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, gave rise to 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 supply demands raised the value of delegating resource mobilization to rulers. After the war, rulers used this capacity to form coalitions with landed elites and weaken parliaments. Courts and city leagues limited parliamentary decline, consistent with lower contracting frictions and stronger local outside options. With parliaments eliminated, militarized absolutist regimes persisted for centuries. Our findings highlight a dynamic trade-off between dictatorship and disorder during states of emergency.

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I Introduction

During crises, societies face a fundamental choice. 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 long been contested. While some view crises as seeds of executive entrenchment (Tocqueville, 1835), others argue that such suspensions are limited and reversible (Machiavelli, 1531; Rousseau, 1791). Despite the prominence of this trade-off, empirical evidence on its mechanisms and long-run consequences remains limited.

We study these dynamics in historical states in Central Europe. By 1500, most European polities had developed representative assemblies that constrained rulers and controlled taxation 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 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 both raised the cost of war and the threat of violence (Rogers, 1995; Thompson, 1995). At its peak, 300,000 soldiers were under arms. Initially a local revolt, it became a broader conflict between pro- and anti-Habsburg forces over European hegemony. Locally, armies in the field imposed severe demands on towns: where troops passed, communities 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 exposure generated by long-range troop movements with institutional variation across hundreds of sovereign states. This setting allows us to examine both the mechanisms and the long-run consequences

[1] Historians emphasize that these institutions were "parliaments in the proper sense of the term" (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).

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 higher values of parliament elimination, ruler taxes, and military notables. In our baseline, towns with troop presence during the war exhibit a 67% higher probability that their constituency did not convene a regional parliament, an 88% higher incidence of ruler taxes, and twice as many military notables originating from the town, each relative to the sample mean.

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: troop 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

[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; Section IV 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 *Schatzung* and *Kontribution*—which were distinct from levies imposed by other actors 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 major troop movements were often driven by foreign intervention, campaign 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 paths between an origin and destination predict realized routes well when more granular information is available.

measure of "in-between-ness" 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] The resulting estimates are qualitatively similar to the baseline.

We next examine how the conflict gave rise to absolutism. Local troop presence may have weakened executive constraints through multiple channels: it raised demands for resources, coordination, 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. 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 burden generated severe local crises. For towns, this raised the value of delegating resource mobilization to rulers. Rulers, in turn, developed institutions that coordinated resource flows between towns and armies (Hintze, 1910).

To clarify this mechanism, we develop a two-period model of crisis governance. We adapt

[6]Consistent with this interpretation, balance tests show no systematic relationship between least-cost-path distance and a broad range of town characteristics once conditioning on expected exposure. The design is also deliberately conservative: we treat campaign occurrence—a military leader in a given year—as fixed, and restrict counterfactuals to documented alternative movements *within* campaigns. This likely compresses rather than inflates quasi-random variation in troop presence. 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 counterfactuals—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 counterfactual movements to construct propensity scores directly for the main OLS specification. We also include standard least-cost-path adjustments, including direct controls for distance to fortified towns (Banerjee et al., 2020; Faber, 2014).

the parliamentary frameworks of Stasavage (2011) and Angelucci et al. (2024) to analyze the decision of vertical integration between a town and a ruler under contracting frictions (Grossman and Hart, 1986). A locality can either administer its own affairs and interact with the ruler through parliament (*Separation*) or cede administration to the ruler (*Delegation*).[7] A *crisis* occurs when (i) a resource demand exceeds local capacity, (ii) failure to meet that demand poses an existential threat, and (iii) contractual frictions make future compensation imperfectly enforceable. A locality can then either remain separated and finance the deficit through alternative channels or delegate administration to the ruler.[8] Delegation transfers fiscal control: to make compensation credible, the locality must cede key components of its tax capacity, such as registers and collection infrastructure, to the ruler.

We examine three implications of this argument, while emphasizing that the available measures are necessarily imperfect proxies for the underlying theoretical objects. First, although troop presence bundled provisioning demands, coercion, and violence, the delegation mechanism suggests that the results should not be confined to towns most exposed to physical destruction. 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, the effects should be stronger where coordination costs favored integration into the ruler administration. We proxy coordination frictions using whether exposed troops belonged to the ruler's wartime coalition. Exposure to troops from the ruler's wartime coalition likely eased coordination with ruler officials and reduced reliance on plunder, even though military leaders remained autonomous. We test this by interacting troop presence with an indicator for coalition mismatch, defined as exposure to troops outside the ruler's

[7] 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.

[8] An important scope condition for this mechanism in our setting is that the war coincided with lasting changes associated with the "Military Revolution" (Parker, 1995). Larger and more mobile armies reduced the feasibility of local resistance (Guthrie, 2002), while a more threatening external environment increased rulers' returns to centralized coordination. Both forces made delegation more likely. We discuss the external validity of our results in greater detail below. A further scope condition is that military leaders also had an interest in orderly taxation: although uncontrolled plunder increased short-run consumption, it depleted the local resource base available for future extraction (Redlich, 1959). This is consistent with a "stationary bandit" logic, under which taxation dominates predation (Olson, 1993; Sánchez De La Sierra, 2020).

coalition. The interaction is negative and statistically significant across all three main outcomes, implying that troop presence had larger effects under exposure to troops from the ruler's coalition.[9] This pattern is consistent with historical accounts in which absolutism expanded through institutions of wartime provisioning (Saito, 2020).

Third, if separation was easier to sustain under weaker contracting frictions, the effects should have been weaker where towns entered the war with stronger institutions and outside options. We proxy this margin with pre-war access to the Imperial High Court and membership in city leagues, both of which improved towns' ability to contract, borrow, or coordinate outside ruler administration. In both cases, the effect of troop presence on parliament elimination is attenuated.

We therefore do not interpret the results as implying a uniform shift toward absolutism in response to war, nor that representative institutions were generally inferior at raising revenue. Rather, war favored delegation where coordination 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 make credible. Thus, when rulers face asymmetric shocks requiring local cooperation to finance war, the same logic can support representative concessions.

Finally, we examine how rulers sustained absolutism after the war. Early modern technological constraints required support from local intermediaries on two margins: wartime provisioning and postwar tax collection. Historical accounts identify landed elites as central to both, supplying rural surplus for armies and helping enforce taxation. In the framework, this creates an additional coalition problem: rulers must secure elite support by credibly offering them a share in the gains from absolutism.[10] Consistent with this logic, in towns with wartime troop presence we find that municipal functions shifted toward ruler-appointed outsiders; local nobles were more likely to enter service under the ruler; 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, 1977) in the emerging absolutist state.

[9] Consistent with this interpretation, we find that outright destruction was more likely under troop-ruler coalition mismatch.

[10] 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).

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 at the end of the nineteenth century, treated towns had more military notables, 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.[11] 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.[12] We contribute to this literature by providing the first comprehensive quantitative analysis of the conflict. Our results suggest that the war fostered 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).[13]

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 Bodin (1576), Machiavelli (1531), Rousseau (1791), and Tocqueville (1835) to recent formal treatments (Djankov et al., 2003; Aghion et al., 2004; Gratton and Lee, 2023).[14] We thus

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

[12] 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 — showing 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.

[13] Appendix Section B.1 discusses the trajectories of other European states during this period in greater detail, underscoring that "unlinear notions of 'political development"' are largely inappropriate in the European context (Tilly, 1975, p. 21). Instead, this reallocation of princely power was 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; De Long and Shleifer, 1993; Acemoglu et al., 2005; Stasavage, 2011), by identifying a different but historically important path of wartime state-building.

[14] In modern history, a focal point is Emergency Article 48 of the Weimar Constitution, widely viewed as facilitating the Nazi seizure of power (Agamben, 2005). Related work in public finance studies crisis-driven "ratchet effects" in government (Peacock and Wiseman, 1961; Rasler and Thompson, 1985; Higgs, 1987).

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 — and keep them on — the "narrow corridor" (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.[15] 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, 1978). This complements the more common emphasis on battles and territorial conquest.[16] 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.[17] At the same time, we find that these effects were limited when contracting frictions were lower.[18] This suggests that the institutional response to war depends on who bears the crisis and on the severity of the contractual frictions this actor faces.[19]

[15] 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 43% of all recorded conflict incidents between 1000 and 1789.

[16] 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.

[17] 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).

[18] 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).

[19] In this sense, our results mirror settings studied in Stasavage (2003), where representative assemblies often emerged or endured when *rulers* facing urgent wartime fiscal needs had to concede political rights to borrow credibly.

Historical accounts of parliamentarism in our study region point to the same duality. Acute revenue needs of rulers were central to the emergence of early modern parliaments in the Late Middle Ages. When towns

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 so-called "Estates," representing towns and the landed nobility.[20] 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 proper sense of the term, and their functions in the sixteenth, seventeenth, and eighteenth centuries were very similar to those of the English Parliament" (Carsten, 1959, p. 444).[21]

later faced urgent revenue needs, this instead contributed to absolutism (Carsten, 1959).

This contrast also helps relate our findings to Becker et al. (2025). They show that medieval noble feuds, often triggered by dynastic shocks such as the failure to produce an heir, increased tax sophistication and city council size. Our findings are complementary. In their setting, rulers needed town cooperation to finance military mobilization, which strengthened urban representation. In ours, towns bore the immediate burdens of war. Because armies were larger and more mobile during the Thirty Years' War, local actors were less able to defend themselves or finance troop burdens independently, making delegation to rulers more likely.

In more modern settings, a range of studies likewise suggests that inducing citizens to fight required political concessions. Scheve and Stasavage (2010) show theoretically that when external threats require mass conscription, rulers must democratize to induce citizens to fight. Mass armies have accordingly been identified as seeds of mass political mobilization, for example after the American Revolution (Jha and Wilkinson, 2023; Ottinger and Rosenberger, 2023) and the World Wars (Grosjean et al., 2023; Jha and Wilkinson, 2012; Ang and Chinoy, 2025).

Our empirical analysis also examines the social consequences of war: rulers used prints and portraits to consolidate power, leaving a persistent cultural legacy of conflict. This speaks to work linking war to collective memory (Tur-Prats and Valencia Caicedo, 2020), heroism (Cagé et al., 2023), and gender norms (Gupta et al., 2024).

[20] 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.

[21] While mostly drawing representatives from towns and landed elites, these bodies could encompass a

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.[22]

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, 1979).

This independent fiscal apparatus rested on local direct taxes, commonly called *Schatzung* or *Kontribution*.[23] 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 *Akzise*, an indirect tax levied more uniformly across towns in a princely territory.[24]

Military organization was similarly uneven in space. Standing forces relied on locally embedded elite officers, who were central to recruitment and command (Beloff, 1954).[25] As a result, the reach of the standing army varied across localities within the same polity. Only gradually were these personalized structures replaced by barracks and more impersonal regimental organization.

broad cross-section of society — burghers, clerics, and sometimes peasants (Blickle, 1997; Carsten, 1959). 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" (Carsten, 1959, p. 444), became precursors to modern German state parliaments (Grube, 1957), and shaped a participatory political culture (Habermas, 1982).

[22] 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 (1925) and Angelucci et al. (2022).

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

[24] 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 princes rather than directly on towns and which had largely lost importance by the second half of the seventeenth century.

[25] "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 independent well into the 18th century. In Prussia, the 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).

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.[26] Over the seventeenth century, many territories moved in this direction, though the pace and extent of change differed markedly across and within regions.[27]

II.B The Thirty Years' War

We summarize the Thirty Years' War in the layers most relevant to our analysis (Wilson, 2009; Münkler, 2019). The war was fought by two broad alliances, pro- and anti-Habsburg, each comprising war parties from both within and beyond the Holy Roman Empire. These war parties fielded armies under semi-autonomous military leaders, who typically campaigned from spring to winter within a given year. During each campaign, troops moved between strategic destinations and relied heavily on local extraction. Sustaining armies required continuous inflows of food, fodder, quarters, and cash contributions. Troop movements therefore imposed a direct military presence on towns, generating exceptional burdens and triggering an urban crisis.

We distinguish four layers of the conflict: *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 alliance, their principal military leaders, and the years in which those leaders campaigned.[28] Section III explains how we measure each layer in our data.

Coalitions and War Parties.

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

[26] 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).

[27] Reflecting on the ascent of absolutism in Prussia, 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 James Fox praised the "constitutionalism" he encountered (Grube, 1957, p. 2).

[28] We restrict the overview to campaigns conducted within the geographical boundaries of our study area. Discontinuities therefore reflect either the dismissal or death of a leader, or the absence of a main army in the region.

in Bohemia, where Protestant elites revolted against Habsburg rule amid rising confessional tensions.[29] Although the Habsburg victory at White Mountain in 1620 crushed the Bohemian revolt, the war quickly spread.

After 1620, anti-Habsburg commanders 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.[30] 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. Appendix Table A.2 lists the war parties in our study area, their coalition alignment, their principal leaders, and the years in which leaders campaigned.[31]

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.[32] Campaigns were organized around strategic destinations, above all fortified towns. In a note dictated to his secretary,

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

[30] 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."

[31] We restrict the overview to campaigns conducted within the geographical boundaries of our study area. Discontinuities in the timeline thus reflect the dismissal or death of a leader, or the absence of a main army in the region.

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

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).

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.[33] 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, 1826, p. 41).[34]

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 commanders weighing competing options before deciding.[35] For our purposes, this implies contingency at two levels: in the routes

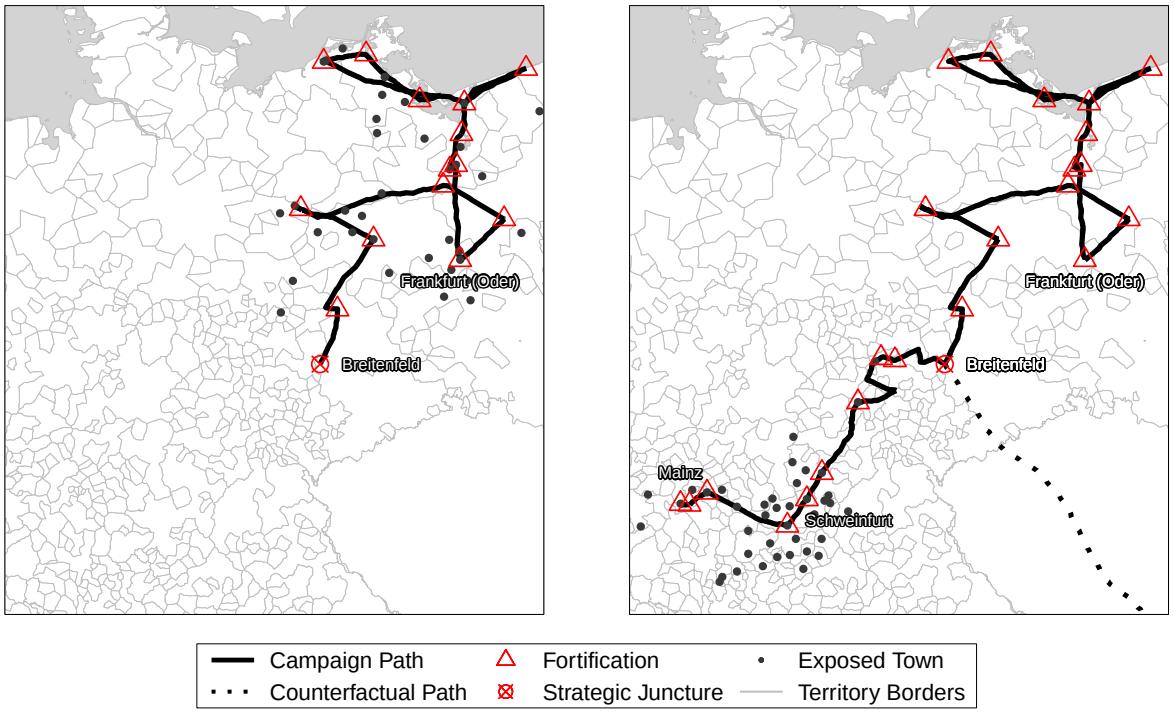
[33] In 1645, for example, Count Hatzfeldt found some of his own soldiers "struggling across the very obstacles he intended to disrupt the enemy's advance [...] Above all, soldiers were largely outsiders, without local knowledge of hiding places or an area's real wealth." (Wilson, 2009, p. 404).

[34] 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.

[35] For example, in a biography of Gustavus Adolphus, Dodge (1895, p. 335) writes: "Gustavus did not, like

Figure I: The Thirty Years' War: Swedish Invasion (1630–32)

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 two first campaigning years (1630–31) during the Swedish invasion in the Thirty Years' War. The troop leader is Gustavus Adolphus, King of Sweden. The dotted line in Panel B indicates the counterfactual 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.

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, localities were required to pay, feed, and house soldiers, and to provide recruits.[36]

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

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, Torstensson's ultimately unrealized transfer from Schleswig to Sjælland in 1644.

[36]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.

Troop presence was also a lasting burden. Armies frequently stayed in towns for extended periods, and even after the main force moved on, they often continued to draw supplies and payments from the localities left behind.[37]

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).[38]

First, leaders aimed to restrain plunder.[39] Second, an orderly system of taxation developed. During troop presence, "supply ordinances" specified both what localities were required to provide and how troops were required to behave in quarters.[40] Similar arrangements governed extraction after the main force had departed.[41]

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.[42]

[37]First-hand accounts by soldiers and townspeople describe, for example, stays lasting from January to June 1639 in Neumarkt (Kraus, 2021) and twenty weeks in Lauterbach in Hessen (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, Van 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."

[38]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.

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

[40]As an example of this quasi-legal framework, Tilly's supply ordinance for the town of Coesfeld in 1623 survives. A captain was to receive four measures (*Maß*, approximately four liters) of wine, 20 measures of beer, 20 pounds of bread, 12 pounds of meat, and two hens, as well as half a sheep or calf per day. A lieutenant, cadet, and quartermaster were each entitled to eight measures of beer, eight pounds of bread, four pounds of meat, and a quarter of a sheep or calf. A servant "in the draft" received two pounds of meat, three pounds of bread, and three measures of beer per day. Horses received hay and straw, as well as a bushel of oats every three days. In addition to nutrition, the town had to supply firewood, candles, and salt free of charge. We include an example page of this document in Appendix Figure A.2. Adding to the organizational burden, soldiers often traveled in large cohorts together with families, servants, and livestock. A document recording the quartering needs of two Catholic companies in 1648 lists 81 soldiers on horseback, 84 foot soldiers, 105 horses, 57 women, 48 children, 27 servants, 51 footboys, 3 maids, and 11 cows (Kraus, 2021, p. 215). Wallenstein's occupation of Pomerania in 1627 required food and fodder for 22,000 men.

[41]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.

[42]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

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 in December 1631, or eighteen times its usual tax." (Wilson, 2009).

Falling short posed an existential threat: troops could respond with violence and plunder, while effective resistance was often impossible.[43] Changes in military technology associated with the "Military Revolution" (Parker, 1995) produced armies of unprecedented size and made city walls increasingly ineffective (Guthrie, 2002).[44]

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 coordination by the ruler's administration.

Self-financing was possible, for example through credit-financed provisioning, but difficult in practice. First, it imposed substantial coordination costs.[45] 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.[46]

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.[47] Second, city leagues could help cover

(Wilson, 2009, p. 507).

[43]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).

[44]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).

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

[46]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 prince 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).

[47]Appendix Figure A.10, Panels A and B, show cases before the Imperial court concerning credit and troop burdens, which spike during the war; Panels C and D compare frequent words in court cases from

financing shortfalls among their members. Magdeburg, for example, received a large transfer from the Hanse to finance troop provisioning.

The alternative was to rely on coordination 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 coordination, both to prevent the ruin of their territories and to gain access to local infrastructure that towns guarded closely.

To manage troop presence, ruler administrations became the interface between civilians and the military.[48] They also organized continued extraction after the troops had moved on.[49]

These arrangements required coordination between rulers and military authorities. Repeated interaction and a longer time horizon made such coordination easier. This was more likely where armies and territories belonged to the same broader wartime coalition.[50] 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 postwar taxation.

In practice, this collaboration centered on the landed nobility. Troop provisioning

1587–1617 and 1618–1658, showing a marked shift toward issues of debt repayment.

[48] In this context, so-called *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).

[49] 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).

[50] 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." This "new style of warfare" increasingly favored "direct extortion" over systematic taxation and contributed to the fraying of the war toward its end (Parrott, 2011).

depended on rural surplus, while the assessment and collection of contributions relied on actors embedded in the countryside.[51] Historical accounts accordingly identify the nobility as a central local pillar of absolutist rule (Whaley, 2012; Press, 1988).[52]

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 princely armies and administrations (Hintze, 1910; Wilson, 2009). Absolutism thus did not eliminate noble influence so much as redirect it into a service elite whose status and advancement depended more directly on ruler appointment and service.

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, 1984). 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 princely authority and the standing of those associated with it (Marin, 1981; Burke, 1992; Zanger, 1997).

Where local coordination 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.

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

[52] 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 armies.

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 autocratic governance.[53]

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.[54]

To measure parliament elimination, we map each town to its parliamentary constituency. We identify 128 such constituencies through a systematic survey of regional historical works. For each town, we first construct an indicator for whether its constituency had a parliament in a given year. The indicator equals one if a parliament existed in the constituency and zero otherwise.[55] We then define parliament elimination as an indicator for whether the parliament that represented a town had been eliminated in a given year. 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.[56]

We then measure fiscal and military capacity under absolutist rule.[57] Because both varied strongly across localities, 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

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

[54] We include all towns as depicted in the *Deutsches Städtebuch* (Keyser et al., 1939-2003). 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 furthermore exclude all towns that were ruled by Imperial cities. Neither choice affects our empirical results.

[55] A parliamentary elimination therefore appears in our data as a change from 1 to 0. In our period, no constituency regains a parliament after elimination. The indicator hence remains zero thereafter. Following the historical literature, we do not count deputation diets or other limited committee meetings as full parliamentary meetings.

[56] 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. As expected given the broad coverage, our results are robust to excluding towns that never became part of a parliament. In Section IV, we also conduct robustness checks to account for the fact that a typical constituency comprised multiple towns.

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

books compiled in the *Index Librorum Civitatum* (Ranft et al., 2023). This source provides metadata on each book, including its classification and years of coverage.[58] We focus on the 735 account books that explicitly reference the *Schatzung* or *Kontribution* taxes.[59] Based on these records, we construct an indicator for whether a ruler tax was levied in a given town-year.

We complement these local measures with constituency-level introduction dates of the *Akzise* from the *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 *Akzise* in each parliamentary constituency.

To measure military notables, we focus on the town-level presence of military notables. 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 *Deutsche Biographie* (Hockerts and Lanzinner, 2022). This source contains records on 818,044 notable individuals from German-speaking regions and classifies professional groups, including "military." Using this classification, we identify all military notables.[60] We extract their birthplaces and link each to the nearest town. We classify these individuals as "active" from age 20 until death and construct a town-year panel of active military notables. Restricting to our main period of analysis, 1500–1789, yields 5,122 individuals.[61] In the regressions, military notables is the inverse hyperbolic sine of military notables born in a town and active in a given year.

To capture military build-up, we complement these local measures with information on

[58]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 1,457 towns.

[59]As discussed in Section II, these taxes were the principal source of ruler revenue. They also have the advantage that, in our setting, they unambiguously 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. In a robustness check to Section IV.B, we instead use the classification of taxes into simple and complex taxes based on keywords in Becker et al. (2025). The results are robust and show an increase along both margins, consistent with the view that absolutism also expanded fiscal capacity on the extensive margin.

[60]In Appendix Table A.3, we report the most frequent exact profession strings associated with the "military" label. The majority are high-ranking officers, consistent with our aim to measure the officer backbone of early standing armies.

[61]In Section V.E, we extend the period of analysis to 1950. In that extended sample, the number rises to 6,122 military notables.

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 (Fischer et al., 2021), 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), 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 exposure data come from Keyser et al. (1939-2003) 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 counterfactual 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 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 alliances.[62]

Second, we identify the strategic destinations between which leaders moved their armies.

[62]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.

For this, we use the systematic inventory of fortifications in the Holy Roman Empire assembled by Klöffler (2024). We identify 330 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 commanders, 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 counterfactual troop movements. To obtain a conservative set of plausible counterfactuals, we identify alternative troop movements within campaigns while taking the occurrence of campaigns themselves as given. Our main source is the correspondence of Axel Oxenstierna, Lord High Chancellor of Sweden between 1612 and 1654, who played a central role in coordinating Swedish war strategy. A large part of this correspondence, numbering 4,419 letters, has been digitized and transcribed in Riksarkivet (2024). We use GPT to translate the letters into modern English and to identify letters discussing campaign strategy. Based on the instructions and deliberations in these letters, we reconstruct documented alternative campaign destinations. We complement Oxenstierna's correspondence with military biographies and additional strategic correspondence, including material from the analogous letter collection of Maximilian of Bavaria and his commanders (Bierther et al., 1907–2021).

We then map these counterfactual troop movements as least-cost routes from the observed campaign juncture to the documented alternative destinations. In total, we identify 307 counterfactual troop movements. Figure I, Panel B, illustrates the counterfactual troop movement debated by Gustavus Adolphus at the strategic juncture of Breitenfeld. In line with our conservative approach, this is the only counterfactual troop movement we code from that juncture.

Finally, we collect data on violent wartime events. First, for each troop-presence event, we record whether the corresponding entry in the *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).[63] We precisely geolocate all three million records with non-

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

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 age at death for individuals born in this pre-war cohort and classify towns by whether pre-war life expectancy was above or below the sample median. 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 coordination costs between the ruler and the military, we collect information on wartime coalitions: for each troop leader and each town, we code whether they belonged to the pro- or anti-Habsburg 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 wartime coalition. We then define troop-ruler coalition mismatch as an indicator for whether exposed troops were outside the ruler's wartime coalition.

We rely on two proxies of town-level institutional quality. 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, 2023), 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.[64] 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 *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: militaristic prints, ruler and court portraits, ruler appointments, and the fraction of local nobles serving in the military. 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.[65] The source metadata allow us to identify rulers and their

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

[65] Data sourced from the "Digitaler Portraitindex druckgraphischer Bildnisse der Frühen Neuzeit." The index systematically catalogs printed portraits of rulers and other notable persons. Our data of portraits mainly encompasses print engravings (*Kupferstiche*), which were widely disseminated. The data is available at https://www.portraitindex.de.

state officials, which we use to 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: over 863,000 publications printed in 1,000 places.[66] 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. (1939-2003), 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.

To measure the co-optation of local elites into the state, we measure this as the fraction of nobles from a town who were in the military in a given year.[67]

III.D Long-Run Data

We assess the long-run effects of the war on militarization in the nineteenth and twentieth centuries. Using the 1895 occupation census of the German Empire (Statistisches Reichsamt, 1897), we construct military share (pp), the share of military personnel among the working-age population, and institutionalized population (pp), the share of residents living in institutions. The latter measure includes invalids, poorhouse residents, asylum residents, and prisoners. These data cover 2,145 towns, nearly the entire sample.[68]

We additionally collect military notables in 1914 and below-median life expectancy over the 1800–1914 period. Using the birth records from Verein für Computergenealogie (2025), we pool all births between 1800 and 1914 and classify towns by whether life expectancy was above or below the sample median; given the increased coverage at this later time period, this covers 703,288 individuals in 1,905 towns.

[66] Data sourced from the 'Verzeichnis der im deutschen Sprachraum erschienenen Drucke des 16. Jahrhunderts' (VD 16), 'Verzeichnis der im deutschen Sprachraum erschienenen Drucke des 17. Jahrhunderts' (VD 17), and 'Verzeichnis der im deutschen Sprachraum erschienenen Drucke des 18. Jahrhunderts' (VD 18).

[67] In addition to the classification of a person as being in the military, the *Deutsche Biographie* also indicates nobility status for 5,036 individuals during our study period.

[68] 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)." The institutional measure aggregates the census categories for invalids, poorhouse residents, asylum residents, and prisoners.

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.[69]

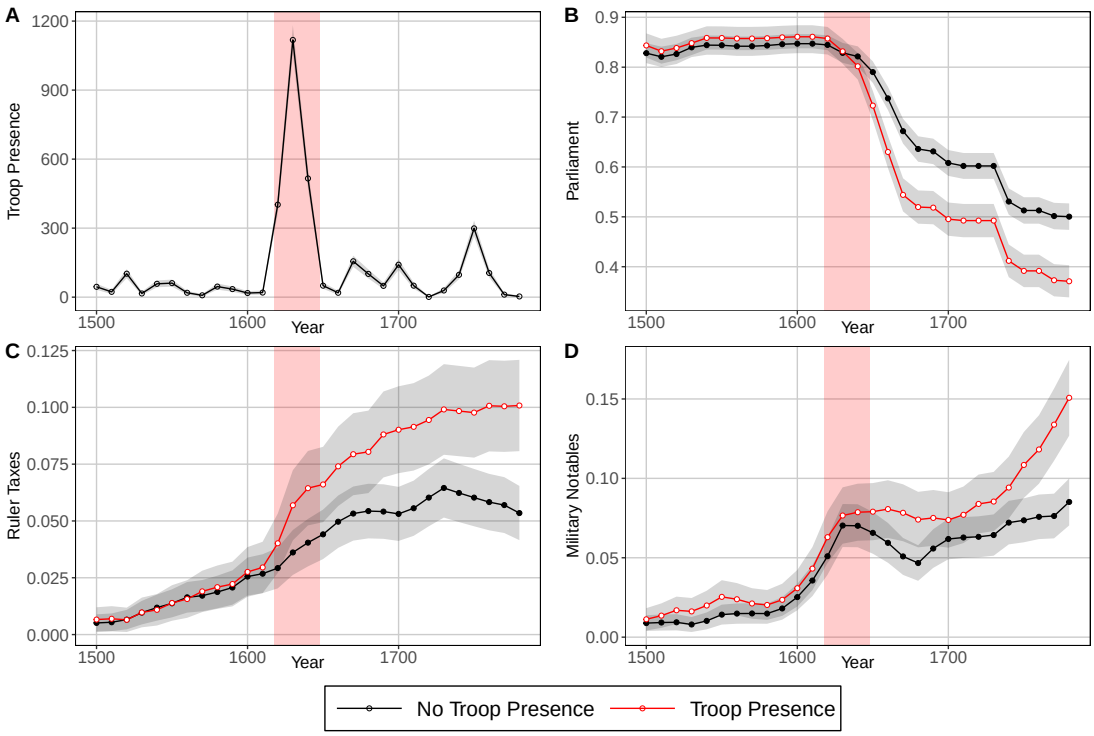
Our descriptive evidence suggests a structural shift in state organization around the Thirty Years' War. Figure II, Panel A, plots troop presence events, which spike during the war. Panels B–D plot the raw outcomes — parliament elimination, ruler taxes, and military notables — by troop presence. The pre-war trends are similar, but they diverge thereafter. Before the war, almost 90% of towns belonged to a parliamentary constituency; by 1700, this share had fallen to 40%. Although parliamentary representation declined more broadly during this period, the decline is markedly steeper in towns exposed to troops.[70] 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.

While these descriptive patterns motivate our focus on the war as a turning point in state organization, they can only be suggestive. A key concern in regressing state outcomes on local troop presence is unobserved variables that might influence both the treatment and outcomes, hence confounding the causal interpretation of the estimates. Military considerations could potentially 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.4 allows for a first assessment of these concerns. We predict troop presence

[69] 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 seven 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.

[70] 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 incidents rose in the seventeenth century. We discuss comparative case studies in Appendix Section B.1.

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 (1) conflict incidents in year t, (2) the share of towns represented in regional parliaments in year t, (3) the share of towns with ruler taxes in year t, and (4) military notables, the inverse hyperbolic sine of military notables active in year t. Standard errors are clustered at the town level.

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.[71] Historical evidence from Section II further suggests that much of the realized exposure was driven by wartime contingency, given shifting campaign plans and limited local knowledge.

[71]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 of 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.

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.[72] 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 10.68 percentage points. This is sizeable relative to the full sample, in which 29% of town-years have no parliament. It is larger still relative to the subsample of towns whose constituencies ever convened a parliament during our period, where the corresponding share is only 19%.[73]

Column 2 shows that troop presence is associated with a statistically significant increase in ruler taxes equal to 88% of the baseline mean. Finally, column 3 shows a doubling of the

[72] We anchor all troop events in 1618. In Appendix Section C.2, we show that the results are qualitatively unchanged when we restrict the sample to towns with known exposure timing and estimate a staggered-treatment specification instead.

[73] 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.

Table I: Troop Presence and Absolutism

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1069***	0.0305***	0.0283***
	(0.0356)	(0.0082)	(0.0101)
R^2	0.70	0.56	0.42
Observations	646,700	646,700	646,700
City Units	2,230	2,230	2,230
Outcome Mean	0.29	0.04	0.06
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Standard errors are clustered at the constituency (1) or town (2–3) level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

baseline value of military notables in association with the war.

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

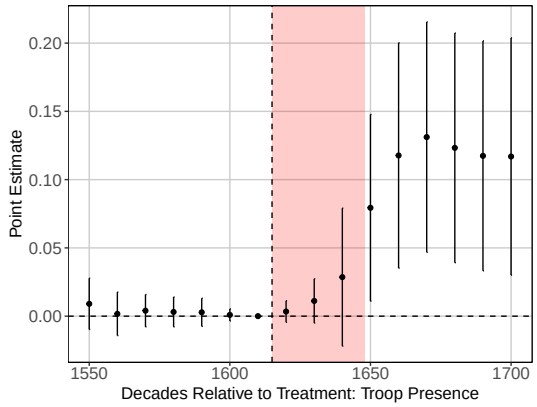
$$Absolutism_{it} = \sum_{\tau=-7}^{8} \beta_\tau Treated_i \times RelativeDecade_{\tau(t)} + \alpha_i + \alpha_t + \varepsilon_{it} \quad (2)$$

with all variables as defined above, and $RelativeDecade_t$ denoting decades before and after 1618. 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 and C).[74] In sum, treated and untreated towns did not display differential trends of state organization prior to the outbreak of the war. Since the strategic considerations of armies took into account mainly constant or slow-moving town characteristics, which would influence the level of state organization rather than relative trends, this appears plausible. We devote Appendix Section C.3 to robustness checks that support this claim.

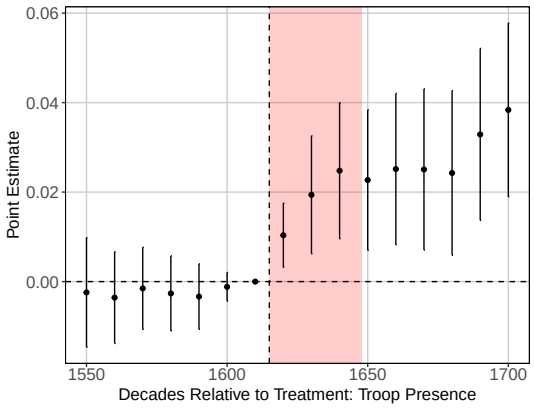
[74]Section V provides a detailed examination of the mechanisms underlying the gradual dismantling of parliaments.

Figure III: Troop Presence and Absolutism (Event Studies)

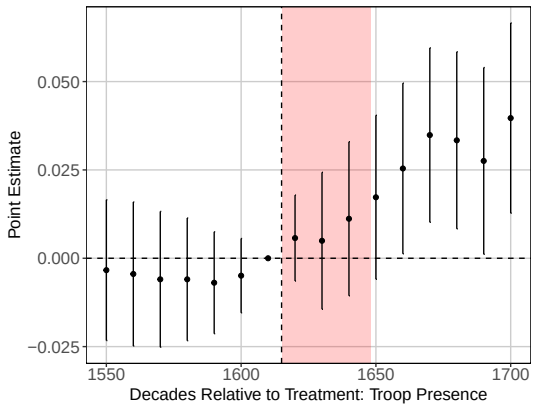
A: Parliament Eliminated



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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in 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).

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 exploits two features of early modern warfare: commanders 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

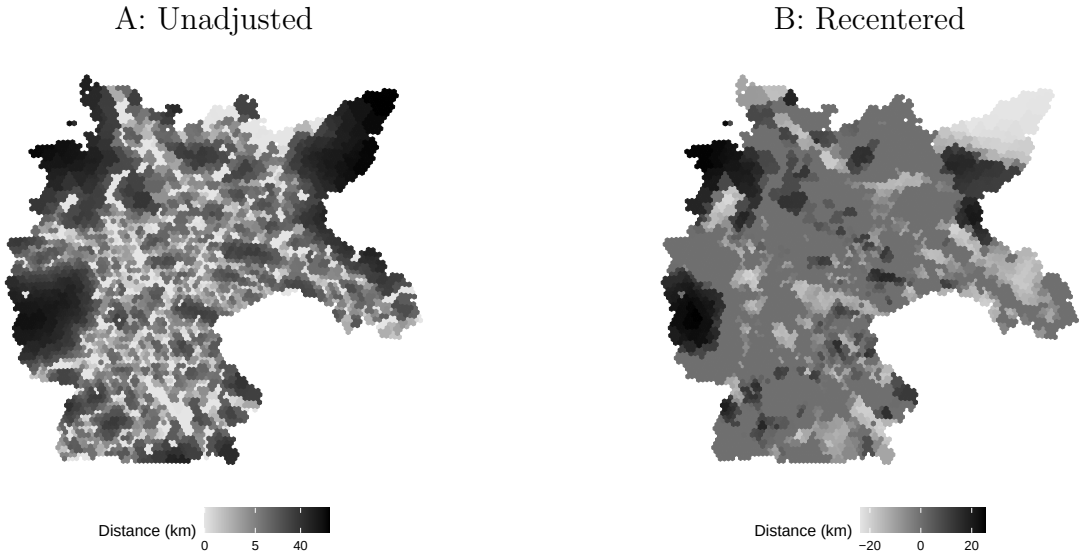
Our starting point is the concern that realized troop movements may reflect campaign strategy in ways correlated with later state outcomes, as discussed in Section IV.A. We therefore proceed in two steps. We first construct a baseline instrument based on least-cost troop movements. We then recenter this 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 (Banerjee et al., 2020; Faber, 2014). 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 is 42, indicating that realized troop movements closely tracked least-cost routes between strategic targets.[75] The exclusion restriction requires that distance to the nearest least-cost troop movement affects 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 exposure measure also includes smaller exposure events. Since wartime contributions were "levied on the basis of the effective [...] strength of troops" (Redlich, 1959; Ritter, 1903), larger armies should have had larger effects. Under the exclusion restriction, the IV coefficients also have a local-average-treatment-

[75] 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 the expected instrument from 1,000 counterfactuals (Panel B). Appendix Figure A.9 shows the expected instrument. Details on the construction of counterfactuals are given in Section III.B and Appendix Section C.5.

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 exposure implied a sharper increase in fiscal and military extraction than in already central places. Contemporary examples are consistent with this interpretation. For the small town of Kitzingen, exposed to Gustavus Adolphus on his way between the fortified towns of Nürnberg 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 six times annual pre-war tax revenue.

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.[76]

[76] A canonical approach in least-cost-path studies is to address this concern by conditioning on a set of distance controls (Faber, 2014). We show in Appendix Section C.4 that our results are also robust to this approach.

Table II: Troop Presence and Absolutism (Instrumental Variable)

	Parliament Eliminated	Ruler Taxes	Military Notables
	(1)	(2)	(3)
Panel A: Unadjusted Instrument			
Troop Exposure	0.4645***	0.1715***	0.4226***
	(0.170)	(0.061)	(0.084)
R^2	0.70	0.56	0.32
Panel B: Recentered Instrument			
Troop Exposure	0.5388**	0.3443**	0.3169**
	(0.271)	(0.158)	(0.151)
R^2	0.70	0.56	0.32
Number of Observations	646,700	646,700	646,700
Number of Towns	2,230	2,230	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 the expected instrument from 1,000 counterfactuals (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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Standard errors are clustered at the constituency (1) or town (2-3) level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

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).[77] Intuitively, this discounts variation from towns that would have been close to (or far from) major troop movements in almost any plausible scenario, and retains variation from towns whose exposure depended on contingent wartime decisions.

We construct this distribution conservatively. Using the counterfactual 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. We therefore treat the occurrence of campaigns themselves as given and do not attempt to model all conceivable contingencies of the war. At each documented juncture, a campaign follows either the realized troop movement or one confirmed counterfactual alternative. We combine these choices into 1,000 campaign scenarios, recompute the instrument in each scenario, and average across scenarios to obtain the expected instrument. Recentering subtracts this expected instrument

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

from the realized one.[78] Figure IV, Panel B, shows the resulting recentered instrument.[79]

An example illustrates the logic. Frankfurt (Oder) and Schweinfurt, 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 counterfactual scenarios. Here, our conservative approach matters: there were likely broader wartime scenarios in which Frankfurt would not have been reached by troops, but in our restrictive set of coded counterfactuals, its recentered instrument is zero. Schweinfurt was less central and is not reached in all coded counterfactual scenarios; its expected instrument is therefore eight 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, reinforcing the finding that troop presence is causally linked to taxation, militarization, and parliament elimination. The changes in magnitude are also informative. 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. In Appendix Section C.6, we provide evidence that our approach yields a conservative approximation to the relevant set of compliers. We do so by considering broader but still plausible counterfactuals — 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 counterfactual troop movements to construct propensity scores directly for our main OLS specification.

V Mechanism

Local troop presence may have weakened executive constraints through multiple channels. The shock raised local resource demands, but it also brought armed actors into towns. Troops

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

[79] 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 counterfactual scenarios.

could therefore weaken local institutions directly through violence or indirectly by raising the value of coordinated provisioning. These mechanisms are not mutually exclusive, and both may have operated in practice.[80] However, to provide 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 coordination of provisioning as the central channel. Military authorities increasingly relied on negotiated contributions backed by coercion rather than on battle alone.[81] As Parrott (2011) notes, "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." 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 crisis-coordination 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. Appendix Section B.2 presents additional historical case studies that support the core assumptions of the model. Appendix Section D.1 provides formal proofs, and Appendix Section D.2 extends the analysis to incorporate the role of elites in supporting regime change.

Model Set-Up

Players and Timing. Our model consists of 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 $Y_{j,t} = 1$.

[80] 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).

[81] In this context, we also discuss mechanisms around a broader, secular trend toward absolutism not tied to local troop presence, in the context of the so-called "Military Revolution."

Crisis. In period $t = 1$, the Town faces an exogenous fiscal shock of size $d > 1$: it must provision troops passing through the locality. This obligation must be satisfied in full in period 1. If it is satisfied, the Town survives and produces $Y_{T,2} = 1$ in period 2; if it is not, the Town is destroyed and $Y_{T,2} = 0$. A central friction in the environment is limited commitment: promises made in period 1 to compensate those who provide additional resources are only imperfectly enforceable in period 2. This matters because crisis finance is inherently intertemporal—resources must be mobilized immediately, while repayment can occur only later.[82] In the framework, a crisis therefore arises when: (i) a resource demand exceeds local capacity, (ii) failure to meet that demand poses an existential threat, and (iii) contractual frictions make future compensation imperfectly enforceable.

Regime Choice. The crisis can be managed under one of two institutional arrangements. Under *Separation*, the Town retains control over local administration and continues to interact with the Ruler through parliament. Under *Delegation*, the Town cedes administration to the Ruler.[83] The key distinction between the two regimes lies in how they affect the credibility of intertemporal compensation. Under delegation, the transfer of fiscal control gives the Ruler a direct claim on future local revenues. Delegation therefore does not simply provide financing in period 1; it also relaxes the commitment problem in period 2 by reallocating control over fiscal administration itself.

Regime 1: Separation.

Under Separation, the Town seeks to finance the crisis through alternative channels while retaining administrative autonomy. This requires payment of a fixed coordination cost κ_T. The Town contributes its full period-1 income, $Y_{T,1} = 1$, and borrows the remainder, $b \equiv d + \kappa_T - 1$. It promises repayment r in period $t = 2$, but 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. Separation thus preserves autonomy but remains constrained by weak contract enforcement.

Regime 2: Delegation.

[82] For the broader argument that commitment problems prevent efficient political bargains, see Acemoglu (2003), Maskin and Tirole (2004), and Aghion et al. (2004).

[83] In this paper, we abstract from a separate communication margin. A core result in Angelucci et al. (2024) is that parliamentary communication occurs if and only if towns remain administratively separate. This accords with the evidence in Section II: local administrative autonomy and parliamentary participation tended to move together.

Alternatively, the Town may delegate administration to the Ruler. Delegation transfers fiscal control: the Town cedes key elements of local tax capacity, such as tax registers and collection infrastructure, to the Ruler. This transfer makes the arrangement credible. Without it, any promise to compensate the Ruler in period 2 would face the same limited-commitment problem as under Separation. Delegation therefore combines current financing with control over future revenue extraction.[84]

In period $t = 1$, the Town again contributes $Y_{T,1} = 1$. The Ruler finances the remaining requirement, equal to the shortfall plus the cost of centralized provision, $(d - 1) + \kappa_R$.

In period $t = 2$, the Ruler uses control over fiscal administration to extract revenue from the Town. Total extraction is $\kappa_R + \tau$, where κ_R compensates the Ruler for coordination costs and τ denotes a net transfer.

The difference between the two regimes thus lies in ownership. Under Separation, the Town retains administrative autonomy, but repayment to outside lenders is only imperfectly enforceable. Under Delegation, the Town relinquishes administrative control and thereby grants the Ruler a more secure claim on future local revenues. This claim, τ, corresponds to our measures of inputs into absolutist state capacity in Section III.

Equilibrium

We characterize the subgame-perfect Nash equilibrium. The Town chooses the regime that maximizes expected consumption subject to feasibility and participation constraints.

Separation. To raise b, the Town must promise repayment $r = \frac{d+\kappa_T-1}{\pi}$.[85] Separation is feasible if and only if this repayment can be met 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 $b = d + \kappa_T - 1$; otherwise, Separation is infeasible and, absent delegation, the Town is destroyed.

Delegation. Delegation requires feasibility for the Ruler and participation by both parties.

[84] This logic is closely related to the incomplete-contracts view of ownership as an allocation of residual control rights; see Grossman and Hart (1986).

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

Feasibility requires that the Ruler can fund the intervention from period-1 income $Y_{R,1} = 1$:

$$(d-1) + \kappa_R \leq 1 \quad \Longleftrightarrow \quad d + \kappa_R \leq 2. \tag{4}$$

The Ruler participates only if the period-2 transfer covers the period-1 financing $\tau \geq d - 1$.

The Town accepts Delegation only if it weakly prefers it to its outside option. If Separation is feasible, the outside option is independent crisis finance, so Delegation is preferred when

$$\kappa_R + \tau < d + \kappa_T - 1. \tag{5}$$

If Separation is infeasible, the outside option is destruction, so Delegation is preferred if and only if the Town retains non-negative period-2 consumption:

$$\kappa_R + \tau \leq 1. \tag{6}$$

Comparative statics. In what follows, we restrict attention to cases in which delegation is feasible, i.e. $d + \kappa_R \leq 2$. This isolates the choice between institutional arrangements from cases in which the Ruler is financially unable to intervene.[86]

Figure V plots the regions of destruction, voluntary delegation, and forced delegation in (τ, d)-space for $\kappa_R = 0.4$, $\kappa_T = 0.7$, and $\pi = 0.6$.

Three implications follow. First, a rise in d weakly shifts equilibrium from Separation toward Delegation. A larger shock tightens the feasibility condition for Separation, (3), and, when Separation remains feasible, increases its cost relative to Delegation by (5).

Second, a decline in κ_R weakly enlarges the Delegation region. Lower ruler coordination costs reduce total extraction under Delegation, making it more attractive when Separation is feasible and more likely to preserve the Town when Separation is infeasible. This also shrinks the destruction region; the relevant conditions are (5) and (6).

Third, a rise in π enlarges the Separation region and makes permanent ruler takeover less likely. Better enforcement relaxes the financing constraint under Separation, (3), thereby reducing the set of cases in which the Town must turn to Delegation.

In our setting, troop presence maps directly into this notion of crisis. First, it generated a

[86] Staying within this corridor of d was incentive-compatible for military commanders, as discussed in Section II. We examine this assumption empirically in Section V.B.

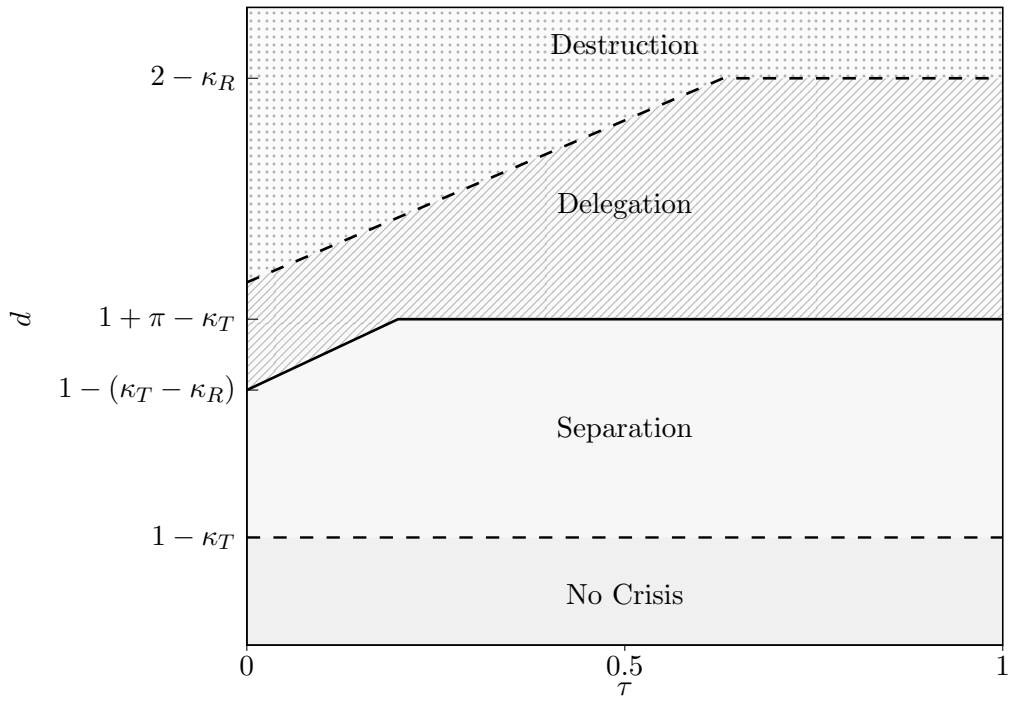


Figure V

Note The figure partitions the (τ, d)-space into four regions: *No Crisis*, *Separation*, *Delegation*, and *Destruction*. The dashed and solid boundaries indicate the threshold values of d as a function of τ that separate these regimes. Parameter values are $\kappa_R = 0.4$, $\kappa_T = 0.7$, $\pi = 0.6$. Formal proofs are given in Appendix Section D.1.

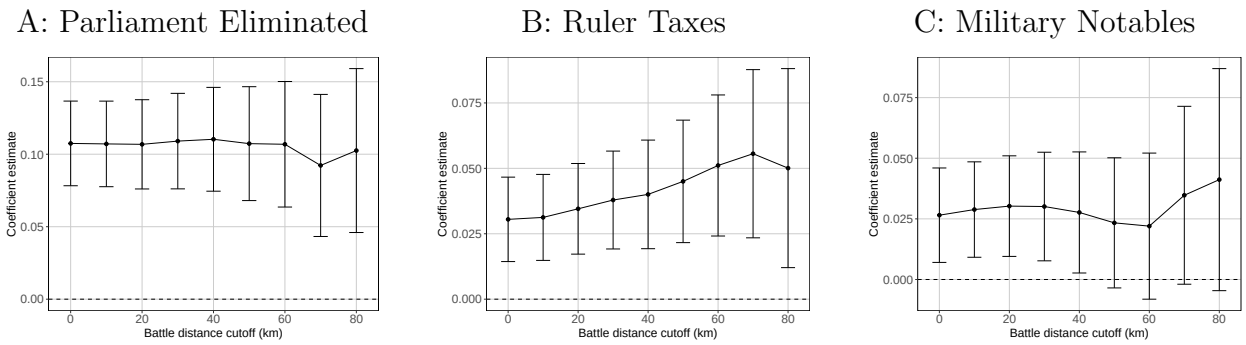
large, localized demand for resources. Early modern armies depended on local provisioning, so troop entry immediately created financing needs. Second, it posed an existential threat: if demands were unmet, resources could be seized by force, including through plunder. Third, these demands were often sudden and unprecedented, while compensation across towns and over time was difficult to enforce, generating contracting frictions.

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

V.B Coordination and Executive Capacity

We test two implications of the framework for the delegation channel. First, if the baseline effects reflect crisis-driven delegation rather than direct violence and coercion, they

Figure VI: Troop Presence and Absolutism (Battle Distance)



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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in 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).

should not be primarily driven by proximity to battles or annexations. Second, the ruler's coordination cost κ_R should govern both destruction and the scope of Delegation. We proxy κ_R by whether the troops a town encountered belonged to the ruler's wartime coalition.

We 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 successively exclude towns located close to major battles. Specifically, we impose 10-kilometer distance thresholds and exclude towns lying within up to 80 kilometers of the nearest battle. At this most restrictive threshold, the sample is reduced from the full set of towns to roughly one quarter of its original size, and the nearest battle was approximately three to four days' march away. Figure VI reports the results. The estimated coefficients remain large and statistically significant throughout. If anything, the effect on ruler taxation (Panel B) increases slightly with distance from the nearest battle. These patterns suggest that our findings are not primarily driven by battle-related destruction.[87]

In Appendix Table A.5, 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 that was easier to coordinate through ruler administration had larger effects on our outcomes. A central feature of the contributions

[87] As such, this finding is also less consistent with an interpretation in which war operated primarily through worsened local economic outside options. If that mechanism were dominant, one might expect the estimated effects to attenuate as nearby battle-related destruction is excluded, rather than remain stable or become somewhat stronger.

system was the expectation of repeated interaction between armies and rulers. Such repeated interaction facilitated coordinated arrangements, which 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 from the ruler's coalition and from outside it relied on the same contributions system. But coordination frictions were likely lower when exposed troops belonged to the ruler's wartime coalition, because armies and rulers could expect more repeated interaction and had stronger incentives to sustain cooperative arrangements.

We proxy these frictions using whether exposed troops belonged to the ruler's wartime coalition. In terms of the model, this captures settings in which the ruler faced a lower coordination cost, denoted by a lower κ_R.

We investigate two implications. First, conditional on troop presence, we ask whether destruction was more likely under troop-ruler coalition mismatch. In the model, a higher κ_R expands the range of cases in which troop presence translates into destruction. To assess this implication, we analyze a sample of troop-presence events and estimate the relationship between coalition mismatch and four measures of destruction. These outcomes capture losses of capital and labor: indicators for capital destruction and violence against civilians recorded in the *Deutsches Städtebuch*, and indicators for above-median population loss and out-migration during the war, based on Church records. Appendix Table A.6 finds that all four outcomes are more likely under troop-ruler coalition mismatch.

Second, we examine how our main results vary with the scope for coordination. In the model, a lower κ_R increases the range of cases in which towns delegate to the ruler rather than attempt to remain separated. Empirically, we augment equation (1) with an interaction between troop presence and coalition mismatch, defined as exposure to troops outside the ruler's wartime coalition. Table III presents the results. The coefficient on the interaction term is negative, statistically significant, and economically sizeable across all three outcomes, implying that the effects of troop presence were weaker under coalition mismatch.[88]

Absent strong assumptions about quasi-random variation in troop coalition membership, this interaction cannot be given a causal interpretation (Manski, 1993). The findings are

[88]The results are robust to excluding exposure events involving troops operating in their domestic territories; see Appendix Table A.7. Consistent with the historical evidence, this suggests that strategic overstaffing or targeting of armies to weaken towns was not the main mechanism.

Table III: Troop Presence and Coalition Mismatch

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1333***	0.0445***	0.0465***
	(0.0372)	(0.0104)	(0.0133)
Troop Presence × Coalition Mismatch	-0.0688**	-0.0363***	-0.0473***
	(0.0343)	(0.0136)	(0.0165)
R^2	0.70	0.56	0.42
Observations	646,700	646,700	646,700
City Units	2,230	2,230	2,230
Outcome Mean	0.29	0.04	0.06
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City 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 wartime coalition. 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Standard errors are clustered at the constituency (1) or town (2-3) level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

therefore only suggestive. Taken together, however, the results in this subsection support the relevance of a coordination-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 model implies that towns facing weaker contracting frictions, for example due to stronger pre-existing institutions, should have been better able to preserve administrative separation.

To proxy for contracting frictions, we use two town-level measures of pre-war institutional quality 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).[89] Second, we use city league membership,

[89] 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

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.

Table IV reports the results. Towns with imperial high court access were significantly less likely to have their parliament eliminated, by an amount that offsets the baseline coefficient (column 1). In column 2, the baseline effect is likewise attenuated for towns with city league membership. Column 3 shows that both attenuating effects remain when the interactions are included jointly.

Again, these interaction terms cannot be given a causal interpretation without additional assumptions.[90] 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 localities. In practice, however, early modern technological and administrative constraints 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 model in which a ruling coalition consists of the ruler and the landed nobility. Through the lens of this model, the problem of local implementation becomes a coalition problem: 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

overstating their postwar 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" (Carsten, 1959, p. 160).

[90] 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.9. The results are qualitatively similar.

Table IV: Troop Presence, Parliament Elimination, and Contracting

	Parliament Eliminated		
	(1)	(2)	(3)
Troop Presence	0.1492***	0.1185***	0.1543***
	(0.0448)	(0.0368)	(0.0454)
Troop Presence × Imperial High Court Access	-0.0834**		-0.0764**
	(0.0372)		(0.0374)
Troop Presence × City League Membership		-0.1057**	-0.0857*
		(0.0426)	(0.0440)
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	0.2949	0.2949	0.2949
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. The sample comprises 290 years. The dependent variable is Parliament Eliminated, a binary indicator for whether the parliament representing town i had been eliminated in year t. Standard errors are clustered at the constituency level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

symbolic forms. We evaluate these mechanisms empirically. We re-estimate equation (1) with four outcomes: militaristic prints, ruler and court portraits, ruler appointments, and service nobility. Appendix Section B.3 provides illustrative examples from our data. Table V presents the results. Troop presence is significantly associated with all four outcomes. Figure VII shows that these effects emerged immediately and were not led by pre-trends.[91]

V.E Absolutism in the Long Run

Our results point to a critical juncture (Acemoglu and Robinson, 2013; Callen et al., 2024): the war created a window of opportunity for absolutism, and this new institutional equilibrium 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 its long-run persistence, we first revisit our data on military biographies from the *Deutsche Biographie*, which provides

[91] In Appendix Table A.8, we explore the same heterogeneity for these outcomes and again find larger effects when exposed troops belonged to the ruler's wartime coalition.

Table V: Troop Presence and the Consolidation of Absolutism

	Ideology and Prestige		Career Incentives	
	Militaristic Prints	Ruler and Court Portraits	Ruler Appointments	Service Nobility
	(1)	(2)	(3)	(4)
Troop Presence	0.0540***	0.0347***	0.0600***	0.0172**
	(0.0181)	(0.0131)	(0.0150)	(0.0069)
R^2	0.57	0.51	0.61	0.33
Observations	646,700	646,700	646,700	646,700
City Units	2,230	2,230	2,230	2,230
Outcome Mean	0.05	0.02	0.14	0.06
Outcome Def.	(ihs)	(ihs)	(ihs)	(0/1)
Standard errors	City	City	City	City
City 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) Militaristic Prints, the inverse hyperbolic sine of the number of ruler prints with militaristic titles from town i and year t, (2) Ruler and Court Portraits, the inverse hyperbolic sine of the number of ruler and court portraits from town i and year t, (3) Ruler Appointments, the inverse hyperbolic sine of ruler appointments and related infringements of local institutions in town i and year t, and (4) Service Nobility, the share of nobles from town i in year t who are in the military. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

consistent coverage up to 1900. In the same approach as in Section IV, we construct an indicator variable that equals one if there is at least one notable military figure from town i who is alive and over the age of 20 in year t.

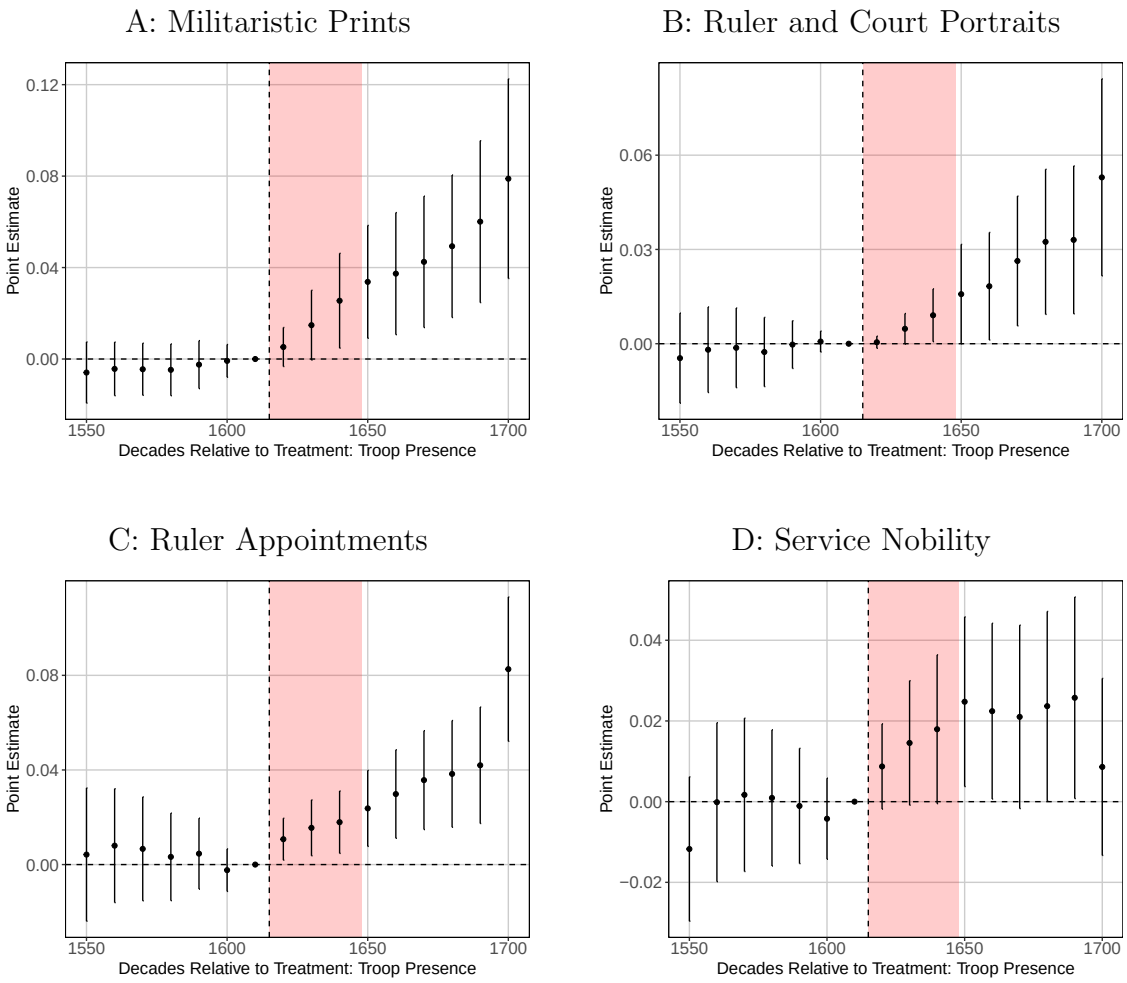
Figure VIII compares treated and untreated towns. Prior to 1618, both groups followed a similar, low-level trajectory. However, after the war, militarization in treated towns steadily increased, with roughly 30% of them producing notable military figures by the end of the nineteenth century.

We further explore the implication of this long-run militarization in a nineteenth-century cross-section of towns. We estimate

$$Absolutism_i = \beta Treated_i + X'\gamma + \varepsilon_i, \tag{7}$$

where $Absolutism_i$ denotes four outcomes: military notables in 1914, military share (pp) in 1895, share of population institutionalized (pp) in 1895, and below-median life expectancy over the 1800–1914 period. X bundles all pre-1618 geographic and economic covariates, and we use Conley standard errors with a cutoff of 100 kilometers. Table VI shows results:

Figure VII: Troop Presence and the Consolidation of Absolutism (Event Studies)

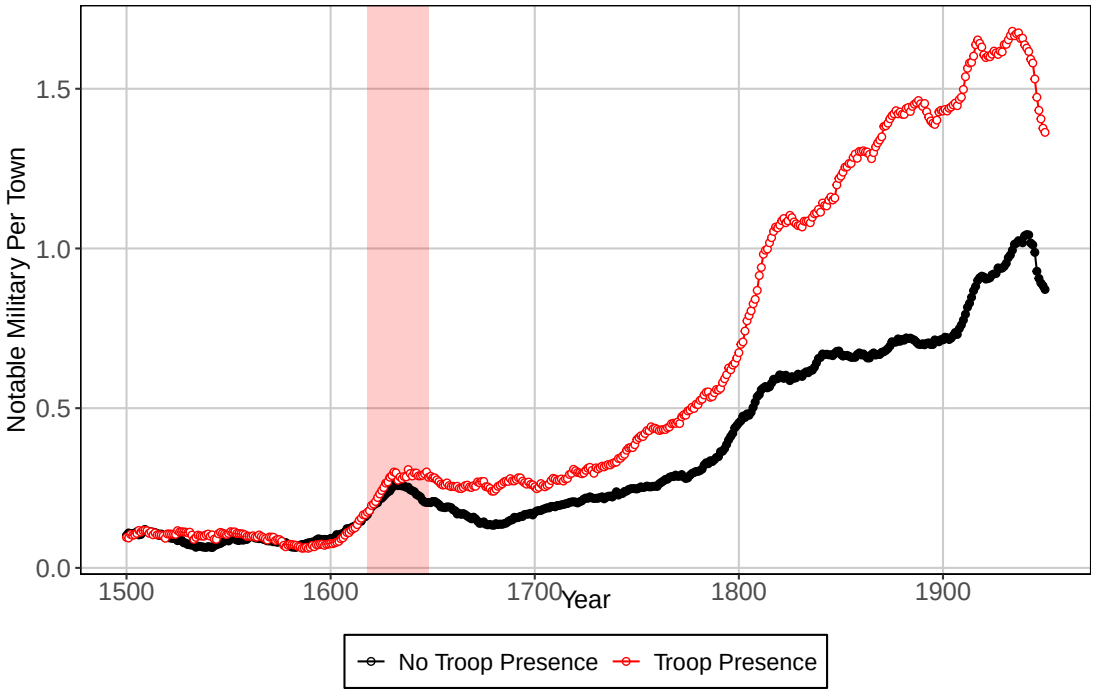


Note This plot shows results of estimating the event study regression in equation (2), with 95 percent confidence intervals. Observations are at the town-year level, with the number of towns indicated in Table I. The sample comprises 290 years. The dependent variables are (A) Militaristic Prints, the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

treated towns had more military notables, higher military share (pp), a higher share of institutionalized population (pp), and a higher incidence of life expectancy below the sample median.[92]

[92] Appendix Table A.10 shows that these results hold when using an instrumental variable based on the distance of a town to the closest campaign least-cost path.

Figure VIII: Troop Presence and Long-Run Militarization



Note The plot shows the average number of military notables as coded from the *Deutsche Biographie* from 1500 to 1900, separately for treated and untreated towns. Details on the construction of the data are given in Section III.

Table VI: Troop Presence and Militarization in the Nineteenth Century

	Military Presence		Demographic Impact	
	Military Notables	Military Share (pp)	Life Exp. < Median	Institutionalized Population (pp)
	(1)	(2)	(3)	(4)
Troop Presence	0.0373**	0.2746***	0.0657***	0.1153**
	(0.0152)	(0.0890)	(0.0244)	(0.0566)
Observations	2,230	2,230	1,768	2,230
R^2	0.00	0.01	0.00	0.00
Outcome Def.	(0/1)	(cont.)	(0/1)	(cont.)
Outcome Mean	0.15	0.72	0.51	1.03
Standard Errors	Constituency	Constituency	Constituency	Constituency

Note This table presents results of estimating equation (7). The dependent variables are Military Notables in 1914, the inverse hyperbolic sine of military notables born in town i; Military Share (pp) in 1895, the share of military personnel among the working-age population; Institutionalized Population (pp) in 1895, the share of residents living in correction institutions; and Life Exp. < Median over the 1800–1914 period, an indicator for whether town-level life expectancy was below the sample median. Standard errors are indicated in the table. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

VI Conclusion

In this paper, we document the rise of absolutism in response to the Thirty Years' War (1618–1648), 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 this drift.

More broadly, these results point to a trade-off between disorder and dictatorship in states of emergency (Hobbes, 1651; Tocqueville, 1835; Djankov et al., 2003). When crisis raises the value of centralized coordination, 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. Absolutism created a service elite whose status and advancement depended more directly on ruler appointment and service.

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 resonates 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 one of the most serious threats to the European order (Carsten, 1958; Rosenberg, 1958). The broader implication extends beyond our setting. War changes not only how much state capacity a polity has, but also who controls it. Whenever local shocks are severe and commitment is weak, temporary delegation during crisis can generate durable shifts away from representative institutions.

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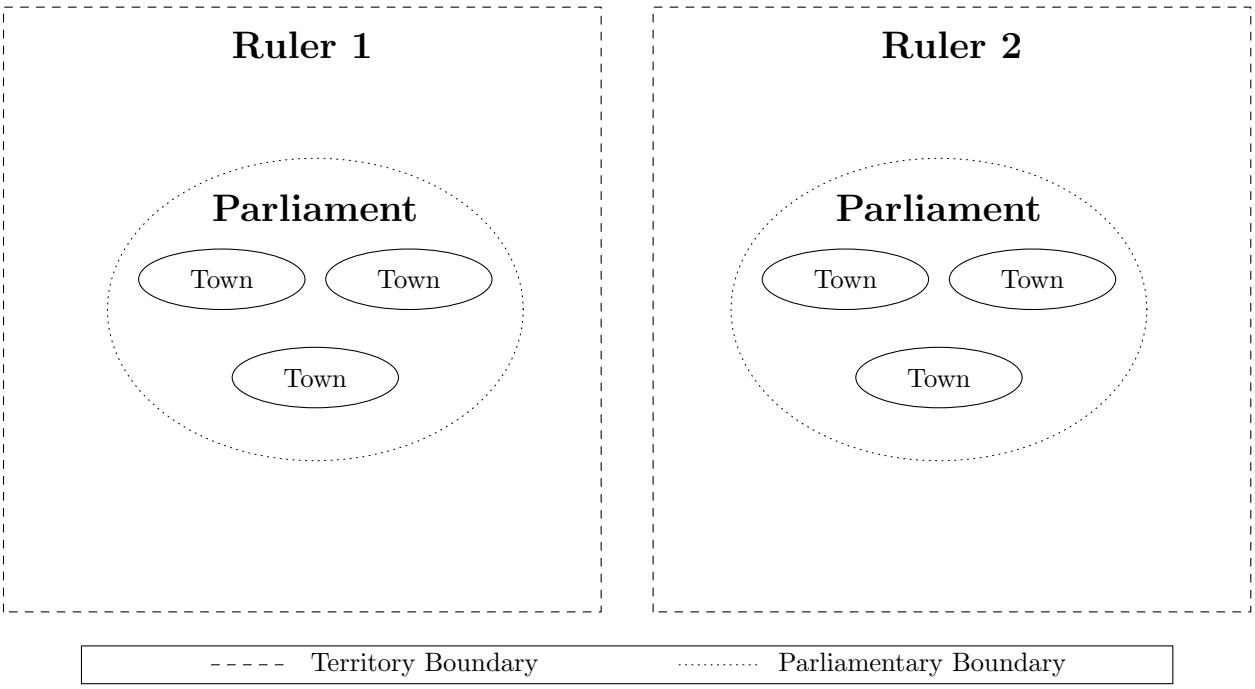
Supplementary Appendix: For Online Publication

A Tables and Figures

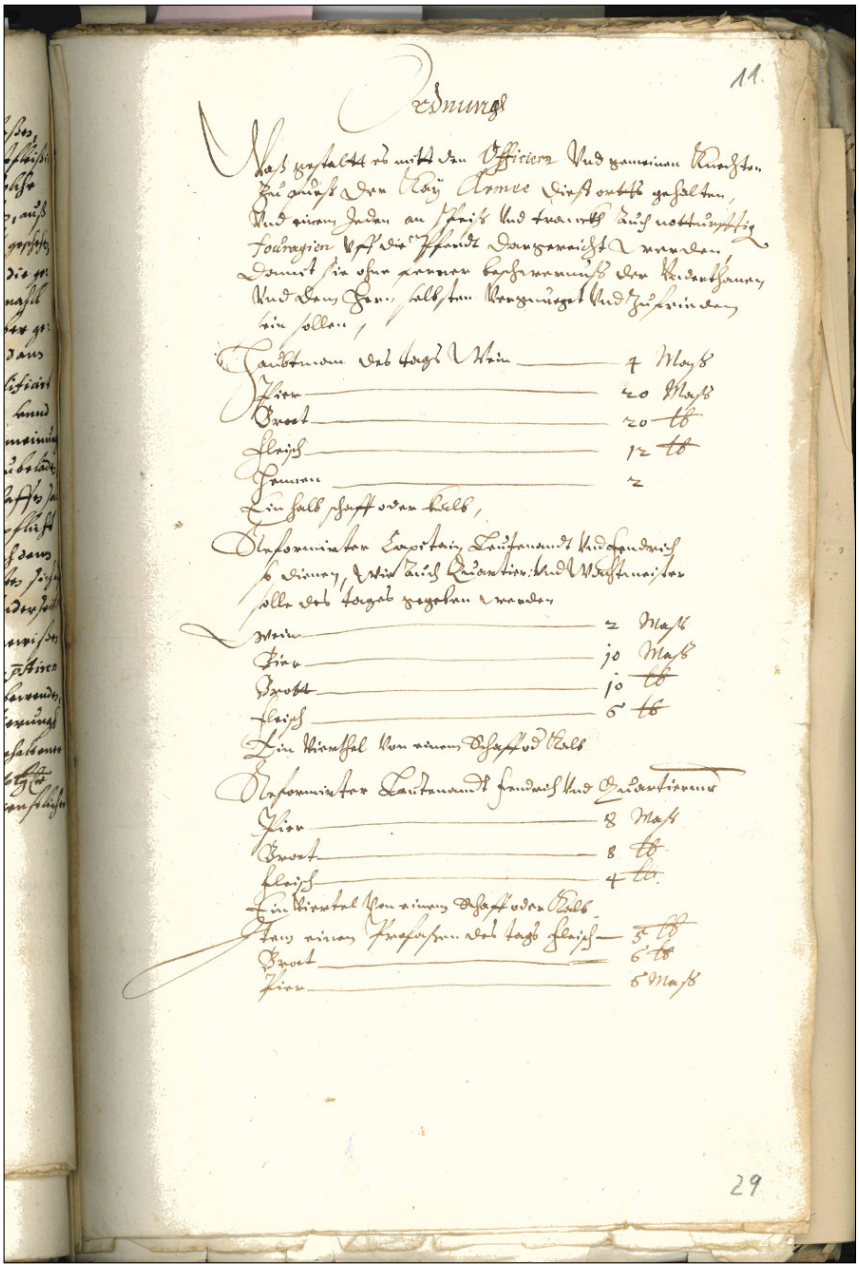
A.1 Figures

Figure A.1: Stylized Parliamentary Rule Structure



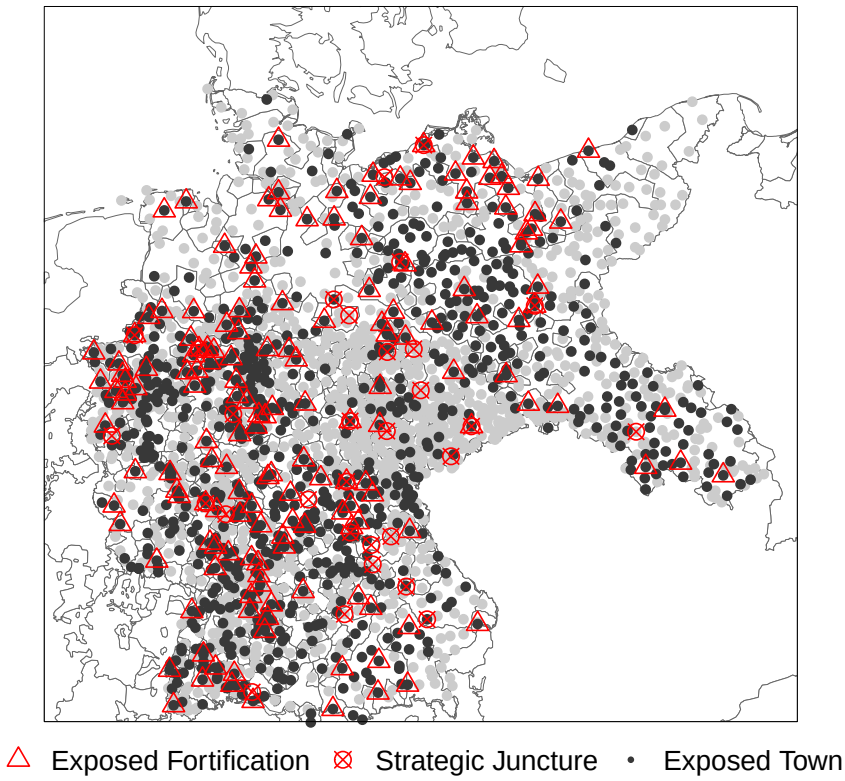
Note This plot shows a stylized overview over the structure of parliamentary rule. Towns belong to parliamentary constituencies. A ruler rules over the parliamentary constituency.

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



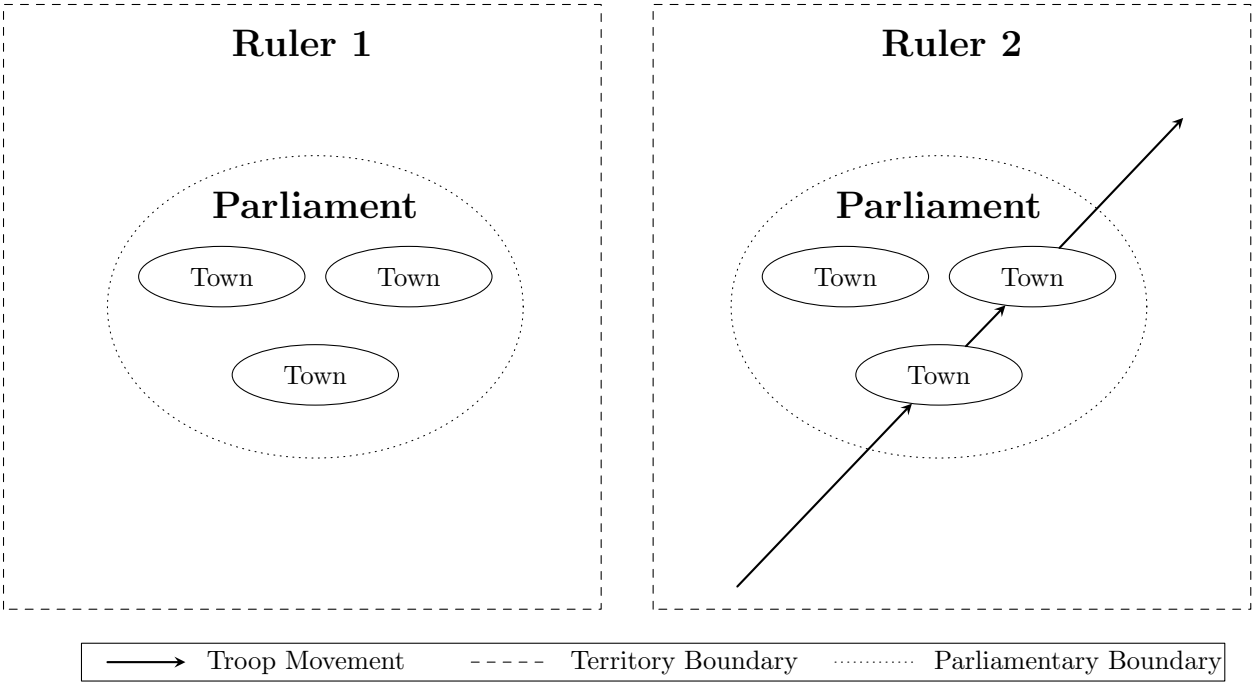
Note Example page of Tilly's supply ordinance for the town of Coesfeld, located in the Bishopric of Münster, in 1623. It lists nutrition demands separately for different military ranks.

Figure A.3: Troop Presence in Towns



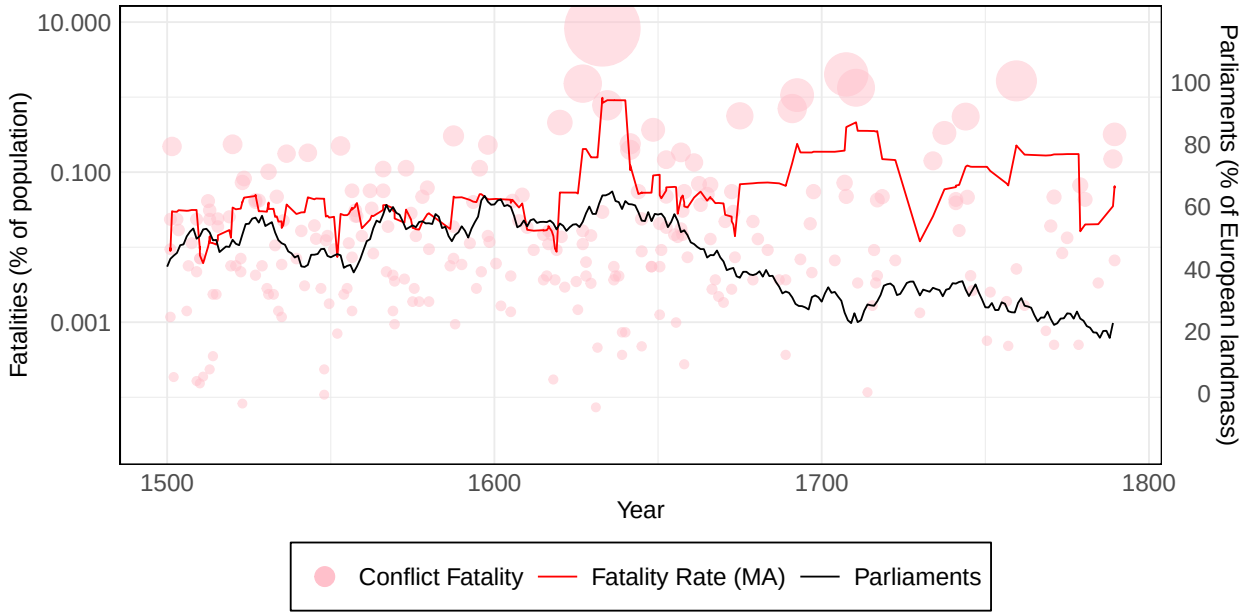
Note This map illustrates the troop presence data. Each point is the location of a town in our data. Highlighted points are towns that have an associated troop presence event. The base map shows parliamentary constituencies in the Holy Roman Empire.

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



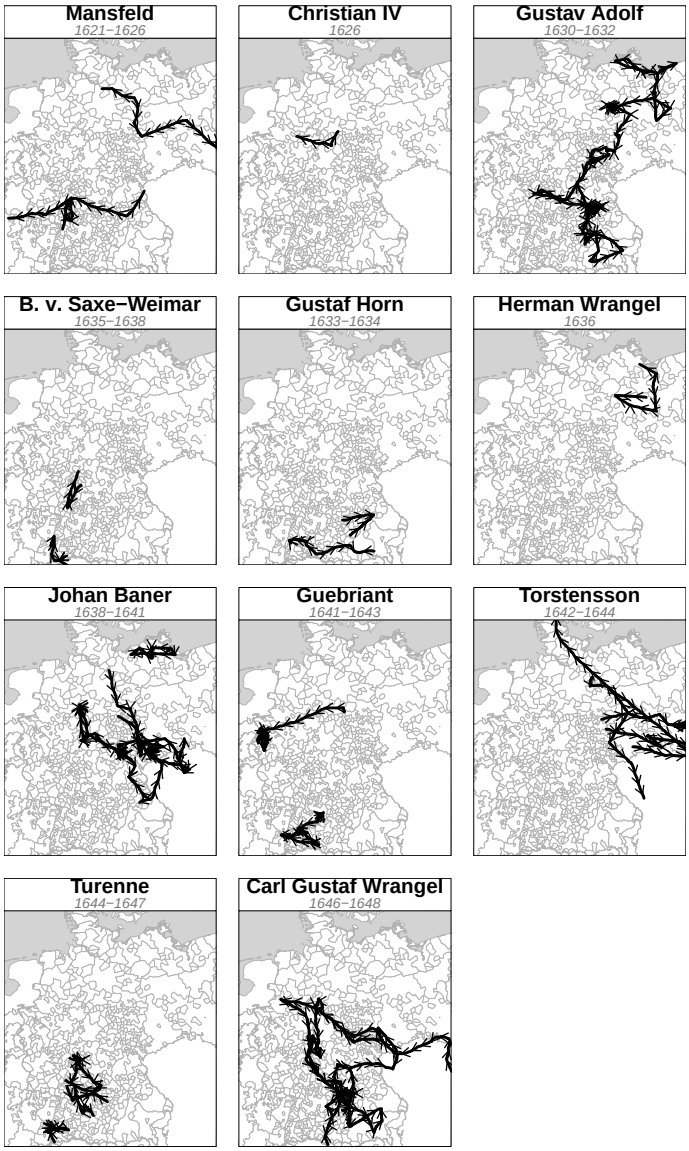
Note This plot adds a stylized troop movement to Appendix Figure A.1.

Figure A.5: War and Absolutism Across Europe



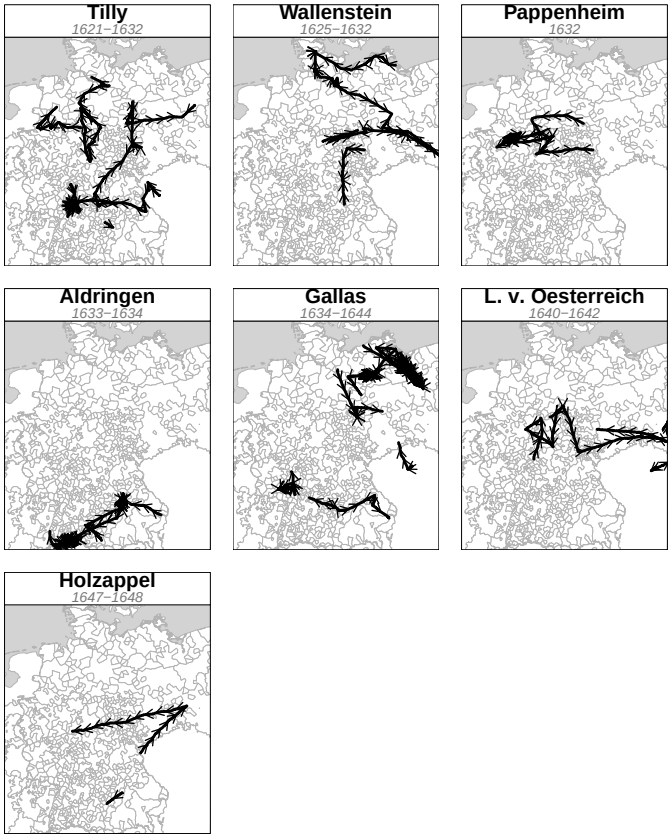
Note This figure plots the joint evolution of parliamentary governance and war, 1500–1800. The right y-axis reports the share of European land area governed by parliaments (Abramson and Boix, 2019). The left y-axis reports average conflict-related deaths per 1,000 world population per decade (Brecke,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

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



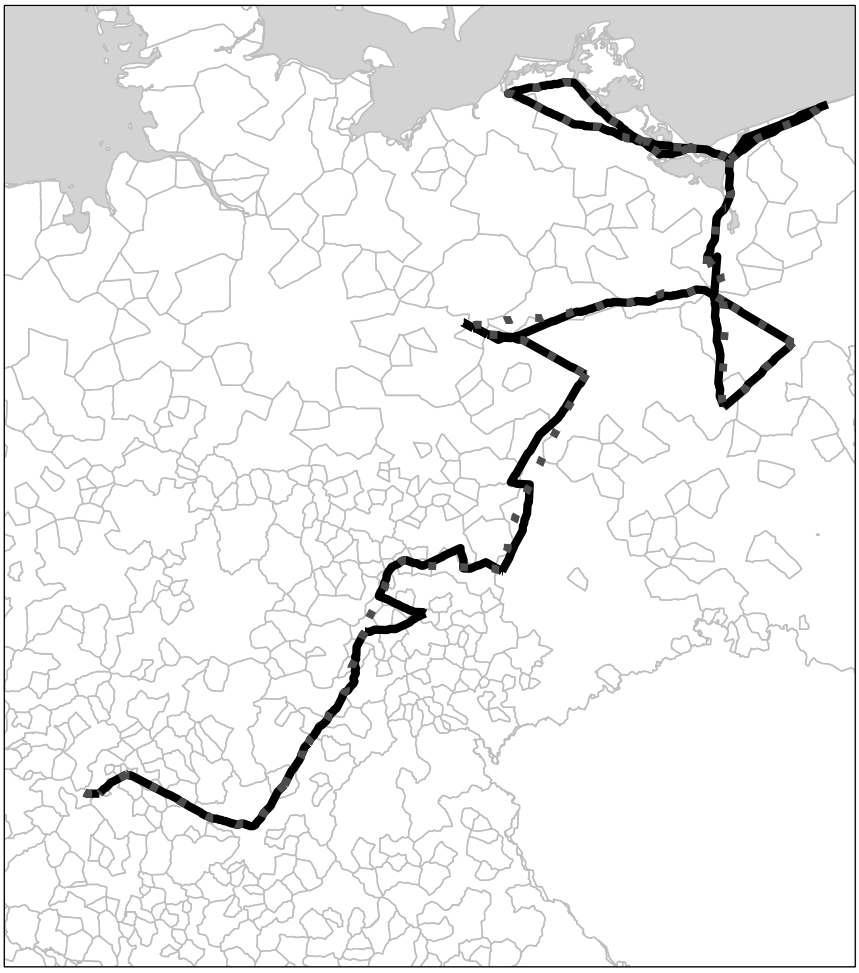
Note This map plots the main Anti-Habsburg coalition armies in the Thirty Years' War and traces their campaign trajectories. In each panel, black lines show a commander's campaign routes; repeated arrowheads indicate direction. Panel titles report the commander's name and years of active campaigning. 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 Commanders



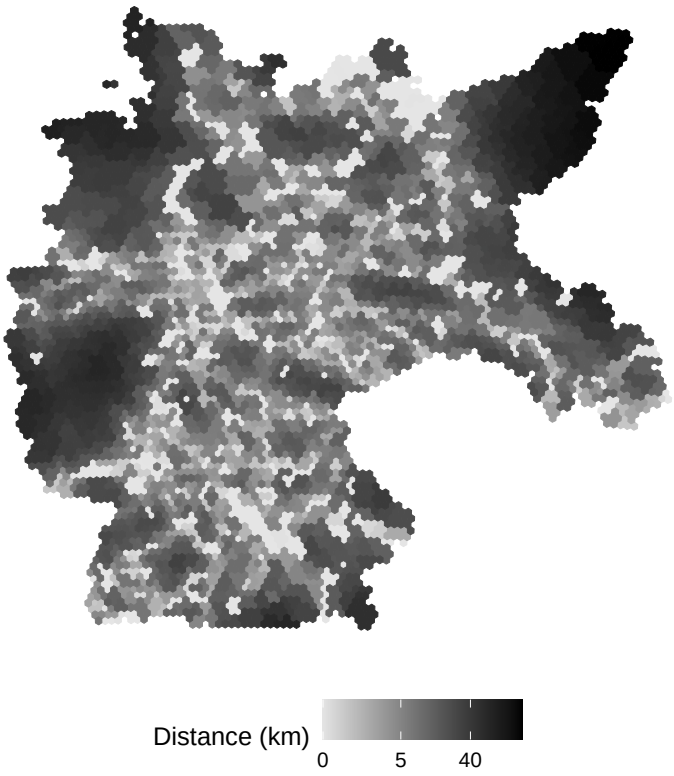
Note This map plots the main Pro-Habsburg coalition armies in the Thirty Years' War and traces their campaign trajectories. In each panel, black lines show a commander's campaign routes; repeated arrowheads indicate direction. Panel titles report the commander's name and years of active campaigning. 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.

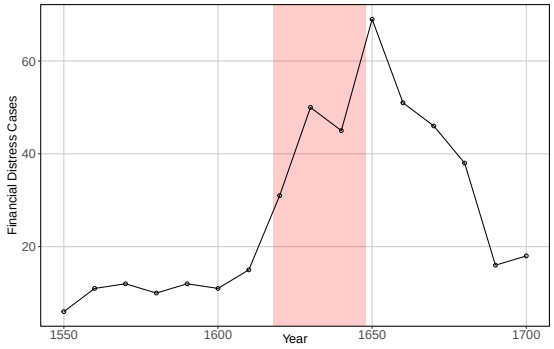
Figure A.9: Instrument (Expected)



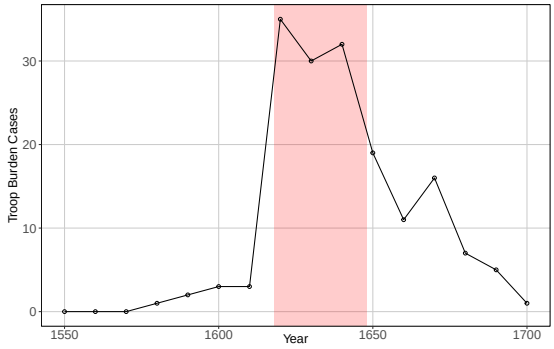
Note This map shows the spatial distribution of the average instrument from 1,000 counterfactuals. Details on the construction of counterfactuals are given in Section III.B and Appendix Section C.5.

Figure A.10: High Court Cases

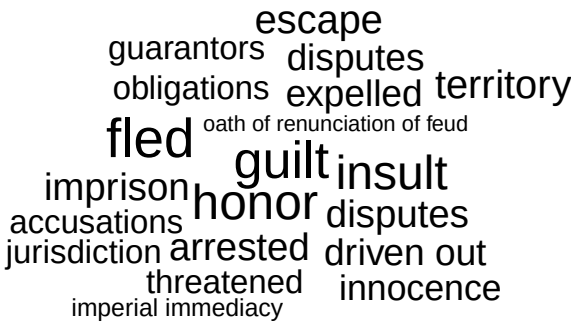
A: Fiscal Burden



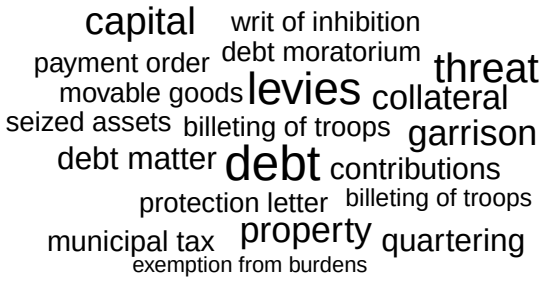
B: Troop Burden



C: Distinctive Words (1587–1617)



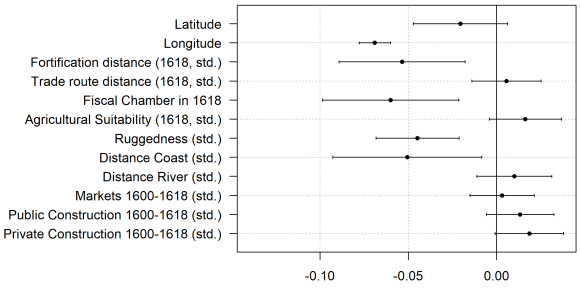
D: Distinctive Words (1618–1658)



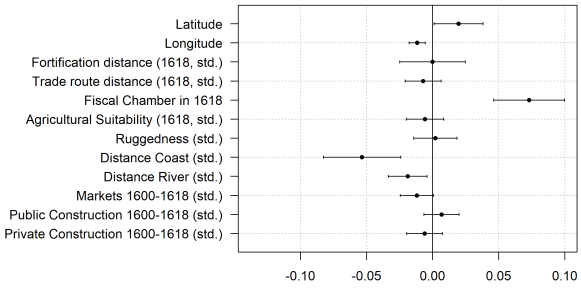
Note This figure shows the evolution of Imperial Court cases concerning fiscal and troop burdens before and after the Thirty Years' War (Panels A and B), as well as word clouds of cases at the High Imperial Court in 1587–1617 and 1618–1658 (Panels C and D).

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.

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	0.04	0.21	0.00	1.00	646700
Military Notables	0.06	0.27	0.00	4.77	646700
Panel B: Mechanism Outcomes					
Militaristic Prints	0.05	0.35	0.00	7.55	646700
Ruler and Court Portraits	0.02	0.26	0.00	7.26	646700
Ruler Appointments	0.14	0.37	0.00	2.89	646700
Service Nobility	0.06	0.23	0.00	1.00	646700
Troop-Ruler Coalition Mismatch	0.76	0.43	0.00	1.00	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.)	-0.11	0.61	-0.85	3.75	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)	8.31	3.43	0.00	12.59	2230
Troop Distance (ihs, rec.)	-0.18	1.05	-8.43	5.94	2230
Panel E: Long-Run Outcomes (1618 Cross-Section)					
Military Notables	0.15	0.36	0.00	1.00	2230
Military Share (pp)	-0.02	0.96	-0.42	15.89	2230
Life Exp. $<$ Median	0.40	0.49	0.00	1.00	2230
Residents in Correction Inst. (pp)	0.00	0.00	0.00	0.02	2230

Note This table presents summary statistics. Observations are at the town level, with the number of towns listed in the table.

Table A.2: Troop Leaders

Alliance	War Party	Troop Leader	Campaign Years	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 (1700); Steckzén (1920); Geijer (1845); Lorentzen (1894)
Anti	Sweden	Gustav Horn	1632-1634	Geijer (1845); Lorentzen (1894)
Anti	Sweden	Gustavus Adolphus	1630-1632	Dodge (1895); Roberts (1958); Geijer (1845)
Anti	Sweden	Herman Wrangel	1634-1636	Geijer (1845); Lorentzen (1894)
Anti	Sweden	Johan Banér	1637-1641	Geijer (1845); Schmidt-Brentano (2022)
Anti	Sweden	Lennart Torstensson	1641-1644	Merian (1700); Geijer (1845); Lorentzen (1894)
Anti	Union	Mansfeld	1618-1626	Gindley (1884); Anonymous (1622); Schmidt-Brentano (2022); Wedgwood (1969)
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); Von Ranke (1869)

Note This table shows the alliance (pro-/anti-Habsburg), war parties, the main troop leaders, their campaigning years 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: Military Notable Profession Terms

Rank	Profession	Share (%)
1	Offizier	16.8
2	General	7.1
3	Militaergeistlicher	6.6
4	Soldat	6.2
5	Oberst	5.2
6	Generalmajor	4.8
7	Generalleutnant	4.8
8	Hauptmann	3.8
9	Gutsherr	2.0
10	Major	1.9

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

Table A.4: Troop Presence (Predictors)

	Troop Exposure				
	(1)	(2)	(3)	(4)	(5)
Latitude	-0.0346*				-0.1385***
	(0.0178)				(0.0394)
Longitude	-0.0193*				-0.0084
	(0.0111)				(0.0133)
Fortification distance (1618, std.)	-0.0154				-0.0060
	(0.0512)				(0.0533)
Trade route distance (1618, std.)		-0.1361***			-0.1206**
		(0.0498)			(0.0517)
Fiscal Chamber in 1618			0.1334**		0.1132**
			(0.0553)		(0.0558)
Agricultural Suitability (1618, std.)			-0.0564*		-0.0852***
			(0.0293)		(0.0310)
Ruggedness (std.)			-0.0259		-0.0909***
			(0.0317)		(0.0343)
Distance Coast (std.)			0.0280		-0.1333**
			(0.0353)		(0.0628)
Distance River (std.)			-0.0785***		-0.0260
			(0.0302)		(0.0326)
Markets 1600-1618 (std.)				0.0234	0.0286
				(0.0250)	(0.0243)
Public Construction 1600-1618 (std.)				0.0294	0.0261
				(0.0272)	(0.0275)
Private Construction 1600-1618 (std.)				0.0446*	0.0435*
				(0.0256)	(0.0243)
Observations	2,230	2,230	2,230	2,230	2,230

Note This table presents results of estimating the equation $Treated_i = X_i\gamma + \varepsilon_i$, with X_i denoting covariates, in a Probit model. 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 on the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.5: Troop Presence and Absolutism (No Annexations)

	Parliament Eliminated	Ruler Taxes	Military Notables
	(1)	(2)	(3)
Troop Presence	0.1234***	0.0408***	0.0141
	(0.0425)	(0.0099)	(0.0113)
R^2	0.73	0.57	0.43
Observations	478,790	478,790	478,790
City Units	1,651	1,651	1,651
Outcome Mean	0.30	0.05	0.06
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City 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 (A) Parliament Eliminated, a binary indicator for whether the parliament that represented town i had been eliminated in year t; (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 born in town i active in year t. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.6: Destruction by Troop-Ruler Coalition Mismatch

	Troop Actions		Demographic Response	
	Destruction	Violence	Life Exp. < Median	Migrated
	(1)	(2)	(3)	(4)
Troop-Ruler Coalition Mismatch	0.0909***	0.0124	0.1410**	0.1027*
	(0.0302)	(0.0082)	(0.0681)	(0.0599)
Observations	863	863	181	181
R^2	0.01	0.00	0.02	0.02
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 $TroopExposure_i = 1$, where $Mismatch_i$ is Troop-Ruler Coalition Mismatch, defined as whether exposed troops were outside the ruler's wartime coalition, and $Destruction_i$ is described in the main text. 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 on the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.7: Troop Presence and Coalition Mismatch (No Own-Ruler Presence)

	Parliament Eliminated	Ruler Taxes	Military Notables
	(1)	(2)	(3)
Troop Presence	0.1228***	0.0527***	0.0464***
	(0.0414)	(0.0117)	(0.0145)
Troop Presence × Coalition Mismatch	-0.0579	-0.0426***	-0.0519***
	(0.0372)	(0.0145)	(0.0173)
R^2	0.71	0.57	0.42
Observations	622,340	622,340	622,340
City Units	2,146	2,146	2,146
Outcome Mean	0.30	0.04	0.06
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City 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 wartime coalition. The sample drops towns where military and local population were under the same territory. 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table A.8: Troop Presence and Coalition Mismatch (Mechanism Outcomes)

	Ideology and Prestige		Career Incentives	
	Militaristic Prints	Ruler and Court Portraits	Ruler Appointments	Service Nobility
	(1)	(2)	(3)	(4)
Troop Presence	0.0779***	0.0507***	0.0808***	0.0257***
	(0.0234)	(0.0184)	(0.0186)	(0.0086)
Troop Presence × Coalition Mismatch	-0.0621**	-0.0416*	-0.0539**	-0.0222**
	(0.0312)	(0.0214)	(0.0250)	(0.0113)
R^2	0.57	0.51	0.61	0.33
Observations	646,700	646,700	646,700	646,700
City Units	2,230	2,230	2,230	2,230
Outcome Mean	0.05	0.02	0.14	0.06
Outcome Def.	(ihs)	(ihs)	(ihs)	(0/1)
Standard errors	City	City	City	City
City 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 wartime coalition. 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) Militaristic Prints, the inverse hyperbolic sine of the number of ruler prints with militaristic titles from town i and year t, (2) Ruler and Court Portraits, the inverse hyperbolic sine of the number of ruler and court portraits from town i and year t, (3) Ruler Appointments, the inverse hyperbolic sine of ruler appointments and related infringements of local institutions in town i and year t, and (4) Service Nobility, the share of nobles from town i in year t who are in the military. Standard errors are clustered at the town level. *, **, and *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table A.9: Troop Presence, Parliament Elimination, and Contracting: Matched Sample

	Parliament Eliminated		
	(1)	(2)	(3)
Troop Presence	0.1530***	0.1239***	0.1576***
	(0.0444)	(0.0373)	(0.0454)
Troop Presence × Imperial High Court Access	-0.0817**		-0.0738*
	(0.0393)		(0.0392)
Troop Presence × City League Membership		-0.1326***	-0.1100**
		(0.0445)	(0.0456)
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	0.2981	0.2981	0.2981
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, a binary indicator for whether the parliament representing town i had been eliminated by year t. Standard errors are clustered at the town level. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Table A.10: Troop Presence and Militarization in the Nineteenth Century (IV)

	Military Notables	Military Share (pp)	Life Exp. < Median	Institutionalized Population (pp)
	(1)	(2)	(3)	(4)
Troop Presence	0.5524**	2.559**	0.4827**	1.450*
	(0.2426)	(1.242)	(0.2360)	(0.7950)
Observations	2,230	2,230	1,768	2,230
IV	✓	✓	✓	✓
Outcome Def.	(0/1)	(cont.)	(0/1)	(cont.)
Outcome Mean	0.15	0.72	0.51	1.03
Standard Errors	Constituency	Constituency	Constituency	Constituency

Note This table presents results of estimating equation (7), using the recentered instrumental variable based on the distance of a town to the closest campaign least-cost path. Standard errors are indicated in the table *, **, and *** denote significance on 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 elite co-optation 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, 1993).

B.1.1 The Dutch Republic

The Dutch Republic presents a contrasting trajectory to the general trend towards 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 contractual 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 coordination and financial credibility. Consistent with this, Parker (1995, 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 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

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

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 generally, this highlights that representative institutions were generally not inferior at raising revenue. 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 (1975)'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.

Moreover, 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 (1995, 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 locality, credit

[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."

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 (1995, 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 "service elite" 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."

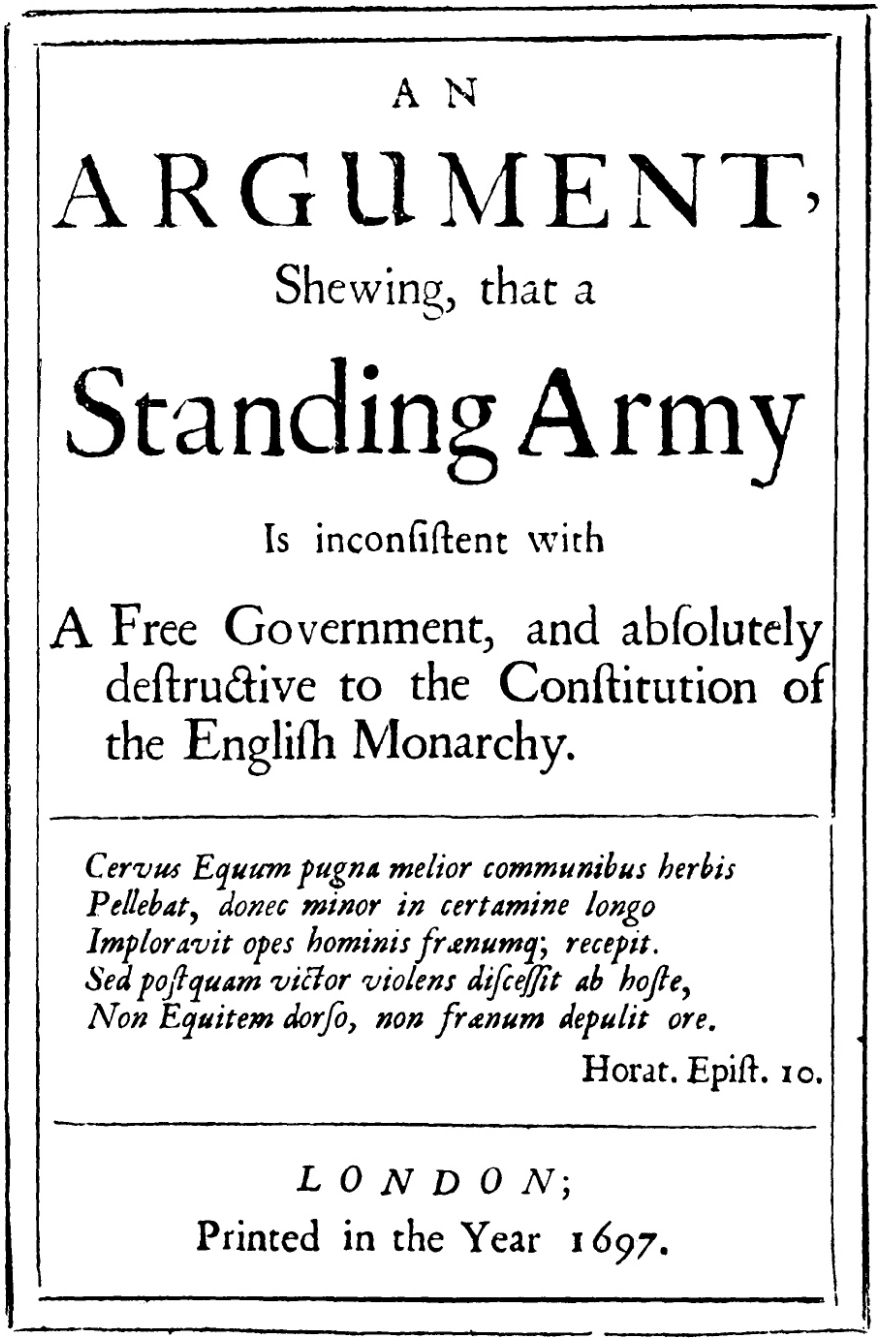
B.1.3 France

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 (1995, 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 so-called *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 Rogers describes as an "amalgam of ingenuity and desperation which constituted French financial policy in this critical period."

Sustaining this enlarged royal administration required the same elite co-optation 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" (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, 1975).

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).

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 Sections 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 Hessen-Kassel, parliamentary taxes were capped in amount, administered through estate receivers, and audited on separate "invoice days" (Hollenberg, 1989, p. 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 practic. . . the imperial-League imperial army from 1635 onward was supplied to the extent of 98 percent from contributions" (Kraus, 2021, p. 217–18).

- In Abterode, "the 8,500 Rthlr 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" (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, p. 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 a coordinated 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 (Carsten, 1959, p. 424).
- In 1631 the Estates of Mark complained that, because of disturbances caused by garrisons, appearing at Landtag assemblies had become nearly impossible (Rohrschneider and Tischer, 2018, p. 191).

Limited repeated interaction with armies imposed high coordination 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 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, p. 4, 7). But difficult travel made diets slow and costly to assemble (Hollenberg, 1994, p. 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 . . . Reichskammergericht and the Vienna 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 Kastner [a ruler official]" (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 coordination 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).
- "In this case the local officials were both negotiating and cooperation partners" (Kraus, 2021, p. 221).
- "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 *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 seen as "as clear and fairly apportioned" as the burdens imposed by the ruler's own administration (Theibault, 1995, p. 141).
- In occupied Hesse-Kassel, "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).
- "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 alliance, and under longer-term stays—further reduced coordination costs, whereas coordination 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 salva guardia meant that the agents of Herrschaft formally approved the presence of troops within the territory. To resist the 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 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 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 Hessen-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, p. LX–LXII).
- In the Upper Palatinate 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 Regime Choice

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 Generalkriegskommissariat . . . The Prussian bureaucracy, in other words, was born as an offshoot of the Army" (Anderson, 1979).
- "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" (Baumgart, 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" (Wilson, 2009, p. 810).
- "The growth of military taxation eroded the Estates' role, since the burdens were often imposed without consultation" (Wilson, 2010, 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, and towns faced a (constrained) regime choice.

- "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 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 landscape 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.

- Castner von Woffenbach was ordered in 1622 to organize the troops' "Verpflegung" in the Neumarkt district (Kraus, 2021).
- In 1643, Kastner Rexrada reported advancing money "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 their granaries, and in return raised demands to the local ruler. (Hollenberg, 2007)

This collaboration fostered a service elite 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, p. 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" (Carsten, 1958).
- This produced a "pro-ruler faction among the nobility ... The Estates were now split beyond repair" (Carsten, 1958).
- "The Estates' disunity ... proved the most effective weapon in the hands of Frederick William" (Carsten, 1959, p. 305f).
- In addition to creating disunity among the existing nobility, rulers used nobilitation. By bestowing titles, the Estates were diluted by a class that owed its social existence to the ruler (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).

- Furthermore, "courtly publicity ... constituted itself in the first instance through the production, distribution, and reception of specific printed media" (Harms, 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 armour with the subtext 'strong and wise king'. Panel B shows a 1679 portrait of Maximilian Emanuel, Duke of Bavaria, also in armour. At the bottom is a poem that celebrates his military victories.

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."]

Figure B.2: Examples: Portrait Printed Graphics

A: Frederick I

B: Maximilian Emanuel

Note Panel A: https://www.portraitindex.de/bilder/zoom/sbb-wadzeck-000226. Panel B: https://www.portraitindex.de/documents/obj/33423445.

- "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. (1939-2003), 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

Section IV.B suggests a causal link between the war and shifts in state organization. We take a number of steps to demonstrate the robustness of this link. 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).

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 *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

$$Absolutism_{jt} = \beta Treated_j \times Post1618_t + \alpha_j + \alpha_t + \varepsilon_{jt}. \tag{8}$$

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: standard errors remain similar across specifications, and the coefficients remain statistically significant.

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 neighboring troop presence, following Acemoglu et al. (2015).[1] We therefore estimate

$$Y_{it} = \beta_1 \text{Treatment}_{it} + \beta_2 \text{Spillover}_{it} + \alpha_i + \alpha_t + \varepsilon_{it}. \tag{9}$$

Table C.6 shows positive spillovers for parliament elimination and ruler taxation, but not for military professionalization. Including spillovers modestly attenuates the direct treatment coefficient for parliament outcomes and ruler taxation, without altering the qualitative

[1]The spillover matrix combines contiguity, great-circle distance, and terrain ruggedness between neighboring towns. Specifically, for $i \neq j$, we define

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

with $F_{ii} = 0$, where A_{ij} denotes contiguity, D_{ij} distance, and E_{ij} an elevation-based ruggedness measure. We set $\gamma_d = 0.04$ and $\gamma_e = 1.10$, as in Acemoglu et al. (2015), and row-normalize to obtain $\mathbf{N}$. The spillover term is then

$$\text{Spillover}_{it} = (\mathbf{NX})_{it}.$$

conclusion. This pattern is consistent with the broader diffusion in the dismantling of representative institutions and ruler taxes, as discussed in the context of Section II. In contrast, the absence of positive spillovers for military professionalization is consistent with the growing centralization of military personnel in permanent regiments, garrison towns, and barracks (Tessin, 1986). This concentration reflects and foreshadows the long-run militarization equilibrium discussed in Section V.E.

In a related exercise, we exclude from the control group towns located in constituencies with above-median troop presence. Appendix Table C.7 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.

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

	Parliament Eliminated	Uniform Indirect Tax	Active Regiments
	(1)	(2)	(3)
Troop Presence (ihs)	0.0747***	0.0636***	1.453***
	(0.0190)	(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 plot shows results of estimating the regression in equation (8) at the level of parliamentary constituencies. Observations are at the constituency-year level. The independent variable is an indicator whether an above median share of towns in the parliamentary constituency j were exposed to troops during the Thirty Years' War. The dependent variables are (A) Parliament Eliminated, a binary indicator for whether parliamentary constituency j has been eliminated in year t, (B) Ruler Taxes, a binary indicator for whether parliamentary constituency j has records of ruler taxes in year t (as recorded in Härter and Stolleis (2023)), and (C) Active Regiments, the inverse hyperbolic sine of troops (regiments) in parliamentary constituency j active in year t (as documented in Tessin (1986)). The area shaded in red indicates the duration of the war. Standard errors are clustered at the parliamentary constituency level.

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

	Parliament Eliminated (1)	Uniform Indirect Tax (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 plot shows results of estimating the regression in equation (8) at the level of 1-1 grid cells. Observations are at the constituency-year level. The independent variable is an indicator whether an above median share of towns in the parliamentary constituency j were exposed to troops during the Thirty Years' War. The dependent variables are (A) Parliament Eliminated, a binary indicator for whether parliamentary constituency j has been eliminated in year t, (B) Ruler Taxes, a binary indicator for whether parliamentary constituency j has records of ruler taxes in year t (as recorded in Härter and Stolleis (2023)), and (C) Active Regiments, the inverse hyperbolic sine of troops (regiments) in parliamentary constituency j active in year t (as documented in Tessin (1986)). The area shaded in red indicates the duration of the war. Standard errors are clustered at the parliamentary constituency level.

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

	Parliament Eliminated					
	(1)	(2)	(3)	(4)	(5)	(6)
Troop Presence	0.1069***	0.1069***	0.1069***	0.1069***	0.1069***	0.1069***
	(0.0148)	(0.0356)	(0.0244)	(0.0305)	(0.0414)	(0.0327)
Standard-Errors	City	Constituency	Grid Cell	50km	100km	200km
R^2	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
Number of Towns	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
Clusters	2230	173	79	-	-	-
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, a binary indicator for whether the parliament that represented town i had been eliminated in year t. Standard errors are clustered at the level of (1) towns, (2) constituencies, or Conley standard errors with a cutoff of (3) 50km, (4) 100km, or (5) 200km. *, **, and *** denote significance on 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)
Troop Presence	0.0305***	0.0305***	0.0305**	0.0305**	0.0305	0.0305
	(0.0082)	(0.0115)	(0.0140)	(0.0141)	(0.0198)	(0.0202)
Standard-Errors	City	Constituency	Grid Cell	50km	100km	200km
R^2	0.56	0.56	0.56	0.56	0.56	0.56
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	0.04	0.04	0.04	0.04	0.04	0.04
Clusters	2230	173	79	-	-	-
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 at the level of (1) towns, (2) constituencies, or Conley standard errors with distance cutoffs as indicated in columns (3-5). *, **, and *** denote significance on 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)
Troop Presence	0.0283***	0.0283**	0.0283***	0.0283***	0.0283***	0.0283**
	(0.0101)	(0.0119)	(0.0103)	(0.0100)	(0.0095)	(0.0132)
Standard-Errors	City	Constituency	Grid Cell	50km	100km	200km
R^2	0.42	0.42	0.42	0.42	0.42	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	0.06	0.06	0.06	0.06	0.06	0.06
Clusters	2230	173	79	-	-	-
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 born in town i active in year t. Standard errors are clustered at the level of (1) towns, (2) constituencies, or Conley standard errors with distance cutoffs as indicated in columns (3-5). *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.6: Troop Presence and Spillovers

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.0823***	0.0556***	0.0379***
	(0.0235)	(0.0137)	(0.0123)
Troop Presence (Spillover)	0.0499**	0.0115**	-0.0179***
	(0.0226)	(0.0058)	(0.0056)
R^2	0.70	0.56	0.44
Observations	646,700	422,820	646,700
City Units	2,230	1,458	2,230
Outcome Mean	0.29	0.07	0.08
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table reports estimates of the augmented specification in 9, where the spillover reflects proximity-weighted exposure in neighboring towns' 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.7: Troop Presence and Absolutism (Clean Controls)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1639***	0.0354***	0.0190*
	(0.0615)	(0.0089)	(0.0114)
R^2	0.71	0.54	0.41
Observations	452,400	452,400	452,400
City Units	1,560	1,560	1,560
Outcome Mean	0.29	0.04	0.06
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Standard errors are clustered at the town level. *, **, and *** denote significance on 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 exposure event, instead of the interaction with $Post1618_t$. We omit from our sample all treated towns for which we do not know the exact exposure year and re-estimate equation (1) instead with the dummy $Exposure_{it}$ if town i has had troop presence in any $t' \geq t$. Appendix Table C.8 shows that our results are robust to this specification.[2]

We also consider alternative estimators suited to particular outcomes. Because the parliament outcome is effectively absorbing, Appendix Table C.9 reports a Cox proportional hazard 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.10 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.11 implements the robustness checks proposed by Chen and Roth (2024). (We also repeat the robustness checks for the outcomes in Table V in Appendix Tables C.12, C.13, C.14, and C.15.) These alternatives do not materially affect our conclusions.

Table C.8: Troop Presence and Absolutism (Exact Timing)

	Parliament Eliminated	Ruler Taxes	Military Notables
	(1)	(2)	(3)
Troop Presence	0.1107***	0.0302***	0.0278***
	(0.0371)	(0.0081)	(0.0097)
R^2	0.70	0.56	0.42
Observations	646,700	646,700	646,700
City Units	2,230	2,230	2,230
Outcome Mean	0.29	0.04	0.06
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), in a sample that includes only towns with precisely dated troop presence (or no troop presence). The independent variable is an indicator that takes the value of 1 after the first exposure event in a town has been documented. 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

[2]Our results also hold when we instead use methodologies that are robust to heterogeneous treatment effects (De Chaisemartin and d'Haultfœuille, 2020).

Table C.9: Troop Presence and Parliament Elimination (Cox Hazard Model)

	Parliament Eliminated			
	(1)	(2)	(3)	(4)
Troop Exposure	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 Hazard 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t. Standard errors are clustered at the level of towns. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.10: Troop Presence and Simple/Complex Taxes

	Simple Taxes	Complex Taxes
	(1)	(2)
Troop Presence	0.0173**	0.0178*
	(0.0073)	(0.0096)
R^2	0.56	0.62
Observations	646,700	646,700
City Units	2,230	2,230
Outcome Mean	0.04	0.09
Outcome Def.	(0/1)	(0/1)
Standard errors	City	City
City 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 level of towns. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.11: Troop Presence and Military Notables (ihs Robustness)

	Military Notables					
	(1)	(2)	(3)	(4)	(5)	(6)
Troop Presence	0.0283***	0.0144**	0.0163**	0.0326***	0.0688***	0.0181**
	(0.0101)	(0.0059)	(0.0063)	(0.0114)	(0.0250)	(0.0071)
R^2	0.42	0.44	0.46	0.42	0.36	0.32
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	0.0575	0.0142	-0.0807	-0.9345	-2.832	0.0513
Town FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
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 born in town i active in year t. Variations in the transformation of the dependent variable are as noted in the column description. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.12: 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	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
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 on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.13: 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	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
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 on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.14: 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	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
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 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 on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.15: Troop Presence and Service Nobility (ihs Robustness)

	Service Nobility					
	(1)	(2)	(3)	(4)	(5)	(6)
Troop Presence	0.0233**	0.0092*	0.0109*	0.0264**	0.0608**	0.0172**
	(0.0095)	(0.0055)	(0.0059)	(0.0108)	(0.0240)	(0.0069)
R^2	0.41	0.42	0.43	0.41	0.37	0.33
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	0.0608	0.0141	-0.0804	-0.9306	-2.820	0.0553
Town FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
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 Service Nobility, the share of nobles from town i in year t who are in the military. Variations in the transformation of the dependent variable are as noted in the column description. *, **, and *** denote significance on 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.16, we flexibly control for geographic and economic covariates, such as the presence of a fortification or the presence of a trade route in 1618.[3] Our results are robust to accounting for these town characteristics, which suggests that time-varying unobserved shocks do not confound our estimation.

Second, we present several strategies to construct more comparable control groups. Our aim is to compare towns that may have been exposed by virtue of being "on the way" or because troop leaders had imperfect knowledge of local conditions. First, 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.17 shows that the matching is effective in establishing covariate balance across treated and untreated towns.[4] In Appendix Table C.18, we demonstrate 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.19), or draw on Euclidean distance in the nearest-neighbor match (Appendix Table C.20). To exclude towns that may have been directly targeted and for which local conditions were more likely to have been known to troop leaders, Appendix Table C.21 repeats the main analysis using only the sample of non-fortified towns; the results are unchanged. In the same spirit, Appendix Table C.22 excludes places featured in maps compiled by the Swedish military during the Thirty Years' War, which may better capture the locations known to foreign troops at the time.

Next, we assess whether the results are driven 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-ruler-out estimates, where each town is assigned to the ruler associated with the nearest troop movement coded in Section III. These coefficients are likewise stable, indicating that the baseline findings are not driven by any single political center.

Finally, Appendix Table C.23 shows that the results are robust to excluding all locations that never convened a parliament.

[3] Parallel to the balance exercises in Appendix Table A.4, our covariates are distance to the coast (std.), latitude, longitude, an indicator of whether a town was fortified in 1618, an indicator of whether a town was on a trade route in 1618, 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 $Post1618_{it}$.

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

Table C.16: Troop Presence and Absolutism (Controls)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1061***	0.0285***	0.0279***
	(0.0355)	(0.0078)	(0.0099)
R^2	0.72	0.58	0.42
Observations	646,700	646,700	646,700
City Units	2,230	2,230	2,230
Outcome Mean	0.29	0.04	0.06
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City FEs	✓	✓	✓
Year FEs	✓	✓	✓
Controls	✓	✓	✓

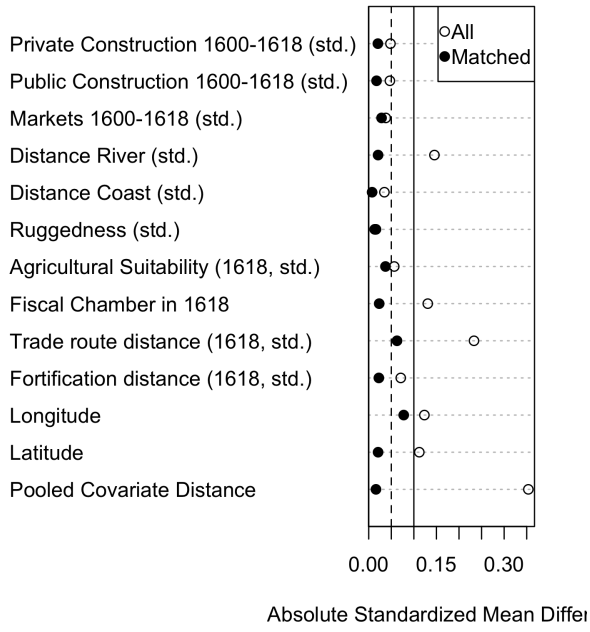
Note This table presents results of estimating equation (1), including controls. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Controls are distance to the coast (std.), latitude, longitude, an indicator of whether a town was fortified in 1618, an indicator of whether a town was on a trade route in 1618, 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 $Post1618_{it}$. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.17: Troop Presence (Balance, Matched Sample)

	Troop Exposure				
	(1)	(2)	(3)	(4)	(5)
Latitude	8.42×10^{-5}				-0.0065
	(0.0195)				(0.0420)
Longitude	0.0196				0.0250*
	(0.0126)				(0.0145)
Fortification distance (1618, std.)	-0.0183				-0.0185
	(0.0590)				(0.0603)
Trade route distance (1618, std.)		-0.0524			-0.0652
		(0.0444)			(0.0465)
Fiscal Chamber in 1618			-0.0271		-0.0280
			(0.0615)		(0.0618)
Agricultural Suitability (1618, std.)			-0.0235		-0.0163
			(0.0322)		(0.0332)
Ruggedness (std.)			0.0097		0.0308
			(0.0351)		(0.0394)
Distance Coast (std.)			0.0006		-0.0256
			(0.0393)		(0.0670)
Distance River (std.)			0.0088		-0.0004
			(0.0331)		(0.0360)
Markets 1600-1618 (std.)				0.0173	0.0164
				(0.0268)	(0.0269)
Public Construction 1600-1618 (std.)				0.0089	0.0089
				(0.0291)	(0.0291)
Private Construction 1600-1618 (std.)				0.0146	0.0142
				(0.0247)	(0.0252)
Observations	1,726	1,726	1,726	1,726	1,726

Note This table presents results of estimating the equation $Treated_i = X_i\beta + \varepsilon_i$, with X_i denoting covariates, in a Probit model. 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 on 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, an indicator of whether a town was fortified in 1618, an indicator of whether a town was on a trade route in 1618, 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.18: Troop Presence and Absolutism (Nearest-Neighbor Matching)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1031***	0.0273***	0.0277***
	(0.0330)	(0.0090)	(0.0107)
R^2	0.70	0.56	0.42
Observations	500,540	500,540	500,540
Matched Sample	✓	✓	✓
City Units	1,726	1,726	1,726
Outcome Mean	0.31	0.05	0.06
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. The matched sample is obtained via Probit distance nearest-neighbor matching using all town covariates in Table C.17. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.19: Troop Presence and Absolutism (Full Matching)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.0883***	0.0251**	0.0308***
	(0.0321)	(0.0099)	(0.0109)
R^2	0.70	0.57	0.44
Observations	646,700	646,700	646,700
Matched Sample	✓	✓	✓
City Units	2,230	2,230	2,230
Outcome Mean	0.29	0.04	0.06
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t; (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 born in town i active in year t. The matched sample is obtained via Probit distance full matching using all covariates in Table C.17. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.20: Troop Presence and Absolutism (Euclidean Distance Matching)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.0931***	0.0251***	0.0343***
	(0.0301)	(0.0090)	(0.0105)
R^2	0.70	0.56	0.42
Observations	500,540	500,540	500,540
Matched Sample	✓	✓	✓
City Units	1,726	1,726	1,726
Outcome Mean	0.31	0.05	0.06
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. The matched sample is obtained via Euclidean distance nearest-neighbor matching using all covariates in Table C.17. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.21: Troop Presence and Absolutism (Non-Fortified)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1058***	0.0265***	0.0112
	(0.0375)	(0.0081)	(0.0087)
R^2	0.70	0.58	0.38
Observations	550,130	550,130	550,130
City Units	1,897	1,897	1,897
Outcome Mean	0.29	0.04	0.04
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), in a sample that omits fortified towns as of 1618. 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.22: Troop Presence and Absolutism (Not in Swedish Plans)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1074***	0.0332***	0.0133
	(0.0360)	(0.0085)	(0.0088)
R^2	0.71	0.57	0.38
Observations	602,910	602,910	602,910
City Units	2,079	2,079	2,079
Outcome Mean	0.29	0.04	0.05
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), in 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

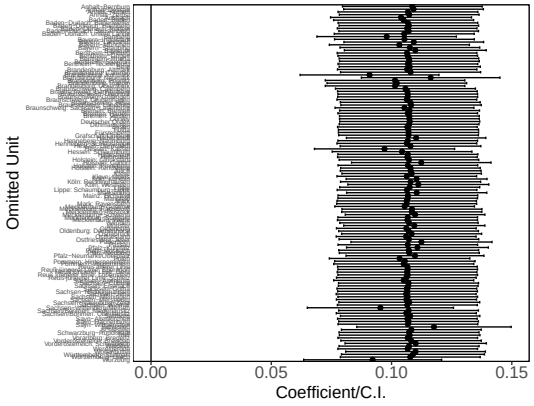
Table C.23: Troop Presence and Absolutism (Ever Convened Parliament)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.1157***	0.0321***	0.0278**
	(0.0394)	(0.0089)	(0.0111)
R^2	0.57	0.56	0.43
Observations	564,630	564,630	564,630
City Units	1,947	1,947	1,947
Outcome Mean	0.19	0.05	0.06
Outcome Def.	(0/1)	(0/1)	(ihs)
Standard errors	Constituency	City	City
City FEs	✓	✓	✓
Year FEs	✓	✓	✓

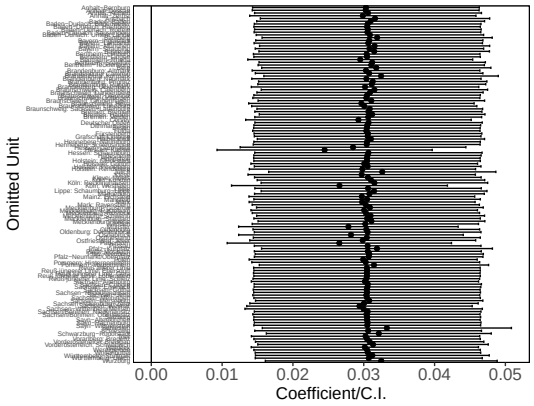
Note This table presents results of estimating equation (1), in a sample that only includes towns which ever convened a parliament. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

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

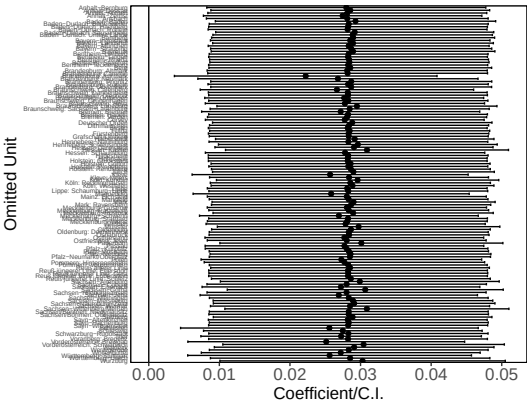
A: Parliament Eliminated



B: Ruler Taxes



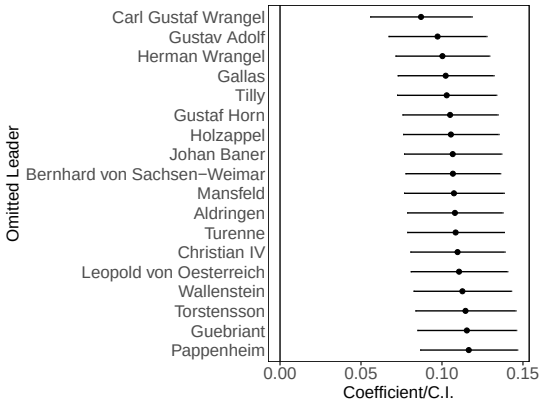
C: Military Notables



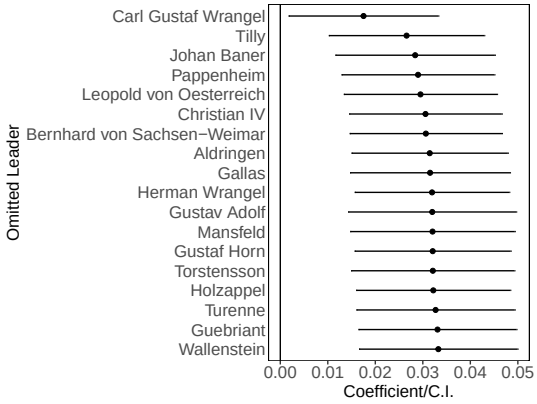
Note This plot shows results of estimating equation (1), with 95 percent confidence intervals, leaving out one constituency at a time. Observations are at the town-year level. The full sample comprises 290 years and 2,230 towns. The dependent variables are (A) Parliament Eliminated, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in 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)

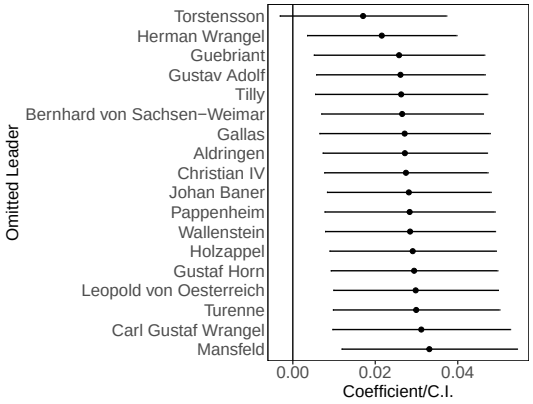
A: Parliament Eliminated



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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in 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.24, we demonstrate that our results are robust to including flexible controls. Controls are as defined in Appendix Table C.16.

Appendix Table C.25 leans further into the interpretation of the instrument as identifying non-targeted towns: We narrow the sample to exclude all fortified towns, and again, results are robust.

Table C.24: Troop Presence and Absolutism (Unadjusted Instrument, Controls)

	Parliament Eliminated	Ruler Taxes	Military Notables
	(1)	(2)	(3)
Troop Presence	0.4675***	0.1722***	0.4239***
	(0.1711)	(0.0618)	(0.0850)
R^2	0.70	0.56	0.32
Observations	646,700	646,700	646,700
IV	✓	✓	✓
City Units	2,230	2,230	2,230
Outcome Mean	0.29	0.04	0.05
Outcome Def.	(0/1)	(0/1)	(0/1)
Standard errors	Constituency	City	City
City 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Controls are distance to the coast (std.), latitude, longitude, an indicator of whether a town was fortified in 1618, an indicator of whether a town was on a trade route in 1618, 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 $Post1618_{it}$. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table C.25: Troop Presence and Absolutism (Unadjusted Instrument, Excluding Fortified Towns)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.4818**	0.1309**	0.3449***
	(0.2074)	(0.0589)	(0.0931)
R^2	0.70	0.57	0.27
Observations	550,130	550,130	550,130
IV	✓	✓	✓
City Units	1,897	1,897	1,897
Outcome Mean	0.29	0.04	0.04
Outcome Def.	(0/1)	(0/1)	(0/1)
Standard errors	Constituency	City	City
City 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Standard errors are clustered at the town level. *, **, and *** denote significance on 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, $x_i = TroopPresence_i$ 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.[5]

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:

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

with components:

- $CampaignPaths = (Realized_k)_{k=1}^{K}$: a vector of all realized and counterfactual campaigns, with $Realized_k$ an indicator of whether campaign k was realized.
- Loc_i: the geographic location of town i.
- $\tau\left(CampaignPaths, Loc_i\right)$: a function that proceeds in four steps.
    1. For each realized campaign (i.e. each nonzero element in $CampaignPaths$), calculate least-cost paths that connect fortified towns.
    2. Collect all realized campaigns 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 $\tau\left(CampaignPaths; Loc_i\right)$ can thus be written as $f\left(g; w_i\right)$, with

- $f() = \tau()$ a common function,
- $g = CampaignPaths$ 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 campaigns and C the set of counterfactual campaigns. We describe the construction of these sets in Section III.B.

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

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 troop leaders to take one route but not the other and that this decision is orthogonal to town unobservables conditional on town locations. Motivated by 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 appears plausible.[6]

- 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.[7]

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

  This requires the shocks to induce 'enough' cross-sectional variation in the recentered instrument. Our setting has a large 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 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 $z_i = \tau\left(CampaignPaths; Loc_i\right)$ together with Assumption 2 to obtain counterfactual values of the instrument.

Our algorithm proceeds in three steps:

1. **Shock Distribution.** We use $G(g|w)$ to obtain different realizations of the vector $g = CampaignPaths$. We sample campaigns uniformly at random from the junctures at which possible campaign routes branch off. We repeat this process 1,000 times.

2. **Instrument Function.** We plug each realization of $CampaignPaths$ into $\tau()$ to compute the instrument. For each campaign that has $Realized_k = 1$ in the counterfactual, we fit a least-cost path between the start node, end node, and fortified town, as described in Section III.B. We connect these points using least-cost paths and calculate the minimum distance of each town to the closest least-cost path.

3. **Expected Instrument.** We average the resulting instrument across each realization of $CampaignPaths$ to obtain the expected instrument of each town.

[6] Strictly speaking, from a 'design-based' perspective (considering the sample to be fixed and the course of the war, to be stochastic), Assumption 1 is satisfied by default (Borusyak and Hull, 2023).

[7] 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.

C.6 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.

Additionally, the expected instrument is not predictive of the recentered instrument: in a regression of the recentered instrument on the expected instrument, the R^2 is 0.01. (In contrast, regressing the unadjusted instrument on the expected instrument yields an R^2 of 0.92.)

Our data collection attempts to identify 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: At each juncture, we assume $G(g|w)$ to be uniform over all possible continuations of the campaign path.

Thus, we show robustness to the choice of $G(g, w)$.

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.26, 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.27, we instead use the expected value of the instrument — which captures the average proximity to the nearest campaign path across many counterfactual paths — as a propensity score. Results are again quantitatively similar to our baseline estimates.

Finally, we examine the implications of our conservative choice of counterfactuals. 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.

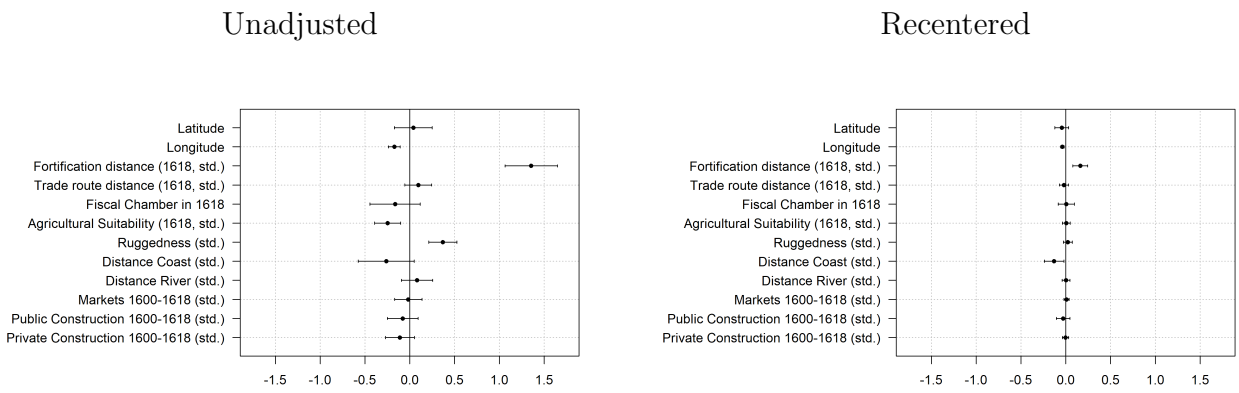
We implement these perturbations as follows. First, instead of taking the realized troop-movement endpoint as given, we allow each of the four nearest neighboring fortified towns to be the endpoint with equal probability. Second, we allow the war to end in 1635 or in any later year, so that no campaigning 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 counterfactuals. Appendix Figure C.5 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 counterfactual troop movements from Section IV remain. As the set of contingencies narrows, the share of compliers falls steadily from 93% to 56%.[8]

[8]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.

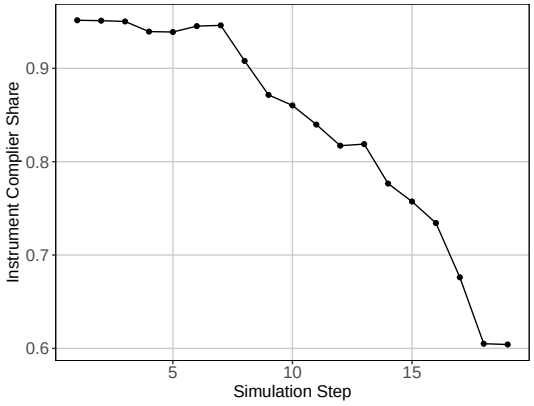
Table C.26: Troop Presence and Absolutism (Matched Placebos)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.0918***	0.0296***	0.0141*
	(0.0344)	(0.0093)	(0.0082)
R^2	0.70	0.56	0.32
Observations	450,660	450,660	450,660
Matched Sample	✓	✓	✓
City Units	1,554	1,554	1,554
Outcome Mean	0.32	0.05	0.05
Outcome Def.	(0/1)	(0/1)	(0/1)
Standard errors	Constituency	City	City
City FEs	✓	✓	✓
Year FEs	✓	✓	✓

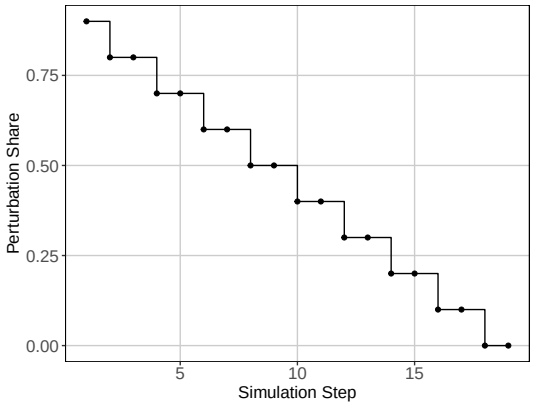
Note This table presents results of estimating equation (1), comparing places with troop presence to close untreated places along the counterfactual campaign path. We assign each town to the nearest troop movement of a given campaign. Observations are at the town-year level, with the number of towns indicated in the table. The sample comprises 290 years. The dependent variables are (1) Parliament Eliminated, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Figure C.5: Complier Share under Counterfactual Campaign Perturbations

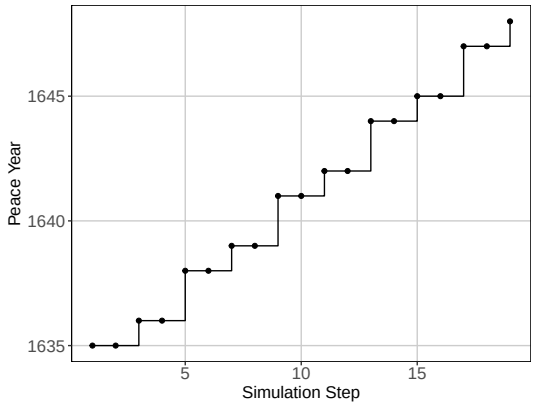
A: Instrument Complier Share



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 impose a counterfactual peace date after the Peace of Prague (1635).

Table C.27: Troop Presence and Absolutism (IV Recentered, Matched Placebos)

	Parliament Eliminated (1)	Ruler Taxes (2)	Military Notables (3)
Troop Presence	0.0989***	0.0335***	0.0144*
	(0.0353)	(0.0086)	(0.0078)
R^2	0.70	0.56	0.33
Observations	500,540	500,540	500,540
Matched Sample	✓	✓	✓
City Units	1,726	1,726	1,726
Outcome Mean	0.31	0.05	0.06
Outcome Def.	(0/1)	(0/1)	(0/1)
Standard errors	Constituency	City	City
City FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note This table presents results of estimating equation (1), using the recentered instrumental variable and comparing places with troop presence to close untreated places along the counterfactual 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, a binary indicator for whether the parliament that represented town i had been eliminated in year t, (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 born in town i active in year t. Standard errors are clustered at the town level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

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

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

Lenders are risk-neutral and competitive. Under Separation, the zero-profit condition is

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

so the interest rate 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, and $\tau \geq d - 1$ is the Ruler's participation constraint.
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, and

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

The Town selects the regime that maximizes its continuation payoff.

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.

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

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

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

- **Forced Delegation (D_F)**: Separation is infeasible, and Delegation yields weakly

nonnegative continuation payoff.

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

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

$$X = \{\theta \in \mathcal{A} \mid \pi < d + \kappa_T - 1 \text{ and } \kappa_R + \tau > 1\}. \tag{13}$$

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 Coordination 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 strictly preserves and weakly expands both delegation regions D_V and D_F, and strictly preserves 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) strictly preserves and weakly expands the parameter sets for Separation and Voluntary Delegation, and strictly preserves 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 model, in period 1 the Town faces a fiscal 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 form a ruling coalition with 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 coordination 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 coordination 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

$$\tau_L + \tau_R = \tau. \tag{14}$$

Delegation with coalition formation. 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:

$$\tau_L \geq d - 1. \tag{15}$$

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

$$\kappa_R + \tau < d + \kappa_T - 1, \tag{16}$$

and if Separation is infeasible, it accepts Delegation only if

$$\kappa_R + \tau \leq 1. \tag{17}$$

The key implication is that Delegation may now fail even when it is efficient relative to the Town's outside option and generates sufficient aggregate surplus to compensate the nobility. 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, coalition formation may still break down if the nobility cannot be assured a share $\tau_L \geq d - 1$. This introduces an additional commitment problem within the ruling coalition. 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.

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

$$\tau_L + s \geq d - 1. \tag{18}$$

Symbolic capital thus eases the coalition 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 coalition formation 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 outside option, 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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