25$, and $\kappa_T = 0.55$.[91]

Three comparative statics follow. First, an increase in the shock d moves the Town weakly away from Separation. A larger shock tightens the feasibility condition for Separation, (3). When Separation remains feasible, a larger shock also increases the cost of Separation relative to Delegation by (4). Once Separation is infeasible, the outcome is Delegation if Delegation remains implementable and acceptable, and Destruction otherwise.

Second, an increase in the ruler coordination advantage κ makes Delegation weakly more likely. A higher κ means a lower ruler cost κ_R holding κ_T fixed. This lowers total extraction under Delegation, making Delegation more attractive when Separation is feasible and more likely to preserve the Town when Separation is infeasible. Thus a higher κ weakly shrinks

[91] Appendix Section D.1 shows that the Delegation region can be partitioned into a voluntary subregion, where Separation is feasible but the Town strictly prefers Delegation, and a forced subregion, where Separation is infeasible and the Town accepts Delegation as the only alternative to Destruction.

the Destruction region.

Third, an increase in enforcement probability π expands the Separation region and weakly shrinks the Destruction region. Better enforcement relaxes the financing constraint under Separation, (3), thereby reducing the set of cases in which the Town must rely on Delegation to avoid Destruction.

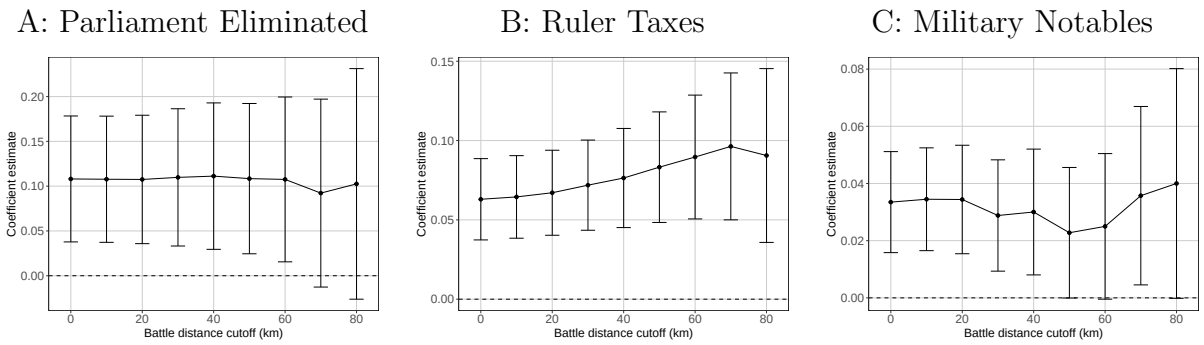
In our setting, troop presence maps directly into this notion of crisis. First, troop presence generated a large, localized resource demand. Early modern armies depended on local provisioning, so troop entry immediately created financing needs. Second, troop presence posed an existential threat: if demands were unmet, resources could be seized by force, including through plunder. These demands also arose under weak enforcement. They were often sudden and unprecedented, while compensation across towns and over time was difficult to enforce. Under these conditions, Delegation can become optimal.

The evidence in Section IV is consistent with the first comparative static of the framework: local troop presence increased the likelihood of Delegation, weakening parliaments and expanding ruler administration. We test the second and third by constructing empirical proxies for the underlying concepts from the historical record.

The second comparative static concerns the ruler coordination advantage. Section II suggests that this advantage in provisioning troops primarily rested on repeated interaction between armies and ruler administration. The advantage was smaller when the troops present did not belong to the ruler's military coalition, since army and ruler then expected fewer repeated dealings and had weaker reason to sustain cooperative provisioning. We therefore code a binary indicator for whether the troops present fell outside the ruler's military coalition, and use this coalition mismatch as a proxy for a low ruler coordination advantage.

The third comparative static concerns the enforceability of future compensation. Section II points to town-level institutions that helped towns commit to and recover from wartime obligations: access to the Imperial High Court, which enforced contracts and restrained arbitrary levies, and membership in city leagues, which provided wartime credit. We proxy stronger enforceability by Imperial High Court access and city league membership.

Figure VI: Troop Presence and Absolutism (Battle Distance)



Note This figure plots the estimated coefficient on troop presence (Troop Presence × Post-1618) from re-estimating the baseline specification in equation (1) on samples that progressively exclude towns within the battle-distance cutoff shown on the horizontal axis (0 to 80 kilometers), with 95 percent confidence intervals. Observations are at the town-year level; the number of towns falls with the cutoff, to roughly one quarter of the sample at 80 kilometers. The dependent variables are (A) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (B) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (C) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency level (A) or at the town level (B–C).

V.B Provisioning and Executive Capacity

We test two further implications of the framework. First, if the baseline effects reflect crisis delegation and not only direct coercion, they should persist where wartime violence was less immediate. Second, where the ruler's coordination advantage was limited, destructive outcomes should be more likely and Delegation less likely. We proxy for exposure to direct coercion using distance to major battles and the occurrence of annexations. We proxy for a low ruler coordination advantage by whether the troops present in a town did not belong to the ruler's broader military coalition.

We first classify each town by its distance to the nearest major battle of the Thirty Years' War. We then re-estimate equation (1) on increasingly restrictive subsamples that exclude towns near major battles. Specifically, we exclude, in turn, towns within 10, 20, . . . , 80 kilometers of the nearest battle. This restriction is substantial: at the most stringent threshold, the estimation sample falls to roughly one quarter of its original size, and the nearest battle was approximately four days' march away. Figure VI reports the results. The estimated coefficients remain stable in magnitude throughout. These patterns suggest that the baseline effects did not primarily result from battle-related destruction, although excluding towns near battles also removes some of the most heavily exposed towns.[92]

[92] If war operated primarily by worsening local economic conditions, the estimated effects should attenuate as towns near battles are excluded.

In Appendix Table A.6, we exclude all towns where the war led to a change of ruler. The estimates are again quantitatively similar.

We next ask whether troop presence had larger effects when it was easier to provision through ruler administration. A central feature of the contributions system was the expectation of repeated interaction between armies and rulers. Such interaction facilitated cooperative arrangements, but these arrangements required fixed-cost investments by both sides: rulers appointed commissars to serve as a civilian–military nexus, while troops negotiated with these officials and drew up formal demand lists. As discussed in Section II, troops both inside and outside the ruler's military coalition relied on the contributions system. Provisioning frictions, however, were lower when exposed troops belonged to the ruler's coalition, because armies and rulers could expect more repeated interaction and had stronger incentives to sustain cooperative arrangements.

We proxy for these provisioning frictions using whether exposed troops did not belong to the ruler's military coalition. Military coalition mismatch indicates weaker scope for cooperative provisioning between the ruler and the troops present in a town.

We investigate two implications. First, conditional on troop presence, destruction should be more likely under military coalition mismatch. When ruler–army cooperation is more difficult, troop presence is more likely to result in plunder. To assess this implication, we construct four measures of destruction in a sample of troop-presence events and estimate the relationship between military coalition mismatch and these outcomes. We capture losses of capital and labor: indicators for capital destruction and violence against civilians recorded in the German Town Book (*Deutsches Städtebuch*), and proxies for low life expectancy and wartime out-migration based on Church records. Appendix Table A.7 shows that all four outcomes are more likely under military coalition mismatch.[93]

Second, the main effects of troop presence should be weaker where ruler–army cooperation was more difficult and scope for delegation was more limited. Empirically, we augment equation (1) with an interaction between troop presence and military coalition mismatch. Table III reports the results. The interaction coefficient is negative, statistically significant,

[93]Exposure to wartime violence could also have induced informal local organization (Lowes and Montero, 2021). In this context, we focus on formal institutions. The historical record documents both organization and dispersal: peasants ambushed small detachments and stragglers, and the citizens of Kronach repelled a Swedish assault in 1632, but such resistance often met with severe reprisals and the associated cost to social cohesion (Wilson, 2010, pp. 224, 229).

Table III: Troop Presence and Military Coalition Mismatch

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1374***	0.0775***	0.0546***
	(0.0369)	(0.0159)	(0.0127)
Troop Presence × Coalition Mismatch	-0.0791**	-0.0417*	-0.0561***
	(0.0363)	(0.0233)	(0.0143)
R^2	0.70	0.56	0.39
Observations	644,670	421,080	644,670
Town Units	2,223	1,452	2,223
Outcome Mean	0.29	0.07	0.04
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), augmented with an interaction between troop presence and Coalition Mismatch, defined as whether exposed troops were outside the ruler's military coalition. Exposed towns for which the coalition of the troops is not recorded are excluded. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

and economically sizable across all three outcomes, consistent with troop presence having weaker effects under military coalition mismatch.[94] Effects are also weaker for towns first exposed late in the war, when the provisioning system had deteriorated (Appendix Table A.9).

The military-coalition membership of exposed troops is not quasi-random, so we read the interaction as descriptive rather than causal. The results in this subsection are nonetheless consistent with a provisioning-based mechanism in the expansion of executive capacity, operating under a credible threat of violence.

V.C Contracting Environment and Parliamentary Survival

We next test an implication of the framework for the Separation channel. The framework implies that towns facing weaker contracting frictions, for example due to stronger pre-existing institutions, should have been better able to preserve administrative separation.

[94]The results are robust to excluding troop presence events involving armies operating in their domestic territories (Appendix Table A.8), which is less readily explained by strategic targeting of armies to weaken towns.

To proxy for contracting frictions, we use two town-level measures of pre-war contracting capacity and examine heterogeneity in the parliament elimination outcome among treated towns. First, we use Imperial High Court access, which records whether a town litigated before the Imperial High Court in the two decades before 1618. As discussed in Section II, these courts played a central role in contract enforcement and wartime borrowing, serving as a "brake on princely absolutism" (Press, 1994).[95] Second, we use city league membership, which captures whether a town belonged to a city league that could provide access to credit during the war. We then re-estimate equation (1), fully interacting troop presence with these indicators and controlling for the pre-war town characteristics of Appendix Table C.19, interacted with $Post1618_t$.

Table IV reports the results. Towns with Imperial High Court access were significantly less likely to have their parliament eliminated, with the interaction in column 1 offsetting more than half of the baseline coefficient. In column 2, the baseline coefficient is likewise attenuated for towns with city league membership. Column 3 shows that both attenuation patterns remain when the interactions are included jointly.

These interactions, too, are descriptive rather than causal: Imperial High Court access and city league membership were not randomly assigned.[96] Taken together, however, the results suggest that town-level institutions mitigated the impact of troop presence during the Thirty Years' War.

V.D The Consolidation of Absolutism

Finally, we examine how rulers implemented and sustained absolutism at the local level. Our baseline framework abstracts from the problem of projecting ruler authority into towns. In practice, however, early modern technological and administrative constraints

[95] An important nuance is that these courts plausibly relaxed both sides of the dual commitment problem: they not only helped towns credibly commit to repayment, but also constrained lenders and rulers from overstating their post-war claims. For example, "the Counts of Isenburg, Oettingen, Reuß, Schlitz-Görtz, and numerous other territorial princes were unequivocally instructed by the Imperial High Court not to levy taxes arbitrarily" (Bahlcke, 2012, p. 49). In Hesse-Darmstadt, monthly ruler taxes were rolled back after several towns petitioned the Imperial High Court in 1647, objecting that the Estates were "assessed for taxation and forbidden to meet on their own initiative" (Francis Ludwig Carsten, 1959, p. 160).

[96] In Appendix Figure A.11, we identify the variables that predict Imperial High Court access (Panel A) and city league membership (Panel B). The correlations suggest that both measures are linked to easier geographic access and stronger commercial integration. We then re-estimate Table IV in samples constructed by nearest-neighbor matching on these predictors for Imperial High Court access and city league membership in Appendix Table A.11. The results are qualitatively similar.

Table IV: Troop Presence, Parliament Elimination, and Contracting

	Parliament Eliminated		
	(1)	(2)	(3)
Troop Presence	0.1482***	0.1191***	0.1538***
	(0.0448)	(0.0369)	(0.0454)
Troop Presence × Imperial High Court Access	-0.0820**		-0.0742**
	(0.0369)		(0.0370)
Troop Presence × City League Membership		-0.1143***	-0.0946**
		(0.0434)	(0.0444)
R^2	0.72	0.72	0.72
Observations	646,700	646,700	646,700
Number of Towns	2,230	2,230	2,230
Outcome Mean	0.2941	0.2941	0.2941
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓
Controls	✓	✓	✓
Cluster	Constituency	Constituency	Constituency

Note This table presents estimates of equation (1) augmented with interactions between troop presence and two proxies for pre-war contracting capacity. The contracting measures are defined as (i) Imperial High Court Access, an indicator for whether the town was involved in a case before the Imperial High Court during 1600–1618; and (ii) City League Membership, an indicator for whether the town was a member of a city league during 1600–1618. All columns control for the pre-war town characteristics listed in Appendix Table C.19, interacted with Post-1618. The sample comprises 290 years. The dependent variable is Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward. Standard errors are clustered at the constituency level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

forced rulers to rely on local cooperation. As discussed in Section II, historical accounts point to the landed nobility as the central intermediaries in this process. In Appendix Section D.2, we present an extension of the baseline framework in which the ruler and the landed nobility must collaborate. Through the lens of this framework, the problem of local implementation becomes a problem of elite collaboration: rulers must secure elite cooperation by credibly offering compensation. A key implication is that rulers have strong incentives to sustain this cooperation by making the absolutist bargain attractive, for instance by rendering "administrative and military appointments increasingly attractive to the local nobles" (Wilson, 2009, p. 359).

Section II further suggests that these "spoils of absolutism" took both material and symbolic forms. We evaluate these mechanisms empirically. We re-estimate equation (1) with four outcomes: ruler appointments, noble state service, militaristic prints, and ruler and court portraits. Appendix Section B.3 provides illustrative examples from our data. Table V presents the results. Troop presence is significantly associated with all four outcomes.

Table V: Troop Presence and the Consolidation of Absolutism

	Career Incentives		Ideology and Prestige	
	Ruler Appointments	Noble State Service	Militaristic Prints	Ruler and Court Portraits
	(1)	(2)	(3)	(4)
Troop Presence	0.0600***	0.0312***	0.0540***	0.0347***
	(0.0150)	(0.0105)	(0.0181)	(0.0131)
R^2	0.61	0.58	0.57	0.51
Observations	646,700	646,700	646,700	646,700
Town Units	2,230	2,230	2,230	2,230
Outcome Mean	0.14	0.09	0.05	0.02
Outcome Def.	(ihs)	(ihs)	(ihs)	(ihs)
Standard errors	Town	Town	Town	Town
Town FEs	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓

Note This table presents results of estimating equation (1). Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Ruler Appointments, the inverse hyperbolic sine of the number of ruler appointments and related infringements of local institutions in town i and year t, (2) Noble State Service, the inverse hyperbolic sine of the number of nobles from town i in year t who held court or military positions, (3) Militaristic Prints, the inverse hyperbolic sine of the number of ruler prints with militaristic titles from town i and year t, and (4) Ruler and Court Portraits, the inverse hyperbolic sine of the number of ruler and court portraits from town i and year t. Standard errors are clustered at the town level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Appendix Figure A.12 shows that these effects emerged immediately and were not led by pre-trends.[97]

V.E Absolutism in the Long Run

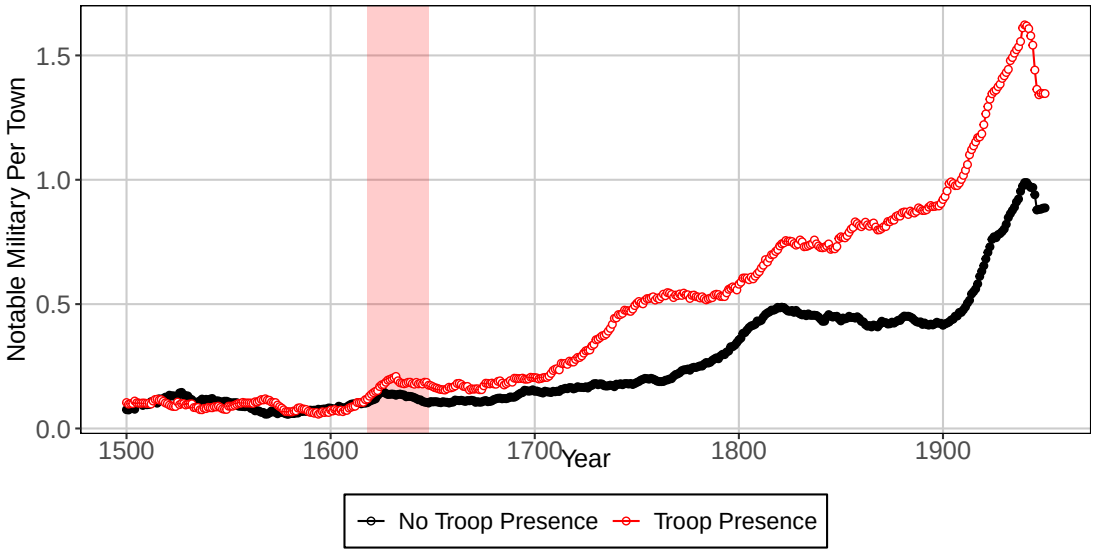
Our results indicate that troop presence shifted treated towns to a new institutional equilibrium that endured for centuries. This entailed the penetration of military actors into political, fiscal, and social life: a "fusion of civil and military authority" and an "excessive militarization of social life" (Rosenberg, 1958). To document the long-run persistence of this equilibrium, we first revisit our data on military biographies from the GND, which provides consistent coverage up to 1950. For each town and year, we count the active military notables linked to the town, those alive and over the age of 25.

Figure VII compares treated and untreated towns. Prior to 1618, both groups followed a similar trajectory. After the war, militarization in treated towns increased, and these towns produced a disproportionate share of military notables into the twentieth century.

We further explore the implication of this long-run militarization in a cross-section of

[97] In Appendix Table A.10, we explore the same heterogeneity for these outcomes and again find larger effects when exposed troops belonged to the ruler's military coalition.

Figure VII: Troop Presence and Long-Run Militarization



Note The plot shows the average number of military notables as coded from the GND from 1500 to 1950, separately for treated and untreated towns. Details on the construction of the data are given in Section III.

towns around 1900. We estimate

$$Absolutism_i = \beta Treated_i + X_i'\gamma + \varepsilon_i, \tag{6}$$

where $Absolutism_i$ denotes three outcomes: military notables in 1918, military share in 1907, and below-median life expectancy over the 1815–1910 period. X bundles all pre-1618 geographic and economic covariates, and we cluster standard errors at the parliamentary constituency level. Table VI shows results: treated towns had more military notables, a higher military share, and lower life expectancy.[98]

VI Conclusion

We document the local rise of absolutism in towns exposed to troop presence during the Thirty Years' War (1618–48), the largest conflict in pre-modern Europe. Using planned troop movements from secret military communications, we estimate how town-level troop presence expanded ruler-controlled fiscal and military capacity while weakening parliaments. Our findings suggest that the local fiscal and organizational crisis created by troop presence shifted authority toward the executive, but that legal and collective institutions constrained

[98] Appendix Table A.12 shows that these results hold when using an instrumental variable based on the distance of a town to the closest campaign least-cost path.

Table VI: Troop Presence and Militarization Around 1900

	Military Presence		Demographic Impact
	Military Notables	Military Share (%)	Low Life Exp.
	(1)	(2)	(3)
Troop Presence	0.0822***	0.4588***	0.0680**
	(0.0278)	(0.1683)	(0.0269)
Observations	2,230	2,230	1,768
R^2	0.05	0.05	0.02
Outcome Def.	(ihs)	(cont.)	(0/1)
Outcome Mean	0.31	1.45	0.51
Controls	✓	✓	✓
Standard Errors	Constituency	Constituency	Constituency

Note This table presents results of estimating equation (6). All columns control for the pre-war town characteristics listed in Appendix Table C.19. The dependent variables are Military Notables in 1918, the inverse hyperbolic sine of military notables linked to town i; Military Share in 1907, the share of military personnel in the working population; and Life Exp. < Median over the 1815–1910 period, an indicator for whether town-level life expectancy was below the sample median. Standard errors are indicated in the table. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

this drift.

More broadly, these results point to a dynamic trade-off in the concentration of executive power during states of emergency (Hobbes, 1651; Tocqueville, 1835; Djankov et al., 2003). When a crisis raises the value of centralized provisioning, societies may delegate authority to the executive in ways that are difficult to reverse once the emergency has passed. In our setting, this dynamic permanently reallocated capacity within the state, with lasting consequences for political participation, taxation, and militarization.

This pattern also helps place our findings in a longer genealogy of exceptional rule. As wartime commissarial and administrative powers outlived the emergencies that had produced them, they formed a sphere of executive authority that operated alongside, and partly against, inherited legal and representative institutions. In this respect, our evidence is consistent with Fraenkel (1941), who treated absolutism and National Socialism as paradigmatic cases of a "dual state," in which a prerogative apparatus, justified by necessity and organized around executive command, persists within the shell of an older normative order.

The Thirty Years' War was a critical juncture in the political development of German-speaking Europe. It marked a turning point in militarization and in the consolidation of executive power, and facilitated a political culture that increasingly valued command and

loyalty over openness and deliberation. Historians have argued that this legacy hindered the later adoption of liberal-democratic norms and ultimately generated a major threat to global stability in the twentieth century (F. L. Carsten, 1954; Rosenberg, 1958). War changes not only how much state capacity a polity has, but also who controls it.

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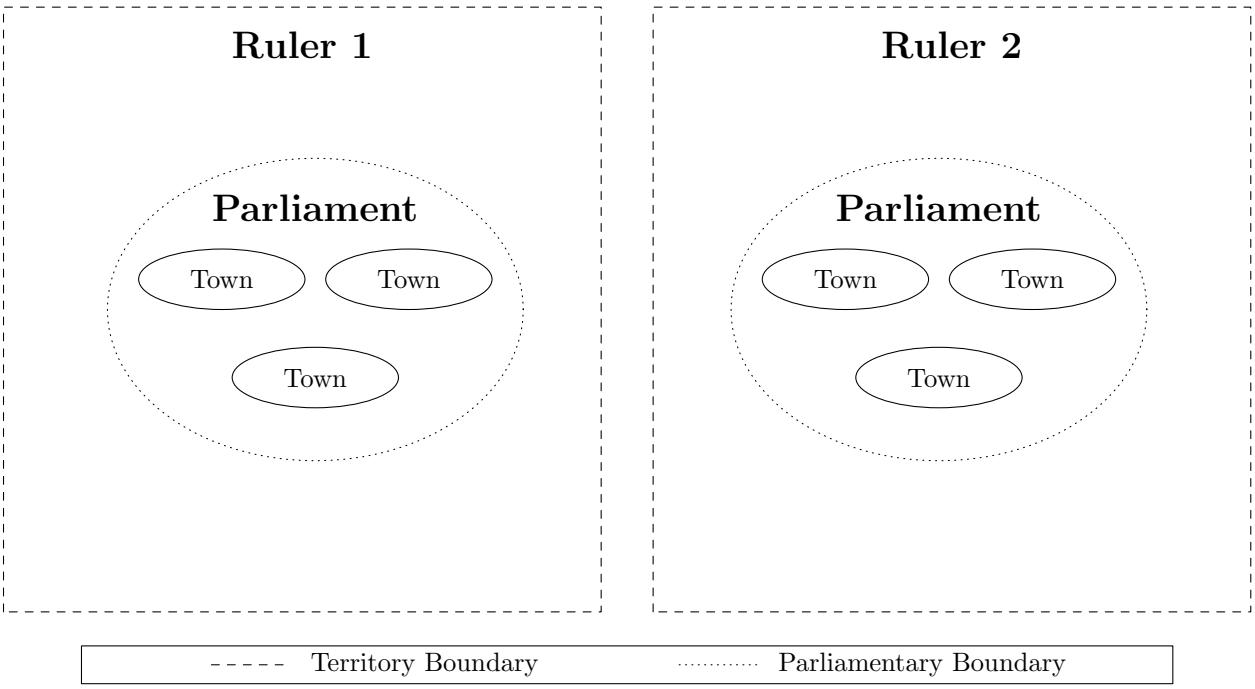
Supplementary Appendix: For Online Publication

A Tables and Figures

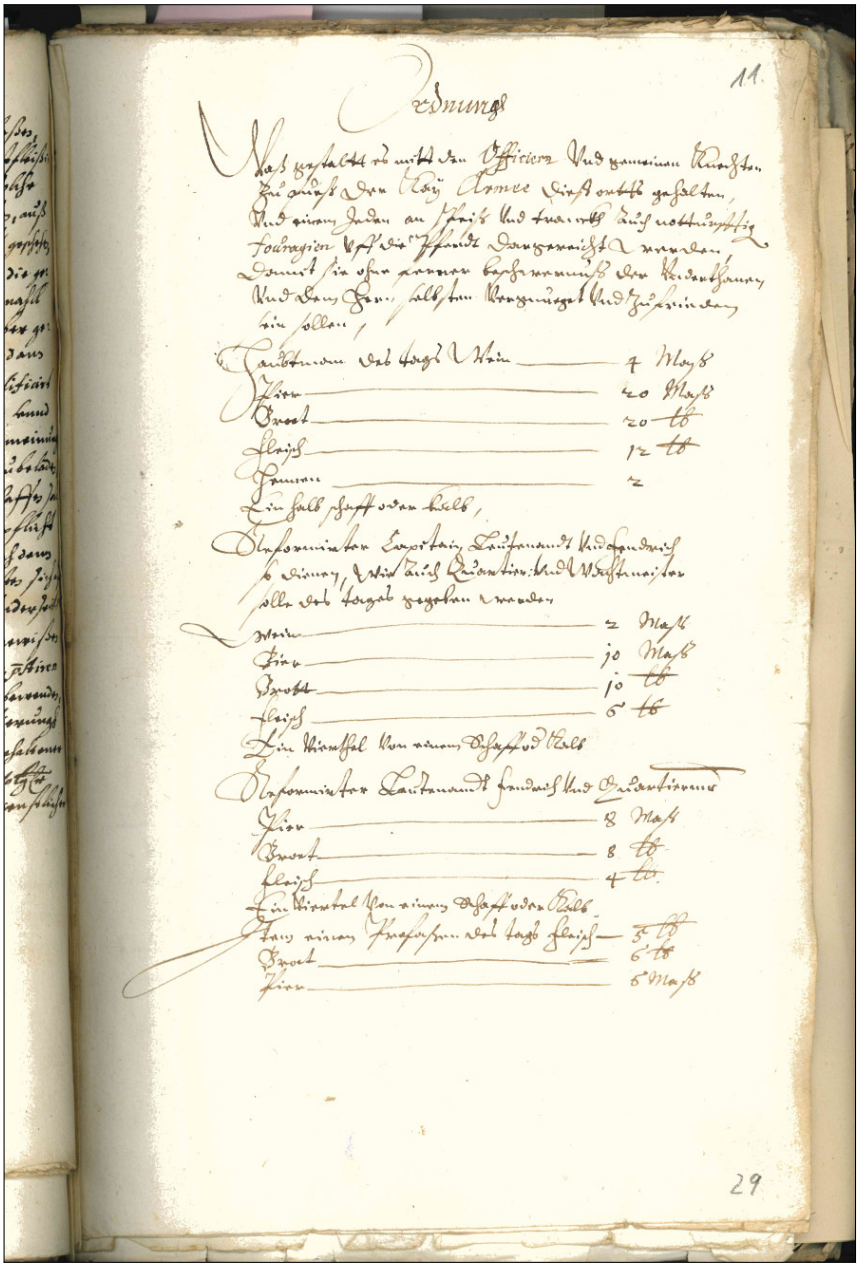
A.1 Figures

Figure A.1: Stylized Parliamentary Rule Structure



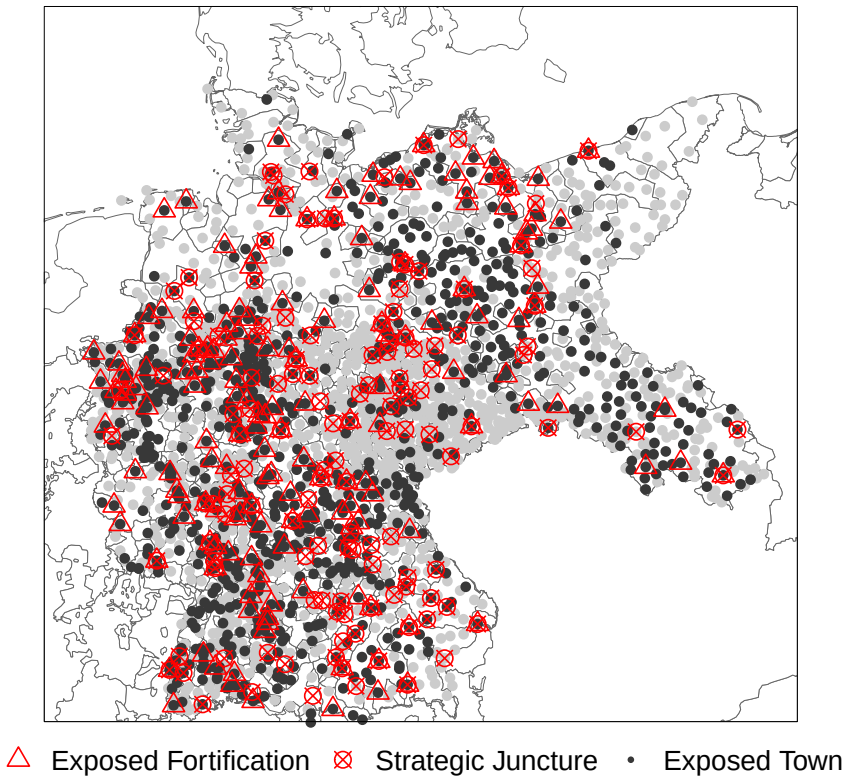
Note This plot shows a stylized overview of the structure of parliamentary rule. Towns belong to parliamentary constituencies. A ruler rules over the parliamentary constituency.

Figure A.2: Supply Ordinance for the Town of Coesfeld, 1623



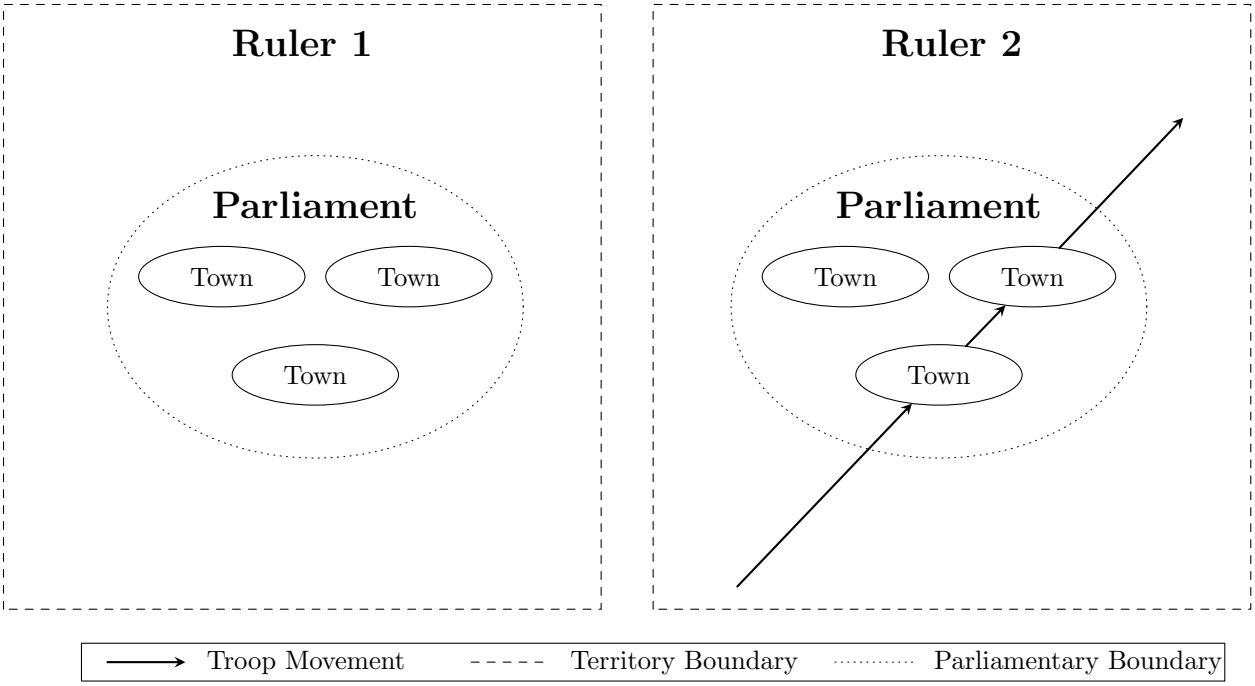
Note Example page of Tilly's supply ordinance for the town of Coesfeld in the Bishopric of Münster, 1623. The ordinance specifies daily provisions by rank: a captain received four measures (*Maß*; approximately four liters) of wine, 20 *Maß* of beer, 20 pounds of bread, 12 pounds of meat, two hens, and half a sheep or calf per day; a lieutenant, cadet, or quartermaster received eight *Maß* of beer, eight pounds of bread, four pounds of meat, and a quarter of a sheep or calf; and a servant "in the draft" received two pounds of meat, three pounds of bread, and three *Maß* of beer per day. Horses received hay and straw, plus a bushel of oats every three days. The town also supplied firewood, candles, and salt free of charge.

Figure A.3: Troop Presence in Towns



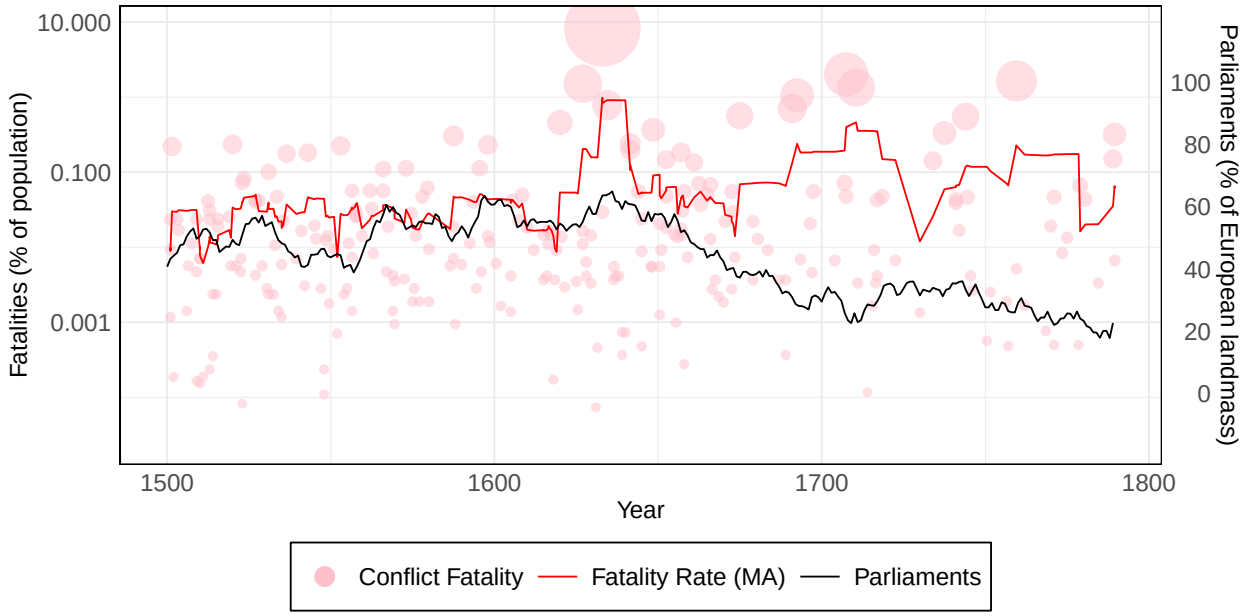
Note This map illustrates the troop presence data. Each point is the location of a town in our data. Highlighted points are towns that have an associated troop presence event. The base map shows parliamentary constituencies in the Holy Roman Empire.

Figure A.4: Stylized Parliamentary Rule Structure and Troop Movements



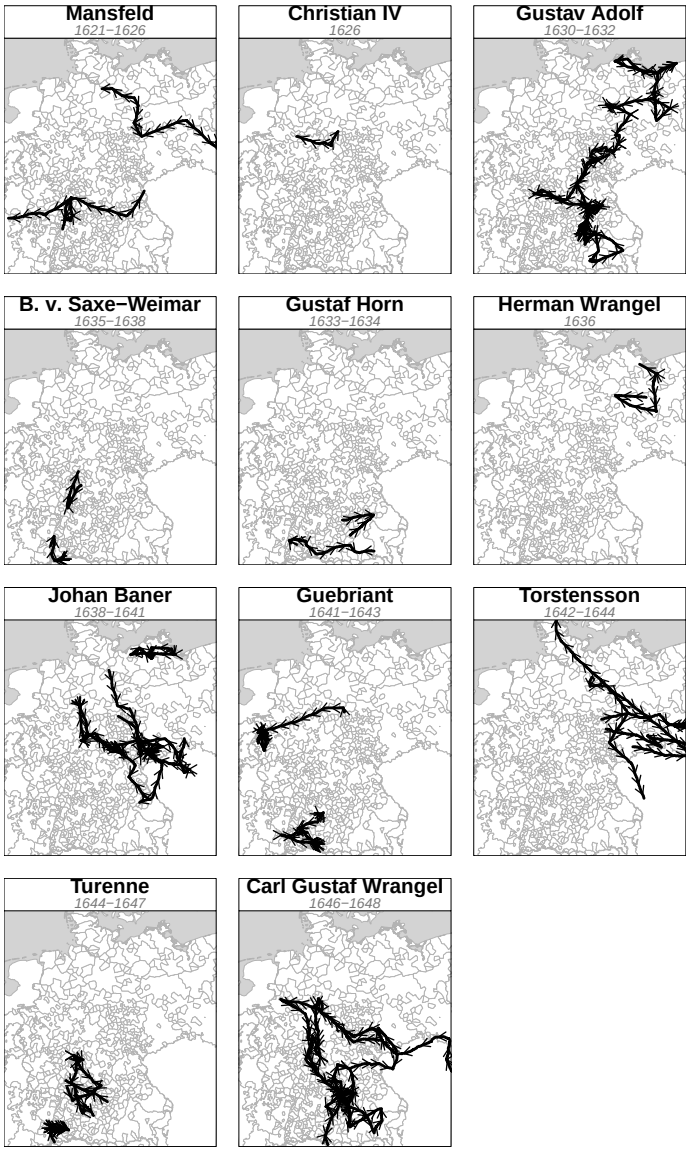
Note This plot adds a stylized troop movement to Appendix Figure A.1.

Figure A.5: War and Absolutism Across Europe



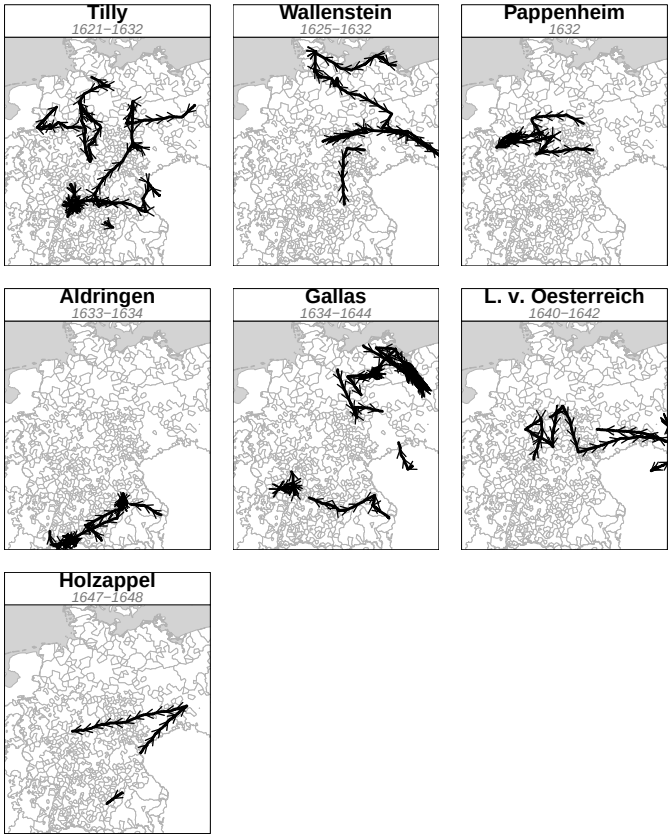
Note This figure plots the joint evolution of parliamentary governance and war, 1500–1800. The right y-axis reports the share of European land area governed by parliaments (Abramson and Boix, 2019). The left y-axis reports average conflict-related deaths per 1,000 world population per decade (Brecke, 1999).

Figure A.6: Major Campaign Paths of Anti-Habsburg Military Leaders



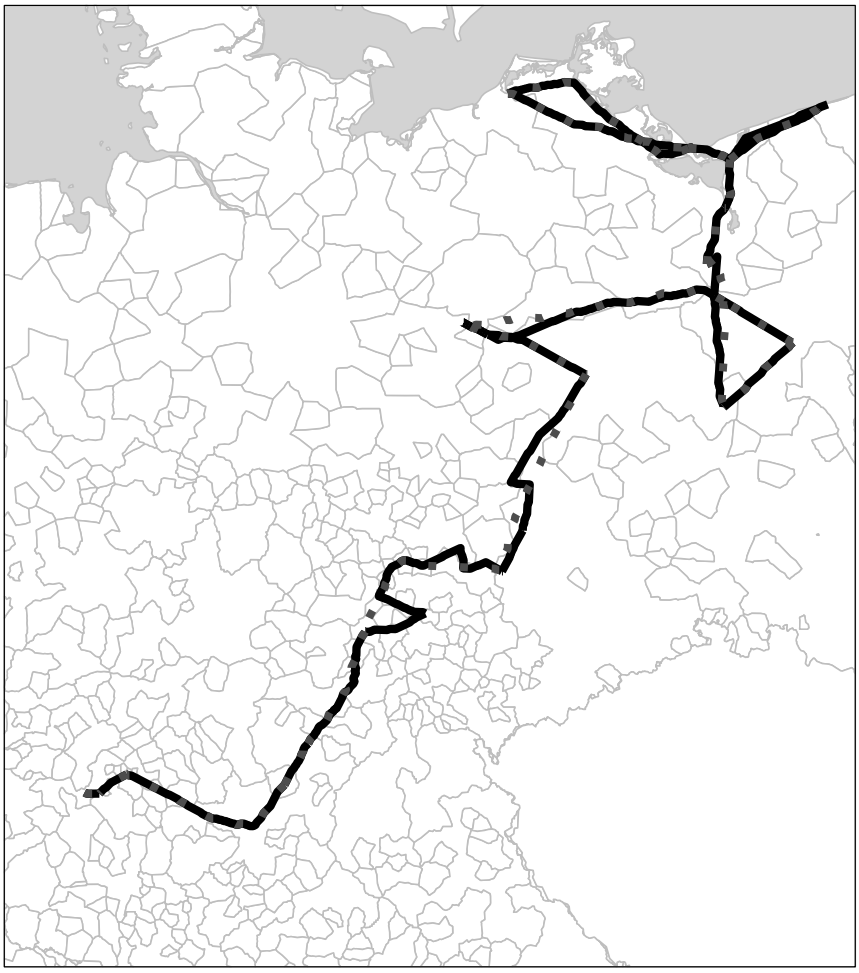
Note This map plots the main armies of the anti-Habsburg military coalition in the Thirty Years' War and traces their campaign trajectories. In each panel, black lines show a military leader's campaign routes; repeated arrowheads indicate direction. Panel titles report the military leader's name and years of active campaigning. Leaders typically recruited locally and began campaigning in spring. Details on the construction of the data are given in Section III.B.

Figure A.7: Major Campaign Paths of Pro-Habsburg Military Leaders



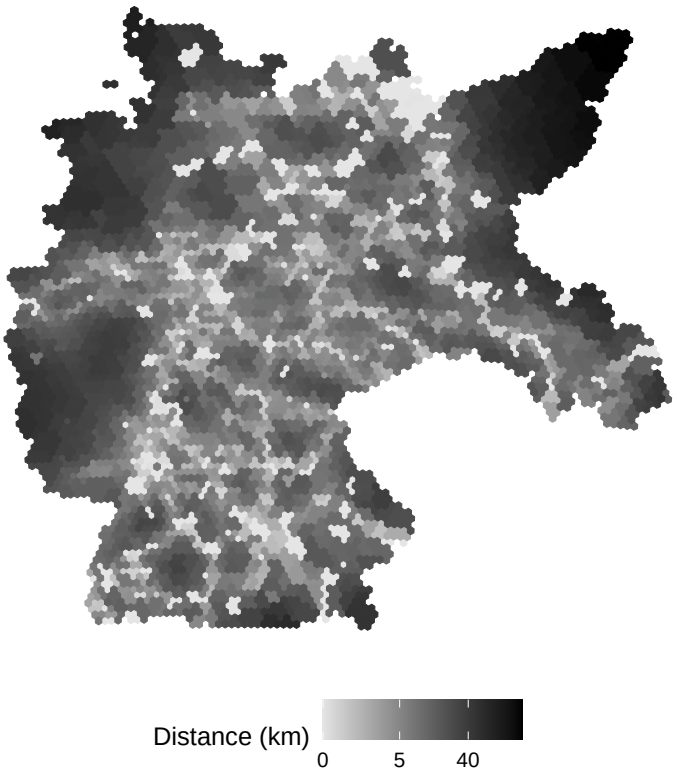
Note This map plots the main armies of the pro-Habsburg military coalition in the Thirty Years' War and traces their campaign trajectories. In each panel, black lines show a military leader's campaign routes; repeated arrowheads indicate direction. Panel titles report the military leader's name and years of active campaigning. Leaders typically recruited locally and began campaigning in spring. Details on the construction of the data are given in Section III.B.

Figure A.8: Least-Cost Campaign Path vs. Actual Campaign Path



Note This map shows an illustrative example of the least-cost path between fortified towns, compared to the actual campaign path, in the context of the campaigns depicted in Figure I. Details on the construction of least-cost paths and campaign paths are given in Section III.B.

Figure A.9: Instrument (Expected)



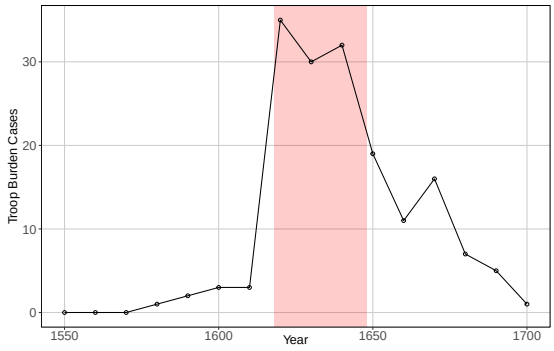
Note This map shows the spatial distribution of the average instrument from 1,000 simulations. Details on the construction of the simulations are given in Section III.B and Appendix Section C.5.

Figure A.10: High Court Cases

A: Fiscal Burden



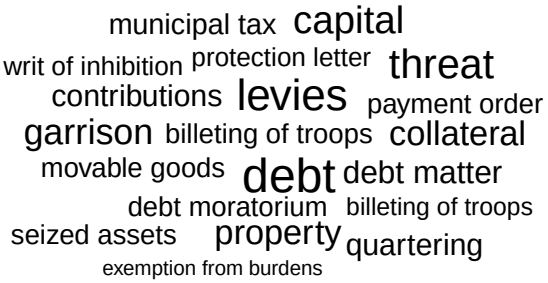
B: Troop Burden



C: Distinctive Words (1587–1617)



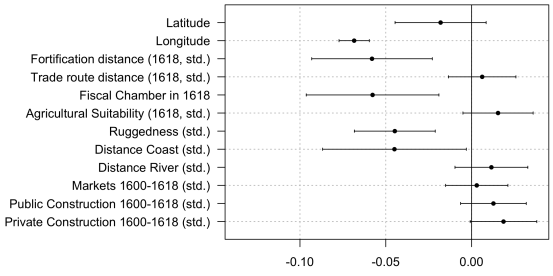
D: Distinctive Words (1618–1658)



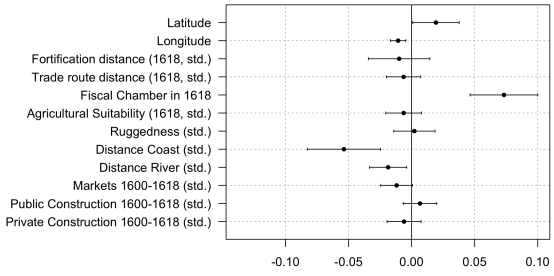
Note This figure shows the evolution of Imperial High Court cases concerning fiscal and troop burdens before and after the Thirty Years' War (Panels A and B), as well as word clouds of cases at the Imperial High Court in 1587–1617 and 1618–1658 (Panels C and D).

Figure A.11: Pre-War Predictors of Contracting Proxies

A: Imperial High Court Access

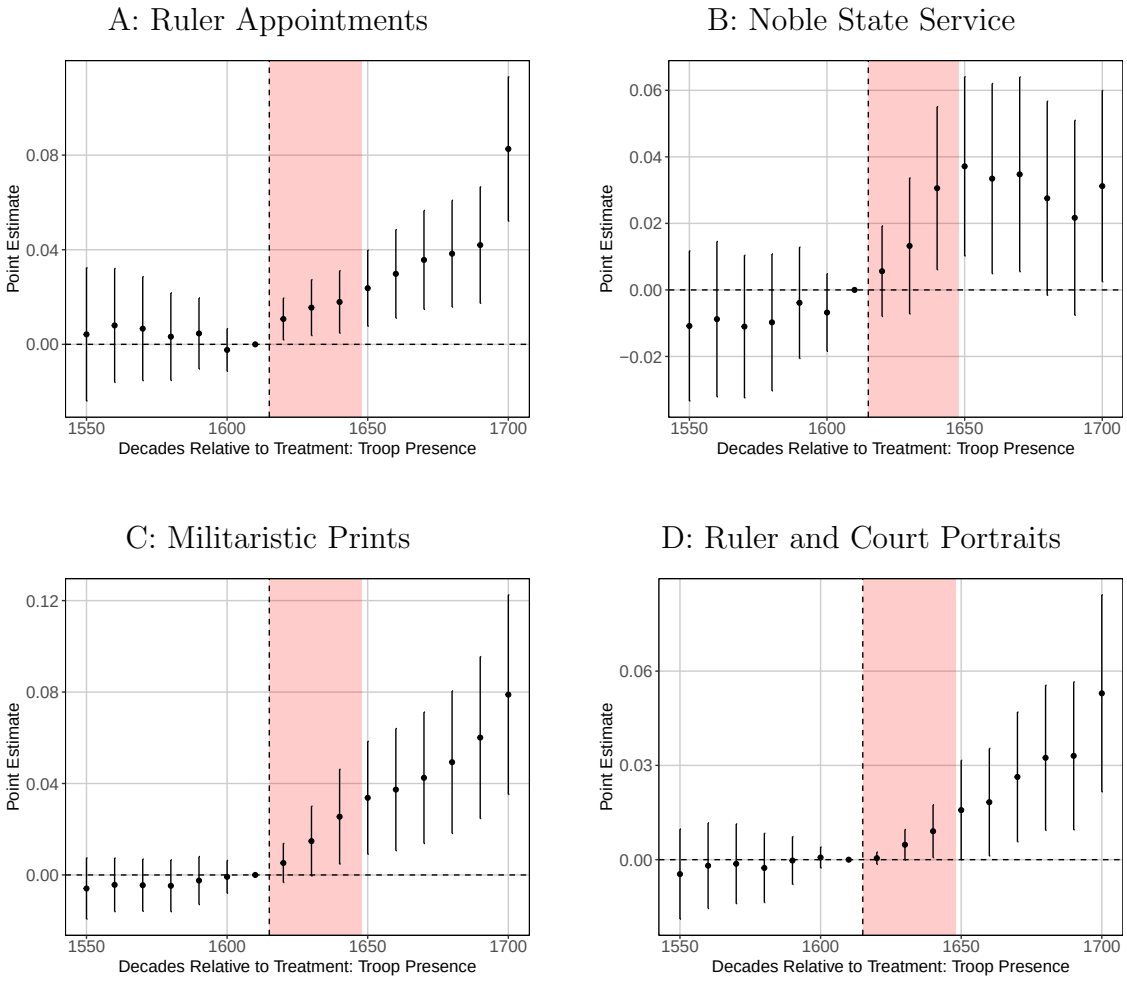


B: City League Membership



Note This figure reports the predictors of the two proxies for pre-war contracting capacity. Panel A considers Imperial High Court Access, an indicator for whether a town litigated before the Imperial High Court during 1600–1618. Panel B considers City League Membership, an indicator for whether a town belonged to a city league during 1600–1618.

Figure A.12: Troop Presence and the Consolidation of Absolutism (Event Studies)



Note This plot shows results of estimating the event study regression in equation (2), with 95 percent confidence intervals. Observations are at the town-year level, with the number of towns indicated in Table I. The sample comprises 290 years. The dependent variables are (A) Ruler Appointments, the inverse hyperbolic sine of the number of ruler appointments and related infringements of local institutions in town i and year t, (B) Noble State Service, the inverse hyperbolic sine of the number of nobles from town i in year t who held court or military positions, (C) Militaristic Prints, the inverse hyperbolic sine of the number of ruler prints with militaristic titles from town i and year t, and (D) Ruler and Court Portraits, the inverse hyperbolic sine of the number of ruler and court portraits from town i and year t. Standard errors are clustered at the town level.

A.2 Tables

Table A.1: Summary Statistics

Variable	Mean	SD	Min	Max	N
Panel A: Treatment and Main Outcomes					
Troop Presence	0.39	0.49	0.00	1.00	646700
Parliament Eliminated	0.29	0.46	0.00	1.00	646700
Ruler Taxes	0.07	0.25	0.00	1.00	422820
Military Notables	0.04	0.24	0.00	4.48	646700
Panel B: Mechanism Outcomes					
Militaristic Prints	0.05	0.35	0.00	7.55	644470
Ruler and Court Portraits	0.03	0.27	0.00	7.26	584260
Ruler Appointments	0.17	0.40	0.00	2.89	532970
Noble State Service	0.09	0.36	0.00	5.16	646700
Panel C: Controls (1618 Cross-Section)					
Latitude	50.94	1.59	47.41	54.91	2230
Longitude	11.02	2.88	6.09	18.92	2230
Fortification distance (1618, std.)	-0.10	0.64	-0.87	3.67	2230
Trade route distance (1618, std.)	0.00	1.01	-0.31	16.51	2230
Fiscal Chamber in 1618	0.43	0.50	0.00	1.00	2230
Agricultural Suitability (1618, std.)	-0.01	1.01	-4.78	1.30	2230
Ruggedness (std.)	0.03	1.01	-1.15	7.55	2230
Distance Coast (std.)	0.04	0.97	-2.05	1.65	2230
Distance River (std.)	0.00	1.01	-1.00	5.23	2230
Markets 1600-1618 (std.)	0.01	1.03	-0.14	21.69	2230
Public Construction 1600-1618 (std.)	-0.01	0.98	-0.18	10.29	2230
Private Construction 1600-1618 (std.)	-0.01	0.97	-0.11	32.28	2230
Panel D: Instrumental Variables (1618 Cross-Section)					
Troop Distance (ihs)	8.33	3.43	0.00	12.59	2230
Troop Distance (ihs, rec.)	-0.25	1.34	-9.11	6.33	2230
Panel E: Long-Run Outcomes (Town Cross-Section)					
Military Notables	0.31	0.65	0.00	5.93	2230
Military Share (%)	1.45	3.47	0.00	34.77	2230
Low Life Exp.	0.51	0.50	0.00	1.00	1768
Panel F: Moderator (Exposed Towns)					
Coalition Mismatch	0.36	0.48	0.00	1.00	856

Note This table presents summary statistics. Observations are at the town-year level in Panels A and B and at the town level in Panels C to F. Coalition Mismatch is reported for exposed towns for which the coalition of the troops is recorded. Standardized controls are standardized across all towns in the source data, before the sample restrictions.

Table A.2: Military Leaders

Military Coalition	War Party	Military Leader	Years Active	Main Sources
Anti	Denmark	Christian IV	1625-1629	Lockhart (2014); Opel (1872); Schmidt-Brentano (2022)
Anti	France	Bernard of Saxe-Weimar	1635-1639	Droysen (1885); Schmidt-Brentano (2022)
Anti	France	Guébriant	1639-1643	Schmidt-Brentano (2022)
Anti	France	Turenne	1643-1648	Neuber (1869); Schmidt-Brentano (2022)
Anti	Sweden	Carl Gustaf Wrangel	1644-1648	Merian (1652); Steckzén (1920); Geijer (1832); Lorentzen (1894)
Anti	Sweden	Gustav Horn	1632-1634	Geijer (1832); Lorentzen (1894)
Anti	Sweden	Gustavus Adolphus	1630-1632	Dodge (1895); Roberts (1953); Geijer (1832)
Anti	Sweden	Herman Wrangel	1634-1636	Geijer (1832); Lorentzen (1894)
Anti	Sweden	Johan Banér	1637-1641	Geijer (1832); Schmidt-Brentano (2022)
Anti	Sweden	Lennart Torstensson	1641-1644	Merian (1652); Geijer (1832); Lorentzen (1894)
Anti	Union	Mansfeld	1618-1626	Gindely (1882); Anonymous (1622); Schmidt-Brentano (2022); Wedgwood (1938)
Pro	Catholic League	Tilly	1618-1632	Kaiser (1999); Schmidt-Brentano (2022)
Pro	Imperial	Holzappel	1647-1648	Höfer (1997); Schmidt-Brentano (2022)
Pro	Imperial	Johann von Aldringen	1632-1634	Brohm (1882); Schmidt-Brentano (2022)
Pro	Imperial	Leopold Wilhelm	1639-1643; 1645-1646	Schmidt-Brentano (2022)
Pro	Imperial	Matthias Gallas	1634-1639; 1643-1645; 1646-1647	Höbelt (2016); Schmidt-Brentano (2022)
Pro	Imperial	Pappenheim	1632	Stadler (1991); Schmidt-Brentano (2022)
Pro	Imperial	Wallenstein	1625-1630; 1632-1633	Schmidt-Brentano (2022); Ranke (1869)

Note This table shows the military coalition (pro-/anti-Habsburg), war parties, the main military leaders, their years active in service of the war party, and the sources we consult to reconstruct their movements. Details on the construction of the data are given in Section III.B.

Table A.3: Sources of the Alternative Troop Movements

Sources	Works
Swedish correspondence	Riksarkivet (2024)
Bavarian correspondence	Goetz et al. (1907)
Secondary literature	Asbach and Schröder (2014); Barudio (1985); Dodge (1895); Droysen (1885); Engelbert (1960); Geijer (1832); Gindely (1882); Klopp (1861); Klopp (1891); Lorentzen (1894); Mortimer (2010); Münkler (2017); Parker (1984); Roberts (1953); Schmidt-Brentano (2022); Steckzén (1920); Villermont (1860); Wedgwood (1938); Wilson (2009)

Note This table lists the sources of the alternative troop movements. Details on the construction of the data are given in Section III.B.

Table A.4: Military Notable Profession Terms

Rank	Profession	Profession (Translated)	Share (%)
1	Offizier	Officer	13.5
2	General	General	9.9
3	Generalleutnant	Lieutenant General	6.2
4	Soldat	Soldier	4.5
5	Feldmarschall	Field Marshal	4.1
6	Generalmajor	Major General	4.0
7	Hauptmann	Captain	2.7
8	Oberst	Colonel	2.6
9	Generalfeldmarschall	General Field Marshal	2.4
10	Militaer	Serviceman	2.0

Note This table presents the most frequent profession titles associated with military notables.

Table A.5: Troop Presence (Predictors)

	Troop Presence				
	(1)	(2)	(3)	(4)	(5)
Latitude	-0.0351**				-0.1416***
	(0.0177)				(0.0391)
Longitude	-0.0082				0.0020
	(0.0113)				(0.0132)
Fortification distance (1618, std.)	-0.1135**				-0.1009*
	(0.0510)				(0.0525)
Trade route distance (1618, std.)		-0.1361***			-0.1143**
		(0.0498)			(0.0528)
Fiscal Chamber in 1618			0.1334**		0.1159**
			(0.0553)		(0.0558)
Agricultural Suitability (1618, std.)			-0.0564*		-0.0902***
			(0.0293)		(0.0311)
Ruggedness (std.)			-0.0259		-0.0887***
			(0.0317)		(0.0343)
Distance Coast (std.)			0.0280		-0.1359**
			(0.0353)		(0.0621)
Distance River (std.)			-0.0785***		-0.0236
			(0.0302)		(0.0325)
Markets 1600-1618 (std.)				0.0234	0.0281
				(0.0250)	(0.0245)
Public Construction 1600-1618 (std.)				0.0294	0.0251
				(0.0272)	(0.0275)
Private Construction 1600-1618 (std.)				0.0446*	0.0438*
				(0.0256)	(0.0241)
Observations	2,230	2,230	2,230	2,230	2,230

Note This table presents coefficients from the Probit model $\Pr(Treated_i = 1 \mid X_i) = \Phi(X_i\gamma)$, with X_i denoting covariates. Observations are at the town level, with the number of towns listed in the table. The dependent variable is an indicator of whether a town was exposed to troops during the Thirty Years' War. Standard errors are robust. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.6: Troop Presence and Absolutism (No Annexations)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1242***	0.0809***	0.0208**
	(0.0425)	(0.0154)	(0.0094)
R^2	0.73	0.57	0.41
Observations	478,790	324,510	478,790
Town Units	1,651	1,119	1,651
Outcome Mean	0.30	0.07	0.04
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), focusing on subsets of the data as indicated in the table. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.7: Destruction by Military Coalition Mismatch

	Troop Actions		Demographic Response	
	Destruction (1)	Violence (2)	Low Life Exp. (3)	Migrated (4)
Coalition Mismatch	0.1091***	0.0138	0.1283*	0.1256**
	(0.0316)	(0.0086)	(0.0714)	(0.0598)
Observations	856	856	178	178
R^2	0.01	0.00	0.02	0.03
Outcome Def.	(0/1)	(0/1)	(0/1)	(cont.)
Outcome Mean	0.56	0.01	0.23	0.42
Standard Errors	Constituency	Constituency	Constituency	Constituency

Note This table presents results from estimating $Destruction_i = \beta Mismatch_i + \varepsilon_i$ in a sample of towns with $Treated_i = 1$, where $Mismatch_i$ is Coalition Mismatch, defined as whether exposed troops were outside the ruler's military coalition, and $Destruction_i$ is described in the main text. Exposed towns for which the coalition of the troops is not recorded are excluded. Observations are at the town level, with the number of towns indicated in the table. Standard errors are indicated in the table. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.8: Troop Presence and Military Coalition Mismatch (No Own-Ruler Presence)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1270***	0.0828***	0.0531***
	(0.0410)	(0.0168)	(0.0137)
Troop Presence × Coalition Mismatch	-0.0671*	-0.0459*	-0.0554***
	(0.0393)	(0.0240)	(0.0152)
R^2	0.71	0.57	0.39
Observations	620,310	411,510	620,310
Town Units	2,139	1,419	2,139
Outcome Mean	0.30	0.07	0.04
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), augmented with an interaction between troop presence and Coalition Mismatch, defined as whether exposed troops were outside the ruler's military coalition. The sample drops towns where military and local population were under the same territory. Exposed towns for which the coalition of the troops is not recorded are excluded. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.9: Troop Presence and Late First Exposure

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1152***	0.0667***	0.0369***
	(0.0365)	(0.0135)	(0.0097)
Troop Presence × Post-1641	-0.0939*	-0.0542*	-0.0382**
	(0.0546)	(0.0319)	(0.0166)
R^2	0.70	0.56	0.39
Observations	646,700	422,820	646,700
Town Units	2,230	1,458	2,230
Outcome Mean	0.29	0.07	0.04
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), augmented with an interaction between troop presence and Post-1641, an indicator for whether the town's first documented troop presence occurred in 1641 or later, after the Treaty of Hamburg made the end of the war more tangible. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.10: Troop Presence and Military Coalition Mismatch (Mechanism Outcomes)

	Career Incentives		Ideology and Prestige	
	Ruler Appointments	Noble State Service	Militaristic Prints	Ruler and Court Portraits
	(1)	(2)	(3)	(4)
Troop Presence	0.0757***	0.0561***	0.0824***	0.0497***
	(0.0183)	(0.0142)	(0.0238)	(0.0180)
Troop Presence × Coalition Mismatch	-0.0428*	-0.0695***	-0.0758**	-0.0399*
	(0.0255)	(0.0170)	(0.0304)	(0.0215)
R^2	0.61	0.58	0.57	0.51
Observations	644,670	644,670	644,670	644,670
Town Units	2,223	2,223	2,223	2,223
Outcome Mean	0.14	0.09	0.05	0.02
Outcome Def.	(ihs)	(ihs)	(ihs)	(ihs)
Standard errors	Town	Town	Town	Town
Town FEs	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓

Note This table presents results of estimating equation (1), with an additional interaction between troop presence and Coalition Mismatch, defined as whether exposed troops were outside the ruler's military coalition. Exposed towns for which the coalition of the troops is not recorded are excluded. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Ruler Appointments, the inverse hyperbolic sine of the number of ruler appointments and related infringements of local institutions in town i and year t, (2) Noble State Service, the inverse hyperbolic sine of the number of nobles from town i in year t who held court or military positions, (3) Militaristic Prints, the inverse hyperbolic sine of the number of ruler prints with militaristic titles from town i and year t, and (4) Ruler and Court Portraits, the inverse hyperbolic sine of the number of ruler and court portraits from town i and year t. Standard errors are clustered at the town level. *, **, and *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table A.11: Troop Presence, Parliament Elimination, and Contracting: Matched Sample

	Parliament Eliminated		
	(1)	(2)	(3)
Troop Presence	0.1516***	0.1225***	0.1568***
	(0.0447)	(0.0375)	(0.0457)
Troop Presence × Imperial High Court Access	-0.0838**		-0.0751*
	(0.0389)		(0.0389)
Troop Presence × City League Membership		-0.1338***	-0.1113**
		(0.0449)	(0.0457)
R^2	0.72	0.72	0.72
Observations	627,560	627,560	627,560
Number of Towns	2,164	2,164	2,164
Outcome Mean	0.2979	0.2979	0.2979
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓
Controls	✓	✓	✓
Cluster	Constituency	Constituency	Constituency

Note This table repeats Table IV in a matched sample. We construct the sample by nearest-neighbor matching on an indicator for whether a town had either contracting-related institution, using the predictors shown in Figure A.11. The two contracting measures are (i) Imperial High Court Access, an indicator for whether the town was involved in a case before the Imperial High Court during 1600–1618; and (ii) City League Membership, an indicator for whether the town was a member of a city league during 1600–1618. The dependent variable is Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward. Standard errors are clustered at the constituency level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table A.12: Troop Presence and Militarization Around 1900 (IV)

	Military Presence		Demographic Impact
	Military Notables	Military Share (%)	Low Life Exp.
	(1)	(2)	(3)
Panel A: Unadjusted Instrument			
Troop Presence	1.4505***	5.0426***	0.3018**
	(0.304)	(1.473)	(0.150)
First-stage F	48.2	48.2	54.2
Panel B: Recentered Instrument			
Troop Presence	0.9231**	1.2632	0.5078**
	(0.447)	(3.360)	(0.239)
First-stage F	13.1	13.1	27.8
Number of Observations	2,230	2,230	1,768
Outcome Def.	(ihs)	(cont.)	(0/1)
Outcome Mean	0.31	1.45	0.51
Cluster	Constituency	Constituency	Constituency

Note This table presents results of estimating equation (6) without the covariates X_i, using an instrumental variable based on the distance of a town to the closest campaign least-cost path (Panel A), or the recentered instrumental variable (Panel B). Standard errors are clustered at the constituency level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

B Historical Appendix

B.1 War, Crisis, and Absolutism in Early Modern Europe

The early modern period witnessed intense struggles across Europe over the allocation of state power. Wilson (1998) observes that, "once it became obvious that the centralization of fiscal-military power could no longer be reversed, conflict centered on efforts to control it and distribute the associated benefits and burdens among different social groups. The varying outcomes of these struggles help explain the differing constitutions of European states, ranging from the Dutch republican government to the limited monarchy of England and royal absolutism in France by 1660."

In this appendix, we contrast the findings of our paper with the emergence, or non-emergence, of absolutism in France, Spain, the Dutch Republic, and England. Rather than offering a comprehensive review of all factors that may have contributed to these divergent trajectories, we highlight the parallels most relevant to the setting studied here. In particular, we focus on the period around the Thirty Years' War and on the role of the landed nobility in processes of centralization.

Our aim is to delimit the scope of our argument and provide a brief qualification of the broader thesis that "constitutional countries confronted by a dangerous international situation mandating extensive, domestic resource mobilization suffered the destruction of constitutionalism and the rise of military-bureaucratic absolutism" (Downing, 1992). Two conditions form the backdrop to our analysis: the prevalence of war itself, driven by the Military Revolution and competition among Europe's major powers; and the resulting shift in rulers' incentives toward larger armies and greater control. Against this backdrop, our contribution is to isolate the urban fiscal crisis as a contributing factor in the decline of early representative institutions in Europe.

B.1.1 The Dutch Republic

The Dutch Republic presents a contrasting trajectory to the general trend toward absolutism.[1] Having secured its independence from the Spanish Habsburgs through the Eighty Years' War, the Republic rested on a "commercially active bourgeois elite" with relatively aligned interests, which made collective action easier (Wilson, 2000). In this respect, the Dutch case echoes the logic of city leagues in the Holy Roman Empire: the States General and the provincial assemblies helped overcome contracting frictions.

The result was a virtuous circle of fiscal cooperation and credible commitment (Stasavage, 2011). Rather than delegating power to an absolutist ruler, the Republic met external danger by deepening representative cooperation and financial credibility. Consistent with this, Parker (1976, p. 48) notes that "It was the Dutch who first perfected techniques of war finance capable of sustaining an enormous army almost indefinitely. The cost of the war with Spain from 1621 until 1648 steadily increased (from an average of 13 million florins in the 1620s to an average of 19 million in the 1640s), but there was not a single mutiny or financial crisis. On the contrary, in an emergency, the Dutch Republic could raise a loan of 1 million florins at only 3 per cent in two days. The key to this effortless financial power was, in part, the enormous wealth of Amsterdam, which by 1650 was the undisputed commercial and financial capital of Europe; but it was equally the good faith of the Dutch government, which

[1] See Appendix Figure A.5 for the average shift toward abolishing parliaments across Europe.

always paid interest and repaid capital on time. This combination enabled the Dutch to raise an army and go on fighting, whatever the cost, until they got their own way: something no previous government had been able to do. It was not long before others followed. Soon after the accession of William of Orange in 1689, 'Dutch finance' was adopted in England. The foundation of the Bank of England, Parliament's guarantee of all government loans, and the organization of a sophisticated money market in London made it possible for a British army of unprecedented size — 90,000 men — to fight overseas for years."

More broadly, this highlights that representative institutions were generally not inferior at raising revenue. Francis Ludwig Carsten (1959, p. 146) observes: "Through their active participation in the work of the state the members of the Small Committee proved that the machinery of the Estates could be adapted to the needs of a more modern state, that this machinery worked efficiently and cheaply, that the creation of a large bureaucracy was not the only possible way of advance towards the modern state, that absolute monarchy was not the only form in which this transition could be accomplished." Similarly, Thompson (1995, p. 290) notes that "Both private contracting and local devolution, as forms of credit as well as of provision, reduced the need for an extensive apparatus of state bureaucracy and finance. The development of the state as a fiscal entity was thus related to the type of military activity in which it was engaged. War, therefore, did not necessarily have a centralizing effect, and Schumpeter's 'common exigency' may have inhibited the development of the state as much as it inspired it."

B.1.2 England

England emerged from the seventeenth century, and from the Glorious Revolution in particular, as a limited monarchy. The role of credible public credit in preserving this settlement, especially after 1689, has been widely emphasized (Stasavage, 2003). Among the many factors highlighted in the historical literature, one bears directly on the framework developed here: crises generate absolutist outcomes where they create acute and asymmetric local financing needs. In Hintze (1906)'s account, the "pushing and pulling" of continental European states fostered absolutism, whereas polities on the periphery of great-power conflict, or those like Britain that were protected by geography, followed a different path.

A central feature of the English case was its insular position and corresponding reliance on naval power, which reduced the need for deep local administrative penetration. Habsburg military theorist Montecuccoli observed that the English disliked fortresses as "the buttresses of the crown"; in his view, this hostility itself demonstrated their political utility. The short-lived experience of the New Model Army, together with English perceptions of continental Europe, reinforced this orientation. The result was a broader "Antiarmy ideology in Seventeenth-Century England," in which, tellingly, a prominent concern was that the monarch should not have the power to billet soldiers in private homes (Schwoerer, 1974). This was precisely the practice that, on the continent, had been transformed into "a semi-permanent form of taxation" (Wilson, 1998).[2] As Figure B.1 illustrates, opposition to standing armies in Britain remained politically salient well after the seventeenth century.

When fiscal mobilization was nonetheless required, contracting frictions were low and deep credit markets enabled Parliament to borrow on the Crown's behalf. As Parker (1976,

[2]Even more than a century later, the United States Constitution reflected this concern in the Third Amendment: "No Soldier shall, in time of peace be quartered in any house, without the consent of the Owner, nor in time of war, but in a manner to be prescribed by law."

p. 48) notes, after the Glorious Revolution "'Dutch finance' was adopted in England. Parliament's guarantee of all government loans and the organization of a sophisticated money market in London made it possible for a British army of unprecedented size — 90,000 men — to fight overseas for years." This is the alternative path our framework describes: when the wartime constraint falls on the Crown rather than the town, credit markets and parliamentary credibility can substitute for delegation, strengthening rather than dismantling representative institutions (Stasavage, 2003).

Relatedly, some scholars have argued that, although warfare was continuous, it remained "only moderate in scope and intensity." Other explanations are more contingent. As Roberts (1956, p. 21) remarks, "it was not the least of England's good luck, that for the whole of the critical century from 1547 to 1649 she was ruled by monarchs with neither interest nor capacity for military affairs."

A final factor is that English legal institutions made the integration of a centralized bureaucratic officialdom more difficult. As Rosenberg (1958) notes, "since England had no special public law and since English constitutional law was an integral part of a monistic legal order, there was no room for the commissar type of government official. The 'placemen,' paid out of the royal civil list, were but a special category of patrimonial officiers . . . hence the arrested growth of administrative centralization. Hence the postponement of England's transformation into a modern bureaucratic state until the second half of the nineteenth century."

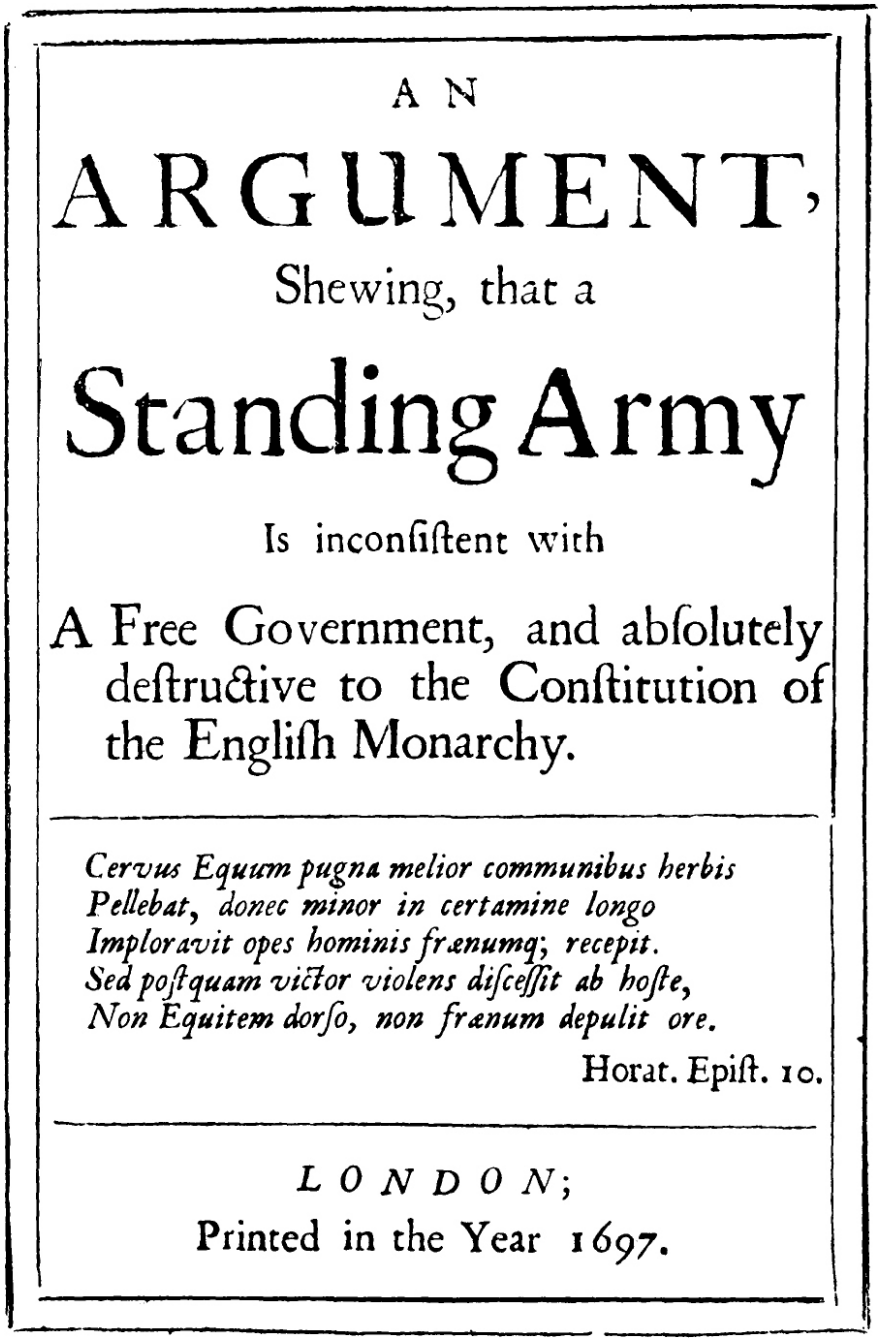
B.1.3 France

North and Thomas (1973, p. 121) link the rise of absolutism in France to extraordinary taxation under conditions of acute military threat: "The turning point in this contest for power appears to have occurred in 1428 when the English assaulted Orleans. This threat permitted Charles to raise 500,000 livre tournois from the assembly he had called at Chenon . . . The Estates General had surrendered control over taxing power in the process of providing Charles VII with the finances to maintain an army that would defend the borders and eliminate the marauders from within."

Although the French turn toward absolutism was more protracted, the Thirty Years' War marked the inflection point at which the local provisioning burden passed from local taxation into a centralized royal administration. Jones (1980, p. 157) describes the institutional response in precisely these terms: wartime fiscal demand on "a regular basis and on a new and massive scale" was organized through "a formidable array of emergency measures, whose general effect had been the delegation of powers": most notably the *intendants*, royal officers who oversaw recruitment, taxation, and troop accommodation in the provinces. This is the same delegation our framework describes: under the local provisioning shock, towns ceded administrative control to a ruler-appointed officer who organized extraction on the Crown's behalf. This expansion of state capacity was accompanied by the sale of offices and tax farming, producing what Jones (1980, p. 156) describes as an "amalgam of ingenuity and desperation which constituted French financial policy in this critical period."

Sustaining this enlarged royal administration required drawing the nobility into state service, the same dynamic that our framework identifies as central to the consolidation of absolutism after the wartime emergency. As Childs (1976, p. 19) argues, in France the higher nobility were "pressed into the court and the army" over the seventeenth and eighteenth centuries, while "the language of politics itself shifts abruptly from negotiation to obedience"

Figure B.1: No Standing Armies: Britain



AN

ARGUMENT,

Shewing, that a

Standing Army

Is inconſiſtent with

A Free Government, and abſolutely deſtructive to the Conſtitution of the Engliſh Monarchy.

Cervus Equum pugna melior communibus herbis
Pellebat, donec minor in certamine longo
Imploravit opes hominis frænumq; recepit.
Sed poſtquam victor violens diſceſſit ab hoſte,
Non Equitem dorſo, non frænum depulit ore.

Horat. Epiſt. 10.

LONDON;
Printed in the Year 1697.

Note From Schwoerer (1974).

(Parrott, 2011, p. 24). The institutional endpoint is stark: after its 1614 session the Estates General would not convene again until 1789, and a royal administration enlarged by wartime delegation collected taxes and raised armies for nearly two centuries without parliamentary consent (Hintze, 1906).

B.1.4 Castile/Spain

A similar connection between the containment of disorder and the emergence of absolutism can be observed in Spain. As North and Thomas (1973, p. 128) note, "the price of domestic peace and secure property rights, as we noted earlier, was loss of liberty in the Cortes, the grant to the Crown of the sole power to set taxes." Accordingly, "[a]fter 1480, the Cortes of Castile is rarely summoned and an 'orderly despotism' succeeded" (North and Thomas, 1973, p. 86).

Sustained warfare imposed enormous fiscal demands. Thompson (1995, p. 274) reports that "[o]f the roughly 400 million ducats spent between 1621 and 1640, 47 percent went to war and defence; almost the same amount on the servicing of the debt, most of which had been undertaken in order to finance war in the past." As the war reached Spanish territory, towns bore the local provisioning burden through a contribution system analogous to the French one but largely outside Madrid's control: "In Extremadura and Old Castile the armies operated their own internal 'contribution system', although their brutality was never the officially condoned policy in Madrid that it was in Paris" (Thompson, 1995, p. 288). The fiscal trajectory was unsustainable: between 1557 and 1662 the Spanish Crown declared bankruptcy on ten occasions, each precipitated by the inability of revenue to keep pace with the demands of hegemonic warfare (Thompson, 1995, p. 286).

This pattern reflects a broader failure of centralization, distinguishing the Spanish case both from the setting examined in this paper and from the more successful French case. Towns ceded fiscal authority under crisis, but Madrid could neither integrate the contribution system into a centralized apparatus nor sustain the borrowing capacity it inherited. As Parrott (2011) writes, Spain witnessed a "virtually total abandonment of direct state administration"; Thompson (1995, p. 291) describes the outcome as "self-destructive financial expedients involving compromises with local power centers and the devolution and privatization of coercive-extractive and military-administrative functions which left the state with great theoretical authority but limited effective power."

B.2 Historical Case Studies: The Thirty Years' War in the Holy Roman Empire

This appendix presents historical case studies that illustrate the mechanisms discussed in Section II. Each paragraph corresponds to one step in the framework developed in Section V.A. For each step, we list relevant historical evidence, beginning with broader claims and then turning to more specific instances.

B.2.1 Parliamentary Authority

Parliaments exercised substantial ex ante strength.

- "The payment dates and the number of tax units to be paid . . . were set in the parliamentary recess . . . under no circumstances could the total number be exceeded" (Hollenberg, 2007, p. LIV).
- In Hesse-Kassel, parliamentary taxes were capped in amount, administered through estate receivers, and audited on separate "invoice days" (Hollenberg, 1989, pp. LIV–LIX).
- In Hesse-Darmstadt, the Estates possessed their own fiscal organs: "apportionment congresses, . . . superior revenue offices, and the audit committee" (Hollenberg, 2007, p. XXVIII).
- "The Hessian-Darmstadt Estates were responsible not only for approving taxes, but also for their apportionment and collection" (Murk, 2002, p. XXVIII).

Local autonomy was central to the maintenance of parliamentary rule.

- "The tax amounts were delivered by the town treasurers and revenue officials. . . to the territorial chief tax collectors. Within the towns, they were apportioned according to the most recent cadasters." (Hollenberg, 2007, p. LVII)
- "In their tax directive, the territorial chief tax collectors merely multiplied the fixed quotas of the towns and administrative districts by the total tax assessed. On the basis of this 'assignation,' tax assessment notices were likewise sent out." (Hollenberg, 2007, p. LVII)
- "On the territorial side, however, the immediate taxpayers were not the subjects, but the towns and administrative districts as collective entities, each of which, on the basis of a lump-sum tax fund for the town or district, paid what was in effect a matricular contribution." (Hollenberg, 2007, p. LIV)

B.2.2 Troop Presence and Fiscal Crisis

Troop presence generated a localized fiscal emergency that exceeded ordinary local capacity.

- Because "centralized war finance was scarcely realizable in practice . . . the imperial-League imperial army from 1635 onward was supplied to the extent of 98 percent from contributions" (Kraus, 2021, pp. 217–18).

- In Abterode, "the 8,500 [imperial thalers] (*Reichstaler*) collected by the emperor's troops in 1624 was more than twice" what was usually levied in a year (Theibault, 1995, p. 177).
- "The Franzburg convention with Pomerania specified monthly instalments of 40,000 talers intended to maintain 22,000 men, whereas the usual annual tax bill was only 90,000." (Wilson, 2009)
- In Hesse, "even before the coming of troops, there were many villages who were on the margins of subsistence" (Theibault, 1995, p. 141).
- The wartime increase in required resources could therefore become "a ruinous burden for a community's budget" (Wilson, 2009).

Failure to meet military demands exposed towns to severe threats, including plunder and destruction.

- "One could scarcely delay the assignment of quarters, and the money and provisions raised through contributions were generally needed immediately as well." (Kraus, 2021)
- Around 1632 in the Upper Palatinate, "the quartered guests of Paul Brunner . . . threatened . . . to set his house on fire if he did not provide for them appropriately" (Kraus, 2021, p. 273).
- When pay failed in 1631, "the soldiers dispersed into the villages and provisioned themselves by force" (Kraus, 2021, p. 273).
- "The line between contributions . . . and extortion was very fluid"; contributions could be extracted directly by troops and flow to friendly and enemy forces alike (Theibault, 1995, p. 138).
- "Contributions were levied by military force" (Francis Ludwig Carsten, 1959, p. 305).
- Kraus (2021, p. 453) notes "the fatal consequences of arbitrary self-provisioning by the troops."

Military resistance was generally infeasible.

- Even a state later to become as powerful as Brandenburg-Prussia was a "minor power and military victim during the Thirty Years War," with a force of roughly 900 men (Parrott, 2011).
- "The balance of forces was so unequal that such attacks were suicidal," and "there is no evidence that the villagers of the Werra ever tried to fend off occupation by force" (Theibault, 1995, pp. 142–43).
- "Strapped for resources and faced with a war whose atrocities mounted with every year, Nuremberg's city council pursued a course of realism that verged on resignation. On 12 July 1632 a butcher sent a complaint to Nuremberg's council. On his way into

the city, he had been robbed by eight Swedish cavalrymen of one calf and eight pounds of lard. Since many who were carrying victuals to the market were robbed on the streets, he requested that the council pass an ordinance against such crimes and see to their elimination. The council's response was noted on the letter: the matter should be put to rest since nothing could be done to remedy the miserable situation during these difficult times. Instead the butcher should be advised to be patient." (Haude, 2014)

At the same time, armies had incentives to organize extraction in an orderly manner.

- "The primary objective of the soldiers was to find provisions, not to destroy property in the occupied territory" (Theibault, 1995, p. 143).
- "Military leaders had an interest in orderly provisioning procedures as opposed to a disorderly economy of plunder." (Kraus, 2021)
- "The preservation of the economic capacity and stability of quartering areas" was itself a concern of military provisioning (Kraus, 2021, p. 452).
- "Gustavus explicitly ordered his generals to follow Wallenstein's example of systematic contributions drawn through local tax structures, rather than ad hoc demands that caused widespread devastation" (Wilson, 2010, p. 245).
- Tilly "ordered that commanders cooperate with territorial administrators in keeping a weekly record of which soldiers were quartered in which households" (Theibault, 1995, p. 141).
- In the Swedish army, "soldiers of Gustavus who oppressed civilians were severely punished — by whipping, extra sentry duty, or public humiliation. At least five men in Monro's regiment were executed by firing squad, and several others were condemned to death by the military provost for the maltreatment of the civilian population: the army could not afford to alienate those who supplied labour, guides, and intelligence of the enemy, as well as food and quarters." (Parker, 1984)

Under these conditions, crisis finance became an intertemporal problem for towns.

- "Time and again a city would spare itself from conquest and pillage by agreeing to render financial 'contributions' ... As a result, the municipal government would have to borrow" (Parker, 1984, p. 401).
- In towns, "debt levels soared" (Wilson, 2009, p. 803).
- "The municipal debt of Nuremberg, for example, quadrupled from 1.8 million gulden in 1618 to 7.4 million at the end of the war" (Parker, 1984, p. 401).

B.2.3 Separation

Limited commitment made sustained borrowing difficult.

- Over time, "interest arrears compounded the original liabilities" (Wilson, 2009, p. 803).
- "Debts were potentially much higher, because most territories and communities defaulted on their interest payments. Überlingen's debt more than doubled to 280,000 fl., but was nearly three and a half times the pre-war level if the 163,553 fl. of interest arrears were also included." (Wilson, 2009)
- In the Upper Palatinate, local officials reported that they had "no means of execution" to compel delinquent taxpayers to pay (Kraus, 2021, p. 268).
- Parliaments were not organized to provide cross-financing: nobles and prelates sought exemptions, while towns wanted them to contribute (Francis Ludwig Carsten, 1959, p. 424).
- In 1631 the Estates of Mark complained that, because of disturbances caused by garrisons, appearing at territorial diet (*Landtag*) assemblies had become nearly impossible (Rohrschneider and Tischer, 2018, p. 191).

Limited repeated interaction with armies imposed high provisioning costs on towns.

- In Neumarkt, civic officials "had no respect from the soldiers and were unable to collect payment" (Kraus, 2021, p. 227).
- In a rare and costly case, "the council ultimately even negotiated directly with the Swedish military leadership. The conflict to be resolved here had broken out over outstanding provisioning demands of the Swedish garrison. Its commander, Lieutenant Colonel Andreas Gaudi, had thereupon seized municipal [excise] (*Ungeld*) revenues. The council therefore sent a delegation to Nuremberg, which, through the mediation of the Swedish auditor general, the highest official of the Swedish military judiciary, negotiated a settlement with Gaudi." (Kraus, 2021)
- Early in the war, military leader Tilly convened the parliament of Hesse-Darmstadt during occupation, against the wishes of the territorial ruler (Hollenberg, 2007, pp. 4, 7). Diets were in any case slow and costly to assemble (Hollenberg and Maulhardt, 1994, pp. 31–35).

City leagues and the Imperial High Court were important in making repayment sufficiently credible.

- "As debt levels soared . . . Imperial institutions played an important part in easing these problems." (Wilson, 2009, p. 803)
- "As superior instances of dispute settlement, the . . . [Imperial Chamber Court] (*Reichskammergericht*) and the Vienna [Imperial Aulic Council] (*Reichshofrat*) . . . exercised a considerable system-stabilizing influence" (Murk, 2002, p. XIII).

- "The Imperial High Court continued to issue injunctions against debtors, arguing that lenders' interests had to be protected to avoid a collapse in financial confidence" (Wilson, 2009, p. 804).
- More generally, "supreme jurisdiction remained perceptible" during the war (Burkhardt, 2018), and the Imperial High Court "provided support to the estates against their rulers and strengthened their determination for self-assertion" (Bahlcke, 2012, p. 49).
- For city leagues, "Wallenstein dropped demands for a garrison and exempted the city from the Edict in return for 150,000 talers, to which the Hanseatic League contributed a further 50,000." (Wilson, 2009)

B.2.4 Delegation

Delegation transferred fiscal control to the ruler.

- "The *General Commissariat* functioned as an interface between court, army, and civil authorities" (Saito, 2020, p. 41).
- "Here, therefore, an envoy of the government undertook the negotiation of the contributions... The local officials were in this case both negotiating and cooperation partners" (Kraus, 2021, p. 221).
- "Contribution and billeting demands were presented as lump sums, leaving it to local officials to work out who provided what in their community" (Wilson, 2009, p. 405).
- In 1646, "the war commissariat ... dispatched ... a provisions commissary to Neumarkt, who was to request the necessary provisions ... and then distribute them" (Kraus, 2021, p. 221).
- In Auerbach, "the provisions office ... distributed ... 127,050 loaves of bread and 1,095 buckets of beer"; "in the district town, distribution was apparently undertaken personally by the [steward] (*Kastner*)" (Kraus, 2021, p. 222).
- "The struggle between the landgrave and the Estates over the resources of the territory became a sidelight once it became apparent what military occupation meant" (Theibault, 1995, p. 138).

Rulers generally faced lower provisioning costs in dealing with armies.

- "The levying and regulation of contributions presents itself ... as a highly complex process of negotiation among military and civil rulers, administrative actors, and the population" (Haas, 2021, p. 43).
- "The common objective—coping with the war—motivated subjects ... to allow the influence of princely administration ... or even to demand it explicitly" (Kraus, 2021, p. 458).
- When contributions (*Kontributionen*) were levied in a prince's territory, "the allocation and collection fell quite naturally on the local authorities" (Redlich, 1959, p. 251).

- "Maintaining a veneer of legitimacy over the landgrave's own authority" mattered for contribution bargaining and implementation (Theibault, 1995, p. 138).
- In Pomerania in 1630, "His Majesty [Gustavus Adolphus] will take four fifths of each per cent, while the duke retains one fifth. The tolls are levied in the duke's name" (Wilson, 2010, p. 135).
- In Neumarkt, urban troop provisioning under government "inspection, direction, and commission" was understood to serve all parties because it supplied authority and enforcement capacity (Kraus, 2021, p. 228).
- Terms of provisioning ordinances were accepted in part because they were considered "as clear and fairly apportioned" as the burdens imposed by the ruler's own administration (Theibault, 1995, p. 141).
- "Moreover, town and district cooperated ... above all, however, the fiscal office could more easily provide agricultural products such as grain" (Kraus, 2021, p. 228).
- The recruitment of commissarial personnel from regional officials mattered because local familiarity eased mobilization of in-kind goods (Saito, 2020, p. 175).

Repeated interaction, for example with armies from the same broader military coalition and under longer-term stays, further reduced provisioning costs, whereas provisioning became more difficult in the later stages of the war.

- "Particularly for the Catholic League troops ... it made sense in principle to recognize Bavarian princely servants as well"; local officials could meet officers "on equal footing" because they shared social background and habitus (Kraus, 2021, p. 451).
- "A further factor in acceptance on the part of the officers was the authority of the princely officials" (Kraus, 2021, p. 451).
- "For the city, it [the commissar] provided an ally with greater authority over the military ... the government thereby gained insight and possibilities for intervention in municipal administration, and the military ... obtained a court of appeal" (Kraus, 2021, p. 228).
- "The issuance of a [letter of protection] (*salva guardia*) meant that the agents of [lordship] (*Herrschaft*) formally approved the presence of troops within the territory. To resist the [letter of protection] (*salva guardia*) was thus to undercut legitimate rule" (Theibault, 1995, p. 143).
- "Owing to the periodic nature of these levies, however, there was still repeated room here for negotiating the burdens: contributions were due not only on individual tax dates, but usually monthly or weekly, as is also shown by the winter quartering of the Roland and Starzhausen companies" (Kraus, 2021)
- By 1642, the "Emperor had lost control over many of his regiments" (Asch, 1997).

- A military ordinance of Emperor Ferdinand III in 1647 states that soldiers must "not burden the land with ... plundering, theft of cattle, horses or property, or other excesses, but if they are travelling on authentic passes for necessary purposes in our service, they must report to the authorities, the district commissariat, or their subordinates for billets at night, and peacefully accept a modest, necessary accommodation. In order to put a stop at last to this evil" (Wilson, 2010).

Delegation to the ruler resulted in claims on future local revenue.

- "Occupying troops had imposed their own framework of collecting taxes ... Those taxes continued after the war, as the central administration adopted the mechanisms and terminology of the troops" (Theibault, 1995, p. 195).
- After the war, "money previously diverted as contributions to occupying garrisons now flowed back into territorial treasuries" (Wilson, 2009, p. 552).
- "Many territorial rulers continued these taxes after 1648" (Wilson, 2009, p. 556).
- In Neumarkt in 1649, "the government appointed the [steward] (*Kastner*) ... to prepare a contribution assessment for the town ... thus putting an end to the magistrate's autonomy in assessment" (Kraus, 2021, p. 246).
- "Separate registers of arrears were kept to indicate not only what revenues the landgrave had lost but also where revenues were still to be collected" (Theibault, 1995, p. 195).
- "One result of the contribution was that the village became even more closely associated with the administrative hierarchy through the mechanisms of collection" (Theibault, 1995, p. 196).
- "In Abterode, a separate office of contribution collector developed ... In the period after the war, the position of contribution collector became a more regular feature of the village" (Theibault, 1995, p. 196).
- In Hesse-Kassel, "de facto this meant that estate approval was required only for an increase in the contribution," with the ruler reserving the right to continue collection beyond the approved term (Hollenberg, 1989, pp. LX–LXII).
- In Hesse in 1631 "the ordinary tax remained suspended of itself, whereas the monthly contribution was graciously ordered to be collected" (Hollenberg, 2007, p. 17).

B.2.5 Crisis and Regimes

Delegation directly affected the rise of absolutism.

- "It [the commissariat] stands precisely at the center of the great monarchical reforms that created the modern state" (Hintze, 1910, p. 242).
- "That the Prussian administrative organization of the eighteenth century possesses its actual characteristic core in the commissariat authorities" (Hintze, 1910, p. 242).

- "If the Thirty Years' War was a decisive catalyst of early modern state-building processes, then the war commissaries were one of its most important instruments" (Löffler, 2006, p. 138).
- "The entire tax-structure, civil service and local administration of the Great Elector came into being as technical sub-departments of the [General War Commissariat] (*Generalkriegskommissariat*) ... The Prussian bureaucracy, in other words, was born as an offshoot of the Army" (Anderson, 1974).
- "In the eighteenth century, the old estate taxes yielded only a fraction of the revenues that the absolutist state now obtained from the new taxes, excises, and contributions" (Schindling, 1983, p. 231).

More broadly, absolutism was linked to crisis response during the Thirty Years' War.

- "Foreign invasion fostered acceptance of 'necessity' as an argument to legitimize change. ... Necessity was the mother of absolutism" (Wilson, 2009, p. 808).
- The Thirty Years' War "in many cases financially ruined the Estates ... but above all provoked the autonomous action of princes" (Press, 1988, p. 280).
- "The war also disrupted the functioning of the Estates ... the growth of military taxation eroded the Estates' role, since the burdens were often imposed without consultation" (Wilson, 2009, p. 810).
- "The Thirty Years' War, although it did not create absolutism, hastened its adoption as the basic form of monarchical government" (Childs, 1976, p. 13).

This outcome was not inevitable.

- "Both private contracting and local devolution, as forms of credit as well as of provision, reduced the need for an extensive apparatus of state bureaucracy and finance" (Thompson, 1995, p. 290).
- In Württemberg, "The [territorial diet] (*Landtag*) was convinced that peace was now secure and refused every contribution" to new troops and fortresses (Grube, 1957, p. 323).
- In 1658, Landgrave Georg II of Hesse-Darmstadt failed in demands for maintaining recruited forces because prelates, knights, and territorial Estates (*Landschaft*) resisted in concert (Hollenberg, 2007, p. XXIII).
- In Hesse-Darmstadt, rulers were "to a high degree dependent on the goodwill of the estate-based financiers" (Murk, 2002, p. XVII).
- There, the Estates retained not only tax approval but also apportionment and collection through their own organs (Murk, 2002, p. XXVIII).

B.2.6 Extension: The Local Projection of Power

Wartime provisioning required the collaboration of landed nobility.

- The steward (*Kastner*) of Woffenbach was ordered in 1622 to organize the provisioning (*Verpflegung*) of the troops in the Neumarkt district (Kraus, 2021).
- In 1643, the steward (*Kastner*) Rexrada reported advancing money from his own funds (*ex proprio meo*) to buy grain so troops would not plunder already "sucked dry" subjects (Kraus, 2021).
- In Hesse-Kassel, the landed nobility was asked to support in-kind payments from its granaries, and in return raised demands to the local ruler (Hollenberg, 2007).

This collaboration produced an office-holding nobility whose position depended on ruler appointment and military service.

- In Bavaria, the duke made "court, administrative and military appointments increasingly attractive to the local nobles" (Wilson, 2009, pp. 260, 359).
- More generally, rulers could "enrol the nobility into the civilian administration . . . or use them as the officers of the new armies in support of the absolute monarchies" (Childs, 1976, p. 77).
- "There was . . . one definite advantage which Frederick William reaped from the favours bestowed upon the nobility. A party came into being which supported his policy, and the Estates were no longer united in their opposition" (F. L. Carsten, 1954).
- This produced a "pro-ruler faction among the nobility . . . The Estates were now split beyond repair" (F. L. Carsten, 1954).
- "The Estates' disunity . . . proved the most effective weapon in the hands of Frederick William" (Francis Ludwig Carsten, 1959, p. 305f.).
- In addition to creating disunity among the existing nobility, rulers used nobilitation. By bestowing titles, rulers diluted the Estates with a class that owed its social existence to them (Asch, 1997).

Associating prestige and symbolic capital with these functions was key.

- Hans Christoph von Ruepp, a leading Bavarian war commissar, was granted a "Gnadenpüldnus" (grace portrait) adorned with four rubies as a reward for his exceptional service. Elector Maximilian and his brother, Duke Albrecht, sent formal representatives to attend all three of Hans Christoph von Ruepp's weddings in 1634, 1641, and 1642. Later, despite being a civilian administrator for much of his career, Ruepp had himself painted in a full suit of black armor, kneeling like a medieval knight (Saito, 2020, p. 232ff.).
- Maximilian I of Bavaria bestowed the title of "Obrist" (Colonel) on leading administrators even if they did not lead troops in battle; and he awarded golden chains, medallions, and commemorative coins (Saito, 2020).

- "Courtly publicity . . . constituted itself in the first instance through the production, distribution, and reception of specific printed media" (Harms et al., 1985, p. 141).

B.3 Historical Case Studies: Absolutism

We describe here examples of the portrait, print, and local infringement data introduced in Section III.C.

B.3.1 Portraits

Panel A of Appendix Figure B.2 shows a 1701 portrait of Frederick I, King of Prussia, in armor with the inscription "strong and wise king." Panel B shows a 1679 portrait of Maximilian Emanuel, Duke of Bavaria, also in armor. At the bottom is a poem that celebrates his military victories.

Figure B.2: Examples: Portrait Printed Graphics

A: Frederick I



B: Maximilian Emanuel



Note Panel A: Portraitindex sbb-wadzeck-000226. Panel B: Portraitindex obj-33423445.

B.3.2 Prints

Examples of classified titles in our data include:

- "The King of Prussia and his soldiers' conversation with God, along with a triumphal ode of the King of Prussia, 1759" [Original: "des koenigs in preussen und seiner kriegs-knechte gespraech mit gott, samt einer triumpfs-ode des koenigs in pressen"]

- "Victory-crowned weapons of the imperial, electoral, Bavarian, and other allied imperial peoples, as they were led before, during, and after the glorious victory obtained on August 12, 1687, against the hereditary enemy of Christianity at Mohács, under the high command of the two incomparable heroes of Bavaria and Lorraine" [Original: "sieg-bekroente waffen der kayserlich- chur- bayrisch- und anderer aliirten reichs-voelckerwie solche vor/ in/ und nach der den 12. augusti dieses 1687. jahrs. wieder den erb-feind christl. namens bei mohatz ruehmlichst erhaltenen victori unter hohem commando der beeden unvergleichlichen heroen von bayern und lothringen ... gefuehrt worden."]

- "Brief exposition of the reasons why His Electoral Highness of Brandenburg, etc., was compelled to take up defensive arms against Electoral Cologne and Münster, 1673" [Original: "kurtze fuerstellung. aus was ursachen se. churfl. durchl. zu brandenburg/ in preussen/ zu magdeburg/ guelich/ cleve/ bergen/ stettin/ pommern/ [et]c. hertzog/ [et]c. [et]c. unuembgaenglich bewogen worden/ wider chur coelln und muenster die defensions-waffen zu ergreiffen."]

B.3.3 Infringement

We measure autocratic repression of local institutions using data from Keyser et al. (1939), a comprehensive historical encyclopedia chronicling events in German towns. Our variable counts the number of infringement instances per town and year, focusing on cases such as the direct appointment of town mayors by rulers or other interventions in local governance that eroded local autonomy.

Examples in our data include:

- In Borken (Westfalen), in 1624: "the territorial lord revoked all rights, freedoms, and privileges of the city due to its recalcitrance and appointed the city authorities himself" [Original: "Infolge der religioesen Wirren zu Ende 16. Jh. Kaempfe mit dem Landesherrn, der 1624 der Stadt wegen ihrer Widersetzlichkeit alle Rechte, Freiheiten und Priv. nahm, selbst die Stadtobrigkeit ernannte;"]

- In Moeckern, in 1710: "the king regulated the municipal administration after the ruler's office had intervened in the appointment of council positions" [Original: "1710 Regulierung des rathaeusl. Wesens durch Kg., nachdem Amt Eingriffe in die Besetzung der Ratsstellen vorgenommen hatte."]

- In Freystadt (Bayern), in 1662: "council elections were only allowed in the presence of the lord's chief official," indicating a restriction on urban self-governance [Original: "1662 Ratswahl nur in Anwesenheit des herrschaftlichen Oberamtmannes."]

C Robustness Checks

In this appendix, we assess the robustness of our baseline findings by varying the level of aggregation, clustering, and spatial spillover assumptions (Appendix Section C.1), by considering alternative estimation strategies and outcome definitions (Appendix Section C.2), and by investigating potential omitted-variable bias with richer controls and more comparable control groups (Appendix Section C.3).

C.1 Robustness: Clustering and Aggregation

We examine the robustness of our results to the measurement level of both outcomes and treatment.

A central concern is that parliament elimination varies at the constituency level. We address this both conceptually and empirically.

Conceptually, the historical discussion in Section II suggests a stylized two-step process in the rise of absolutism: wartime troop presence was highly localized, as were the initial manifestations of absolutism. Over time, rulers also introduced more uniform constituency-level institutions. The clearest manifestations of this homogenization are the adoption of the constituency-level excise (*Akzise*) and the introduction of permanent regiments. We measure both outcomes in our data as described in Section III.

Empirically, we therefore aggregate the treatment to the constituency level and estimate

$$Absolutism_{jt} = \beta Treated_j \times Post1618_t + \alpha_j + \alpha_t + \varepsilon_{jt}. \tag{7}$$

Here, $Absolutism_{jt}$ denotes either an indicator for the absence of a regional parliament in constituency j and year t, an indicator for the presence of an indirect ruler tax, or the inverse hyperbolic sine of the number of active regiments. $Treated_j$ is the inverse hyperbolic sine of cumulative troop-presence events in constituency j during the Thirty Years' War, and $Post1618_t$ is an indicator for years after 1618. α_j and α_t denote constituency and year fixed effects.

Appendix Table C.1 reports the corresponding estimates. The relationship between troop presence and absolutism remains in this aggregated panel. Although constituency borders are the natural level of aggregation for these outcomes, we also report a further robustness check that aggregates both treatment and outcomes to 1×1 degree grid cells. Appendix Table C.2 shows that the results remain robust despite the substantially smaller number of cross-sectional units.

We also provide additional town-level evidence on institutional change associated with troop presence. In Section V.D, we study the replacement of town-level institutions by ruler-appointed officials, an outcome that is closely related to the broader erosion of parliamentarism and varies naturally at the town level. Appendix Tables C.3, C.4, and C.5 further show that the results are robust to alternative clustering choices, including clustering by troop leader: standard errors remain similar across specifications, and the coefficients remain statistically significant.[1]

Our baseline analysis abstracts from spillovers across towns. To relax this assumption, we estimate a specification that augments treatment with a proximity-weighted measure of

[1]The 18 principal leaders operated across 55 campaigns. The leader-clustered column assigns each town the leader of its nearest troop movement. Some towns are equally close to the movements of two or more leaders. In our baseline, each such combination forms its own cluster, which raises the number of clusters above the leader count, to 92 in the full estimation sample and 74 in the restricted ruler-tax sample. Because inference with few clusters can over-reject (Bell and McCaffrey, 2002), we also assign every town a single leader and compute wild-cluster-bootstrap p-values at the leader level, reported in Appendix Tables C.3, C.4, and C.5. These p-values are around 1 percent for all three outcomes.

neighboring troop presence, following Acemoglu et al. (2015).[2] We therefore estimate

$$Y_{it} = \beta_1 \text{Treatment}_{it} + \beta_2 \text{Spillover}_{it} + \alpha_i + \alpha_t + \varepsilon_{it}, \tag{8}$$

with Conley spatial standard errors at a 100 km cutoff. Cluster-by-town standard errors would understate uncertainty here because the spillover regressor is itself a spatial construction.

Table C.6 reports the estimates. Across all three outcomes, the own-town coefficient on troop presence remains large and statistically significant. The spillover coefficient gives the change in the outcome from a one-standard-deviation increase in proximity-weighted exposure to neighboring treated towns. This coefficient is positive but small and not statistically significant for parliament elimination and for ruler taxes, and negative for military notables, the opposite sign of the own-town effect. The negative association for military notables is consistent with the concentration of military personnel in particular garrison towns (Tessin, 1986). We further engage with this long-run militarization equilibrium in Section V.E. These estimates are robust to alternative proximity weights (Appendix Table C.7).

In a related exercise, we exclude from the control group towns located in constituencies with above-median troop presence. Appendix Table C.8 compares treated towns to this narrower control group. Consistent with the previous results, the estimates remain robust and are generally larger than in the main specification in Table I.

[2] For $i \neq j$, define

$$F_{ij} = A_{ij} \left[1 + \gamma_d D_{ij}(1 + \gamma_e E_{ij})\right]^{-1},$$

with $F_{ii} = 0$. A_{ij} is the contiguity indicator, D_{ij} is great-circle distance, and E_{ij} is altitude variance along the geodesic. We set $\gamma_d = \gamma_e = 1$ as in Acemoglu et al. (2015), and $\text{Spillover}_{it} = (\mathbf{FX})_{it}$.

Table C.1: Troop Presence and Absolutism (Parliamentary Constituency-Level)

	Parliament Eliminated (1)	Indirect Ruler Taxes (2)	Active Regiments (3)
Troop Presence (ihs)	0.0770***	0.0636***	1.453***
	(0.0191)	(0.0145)	(0.1782)
R^2	0.78	0.44	0.58
Observations	50,170	50,170	50,170
Constituency Units	173	173	173
Outcome Mean	0.38	0.09	2.68
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Constituency	Constituency
Constituency FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table shows results of estimating the regression in equation (7) at the level of parliamentary constituencies. Observations are at the constituency-year level, with the number of constituencies indicated in the table. The independent variable is the inverse hyperbolic sine of cumulative troop-presence events in parliamentary constituency j during the Thirty Years' War, interacted with a post-1618 indicator. The dependent variables are (1) Parliament Eliminated, an absorbing constituency-level indicator equal to one from the year parliamentary constituency j's parliament is eliminated onward, (2) Indirect Ruler Taxes, a binary indicator for whether parliamentary constituency j has records of indirect ruler taxes in year t (as recorded in Härter and Stolleis (2023)), and (3) Active Regiments, the inverse hyperbolic sine of troops (regiments) in parliamentary constituency j active in year t (as documented in Tessin (1986)). Standard errors are clustered at the parliamentary constituency level.

Table C.2: Troop Presence and Absolutism (Grid Cell-Level)

	Parliament Eliminated (1)	Indirect Ruler Taxes (2)	Active Regiments (3)
Troop Presence (ihs)	0.0570**	0.0614**	0.5550**
	(0.0285)	(0.0235)	(0.2437)
R^2	0.70	0.52	0.68
Observations	22,910	22,910	22,910
Grid Cell Units	79	79	79
Outcome Mean	0.53	0.21	5.06
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Grid Cell	Grid Cell	Grid Cell
Grid Cell FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table shows results of estimating the regression in equation (7) at the level of 1×1 degree grid cells. Observations are at the grid-cell-year level, with the number of grid cells indicated in the table. The independent variable is the inverse hyperbolic sine of cumulative troop-presence events in grid cell j during the Thirty Years' War, interacted with a post-1618 indicator. The dependent variables are (1) Parliament Eliminated, an indicator for the absence of a regional parliament in grid cell j in year t, (2) Indirect Ruler Taxes, a binary indicator for whether grid cell j has records of indirect ruler taxes in year t (as recorded in Härter and Stolleis (2023)), and (3) Active Regiments, the inverse hyperbolic sine of troops (regiments) in grid cell j active in year t (as documented in Tessin (1986)). Standard errors are clustered at the grid-cell level.

Table C.3: Troop Presence and Parliament Elimination (Standard Errors)

	Parliament Eliminated						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Troop Presence	0.1075***	0.1075***	0.1075***	0.1075***	0.1075***	0.1075***	0.1075***
	(0.0148)	(0.0356)	(0.0245)	(0.0306)	(0.0416)	(0.0330)	(0.0244)
Standard-Errors	Town	Constituency	Grid Cell	50km	100km	200km	Leader
R^2	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Observations	646,700	646,700	646,700	646,700	646,700	646,700	646,700
Number of Towns	2,230	2,230	2,230	2,230	2,230	2,230	2,230
Outcome Mean	0.29	0.29	0.29	0.29	0.29	0.29	0.29
Clusters	2230	173	79	-	-	-	92
Wild Bootstrap p (18 Leaders)	-	-	-	-	-	-	0.003
Town FEs	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓

Note This table presents results of estimating equation (1), using different standard errors. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variable is Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward. Standard errors are clustered by (1) town, (2) constituency, and (3) grid cell; Conley spatial standard errors with cutoffs of (4) 50km, (5) 100km, and (6) 200km; and (7) clustered by troop leader. The wild-bootstrap row reports the p-value from a wild cluster bootstrap at the leader level (18 clusters; Rademacher weights, 999 replications, imposing the null). *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.4: Troop Presence and Ruler Taxes (Standard Errors)

	Ruler Taxes						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Troop Presence	0.0626***	0.0626***	0.0626***	0.0626***	0.0626**	0.0626**	0.0626***
	(0.0129)	(0.0176)	(0.0212)	(0.0213)	(0.0295)	(0.0313)	(0.0237)
Standard-Errors	Town	Constituency	Grid Cell	50km	100km	200km	Leader
R^2	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Observations	422,820	422,820	422,820	422,820	422,820	422,820	422,820
Number of Towns	1,458	1,458	1,458	1,458	1,458	1,458	1,458
Outcome Mean	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Clusters	1458	133	59	-	-	-	74
Wild Bootstrap p (18 Leaders)	-	-	-	-	-	-	0.011
Town FEs	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓

Note This table presents results of estimating equation (1), using different standard errors. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variable is Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t. Standard errors are clustered by (1) town, (2) constituency, and (3) grid cell; Conley spatial standard errors with cutoffs of (4) 50km, (5) 100km, and (6) 200km; and (7) clustered by troop leader. The wild-bootstrap row reports the p-value from a wild cluster bootstrap at the leader level (18 clusters; Rademacher weights, 999 replications, imposing the null). *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.5: Troop Presence and Military Notables (Standard Errors)

	Military Notables						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Troop Presence	0.0337***	0.0337***	0.0337***	0.0337***	0.0337***	0.0337**	0.0337**
	(0.0091)	(0.0098)	(0.0088)	(0.0089)	(0.0094)	(0.0147)	(0.0129)
Standard-Errors	Town	Constituency	Grid Cell	50km	100km	200km	Leader
R^2	0.39	0.39	0.39	0.39	0.39	0.39	0.39
Observations	646,700	646,700	646,700	646,700	646,700	646,700	646,700
Number of Towns	2,230	2,230	2,230	2,230	2,230	2,230	2,230
Outcome Mean	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Clusters	2230	173	79	-	-	-	92
Wild Bootstrap p (18 Leaders)	-	-	-	-	-	-	0.018
Town FEs	✓	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓	✓

Note This table presents results of estimating equation (1), using different standard errors. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variable is Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered by (1) town, (2) constituency, and (3) grid cell; Conley spatial standard errors with cutoffs of (4) 50km, (5) 100km, and (6) 200km; and (7) clustered by troop leader. The wild-bootstrap row reports the p-value from a wild cluster bootstrap at the leader level (18 clusters; Rademacher weights, 999 replications, imposing the null). *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.6: Troop Presence and Spillovers

	Parliament Eliminated	Ruler Taxes	Military Notables
	(1)	(2)	(3)
Troop Presence	0.1013***	0.0543**	0.0385***
	(0.0335)	(0.0238)	(0.0101)
Troop Presence (Spillover)	0.0156	0.0183	-0.0120**
	(0.0210)	(0.0129)	(0.0056)
R^2	0.70	0.57	0.39
Observations	646,700	422,820	646,700
Town Units	2,230	1,458	2,230
Outcome Mean	0.29	0.07	0.04
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Conley (100km)	Conley (100km)	Conley (100km)
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table reports estimates of the augmented specification in equation (8), where the spillover reflects proximity-weighted exposure in neighboring towns' troop presence. The spillover regressor is standardized to mean zero and unit variance. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are Conley spatial standard errors with a 100 km cutoff. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.7: Troop Presence and Spillovers: Specification Robustness

	Parliament Eliminated		Ruler Taxes		Military Notables	
Specification	Own	Spillover	Own	Spillover	Own	Spillover
Baseline (Conley 100km)	0.1013***	0.0156	0.0543**	0.0183	0.0385***	-0.0120**
	(0.0335)	(0.0211)	(0.0239)	(0.0128)	(0.0101)	(0.0056)
$\gamma_d = 0.5$ (slow distance decay)	0.0991***	0.0198	0.0539**	0.0180	0.0388***	-0.0121**
	(0.0322)	(0.0224)	(0.0233)	(0.0137)	(0.0102)	(0.0056)
$\gamma_d = 2$ (fast distance decay)	0.1028***	0.0124	0.0546**	0.0183	0.0382***	-0.0118**
	(0.0345)	(0.0199)	(0.0243)	(0.0119)	(0.0100)	(0.0054)
$\gamma_e = 0$ (distance only)	0.1013***	0.0155	0.0542**	0.0183	0.0385***	-0.0121**
	(0.0335)	(0.0211)	(0.0238)	(0.0129)	(0.0101)	(0.0056)
Neighbor cap 50km	0.1013***	0.0157	0.0543**	0.0182	0.0384***	-0.0120**
	(0.0335)	(0.0210)	(0.0238)	(0.0129)	(0.0101)	(0.0056)
Neighbor cap 200km	0.1013***	0.0156	0.0543**	0.0182	0.0385***	-0.0120**
	(0.0335)	(0.0210)	(0.0239)	(0.0128)	(0.0101)	(0.0056)
Conley 50km	0.1013***	0.0156	0.0543***	0.0183**	0.0385***	-0.0120***
	(0.0246)	(0.0189)	(0.0176)	(0.0088)	(0.0089)	(0.0041)
Conley 200km	0.1013***	0.0156	0.0543**	0.0183*	0.0385**	-0.0120**
	(0.0257)	(0.0187)	(0.0269)	(0.0109)	(0.0151)	(0.0049)
Cluster by town	0.1013***	0.0156	0.0543***	0.0183***	0.0385***	-0.0120***
	(0.0284)	(0.0223)	(0.0133)	(0.0065)	(0.0092)	(0.0038)

Note This table reports the spillover specification of equation (8) under alternative choices for the proximity weights and the standard errors. γ_d governs the decay with great-circle distance and γ_e the decay with altitude variance along the geodesic; the baseline sets $\gamma_d = \gamma_e = 1$. "Neighbor cap" is the maximum Delaunay edge length retained in the adjacency graph (default 100 km). "Conley" is the spatial-correlation cutoff. The last row reports estimates with town-clustered standard errors for comparison. Each cell pairs the coefficient with the standard error in parentheses below. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.8: Troop Presence and Absolutism (Clean Controls)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1650***	0.0795***	0.0336***
	(0.0615)	(0.0131)	(0.0102)
R^2	0.71	0.55	0.41
Observations	452,400	324,800	452,400
Town Units	1,560	1,120	1,560
Outcome Mean	0.29	0.06	0.05
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), excluding from the control group towns located in constituencies with above-median troop presence. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

C.2 Robustness: Estimation Method and Variable Definition

Next, we consider as treatment the staggered timing of the first town-level troop presence event, instead of the interaction with $Post1618_t$. About a quarter of the archival presence entries carry no reliable year; we date these events using the campaign itineraries of the exposing armies and additional evidence from secondary sources, so that every treated town has a first documented presence year. We re-estimate equation (1) with the dummy $Treated_{it}$ equal to one from the first documented troop presence event in town i onward. Appendix Table C.9 shows that our results are robust to this specification. Appendix Table C.10 shows that they are also robust to moving the first year of towns with undated entries earlier, to the first-presence year of the nearest treated town. We also apply heterogeneity-robust estimators to the staggered first-presence timing: the imputation estimator of Borusyak et al. (2024) and the estimators of Callaway and Sant'Anna (2021), Sun and Abraham (2021), and Wooldridge (2025). Appendix Table C.11 reports, for parliament elimination, ruler taxes, military notables, and permanent regiments, effects averaged over the first fifteen post-treatment decades, the longest horizon observed for every treatment cohort; the estimates are positive and consistent with the baseline.[3]

We also consider alternative estimators suited to particular outcomes. Because the parliament outcome is effectively absorbing, Appendix Table C.12 reports a Cox proportional hazards model. Results are qualitatively similar: troop presence is associated with a higher hazard of parliament elimination. For ruler taxation, we also examine the extensive margin of fiscal capacity. We classify all tax account books into "simple" and "complex" taxes using the keywords in Becker et al. (2025). This comes at the cost of no longer identifying the recipient of tax revenues as precisely as in our main approach. Appendix Table C.13 shows that troop presence is associated with an increase in both simple and complex taxes. Since we use the inverse hyperbolic sine to measure military notables, Appendix Table C.14 implements the robustness checks proposed by Chen and Roth (2024). Appendix Tables C.15, C.16, C.17, and C.18 apply the same checks to the outcomes in Table V, with similar results.

[3]Military notables are a slow-moving stock dated by imputed activity spans, from age 25 until death. Spans that begin before the first presence event contaminate the last pre-treatment decades. The estimators of Callaway and Sant'Anna (2021) and Sun and Abraham (2021) compare outcomes against these decades and therefore attenuate the notables estimates relative to those of Borusyak et al. (2024) and Wooldridge (2025), which construct the counterfactual from the full pre-treatment history.

Table C.9: Troop Presence and Absolutism (Exact Timing)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1112***	0.0623***	0.0322***
	(0.0371)	(0.0129)	(0.0090)
R^2	0.70	0.56	0.39
Observations	646,700	422,820	646,700
Town Units	2,230	1,458	2,230
Outcome Mean	0.29	0.07	0.04
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1) with a staggered treatment. The independent variable is an indicator equal to one after the first documented troop presence event in a town. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.10: Troop Presence and Absolutism (Exact Timing, Imputed First Years)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1107***	0.0623***	0.0321***
	(0.0371)	(0.0129)	(0.0091)
R^2	0.70	0.56	0.39
Observations	646,700	422,820	646,700
Town Units	2,230	1,458	2,230
Outcome Mean	0.29	0.07	0.04
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1) with a staggered treatment. The independent variable is an indicator equal to one after the first documented troop presence event in a town, where the first year of towns with undated presence entries is moved earlier, to the first-presence year of the nearest treated town. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.11: Troop Presence and Absolutism (Heterogeneity-Robust Estimators)

	Parliament Eliminated	Ruler Taxes	Military Notables	Permanent Regiments
	(1)	(2)	(3)	(4)
Borusyak et al. (2024)	0.1094***	0.0614***	0.0294***	0.2148***
	(0.0364)	(0.0195)	(0.0098)	(0.0514)
Callaway and Sant'Anna (2021)	0.1057***	0.0480***	0.0165	0.2087***
	(0.0365)	(0.0182)	(0.0103)	(0.0540)
Sun and Abraham (2021)	0.1058***	0.0481***	0.0166	0.2087***
	(0.0363)	(0.0181)	(0.0101)	(0.0518)
Wooldridge (2025)	0.1094***	0.0614***	0.0294***	0.2148***
	(0.0365)	(0.0195)	(0.0098)	(0.0519)
Outcome Def.	(0/1)	(0/1)	(ihs)	(ihs)
Unit	Town	Town	Town	Territory
Cluster	Territory (1618)	Territory (1618)	Territory (1618)	Territory (1618)

Note This table reports average treatment effects of troop presence from four heterogeneity-robust difference-in-differences estimators, averaged over the first fifteen post-treatment decades, the longest horizon observed for every treatment cohort. Treatment is the staggered timing of the first troop presence event, in the town (columns 1–3) or the territory (column 4); the data are collapsed to the decade level. The dependent variables are (1) Parliament Eliminated, (2) Ruler Taxes, and (3) Military Notables at the town level, and (4) Permanent Regiments, the inverse hyperbolic sine of regiments remaining active beyond 1789 (Tessin, 1986), at the territory level. Standard errors are clustered at the territory (1618) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.12: Troop Presence and Parliament Elimination (Cox Hazard Model)

	Parliament Eliminated			
	(1)	(2)	(3)	(4)
Troop Presence	0.493***	0.550***	0.550***	0.550***
	(0.0656)	(0.0624)	(0.0624)	(0.196)
Observations	445,795	445,795	445,795	445,795
Number of Towns	2230	2230	2230	2230
Controls		✓	✓	✓
Standard Errors	Robust	Robust	Town	Constituency

Note This table presents results of estimating equation (1), using a Cox proportional hazards model. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variable is Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward. Standard errors are indicated in the table. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.13: Troop Presence and Simple/Complex Taxes

	Simple Taxes (1)	Complex Taxes (2)
Troop Presence	0.0379***	0.0494***
	(0.0116)	(0.0149)
R^2	0.56	0.61
Observations	422,820	422,820
Town Units	1,458	1,458
Outcome Mean	0.06	0.14
Outcome Def.	(0/1)	(0/1)
Standard errors	Town	Town
Town FEs	✓	✓
Year FEs	✓	✓

Note This table presents results of estimating equation (1), with simple/complex taxes as an outcome. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are Simple Taxes, a binary indicator for whether town i has a record of simple taxes in year t, and Complex Taxes, a binary indicator for whether town i has a record of complex taxes in year t. Standard errors are clustered at the town level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.14: Troop Presence and Military Notables (ihs Robustness)

	Military Notables					
	(1)	(2)	(3)	(4)	(5)	(6)
Troop Presence	0.0337***	0.0176***	0.0197***	0.0384***	0.0801***	0.0208***
	(0.0091)	(0.0052)	(0.0056)	(0.0103)	(0.0225)	(0.0064)
R^2	0.39	0.40	0.41	0.39	0.34	0.30
Observations	646,700	646,700	646,700	646,700	646,700	646,700
Number of Towns	2,230	2,230	2,230	2,230	2,230	2,230
Outcome Mean	0.0442	0.0114	-0.0847	-0.9496	-2.872	0.0389
Town FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓
Cluster	Town	Town	Town	Town	Town	Town
LHS Definition	ihs	x=0	x=0.1	x=1	x=3	any

Note This table presents results of estimating equation (1), using different outcome definitions. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variable is Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Variations in the transformation of the dependent variable are as noted in the column description. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.15: Troop Presence and Militaristic Prints (ihs Robustness)

	Militaristic Prints					
	(1)	(2)	(3)	(4)	(5)	(6)
Troop Presence	0.0540***	0.0377***	0.0399***	0.0596***	0.1034***	0.0219***
	(0.0181)	(0.0139)	(0.0145)	(0.0198)	(0.0336)	(0.0075)
R^2	0.57	0.55	0.56	0.57	0.57	0.54
Observations	646,700	646,700	646,700	646,700	646,700	646,700
Number of Towns	2,230	2,230	2,230	2,230	2,230	2,230
Outcome Mean	0.0457	0.0270	-0.0707	-0.9492	-2.901	0.0238
Town FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓
Cluster	Town	Town	Town	Town	Town	Town
LHS Definition	ihs	x=0	x=0.1	x=1	x=3	any

Note This table presents results of estimating equation (1), using different outcome definitions. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variable is Militaristic Prints, the inverse hyperbolic sine of ruler prints with militaristic titles from town i and year t. Variations in the transformation of the dependent variable are as noted in the column description. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.16: Troop Presence and Ruler and Court Portraits (ihs Robustness)

	Ruler and Court Portraits					
	(1)	(2)	(3)	(4)	(5)	(6)
Troop Presence	0.0347***	0.0262**	0.0274**	0.0379***	0.0614***	0.0117**
	(0.0131)	(0.0103)	(0.0107)	(0.0143)	(0.0229)	(0.0046)
R^2	0.51	0.49	0.49	0.51	0.51	0.49
Observations	646,700	646,700	646,700	646,700	646,700	646,700
Number of Towns	2,230	2,230	2,230	2,230	2,230	2,230
Outcome Mean	0.0230	0.0153	-0.0837	-0.9745	-2.954	0.0102
Town FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓
Cluster	Town	Town	Town	Town	Town	Town
LHS Definition	ihs	x=0	x=0.1	x=1	x=3	any

Note This table presents results of estimating equation (1), using different outcome definitions. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variable is Ruler and Court Portraits, the inverse hyperbolic sine of ruler and court portraits from town i and year t. Variations in the transformation of the dependent variable are as noted in the column description. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.17: Troop Presence and Ruler Appointments (ihs Robustness)

	Ruler Appointments					
	(1)	(2)	(3)	(4)	(5)	(6)
Troop Presence	0.0600***	0.0276***	0.0318***	0.0696***	0.1534***	0.0419***
	(0.0150)	(0.0068)	(0.0075)	(0.0173)	(0.0424)	(0.0128)
R^2	0.61	0.51	0.54	0.61	0.61	0.61
Observations	646,700	646,700	646,700	646,700	646,700	646,700
Number of Towns	2,230	2,230	2,230	2,230	2,230	2,230
Outcome Mean	0.1360	0.0270	-0.0601	-0.8440	-2.586	0.1289
Town FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓
Cluster	Town	Town	Town	Town	Town	Town
LHS Definition	ihs	x=0	x=0.1	x=1	x=3	any

Note This table presents results of estimating equation (1), using different outcome definitions. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variable is Ruler Appointments, the inverse hyperbolic sine of the number of ruler appointments and related infringements of local institutions in town i and year t. Variations in the transformation of the dependent variable are as noted in the column description. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.18: Troop Presence and Noble State Service (ihs Robustness)

	Noble State Service					
	(1)	(2)	(3)	(4)	(5)	(6)
Troop Presence	0.0312***	0.0200***	0.0214***	0.0347***	0.0641**	0.0147**
	(0.0105)	(0.0070)	(0.0073)	(0.0118)	(0.0253)	(0.0073)
R^2	0.58	0.60	0.62	0.57	0.49	0.42
Observations	646,700	646,700	646,700	646,700	646,700	646,700
Number of Towns	2,230	2,230	2,230	2,230	2,230	2,230
Outcome Mean	0.0886	0.0288	-0.0640	-0.8991	-2.755	0.0720
Town FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓
Cluster	Town	Town	Town	Town	Town	Town
LHS Definition	ihs	x=0	x=0.1	x=1	x=3	any

Note This table presents results of estimating equation (1), using different outcome definitions. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variable is Noble State Service, the inverse hyperbolic sine of the number of nobles from town i in year t who held court or military positions. Variations in the transformation of the dependent variable are as noted in the column description. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

C.3 Robustness: Omitted Variables

First, we directly account for a broad range of potential strategic confounders in our baseline estimates. In Appendix Table C.19, we flexibly control for geographic and economic covariates, such as the presence of a fortification or the presence of a trade route in 1618.[4] Our results are robust to accounting for these town characteristics, which suggests that time-varying unobserved shocks do not confound our estimation.[5]

Second, we present several strategies to construct more comparable control groups. Our aim is to identify towns whose exposure plausibly reflected campaign contingencies or imperfect knowledge of local conditions, rather than deliberate targeting. We include all economic and geographic town-level covariates to estimate treatment propensity scores via Probit, which are then used for nearest-neighbor matching. This approach is restrictive, especially given the often limited knowledge of local geography discussed in Section II. Appendix Table C.21 shows that the matching is effective in establishing covariate balance across treated and untreated towns.[6] In Appendix Table C.22, we show that our results are robust to estimating equation (1) in this matched sample. The method of calculating propensity scores does not drive our results: results are qualitatively unchanged if we use full instead of nearest-neighbor matching (Appendix Table C.23), or draw on Euclidean distance in the nearest-neighbor match (Appendix Table C.24).

Next, we assess whether the results are accounted for by cross-constituency differences. Appendix Figure C.2 reports estimates of equation (1) obtained by leaving out one parliamentary constituency at a time. The coefficients for all three outcomes remain stable across omissions. In a similar exercise, Appendix Figure C.3 reports leave-one-leader-out estimates, where each town is assigned to the leader associated with the nearest troop movement coded in Section III. These coefficients are likewise stable, indicating that no single military leader accounts for our baseline findings.

Finally, Appendix Table C.25 shows that the results are robust to excluding all locations that never convened a parliament.

[4] Parallel to the balance exercises in Appendix Table A.5, our covariates are distance to the coast (std.), latitude, longitude, distance to the nearest town fortified in 1618 (std.), distance to the nearest trade route (std.), an indicator of whether a town was in the jurisdiction of a fiscal Chamber in 1618, ruggedness (std.), distance to the closest navigable river (std.), agricultural suitability (std.), the number of markets added in 1600–1618 (std.), and public and private construction events 1600–1618 (std.), all interacted with $Post1618_t$.

[5] Our baseline control is the agricultural-suitability index of Lehner and Philippe (2025) in 1618, which is based only on climate and geography. Because suitability and land use changed after the war, partly through the absolutist reorganization of forestry and agriculture (Scott, 1998), Appendix Table C.20 adds two time-varying proxies: the annual value of this index and century-level cropland cover from HYDE (Klein Goldewijk, 2016). Results are unchanged.

[6] Using the standardized mean difference as a metric, Appendix Figure C.1 further underlines covariate balance in the matched sample.

Table C.19: Troop Presence and Absolutism (Controls)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1057***	0.0534***	0.0317***
	(0.0356)	(0.0130)	(0.0088)
R^2	0.72	0.58	0.39
Observations	646,700	422,820	646,700
Town Units	2,230	1,458	2,230
Outcome Mean	0.29	0.07	0.04
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓
Controls	✓	✓	✓

Note This table presents results of estimating equation (1), including controls. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Controls are distance to the coast (std.), latitude, longitude, distance to the nearest town fortified in 1618 (std.), distance to the nearest trade route (std.), an indicator of whether a town was in the jurisdiction of a fiscal Chamber in 1618, ruggedness (std.), distance to the closest navigable river (std.), agricultural suitability (std.), the number of markets added in 1600–1618 (std.), and public and private construction events 1600–1618 (std.), all interacted with $Post1618_t$. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.20: Troop Presence and Absolutism (Time-Varying Soil Suitability)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1038***	0.0542***	0.0312***
	(0.0368)	(0.0130)	(0.0087)
R^2	0.72	0.58	0.39
Observations	645,830	421,950	645,830
Town Units	2,227	1,455	2,227
Outcome Mean	0.29	0.07	0.04
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓
Controls	✓	✓	✓

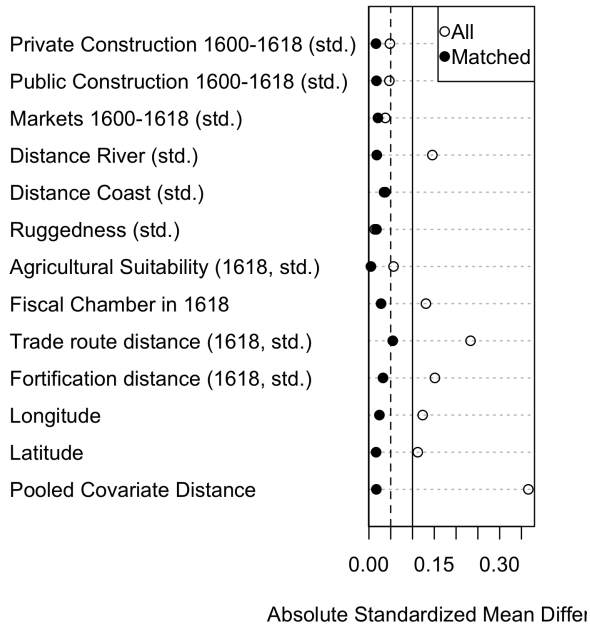
Note This table presents results of estimating equation (1), augmented with two time-varying agricultural-suitability proxies and the full set of baseline controls. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. The two added time-varying controls are (i) the spatio-temporal agricultural-suitability index of Lehner and Philippe (2025), derived from a surface energy and water balance model using only geographic and climatic inputs, and (ii) century-level cropland cover from the HYDE database (Klein Goldewijk, 2016); both are interacted with $Post1618_t$, alongside the full set of baseline controls from Table C.19. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.21: Troop Presence (Balance, Matched Sample)

	Troop Presence				
	(1)	(2)	(3)	(4)	(5)
Latitude	0.0049				-0.0304
	(0.0198)				(0.0421)
Longitude	0.0016				0.0104
	(0.0126)				(0.0143)
Fortification distance (1618, std.)	0.0312				0.0370
	(0.0590)				(0.0603)
Trade route distance (1618, std.)		-0.0453			-0.0595
		(0.0428)			(0.0442)
Fiscal Chamber in 1618			-0.0310		-0.0329
			(0.0613)		(0.0616)
Agricultural Suitability (1618, std.)			0.0112		0.0138
			(0.0320)		(0.0331)
Ruggedness (std.)			0.0306		0.0307
			(0.0350)		(0.0395)
Distance Coast (std.)			-0.0424		-0.0901
			(0.0391)		(0.0669)
Distance River (std.)			0.0033		0.0028
			(0.0331)		(0.0358)
Markets 1600-1618 (std.)				0.0119	0.0107
				(0.0265)	(0.0263)
Public Construction 1600-1618 (std.)				0.0097	0.0105
				(0.0294)	(0.0296)
Private Construction 1600-1618 (std.)				0.0115	0.0102
				(0.0249)	(0.0251)
Observations	1,726	1,726	1,726	1,726	1,726

Note This table presents coefficients from the Probit model $\Pr(Treated_i = 1 \mid X_i) = \Phi(X_i\gamma)$, with X_i denoting covariates. Observations are at the town level. The sample is a matched sample as described in Appendix Section C.3. The number of towns is indicated in the table. The dependent variable is an indicator of whether a town was exposed to troops during the Thirty Years' War. Standard errors are robust. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Figure C.1: Troop Presence (Balance, Full Sample and Matched Sample)



Note This graph shows the balance of pre-war observables with respect to the treatment, in the full (white dots) and matched (black dots) sample. The matched sample is obtained via Probit nearest-neighbor matching using distance to the coast (std.), latitude, longitude, distance to the nearest town fortified in 1618 (std.), distance to the nearest trade route (std.), an indicator of whether a town was in the jurisdiction of a fiscal Chamber in 1618, ruggedness (std.), distance to the closest navigable river (std.), agricultural suitability (std.), the number of markets added in 1600–1618 (std.), and public and private construction events 1600–1618 (std.).

Table C.22: Troop Presence and Absolutism (Nearest-Neighbor Matching)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1081***	0.0554***	0.0297***
	(0.0333)	(0.0140)	(0.0098)
R^2	0.70	0.56	0.37
Observations	500,540	316,390	500,540
Matched Sample	✓	✓	✓
Town Units	1,726	1,091	1,726
Outcome Mean	0.31	0.08	0.05
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), in a matched sample. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. The matched sample is obtained via Probit distance nearest-neighbor matching using all town covariates in Table C.21. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.23: Troop Presence and Absolutism (Full Matching)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.0953***	0.0519***	0.0341***
	(0.0348)	(0.0156)	(0.0095)
R^2	0.70	0.56	0.39
Observations	646,700	422,820	646,700
Matched Sample	✓	✓	✓
Town Units	2,230	1,458	2,230
Outcome Mean	0.29	0.07	0.04
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), in a matched sample. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. The matched sample is obtained via Probit distance full matching using all covariates in Table C.21. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.24: Troop Presence and Absolutism (Euclidean Distance Matching)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.0944***	0.0445***	0.0366***
	(0.0298)	(0.0147)	(0.0093)
R^2	0.70	0.56	0.34
Observations	500,540	302,470	500,540
Matched Sample	✓	✓	✓
Town Units	1,726	1,043	1,726
Outcome Mean	0.32	0.08	0.05
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), in a matched sample. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. The matched sample is obtained via Euclidean distance nearest-neighbor matching using all covariates in Table C.21. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

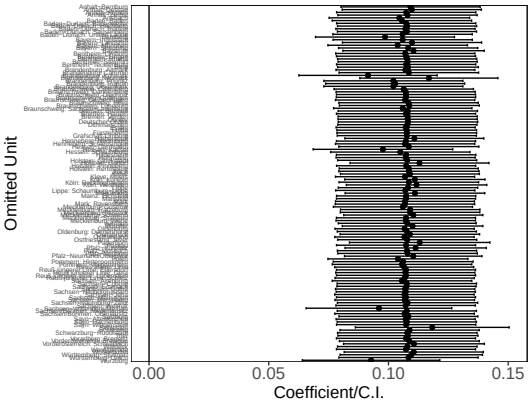
Table C.25: Troop Presence and Absolutism (Ever Convened Parliament)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1163***	0.0617***	0.0316***
	(0.0394)	(0.0135)	(0.0100)
R^2	0.57	0.56	0.39
Observations	564,630	381,350	564,630
Town Units	1,947	1,315	1,947
Outcome Mean	0.19	0.07	0.05
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

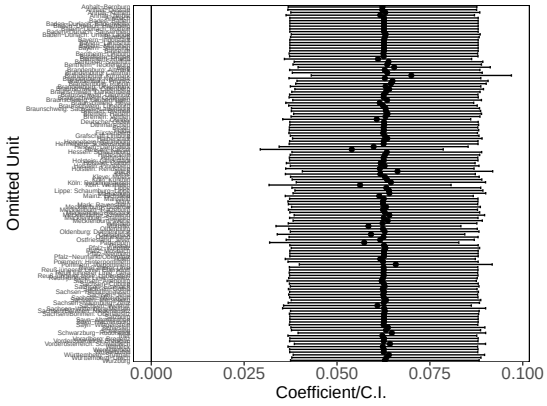
Note This table presents results of estimating equation (1), in a sample that only includes towns which ever convened a parliament. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Figure C.2: Troop Presence and Absolutism (Leave-Out Plots – Constituency)

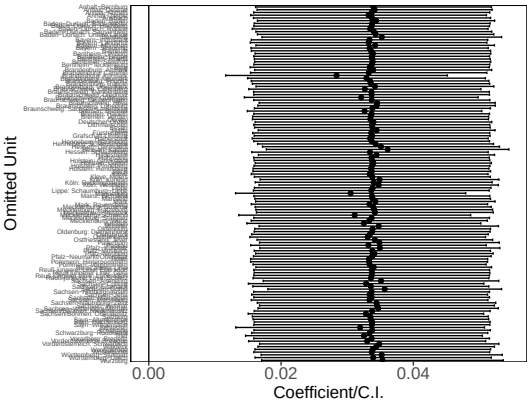
A: Parliament Eliminated



B: Ruler Taxes



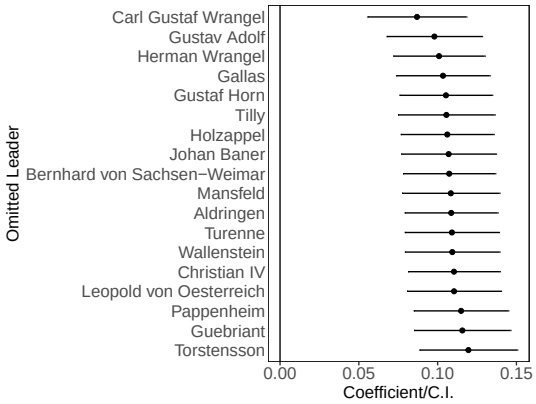
C: Military Notables



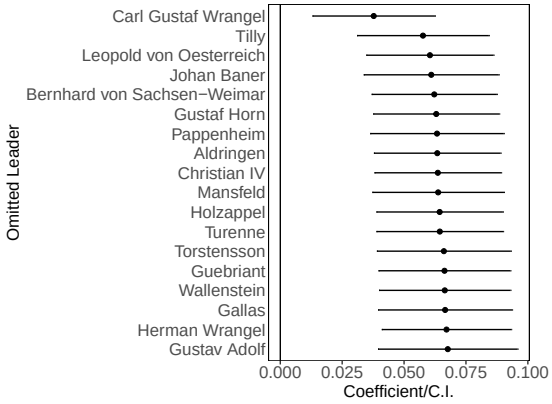
Note This plot shows results of estimating equation (1), with 95 percent confidence intervals, leaving out one constituency at a time. Observations are at the town-year level. The full sample comprises 290 years and 2,230 towns. The dependent variables are (A) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (B) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (C) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the town level.

Figure C.3: Troop Presence and Absolutism (Leave-Out Plots – Leader)

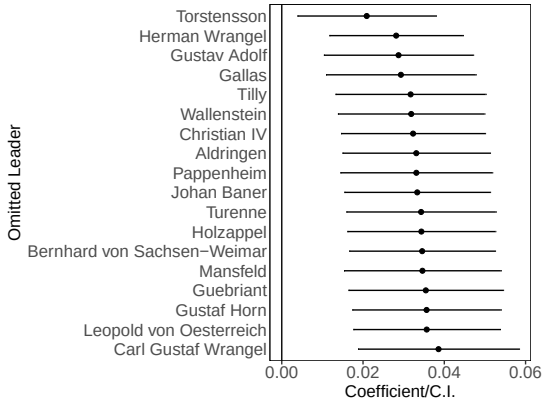
A: Parliament Eliminated



B: Ruler Taxes



C: Military Notables



Note This plot shows results of estimating equation (1), with 95 percent confidence intervals, leaving out one leader at a time. Each troop presence event is assigned to the nearest troop movement of a military leader. Observations are at the town-year level. The full sample comprises 290 years and 2,230 towns. The dependent variables are (A) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (B) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (C) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the town level.

C.4 Unadjusted Instrument Robustness

This section is concerned with the robustness of the findings in Panel A of Table II. In Appendix Table C.26, we show that our results are robust to including flexible controls. Controls are as defined in Appendix Table C.19.

Appendix Tables C.27 and C.28 sharpen the interpretation of the instrument as identifying non-targeted towns: we narrow the sample to exclude all fortified towns and omit towns featured in Swedish military plans. Our results remain robust.

Table C.26: Troop Presence and Absolutism (Unadjusted Instrument, Controls)

	Parliament Eliminated	Ruler Taxes	Military Notables
	(1)	(2)	(3)
Troop Presence	0.4581***	0.2613***	0.5180***
	(0.1704)	(0.0872)	(0.1072)
R^2	0.70	0.56	0.39
Observations	646,700	422,820	646,700
IV	✓	✓	✓
Town Units	2,230	1,458	2,230
Outcome Mean	0.29	0.07	0.04
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓
Controls	✓	✓	✓

Note This table presents results of estimating equation (1), using an instrumental variable based on the distance of a town to the closest campaign least-cost path. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Controls are distance to the coast (std.), latitude, longitude, distance to the nearest town fortified in 1618 (std.), distance to the nearest trade route (std.), an indicator of whether a town was in the jurisdiction of a fiscal Chamber in 1618, ruggedness (std.), distance to the closest navigable river (std.), agricultural suitability (std.), the number of markets added in 1600–1618 (std.), and public and private construction events 1600–1618 (std.), all interacted with $Post1618_t$. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.27: Troop Presence and Absolutism (Unadjusted Instrument, Excluding Fortified Towns)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.4905**	0.2232**	0.3605***
	(0.2091)	(0.0926)	(0.1023)
R^2	0.70	0.58	0.29
Observations	550,710	352,640	550,710
IV	✓	✓	✓
Town Units	1,899	1,216	1,899
Outcome Mean	0.29	0.06	0.03
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), using an instrumental variable based on the distance of a town to the closest campaign least-cost path. The data are subset to exclude fortified towns. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.28: Troop Presence and Absolutism (Unadjusted Instrument, Excluding Towns in Swedish Military Plans)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.4237**	0.3218***	0.3865***
	(0.1792)	(0.1048)	(0.0982)
R^2	0.70	0.57	0.33
Observations	602,910	390,340	602,910
IV	✓	✓	✓
Town Units	2,079	1,346	2,079
Outcome Mean	0.29	0.07	0.03
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), using an instrumental variable based on the distance of a town to the closest campaign least-cost path. The data are subset to a sample that omits towns featured in Swedish military plans. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

C.5 Borusyak and Hull (2023)

Notation

As our baseline causal model, consider a simplified (time-invariant) version of regression equation (1):

$$y_i = \beta x_i + \varepsilon_i$$

with $i = 1, \ldots, N$ for the N towns in the Holy Roman Empire, $x_i = Treated_i$ an indicator of the presence of troops in town i during the Thirty Years' War, and $y_i = RulerTaxes_i$ an indicator of the levying of ruler taxes. We aim to estimate β.[7]

Our instrument is, for each town, the inverse hyperbolic sine of the distance to the closest campaign least-cost path. This instrument is computed according to a known, deterministic function:

$$z_i = \tau\left(TroopMovements; Loc_i\right)$$

with components:

- $TroopMovements = (Realized_k)_{k=1}^{K}$: a vector of all realized and alternative troop movements, with $Realized_k$ an indicator of whether troop movement k was realized.
- Loc_i: the geographic location of town i.
- $\tau\left(TroopMovements, Loc_i\right)$: a function that proceeds in four steps.
    1. For each realized troop movement (i.e. each nonzero element in $TroopMovements$), calculate least-cost paths that connect fortified towns.
    2. Collect all realized troop movements in one spatial line object.
    3. Calculate the minimum distance of town i to this spatial line object.
    4. Take the inverse hyperbolic sine of this distance.

In the notation of Borusyak and Hull (2023), the function $\tau\left(TroopMovements; Loc_i\right)$ can thus be written as $f\left(g; w_i\right)$, with

- $f() = \tau()$ a common function,
- $g = TroopMovements$ a vector of shocks, and
- $w_i = Loc_i$ a unit-specific measure of exposure.

The dimension of g is $K = |R| + |C|$ with R the set of realized troop movements and C the set of alternative troop movements. We describe the construction of these sets in Section III.B.

[7] Extending the argument to our other outcomes, or to a panel setting with $t = 1500, \ldots, 1789$, is straightforward.

Least-Cost Path Construction

We compute least-cost paths with the `leastcostpath` package in `R`. The cost surface is built from a digital elevation model of Europe, reprojected to UTM zone 32N (EPSG:32632). We convert elevation into movement cost with a slope-based, anisotropic cost function for wheeled transport (using the package defaults of 16-neighbor connectivity and a critical slope of 12 percent), so that steeper terrain is more costly to traverse. For each origin–destination pair of fortified towns, we solve for the minimum-cost route (`create_lcp`). For each town, we then take the minimum distance to the nearest realized least-cost path and apply the inverse hyperbolic sine.

Assumptions

Drawing on this notation, we discuss the three key assumptions in Borusyak and Hull (2023):

- Assumption 1 (Shock exogeneity): $g \perp \varepsilon | w$.

  This assumption states that there is an as-good-as-random component to the decision of military leaders to take one route but not the other and that this decision is orthogonal to town unobservables conditional on town locations. Given the historical evidence in Section II.B, which highlights that campaign paths were not deterministic and that geographical determinants were key to the strategy of invading armies, this assumption appears plausible.[8]

- Assumption 2 (Known assignment process): $G(g|w)$ is known in the support of w.

  Analogous to the approach in Borusyak and Hull (2023), Section 4, we apply a clustered permutation of campaign paths: At each juncture, we assume $G(g|w)$ to be uniform over all possible continuations of the campaign path.[9]

- Assumption 3 (Weak mutual dependence): $\mathbb{E}_{P_N}\left[\frac{1}{N^2}\sum_{i,j}\left|\mathrm{Cov}_{P_N}\left[\tilde{z}_i, \tilde{z}_j \mid w\right]\right|\right] \to 0$.

  This requires the shocks to induce 'enough' cross-sectional variation in the recentered instrument. Our setting has a number of shocks that traverse different geographic regions and hence impact different sets of towns. The impact of any finite set of shocks on the covariance of the recentered instrument is hence small, and mutual dependence is low.

If these three assumptions are satisfied, estimates using the recentered instrument are consistent for β (Proposition 1).

Implementation Algorithm

We use the fact that $z_i = \tau\left(TroopMovements; Loc_i\right)$ together with Assumption 2 to obtain alternative values of the instrument.

Our algorithm proceeds in three steps:

[8] From a design-based perspective, this assumption is transparent because the assignment process is explicitly modeled; its credibility therefore depends on the historical plausibility of the alternative campaign set and the balance checks reported below.

[9] In Borusyak and Hull (2023), this permutation is applied within clusters of similar planned lines in the Chinese high-speed rail network. We discuss the robustness of our results to this assumption below.

1. **Shock Distribution.** We use $G(g|w)$ to obtain different realizations of the vector $g = TroopMovements$. We sample troop movements uniformly at random from the junctures at which possible campaign routes branch off. Each movement is drawn independently, so the movements that follow a drawn alternative keep their own routes. We repeat this process 1,000 times.

2. **Instrument Function.** We plug each realization of $TroopMovements$ into $\tau()$ to compute the instrument. For each troop movement that has $Realized_k = 1$ in the simulation, we connect its start point, the fortified towns along it, and its end point by least-cost paths, as described in Section III.B, and calculate the minimum distance of each town to the closest path.

3. **Expected Instrument.** We average the resulting instrument across all realizations of $TroopMovements$ to obtain the expected instrument of each town.

C.6 Processing of the Wartime Correspondence

The alternative troop movements that recenter the instrument are built from the sources in Appendix Table A.3: the digitized correspondence of Axel Oxenstierna (Riksarkivet, 2024), comprising 4,419 letters, the correspondence of Maximilian of Bavaria and his allies (Goetz et al., 1907), and the secondary literature on the war's campaigns. A large language model, Google's Gemini (model `gemini-3.7-flash`), reads every letter and every passage and extracts each troop movement that the source describes as planned, ordered, or considered. We keep the movements of the commanders in our data that were not carried out and discard those that follow the realized route. Each remaining movement joins the commander's realized route where the source places the army or, failing that, at the point of the same month nearest to the plan's first destination.

The extraction uses a single query per letter or passage. The prompt reads, lightly normalized for formatting:

```
### ROLE
Source: Letters and historical literature on troop movements in the Thirty
Years' War.
Input: One letter (a summary, the full text, or both) or one passage of a
book.
Task: List the army movements that were planned, instructed, weighed as an
alternative, or counterfactual. Leave out marches the text only reports as
done.
Output: One row per movement, with the places of its route in marching order.

### SCHEMA
- leader (string): commander of the army that moves
- date_year (integer): year the movement was planned or ordered
- date_month (integer): month, 1 to 12; empty if not given
- day (integer): day of the month; empty if not given
- movement_type (string, one of):
  * planned: the commander's own intention
  * instructed: ordered, requested or advised by a superior
  * alternative: one of several options weighed, or a proposal turned down
  * counterfactual: a movement the author says could, should or would have
been made
- carried_out (string, one of: yes, partly, no, unknown): whether the text
says the movement was carried out
- instruction (string): the passage in English, at most 150 words: quoted from
an English text, translated from any other; only the sentences on this
movement, omissions marked (...)
- quote (string): the first 8 to 15 words of the passage, copied letter for
letter from the input
- page (string): book: printed page of the quote, from the page numbers in the
input; letter: empty
- cf_comment (string): one short remark for the coder: who decided, and why
the movement was or was not carried out
- places (array of objects):
  - within_cf_id (integer): 0 = where the army stood when the movement was
planned; 1, 2, ... = the places of the planned route in marching order, the
destination last
  - locality (string): one town under its modern German name (Wien, Eger,
Donauwoerth), a region as 'Boehmen (Region)', a river as 'Mosel (Fluss)'
  - latitude (number): decimal degrees north; for a region or a river a
central point
```

- longitude (number): decimal degrees east

NOTES
- Take a movement of an army or corps under a named commander that the text presents as intended, ordered, proposed, requested, weighed against another course, attempted and prevented, or as what could have been done. Skip garrisons, recruiting, supply, and fleets without troops.
- leader: use these spellings where they apply: Tilly, Aldringen, Christian IV, Bernhard von Sachsen-Weimar, Guebriant, Turenne, Wallenstein, Pappenheim, Gallas, Leopold von Oesterreich, Holzappel, Mansfeld, Gustav Adolf, Gustaf Horn, Herman Wrangel, Johan Baner, Torstensson, Carl Gustaf Wrangel. Otherwise the name as in the text.
- Several options for one decision are one row each. A movement the text mentions twice is one row.
- places: only places the text names for this movement. Give within_cf_id 0 only when the text says where the army stood; the place a letter was written counts only when the writer is with that army.
- date: for a letter its own date, unless the text dates the plan.
- Most inputs hold no such movement: return an empty rows array.

Output: a single JSON object {"rows": [...]}, where each element of 'rows' is one record with the fields above; use an empty 'rows' array if none. Return ONLY valid JSON.

Input text: [letter or passage]

C.7 Recentered Instrument Robustness

Overall Robustness

This section is concerned with the robustness of the findings in Panel B of Table II.

We follow Section 4 in Borusyak and Hull (2023) to conduct specification tests. In Appendix Figure C.4, we show that recentering the instrument drastically reduces the imbalance in covariates across treatment and control groups, conditional on the instrument. We regress the unadjusted (left figure) and recentered (right figure) instrument on pre-war observables as listed in the respective figure.

The expected instrument is also not predictive of the recentered instrument: in a regression of the recentered instrument on the expected instrument, the R^2 is 0.07. (In contrast, regressing the unadjusted instrument on the expected instrument yields an R^2 of 0.86.)

Our data collection identifies possible choices between campaign paths that were narrow from the perspective of contemporaries and military historians. Nevertheless, the context requires us to make assumptions about $G(g|w)$. In our baseline specification, we apply a clustered permutation of campaign paths: for each movement, we assume $G(g|w)$ to be uniform over the realized route and its documented alternatives.

We assess sensitivity to this uniformity assumption. For each movement, we set the odds of every documented alternative against the realized route to $q/(1-q)$, so that $q = 0.5$ is the uniform baseline, and vary q from 0.05 to 0.95. At each value we rebuild the expected instrument from 10,000 scenarios and re-estimate the instrumental variables specifications. Appendix Figure C.5 shows the results. The coefficients are stable across the grid, and the first-stage F statistic never falls below 7.7. All three coefficients remain positive and sizable throughout. Anderson–Rubin p-values, which are robust to a weak first stage, are below 0.05 for ruler taxes across the grid, for parliament elimination at every $q \geq 0.10$, and for military notables at every $q \geq 0.15$.

We also estimate the assignment distribution from a logit of realized against alternative routes, with fitted probabilities normalized within each juncture.

Following Borusyak and Hull (2023), we also include the difference between the estimated and the uniform expected instrument as an exogenous control next to the recentered instrument, so that the estimates remain valid if either candidate correctly specifies the assignment process. Appendix Table C.31 reports the results; the point estimates are close to the baseline.

We use troop-movement-based matching procedures to construct more comparable control groups. If realized routes were systematically targeted toward certain types of towns, then the relevant comparison is not between all treated and untreated places, but between towns that were ex ante similarly likely to lie near a campaign path. Thus, in Appendix Table C.29, we restrict the sample by matching each treated town on a realized campaign path to the nearest untreated town on an unrealized campaign path within the same campaign. We then re-estimate equation (1) and obtain results that are quantitatively similar to the baseline estimates. In Appendix Table C.30, we instead match on a propensity score estimated from the expected value of the instrument, which captures the average proximity to the nearest campaign path across many alternative paths. Results are again quantitatively similar to our baseline estimates.

Finally, we examine the implications of restricting the set of alternatives. In the

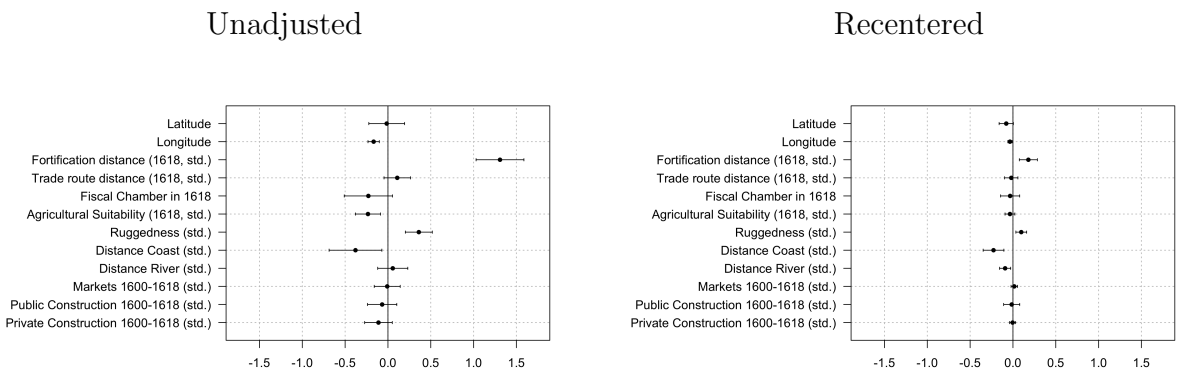
baseline approach, we only allow plausible alternative troop movements within the observed sequence of campaigns. The historical discussion in Section II suggests two broader plausible perturbations, one local and one global. First, especially in the absence of precise local knowledge, troops might have advanced on nearby fortified towns. Second, the war might have ended before 1648, especially after the Peace of Prague in 1635.

We implement these perturbations as follows. First, instead of taking the realized troop-movement endpoint as given, we allow each of the four nearest neighboring fortified towns to be the endpoint with equal probability. Second, we allow the war to end in 1635 or in any later year, so that no campaigning occurs thereafter.

We then calculate the share of "compliers," that is, towns for which the realized and expected instruments differ and which therefore contribute identifying variation. We track this share as we move from broader to more restrictive alternatives. Appendix Figure C.6 illustrates the results. Panels B and C show the two dimensions of perturbation. Panel B varies the scope for local perturbations by gradually lowering the probability that a neighboring fortification, rather than the realized one, becomes the endpoint. Panel C varies the scope for global perturbations by allowing the war to end earlier, from 1635 up to 1648. Panel A then shows how the implied share of compliers changes as we jointly restrict these contingencies until only the alternative troop movements from Section IV remain. As the set of contingencies narrows, the share of compliers falls steadily from 98% to 86%.[10] These perturbations complement the breakdown analysis above: they vary which alternatives exist, while the breakdown analysis varies how much probability each receives.

[10]Even these two margins likely still yield a lower bound. For example, Swedish entry into the war in 1630 was itself contingent. Wilson (2009) notes: "The aims were also improvised. [...] Intervention in Germany had been considered in December 1627 when Oxenstierna managed to persuade the king to settle with Poland first, opening negotiations in February that concluded in the Truce of Altmark. Representatives were sent to the Lübeck conference, but were turned away since Sweden was not party to Denmark's war with the emperor. Denmark nonetheless sought to improve Swedish-imperial relations and the emperor sent envoys to Danzig in April 1630. [...] The king strung the Danes and emperor along with various excuses to delay the Danzig talks before finally presenting totally unacceptable demands in June to ensure they collapsed just before his troops landed."

Figure C.4: Balance of Observables with Respect to the Instrument (Unadjusted and Recentered)



Note The figure shows estimated coefficients and 95% confidence intervals from a regression of the unadjusted (left figure) and recentered (right figure) instrument on pre-war observables.

Table C.29: Troop Presence and Absolutism (Matched Comparisons on Unrealized Paths)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1083***	0.0637***	0.0238**
	(0.0378)	(0.0161)	(0.0103)
R^2	0.70	0.57	0.38
Observations	389,760	241,570	389,760
Matched Sample	✓	✓	✓
Town Units	1,344	833	1,344
Outcome Mean	0.30	0.08	0.05
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

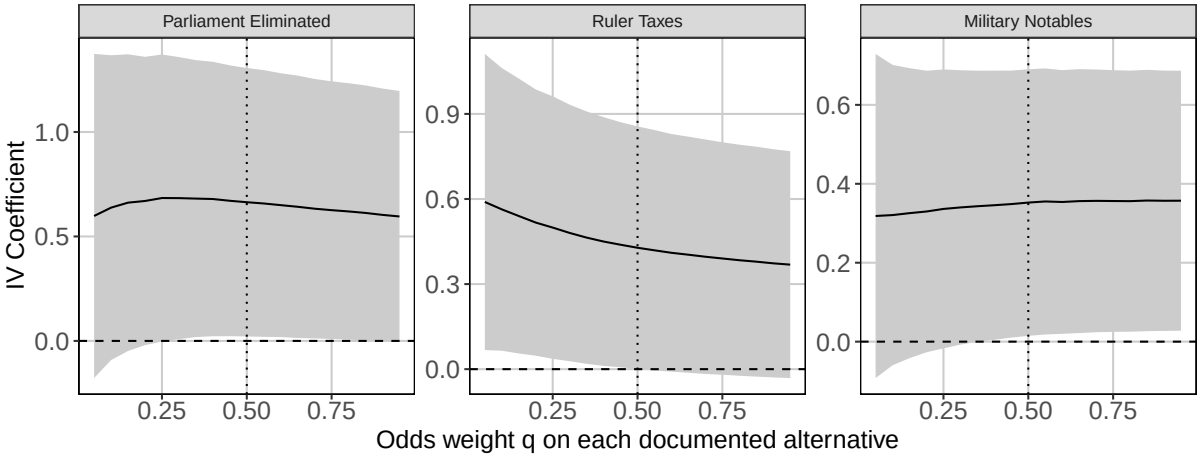
Note This table presents results of estimating equation (1), comparing places with troop presence to close untreated places along the alternative campaign path. We assign each town to the nearest troop movement of a given campaign. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.30: Troop Presence and Absolutism (Matched on Expected Instrument)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1018***	0.0564***	0.0278***
	(0.0349)	(0.0140)	(0.0100)
R^2	0.70	0.56	0.40
Observations	500,540	318,710	500,540
Matched Sample	✓	✓	✓
Town Units	1,726	1,099	1,726
Outcome Mean	0.30	0.08	0.05
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	Town	Town
Town FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1) in a matched sample. Each town with troop presence is matched to the untreated town with the nearest propensity score, estimated from a Probit of troop presence on the expected instrument. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Figure C.5: Breakdown Analysis for the Route-Probability Distribution



Note These graphs plot the instrumental variables coefficient on troop exposure as the route-probability distribution departs from uniformity. For each movement, every documented alternative receives odds $q/(1-q)$ against the realized route; the dotted line at $q = 0.5$ marks the uniform baseline. At each q, we rebuild the expected instrument from 10,000 scenarios, recenter, and re-estimate the specification of Panel B of Table II. Shaded areas are 95 percent confidence intervals, clustered by constituency (Parliament Eliminated) or town (Ruler Taxes, Military Notables).

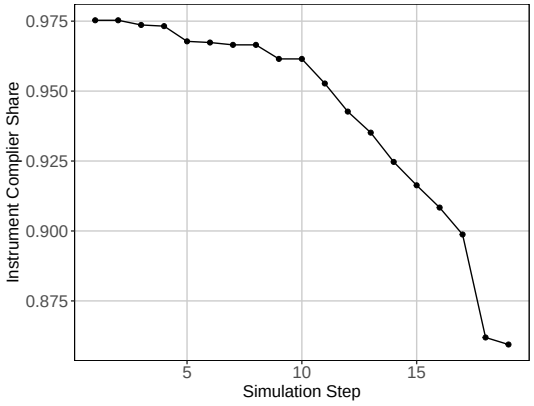
Table C.31: Troop Presence and Absolutism (Expected-Instrument Controls)

	Parliament Eliminated	Ruler Taxes	Military Notables
	(1)	(2)	(3)
Troop Presence	0.5503*	0.4253**	0.3468**
	(0.298)	(0.207)	(0.169)
R^2	0.70	0.56	0.39
Number of Observations	646,700	422,820	646,700
Number of Towns	2,230	1,458	2,230
Outcome Def.	(0/1)	(0/1)	(ihs)
Town FE	✓	✓	✓
Year FE	✓	✓	✓
First-Stage F	14.5	12.4	14.8
Cluster	Constituency	Town	Town

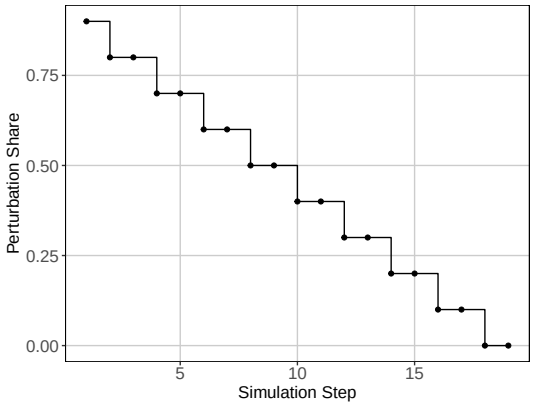
Note This table reports instrumental variables regressions of the outcome indicated in the column header on troop exposure, using the recentered instrument and controlling for the difference between the estimated and the uniform expected instrument, interacted with the post-1618 indicator, following Borusyak and Hull (2023). The estimated expected instrument replaces the uniform distribution over documented routes with fitted probabilities from a logit of realized against alternative routes, normalized within each juncture. The dependent variables are (1) Parliament Eliminated, an absorbing town-level indicator equal to one from the year the parliament representing town i is eliminated onward, (2) Ruler Taxes, a binary indicator for whether town i has a record of ruler taxes in year t, and (3) Military Notables, the inverse hyperbolic sine of military notables linked to town i active in year t. Standard errors are clustered at the constituency (column 1) or town (columns 2–3) level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent level, respectively.

Figure C.6: Complier Share under Troop Movement Perturbations

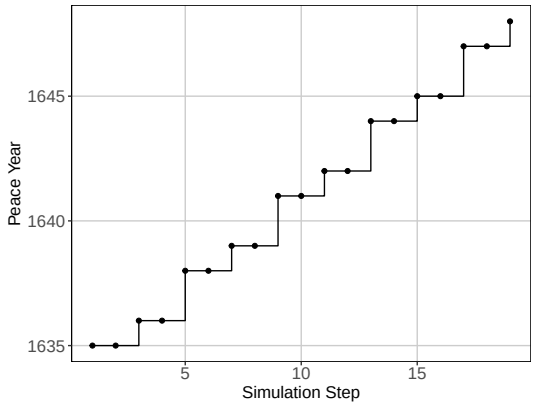
A: Instrument Complier Share



B: Campaign Perturbations



C: Peace Perturbations



Note These graphs plot the share of compliers for our instrument (Panel A) as we simulate random perturbations to individual campaigns (Panel B) and to the peace date after the 1635 Peace of Prague (Panel C).

D Framework

D.1 Framework: Proofs

Baseline Assumptions and Parameter Space. Let Θ be the set of parameter vectors $\theta = (\pi, d, \kappa_T, \kappa_R, \tau) \in \mathbb{R}^5$ satisfying

$$d > 1, \qquad \pi \in (0, 1], \qquad \kappa_T \geq 0, \qquad \kappa_R \geq 0.$$

Each agent's period-t consumption is non-negative. Lenders are risk-neutral and competitive. Under Separation, the zero-profit condition is

$$\pi r = d + \kappa_T - 1,$$

so the promised repayment is

$$r = \frac{d + \kappa_T - 1}{\pi}.$$

We restrict attention to the admissible parameter domain $\mathcal{A} \subset \Theta$ on which Delegation is a feasible candidate regime for the Town:

$$\mathcal{A} = \{\theta \in \Theta \mid d + \kappa_R \leq 2 \text{ and } \tau \geq d - 1\}.$$

The condition $d + \kappa_R \leq 2$ is the Ruler's period-1 resource feasibility constraint, equivalent to non-negative period-1 consumption $Y_{R,1} - (d-1) - \kappa_R \geq 0$, and $\tau \geq d - 1$ is the Ruler's participation constraint. Outside $\mathcal{A}$, Delegation is not feasible; the equilibrium is Separation if $\pi \geq d + \kappa_T - 1$, and Destruction otherwise.
Given $\theta \in \mathcal{A}$, the Town's continuation payoffs under Separation (U_T^S) and Delegation (U_T^D) are

$$U_T^S(\theta) = \begin{cases} 1 - (d + \kappa_T - 1), & \text{if } \pi \geq d + \kappa_T - 1, \\ -\infty, & \text{if } \pi < d + \kappa_T - 1, \end{cases}$$

where $-\infty$ formalizes the infeasibility of Separation, so that it is never selected and the realized outcome is Delegation or Destruction, and

$$U_T^D(\theta) = 1 - (\kappa_R + \tau).$$

Under Destruction, the Town's continuation payoff is $U_T^X = 0$. The Town selects the regime that maximizes its continuation payoff. We adopt the tie-breaking convention that the Town selects Separation when indifferent between Separation and Delegation, and Delegation when indifferent between Delegation and Destruction.

Equilibrium Partition.
Based on these payoff functions, the admissible domain $\mathcal{A}$ is partitioned into four regions:

- **Separation** (S): Separation is feasible and yields a weakly higher payoff than Delegation.

$$S = \{\theta \in \mathcal{A} \mid \pi \geq d + \kappa_T - 1 \text{ and } d + \kappa_T - 1 \leq \kappa_R + \tau\}. \tag{9}$$

- **Voluntary Delegation (D_V)**: Separation is feasible, but Delegation yields a strictly higher payoff.

$$D_V = \{\theta \in \mathcal{A} \mid \pi \geq d + \kappa_T - 1 \text{ and } \kappa_R + \tau < d + \kappa_T - 1\}. \tag{10}$$

- **Forced Delegation (D_F)**: Separation is infeasible, and Delegation yields weakly non-negative continuation payoff.

$$D_F = \{\theta \in \mathcal{A} \mid \pi < d + \kappa_T - 1 \text{ and } \kappa_R + \tau \leq 1\}. \tag{11}$$

- **Destruction (X)**: Separation is infeasible, and Delegation yields negative continuation payoff.

$$X = \{\theta \in \mathcal{A} \mid \pi < d + \kappa_T - 1 \text{ and } \kappa_R + \tau > 1\}. \tag{12}$$

Proof of partition exhaustiveness and mutual exclusivity. Fix $\theta \in \mathcal{A}$. Either $\pi \geq d + \kappa_T - 1$ or $\pi < d + \kappa_T - 1$.
If $\pi \geq d + \kappa_T - 1$, then exactly one of

$$d + \kappa_T - 1 \leq \kappa_R + \tau \qquad \text{or} \qquad \kappa_R + \tau < d + \kappa_T - 1$$

holds. Hence θ belongs to exactly one of S or D_V.
If $\pi < d + \kappa_T - 1$, then exactly one of

$$\kappa_R + \tau \leq 1 \qquad \text{or} \qquad \kappa_R + \tau > 1$$

holds. Hence θ belongs to exactly one of D_F or X.
Therefore every $\theta \in \mathcal{A}$ belongs to exactly one of the four sets S, D_V, D_F, and X. ■

Proposition 1: The Effect of Shock Size d
Statement. Fix $(\pi, \kappa_T, \kappa_R, \tau)$. Let d', d'' satisfy $d' < d''$, and assume the corresponding parameter vectors $\theta', \theta'' \in \mathcal{A}$. If $\theta' \in D_V \cup D_F$, then $\theta'' \in D_V \cup D_F$. Conversely, if $\theta'' \in S$, then $\theta' \in S$. Consequently, increasing d on the admissible domain can move the equilibrium from Separation to Delegation, but never from Delegation to Separation.
Proof. Define

$$\phi(d) = d + \kappa_T - 1.$$

Since $d' < d''$, we have $\phi(d') < \phi(d'')$.
First suppose $\theta' \in D_V \cup D_F$.

1. If $\theta' \in D_F$, then by definition

$$\pi < \phi(d') \qquad \text{and} \qquad \kappa_R + \tau \leq 1.$$

Since $\phi(d') < \phi(d'')$, it follows that $\pi < \phi(d'')$. The inequality $\kappa_R + \tau \leq 1$ is unchanged, so $\theta'' \in D_F$.

2. If $\theta' \in D_V$, then by definition

$$\pi \geq \phi(d') \qquad \text{and} \qquad \kappa_R + \tau < \phi(d').$$

Since $\pi \leq 1$, the first inequality implies $\phi(d') \leq 1$, hence

$$\kappa_R + \tau < \phi(d') \leq 1.$$

There are two cases.

If $\pi < \phi(d'')$, then Separation is infeasible at θ'', and since $\kappa_R + \tau < 1$, we have $\theta'' \in D_F$.

If $\pi \geq \phi(d'')$, then

$$\kappa_R + \tau < \phi(d') < \phi(d''),$$

so $\theta'' \in D_V$.

In either case, $\theta'' \in D_V \cup D_F$.
Now suppose $\theta'' \in S$. Then

$$\pi \geq \phi(d'') \qquad \text{and} \qquad \phi(d'') \leq \kappa_R + \tau.$$

Since $\phi(d') < \phi(d'')$, we obtain

$$\pi \geq \phi(d'') > \phi(d') \qquad \text{and} \qquad \kappa_R + \tau \geq \phi(d'') > \phi(d').$$

Hence

$$\pi \geq \phi(d') \qquad \text{and} \qquad \phi(d') \leq \kappa_R + \tau,$$

so $\theta' \in S$. ■

Proposition 2: The Effect of the Ruler's Fixed Cost κ_R
Statement. Fix (π, d, κ_T, τ). Let κ'_R, κ''_R satisfy $\kappa''_R < \kappa'_R$, and assume the corresponding parameter vectors $\theta', \theta'' \in \mathcal{A}$. Then:

1. If $\theta' \in D_V$, then $\theta'' \in D_V$.
2. If $\theta' \in D_F$, then $\theta'' \in D_F$.
3. If $\theta'' \in X$, then $\theta' \in X$.

Consequently, lowering κ_R weakly expands both Delegation regions D_V and D_F, and weakly shrinks the Destruction region X.
Proof. The Separation-feasibility condition $\pi \geq d + \kappa_T - 1$ is independent of κ_R. Thus θ' and θ'' have the same Separation-feasibility status.

1. Suppose $\theta' \in D_V$. Then

$$\pi \geq d + \kappa_T - 1 \qquad \text{and} \qquad \kappa'_R + \tau < d + \kappa_T - 1.$$

Since $\kappa''_R < \kappa'_R$, we have

$$\kappa''_R + \tau < \kappa'_R + \tau < d + \kappa_T - 1.$$

Hence $\theta'' \in D_V$.

2. Suppose $\theta' \in D_F$. Then

$$\pi < d + \kappa_T - 1 \qquad \text{and} \qquad \kappa'_R + \tau \leq 1.$$

Since $\kappa''_R < \kappa'_R$, we have

$$\kappa''_R + \tau < \kappa'_R + \tau \leq 1,$$

so in particular $\kappa''_R + \tau \leq 1$. Hence $\theta'' \in D_F$.

3. Suppose $\theta'' \in X$. Then

$$\pi < d + \kappa_T - 1 \qquad \text{and} \qquad \kappa''_R + \tau > 1.$$

Since $\kappa'_R > \kappa''_R$, we have

$$\kappa'_R + \tau > \kappa''_R + \tau > 1.$$

Hence $\theta' \in X$.

■

Proposition 3: The Effect of the Contracting Environment π
Statement. Fix $(d, \kappa_T, \kappa_R, \tau)$. Let π', π'' satisfy $\pi' < \pi''$, and assume the corresponding parameter vectors $\theta', \theta'' \in \mathcal{A}$. Then:

1. If $\theta' \in S$, then $\theta'' \in S$.
2. If $\theta' \in D_V$, then $\theta'' \in D_V$.
3. If $\theta'' \in D_F$, then $\theta' \in D_F$.
4. If $\theta'' \in X$, then $\theta' \in X$.

Consequently, improving the contracting environment (increasing π) weakly expands the parameter sets for Separation and Voluntary Delegation, and weakly shrinks the parameter sets for Forced Delegation and Destruction.
Proof. The distinction between S and D_V depends only on the comparison between $\kappa_R + \tau$ and $d + \kappa_T - 1$, and the distinction between D_F and X depends only on the comparison between $\kappa_R + \tau$ and 1. Thus changes in π affect only the Separation-feasibility condition

$$\pi \geq d + \kappa_T - 1.$$

1. Suppose $\theta' \in S$. Then

$$\pi' \geq d + \kappa_T - 1 \qquad \text{and} \qquad d + \kappa_T - 1 \leq \kappa_R + \tau.$$

Since $\pi'' > \pi'$, we have $\pi'' \geq d + \kappa_T - 1$. The second inequality is unchanged, so $\theta'' \in S$.

2. Suppose $\theta' \in D_V$. Then

$$\pi' \geq d + \kappa_T - 1 \qquad \text{and} \qquad \kappa_R + \tau < d + \kappa_T - 1.$$

Since $\pi'' > \pi'$, we have $\pi'' \geq d + \kappa_T - 1$. The second inequality is unchanged, so $\theta'' \in D_V$.

3. Suppose $\theta'' \in D_F$. Then

$$\pi'' < d + \kappa_T - 1 \qquad \text{and} \qquad \kappa_R + \tau \leq 1.$$

Since $\pi' < \pi''$, we have $\pi' < d + \kappa_T - 1$. The second inequality is unchanged, so $\theta' \in D_F$.

4. Suppose $\theta'' \in X$. Then

$$\pi'' < d + \kappa_T - 1 \qquad \text{and} \qquad \kappa_R + \tau > 1.$$

Since $\pi' < \pi''$, we have $\pi' < d + \kappa_T - 1$. The second inequality is unchanged, so $\theta' \in X$.

■

D.2 Framework: Local Nobility Extension

We extend the baseline framework of Section V.A by introducing a third actor, the landed nobility, denoted L. The purpose of the extension is to make explicit the local implementation problem emphasized in Section II: even when the Town delegates administration, the Ruler may still require elite cooperation to make Delegation operational.

Extended set-up. Time, preferences, incomes, and the crisis environment are unchanged unless noted otherwise. There are now three agents, T, L, and R. As in the baseline framework, in period 1 the Town faces a shock of size $d > 1$, and failure to meet it leads to Destruction. Under Separation, the equilibrium is exactly as in the baseline. Under Delegation, however, the Ruler cannot implement centralized rule unilaterally. He must instead secure the collaboration of the landed nobility, which provides the local cooperation needed to finance and enforce the takeover.
Specifically, under Delegation the local nobility covers the remaining fiscal shortfall $d - 1$, the Ruler incurs the fixed cost κ_R, and the Town contributes its period-1 income $Y_{T,1} = 1$. In period 2, centralized administration yields total extraction $\kappa_R + \tau$, where κ_R reimburses the Ruler's fixed cost and τ is the surplus generated by Delegation. This surplus is divided between the Ruler and the nobility. Let the nobility's share be τ_L and the Ruler's share be τ_R, with

$$\tau_L + \tau_R = \tau. \tag{13}$$

Delegation with elite collaboration. Relative to the baseline, Delegation now requires an additional participation condition for the nobility. Since the nobility advances the fiscal shortfall $d - 1$ in period 1, it participates only if its share of period-2 surplus is sufficient:

$$\tau_L \geq d - 1. \tag{14}$$

The Ruler participates only if his own share is non-negative, $\tau_R \geq 0$, since reimbursement of κ_R covers the fixed cost. The Town's participation constraint is unchanged: if Separation is feasible, it accepts Delegation only if

$$\kappa_R + \tau < d + \kappa_T - 1, \tag{15}$$

and if Separation is infeasible, it accepts Delegation only if

$$\kappa_R + \tau \leq 1. \tag{16}$$

We assume the Ruler cannot commit ex ante to a particular split (τ_L, τ_R), and that once Delegation is in place, the Ruler has full ex post bargaining power and retains $\tau_R = \tau$, so $\tau_L = 0$. Anticipating this, the nobility participates only if its constraint can be met without relying on the Ruler's ex ante fiscal promises. The key implication is that Delegation may now fail even when it generates sufficient aggregate surplus to compensate the nobility, and is efficient relative to the Town remaining separated. The obstacle is not the size of the surplus, but the inability of the Ruler to commit ex ante to leave the nobility a sufficiently large share of it. Formally, even when $\tau \geq d - 1$, so that compensation of the nobility is feasible in the aggregate, collaboration breaks down because the nobility cannot be assured a share $\tau_L \geq d - 1$. There is therefore a bargaining failure region in which Separation is infeasible, the Town is willing to delegate, and Delegation is feasible in the aggregate, yet

Delegation cannot be implemented because the Ruler cannot credibly commit to a surplus division acceptable to the nobility. In the baseline without symbolic compensation, this region is $\{\theta \in \mathcal{A} : \pi < d + \kappa_T - 1 \text{ and } \kappa_R + \tau \leq 1\}$, i.e., the entire set of admissible parameters at which Separation is infeasible and the Town would accept Delegation.

Symbolic capital. Suppose now that the Ruler can make cooperation more attractive to the nobility by conferring non-fiscal rewards, for example offices, honors, jurisdictional privileges, or other forms of symbolic capital. Let $s \geq 0$ denote the value of these rewards to the nobility. Then the nobility's participation constraint becomes

$$\tau_L + s \geq d - 1. \tag{17}$$

Symbolic capital thus eases the collaboration bargain by reducing the fiscal compensation the nobility must receive in order to participate. As a result, an increase in s weakly shrinks the bargaining failure region. Whenever collaboration is limited by the Ruler's inability to credibly promise the nobility a sufficiently large fiscal share, the Ruler strictly prefers a higher level of symbolic capital, because it sustains Delegation in cases that would otherwise unravel at the bargaining stage.

Implications. The extension yields two further implications. First, holding fixed crisis severity and the Town's payoff structure, Delegation is less likely in settings where the Ruler is less able to credibly compensate local elites, because the bargaining failure region is larger. Second, rulers have stronger incentives to cultivate symbolic capital when elite cooperation is more important for local implementation. By raising the attractiveness of participation for the nobility, such investments reduce the set of cases in which Delegation is feasible in the aggregate but cannot be sustained as an intra-elite bargain.

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