The Rise of Fiscal Capacity:
Administration and State Consolidation
in the Holy Roman Empire

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Abstract

This paper studies the role of fiscal capacity in European state consolidation. Our analysis is organized around novel data on the territories and cities of the Holy Roman Empire in the early modern period. Territories implementing an early fiscal reform were more likely to survive, increased in size, and achieved a more compact extent. We provide evidence for the causal interpretation of these results and show key mechanisms: revenues, military investments, and marriage success. The imposition of Imperial taxes, quasi-random in timing and size, increased the benefits of an efficient tax administration on the side of rulers, driving the implementation of fiscal centralization. Within territories, Chambers became the dominant administrative institution, tilting the consolidating states toward absolutism.

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JEL Classification: H20, N33, N43, P16

1 Introduction

Europe in the Middle Ages was divided into hundreds of territories with limited and uncertain extent of their monopoly of power and overlapping jurisdictions. By the end of the early modern period, this territorial landscape had undergone a profound process of institutional innovation and state consolidation: the number of territories was substantially reduced, their competences and sovereignties clearly defined, and the princes' capacity to rule and tax was mostly uncontested (North and Thomas, 1973; Jones, 1981; Tilly, 1990). This development marked the transition from informal, personalized arrangements to a structured, institutionalized system of rule. As fragile states with low fiscal and state capacities to this date exist in many parts of the world, the trajectory of Europe in the past half millennium stands out as remarkable.

In this paper, we study the role of a crucial institutional innovation in the Holy Roman Empire — the development of fiscal capacity through permanent administrations — in fostering this historical development (Hintze, 1975; Schumpeter, 1991). Between the 16th and the 18th century, several rulers introduced permanent offices, staffed by professionally trained bureaucrats, in charge of centrally collecting and organizing revenues, and replacing personalized, local, or ad-hoc systems. These offices, mostly called "Chambers" (*Hofkammer* or *Rentkammer*), substantially increased the efficiency of princely revenue collection and spending, and thus allowed to project military, political, and diplomatic power.

We find that, after centralizing their fiscal administration in Chambers, territories embarked on a process of state consolidation: they were more likely to survive, increased in size, and were able to achieve a more compact (cohesive) territorial extension. We show four key mechanisms through which the princes of the Empire were able to consolidate and strengthen their territories following the establishment of Chambers: higher revenues; a reduction of short-term lending, as measured by the number of cities pawned to other rulers; more investments in military infrastructure, improving defensive capability; and increased success in marrying daughters to powerful princes. This development took place outside the early parliaments, but instead was closely tied to the sovereign's financial administration, paving the way for German territories to become bureaucratic-absolutist states.

As a loose confederation of hundreds of largely sovereign states of varying size, the Holy Roman Empire provides an ideal setting in which to study the genesis and consequences of this institutional innovation. In contrast to existing literature that focuses on few, ex-post

successful territories such as Prussia or England, we observe all territories and cities of the Empire at the yearly level, thereby overcoming selection (survivorship) bias.[1]

Laying the groundwork for our analysis is a major, novel data collection. We construct a dataset providing a complete picture of both cities and territories in the Holy Roman Empire. We link each city in the *Deutsches Städtebuch* (Keyser et al., 1939-2003), a detailed encyclopedia of 2,382 cities in Central Europe, to its ruling dynasty for every year between 1400 and 1789. Aggregating this information, we can identify all territories ruling over at least one city and trace their existence, size, and shape. We can describe their mergers, break-ups, expansions or losses as a consequence of wars, treaties, or dynastic changes. We further identify rulers of secular territories in an extensive kinship and marriage network of noble families. The resulting dataset encompasses 102,825 observations at the territory×year level, 15,568 rule transitions, 636 distinct territorial entities, and 2,799 rulers of secular territories.[2]

Complementing these data, we document the date of adoption of centralized fiscal institutions ("fiscal centralization") for 39 territories in the period between the 16th and the 18th century. We also collect exhaustive information about other territorial institutions and characteristics, such as Estates and advisory councils, requests to process Imperial taxes, and features of a territory's military history, internal composition, and geography.

We first offer a conceptual framework motivated by historical evidence. Chambers are institutions that concentrate knowledge on fiscal matters in a specialized layer of the territorial administration. When introducing a Chamber, rulers weigh the benefits of reducing fiscal complexity through bookkeeping and accounting, which vary with fiscal demands over time, against fixed adoption costs.

We argue that the need to levy an Imperial tax was a main exogenous driver of Chamber adoption: at irregular intervals, princes were required to contribute to the military expenditures of the Empire, e.g. for the campaigns against the Ottoman troops. Princes could costlessly pass these taxes through to their subjects, but with a sophisticated fiscal bureaucracy in place, they could retain monetary gains from a more efficient handling of the tax. Consistent with this incentive, we find that Chambers are more likely to be installed immediately

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[1]Tilly (1975) points out this fundamental selection problem: *"Most of the European efforts to build states failed. The enormous majority of the political units which were around [. . .] in 1500 disappeared in the next few centuries, smashed or absorbed by other states-in-the-making [. . .] The disproportionate distribution of success and failure puts us in the unpleasant situation of dealing with an experience in which most of the cases are negative, while only the positive cases are well-documented"* (pp. 38–39).

[2]Some analyses are conducted at the city×year level, yielding 826,408 observations.

following a taxation request by the Imperial Diet.[3]

Next, we analyze the consequences of fiscal centralization for the territories. We establish that the adoption of fiscal centralization reduced a territory's likelihood of vanishing in an immediate, permanent, and substantial way. Following fiscal centralization, territories also increased in size, specifically for cities over which they rule exclusively, suggesting that fiscal centralization leads to a greater ability to project state capacity and resolve conflicts of shared control over regions. This increase in territories' sizes also allowed rulers to achieve a more compact extension, with fewer enclaves and exclaves.

We argue that these results likely represent a positive, causal effect of the introduction of fiscal institutions. A challenge is that the effect of Chambers unfolded over time, rather than representing an immediate, one-off treatment effect. To tighten the link between slow-moving state consolidation outcomes and our treatment, we devote careful attention to potential confounders and treatment mechanisms. Our analysis includes city/territory and year fixed effects. Event studies of our outcomes of interest do not exhibit immediate pre-trends. We can control for potentially time-varying, territory-specific confounders, like the external threat environment or concurrent institutional changes within territories such as early parliaments (Estates) or advisory councils. To account for unobservable, time-varying shocks to groups of similar territories, we consider a wide range of matching approaches, and an analysis of the intensive margin, i.e. the subset of territories that eventually adopt a Chamber. To speak more directly to endogeneity concerns, we consider a shift-share instrumental variables framework, in which we exploit the quasi-random timing and size of the Imperial war tax, which increased the likelihood of Chamber adoption. Finally, we address potential concerns about heterogeneous treatment effects (De Chaisemartin and d'Haultfœuille, 2020; Sun and Abraham, 2021): our results are robust to excluding single territories, and also hold up when employing robust estimators.

Turning to mechanisms, we show how Chambers shifted the internal performance of territories, and how these immediate changes slowly allowed territories to survive, become larger, and more compact. First, historical evidence shows that revenues increase shortly following fiscal centralization. In the broader sample of our dataset, we demonstrate that

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[3]No territory in this analysis was directly affected by Ottoman campaigns, which took place on the Eastern borders of the Holy Roman Empire. Hence, the incentive structure for the introduction of a Chamber was only affected through fiscal considerations as mandated by the Imperial diet, not through direct war exposure.

territories with a Chamber reduce their reliance on inefficient, short-term pawns of cities.[4] After the adoption of a Chamber, territories invest considerably more in military infrastructure, making them less likely to lose cities due to military attacks. Moreover, these territories improved the outcomes of their strategic marriage diplomacy. We demonstrate that rulers with centralized fiscal administrations who also had better access to these fiscal, military, and diplomatic mechanisms experienced higher consolidation outcomes than those for which these mediating channels were shut off.

Our paper contributes to a broad array of research. The historical development of fiscal capacity has been studied since the early work by Hintze (1975), Tilly (1975), Brewer (1989), or Bonney (1999). More recent work focuses on the role of fiscal capacity in fostering economic development (Besley and Persson, 2011; 2013), or on major fiscal innovations of the 18th and 19th century (Dincecco, 2009; 2015; Dincecco and Katz, 2016). Theories of the organization highlight the role of specialized administrative layers to better aggregate information and address more complex tasks (Garicano, 2000). Following Snowberg and Ting (2022), we map this framework onto the early build-up of fiscal institutions. Our work provides an empirically grounded, longer-term view of the development of fiscal capacity; it also examines a complete array of cases, from small to large territories.

A rich literature speaks to the formation of the European state system in the early modern period (Schönholzer and Weese, 2022; Huning and Wahl, 2020; Fernández-Villaverde et al., 2020; Ottinger and Voigtländer, 2020), with a focus on the role of warfare in consolidation (Tilly, 1990; Besley and Persson, 2008; 2009; Gennaioli and Voth, 2015; Dincecco and Onorato, 2016; 2017). The role of fiscal institutions in state consolidation has not been studied extensively.

Our findings also relate to research on fiscal capacity in contemporary developing economies, which frequently feature information gaps similar to our historical context (Pomeranz and Vila-Belda, 2019). A series of recent papers has combined the historical origins of fiscal capacity and the study of present-day fragile states, yielding insights on the origins of taxation (Sánchez de la Sierra, 2020), on the taxation-representation nexus (Weigel, 2020), and on tax enforcement under low capacity (Balán et al., 2022; Bergeron et al., 2021).

Finally, the literature has frequently emphasized the link between levying taxes and polit-

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[4]For the vast majority of territories of that time, raising sovereign debt was not a feasible path to increase revenue, due to massive commitment problems (North and Weingast, 1989; Drelichman and Voth, 2014). Arguably, access to credit was easier for city states (Stasavage, 2011), which are not the focus of our study.

ical participation (North and Weingast, 1989). Our findings suggest that in the Holy Roman Empire, the taxation-representation nexus was resolved in favor of rulers, who erected absolutist states at the expense of Estates. Complementing our research, the work by Becker et al. (2022) studies the link between conflict, political representation through city councils, and city-level fiscal capacity, mainly focusing on the late Middle Ages (approximately 1200 until 1550).[5] Our study further enriches our understanding of the institutional "bifurcation" (Cox et al., 2022) between parliamentarism and absolutism — adding to the well-known cases of England, where full parliamentary control over taxes developed, and France or Spain, where the Estates General or Cortes were sidelined (North and Thomas, 1973). Other studies have also emphasized the role of bureaucracy, rather than representation, in the buildup of fiscal capacity outside of Western Europe (Frankema and Waijenburg, 2022; Martinez et al., 2022).

The remainder of the paper is organized as follows. In Section 2, we explain the political and historical context to the development of fiscal capacity (Chambers) in the Holy Roman Empire. In Section 3, we introduce our novel datasets. In Section 4, we analyze the origins of fiscal centralization; in Section 5, we consider main effects; in Section 6, mechanisms. Section 7 concludes.

2 Historical Background

2.1 The Holy Roman Empire: Territories and Territorial Competition

The Holy Roman Empire existed from the 9th until the beginning of the 19th century in Central Europe. We focus on the period between the Late Middle Ages and the Napoleonic era, 1400–1789, a time that saw large shifts in both fiscal institutionalization and state consolidation. The Empire consisted of a large number of territories, both secular (such as kingdoms, dukedoms, and free imperial cities) and ecclesiastical (such as prince-bishoprics), and was headed by an elected emperor (Whaley, 2012a; 2012b). Rather than with the Emperor, territorial sovereignty increasingly lay with the rulers of these constituent territories, who decided on the administrative and fiscal organization of their lands (Klein, 1974, p. 3). At the heart

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[5]The fiscal bureaucracies of princes developed independently of fiscal capacity at the urban level, and they served different financing purposes. Rulers might have interacted with urban institutions at territorial diets that summoned representatives of cities, clerics, and landed nobility. The role of cities in these diets was limited, and the diets ultimately had no say say over the development of fiscal institutions of rulers.

of territorial politics were familial connections between and within noble dynasties: Sons of secular rulers inherited their fathers' territories, and marriages strengthened or fractured alliances.

All territories foremost aimed to survive in this institutional setting: they faced threats of annexations or financial dependence. To ensure survival, territories aimed to acquire new land holdings to extend demesne areas, and to achieve a more compact shape for ease of administration and defense. Acquisitions were driven by peaceful means of inheritance claims through strategic marriages, outright purchases of land, as well as by means of warfare.

The transition from the Middle Ages to the early modern period marked the move from states based on feudal relationships between individuals (*Personenverbandsstaat*) to states defined by geographic, not personal boundaries (*Flächenstaat*) in adaptation to changing economic and political circumstances (Mayer, 1956; Power, 1999; Schubert, 2006; Rutz, 2018). State structures were separated from the ruling dynasty, as sovereigns created bureaucratic, institutionalized offices to ease their administrative burden (Möckl, 1990, p. 97).

2.2 Early Territorial Finances: Dues, Estates, Pawns

In the early Middle Ages, fiscal capacity in the territories of the Empire was low. Local offices (so-called *Ämter*) were in charge of revenue collection and spending of princes. Revenues came from demesnes, which were tied to geographic and geological features of territories, and were accessible without sophisticated levels of fiscal capacity: metal, salt and coin monopolies, forests, tolls, and tariffs (Klein, 1974, p. 12). The ruler had absolute power over these income sources (Heß, 1993, p. 18). As an alternative means to secure simple, short-term revenues, rulers pawned parts of their land holdings to local nobles, who were granted limited privileges over that land in exchange for money.[6]

All sources of revenues were extracted locally to provide for the prince and his court. The immediate, local consumption of surplus implied little need for bookkeeping. A so-called *Landrentmeister* was entrusted with fiscal matters. He was in charge of collecting local surpluses, auditing local offices in an ad-hoc manner, and without presiding over a formal institution. This was by no means a central financial administration (Isenmann, 1999,

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[6]The practice was widespread: In Albertine Saxony, around half of the princely demesnes were pawned away at the turn to the 16th century (Schirmer, 2006, p. 83). This patchwork of land pawns was complex to administer and constantly at risk of being removed entirely from the ruler's demesnes: Ownership was often not documented carefully, and pawns removed income sources, making it harder to redeem the pawn in time.

p. 247), and the collection of revenues was disconnected from princely spending (Jeserich et al., 1983, p. 129). As a result, the structure of demesne income was highly complex: it rested on bundles of various and often overlapping usage rights of different local demesne types, which were often partly pawned away, and often relied on customary rights. In the absence of centralized, consistent bookkeeping, princely income was raised and spent inefficiently.

Thus, as fiscal needs increased at the turn to the 16th century — spurred by feuds between territories, the growing costs of holding court, and a rise in the costs of war technology — rulers and their small administrations were increasingly overwhelmed (Ertman, 1997, p. 8).[7] Due to their importance and complexity, fiscal tasks placed a disproportionate burden on the day-to-day proceedings of the administration, and the costs associated with the administrative efficiency loss surged (Reuschling, 1984, p. 234).

Raising new taxes was no viable path to compensate for efficiency losses within administrations. The right to approve and deny taxes lay with the Estates (Finer, 1997, p. 1027), which represented towns, clergy, and nobility/knights, and were convened at irregular assemblies (diets). Taxation requests were designated for specific, pre-determined purposes, and decided upon on a once-off basis.

2.3   The Introduction of Chambers

When faced with a high burden of fiscal demands, rulers had an incentive to improve their efficiency of raising and spending revenues. This required a reform of territories' fiscal administration, giving rise to specialized, central institutions, so-called Chambers (usually *Hofkammern* or *Rentkammern*) (Klein, 1974, p. 16). The timing of the first introduction of Chambers in the early 16th century reflects the increasing necessity to solve complex fiscal problems within the princely bureaucracy. By adding a layer of specialization to the territorial organization, which replaced single individuals such as the *Landrentmeister* with abstract, rule-bound institutions, Chambers were a central step in the transition to a modern state administration (Jeserich et al., 1983, p. 331).[8] As such, Chambers are best understood

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[7]The secondary literature abounds with terms like the "tremendous pileup of tasks", and the "flooding" (Reuschling, 1984, pp. 20, 109) of offices, with which they could only narrowly "cope" (Jeserich et al., 1983, p. 107).

[8]We treat as "Chamber" only institutions that are separate from a specific person, i.e. an institution that is collegially organized (Zimmermann, 1933, p. 69). Württemberg is a representative example of Chamber organization with one Chamber master supervising six *Räte* (councillors), one secretary, one bookkeeper (extended

in a framework of knowledge hierarchies (Garicano, 2000), in the context of building state or fiscal capacity, rather than companies or private organizations (Snowberg and Ting, 2022).

The Chamber was mandated to centralize the accounts of all local offices. It documented demesne income and used the revenue collected from these sources to make payments in the name of the prince.[9] Consistent bookkeeping was established through fixed procedures for audits and visitations of local offices (Jeserich et al., 1983, pp. 343, 128).[10]

Importantly, the Chamber entirely relied on existing privileges (demesnes and dues), which it sought to exploit better. The ruler did not levy new taxes or receive extended privileges as a consequence of Chamber adoption (Jeserich et al., 1983, p. 136). Its financial endowment and proceedings were entirely separate from the financial means that needed consent of the Estates. Neither was the Chamber an instrument to discipline princely expenses (Reuschling, 1984, p. 115), or to limit corruption of high-ranking or local officials.[11]

The evident advantage of this central, collegial office was the concentration of fiscal expertise in a new layer within the territorial hierarchy. The complexity of fiscal administration required "the formation of institutional, specialized knowledge" (Jeserich et al., 1983, p. 107).[12] Through its professionalized approach to tax collection, the Chamber tracked the productivity of local offices, prevented the alienation of income sources, and narrowed the information gap. This reduced the efficiency loss in raising and spending revenues.[13]

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to two in 1543), and four scribes (Bütterlin, 1977, p. 11).

[9]Early Chamber ordinances reflect this aim of giving coherence to spending and revenue collection. A Bavarian Chamber ordinance of 1550 states that the Chamber was handed over "the entire income and spending, so that [the officials] have full administration in the entire duchy" (Jeserich et al., 1983, p. 331). Similarly, in Hesse, "the Chamber master will be the collector, the Chamber scribe the spender".

[10]Accounting, accomplished through audits and visits of local offices by officials, was the main tool of Chamber administrators, as has been documented extensively (Jeserich et al., 1983, p. 343). This was not only limited to monetary accounts: in Albertine Saxony, a Chamber official was to collect all charters and deeds of the prince-elector that had a financial dimension in a separate book so that these documents were always at hand. Central fiscal administration hence also first organized different administrative issues from an economic perspective (Press, 1970, p. 102; Jeserich et al., 1983, pp. 104, 128).

[11]We discuss these potential alternative interpretations of Chambers at length in Appendix Section B.1.

[12]Joachim Friedrich, the first ruler in Brandenburg who could rely on a Chamber throughout his entire tenure, stated in an ordinance how he was "dependent on well-formed advice and trusted supporters" (Jeserich et al., 1983, p. 872 f.). Similarly, the Austrian Chamber ordinance of 1568 stated that the volume of fiscal tasks "would be prohibitive for a single person to process on a permanent basis" (Jeserich et al., 1983, p. 336).

[13]In Hesse, Chamber ordinances for the first time introduced lists of villages within the princely demesnes and instituted regular reporting of local office administrators to the Chamber (Brakensiek, 2004, p. 141 ff.). Appendix Figure A shows that three decades later detailed revenue statistics for local offices existed. The Hessian Chamber ordinance of 1581 furthermore stated that all reductions in the revenues of an office should be personally reported to the sovereign to prevent alienation (Zimmermann, 1933, p. 75, p. 41).

Against these gains of efficiency foremost stood fixed costs of establishing this new institution within an existing territorial administrative framework, and of providing permanent offices and salaries for Chamber officials. As the complexity of fiscal problems changed across territories and across time, so did the incentives to adopt a Chamber. The concept of centralizing fiscal administration in a Chamber was first introduced to the Holy Roman Empire in the Habsburg realms at the turn of the 16th century. The first territory to fiscally centralize in our data is Württemberg in 1521. For many territories, the perceived benefits from an improved fiscal administration never outweighed the fixed costs of adopting a Chamber.[14] However, over the course of the following centuries, a substantial number of territories of the Empire introduced similar institutional arrangements (cf. Table A.1).

2.4 Influence of Imperial Finances on Chamber Adoption

A prominent incentive to adopt fiscal Chambers came from an innovation in Imperial finances, which tasked territorial rulers with the processing of Imperial taxes. The timing and size of these taxation requests, which financed Imperial warfare, were exogenous to the internal development of territories.

In the early 15th century, a series of defeats had demonstrated the inadequacy of the Imperial military infrastructure — the Empire itself possessed no army and no proprietary financial institutions. After the conquest of Constantinople in 1453, an increased threat from the Ottoman Empire additionally affected the Eastern Habsburg lands. An early effort by the Holy Roman Emperor to levy taxes for Imperial military purposes was unsuccessful.[15]

In a new attempt to raise these taxes, the Imperial recess of 1530 set a precedent: It directly tasked territorial rulers to process the requested Imperial warfare funds. For this purpose they were granted the right to "for all their subjects [...] create and levy a tax". Later recesses confirmed these privileges (Schaupp, 2004, p. 136). Rulers had little room

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[14]The small share of territories adopting Chambers is mainly a feature of the skewedness of the territory size distribution: restricting the sample to the 90th percentile of territory size in 1521, around 63% of the territories adopted a Chamber. Overall, there were substantial barriers to the spread of Chambers. From the perspective of contemporaries, the long-term benefits of Chambers remained obscured, as consolidation outcomes took hold slowly. Early modern rulers, instead, had short decision time horizons: they were often severely credit constrained (hence could not monetarize future benefits of Chambers), had imperfect knowledge of the future, and heavily discounted future territorial benefits (for which they could not be held accountable).

[15]The first Imperial tax, the Common Penny (*Gemeiner Pfennig*) of 1495, was suspended in 1505 and eventually abandoned in 1551: the Empire itself had to collect these taxes, and its fiscal capacity proved insufficient.

for noncompliance: they could be held personally accountable in Imperial diets to which they were convened regularly, and smaller territories faced the threat of having their right to participate in the Imperial diet revoked altogether. Compliance was also promoted by the ideological framing of the taxes as a "brave [...] Christian deed" (Koch, 1747 [1530], § 118) in the light of the increasing threat of the Ottoman Empire.[16]

The imposition of the Imperial tax followed a fixed protocol: The Imperial Register, the *Reichsmatrikel*, established at the Diet of Worms in 1521, assigned a fixed share of the imperial tax burden to each territory. At irregularly held Imperial diets, the Emperor would then request a total tax sum from the territories, which they would split up according to their register shares. For example, the Diets of 1566/67 approved six million guilders, the following Diet of 1570 approved 1.5 million guilders, then, after a hiatus of six years, the Diet of Regensburg in 1576 approved 7.5 million guilders (Schulze, 1978, p. 80). Thus, while the relative shares of each territory were pre-determined, the actual, required contributions changed at irregular intervals. This system proved highly successful for Imperial finances: Between 1500 and 1650, the amount of Imperial taxes raised is estimated to have increased tenfold, further demonstrating the high compliance of territorial lords (Whaley, 2012a, p. 512).

This arrangement, as a side effect, provided a considerable incentive for territorial rulers to introduce a Chamber, since the Imperial taxes needed to be processed by the princes' fiscal administration. Better bureaucratic oversight increased the efficiency of revenue processing and hence created a surplus that the prince could retain.[17] The size of this potential surplus co-moved with the overall taxation amounts requested at Imperial diets.

3   Data

3.1   Territories, Cities, Lineages

Our setting requires a complete picture of both cities and territories in the Holy Roman Empire. To do so, we construct the first dataset linking each of the 2,382 cities in the *Deutsches*

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[16]Schulze (1978) documents the impossibility of noncompliance for rulers.

[17]In Hesse, for example, newly established princely coffers also held the Imperial taxes. These coffers served as the foundation of the fiscal administration (Brakensiek, 2004, p. 140).

Städtebuch (Keyser et al., 1939-2003), an encyclopedic compendium on cities[18] in the Empire, to one or multiple rulers, for each year between 1400 and 1789. We note the kind of rule, the rule hierarchy (if there were multiple rulers), and the reasons for any rule changes. To construct these data, we additionally draw on an encyclopedia on German territories (Köbler, 2007), lineage trees of the majority of German and European noble families, numerous historical maps, as well as sources on individual cities, dynasties, and territories.[19] The resulting dataset eventually features 826,408 observations at the city×year level, including 15,568 changes of rulers, and belonging to 636 distinct territorial entities.

Building on this dataset, we construct a series of variables that serve as primary outcomes in Section 5, or as measures of the mechanisms of interest in Section 6. Aggregating the information at the territory×year level, we can measure the size of a territory (measured by the number of cities it rules over). We also code whether and when a territory ceases to exist, and the reasons for its disappearance (dynastic extinction, conquest, or purchase). Next, from the perspective of single cities, we can observe whether, when and why a city changes ruler, and whether the city is put in pawn to a secondary ruler.

Beyond its temporal evolution, territorial rule also had a spatial dimension. To approximate the spatial dimension of territorial holdings over the period considered (lacking detailed, year-to-year maps which reflect the complex layerings of sovereignty), we draw Thiessen polygons (Voronoi partitions) around city centerpoints.[20] Aggregating city polygons belonging to the same ruler, we obtain a graphical depiction of the extent of every territory in a given year.[21] Appendix Figure A.3 shows the resulting evolution of territorial borders for every century. Based on the shape of each territory's extent, we calculate several

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[18]This data source covers all places within the borders of Germany in 1937 that at one point had a town charter. Note that few of these places were large, and even fewer (around 2.8%) were autonomously governed.

[19]For more information on the coding of the territories, refer to the documentation files available with Cantoni et al. (2019). We exclude all territories that do not belong to the Holy Roman Empire, as well as territories largely outside our area of analysis, such as as Bohemia and the Further Austrian territories of the House of Habsburg.

[20]Appendix Figure A.2 shows the location of these city centerpoints. See the documentation files available with Bogucka et al. (2019) for details on the construction of polygons and point locations. Alternatively, we can draw modified polygons that take terrain ruggedness and river velocity into account (Bogucka et al., 2019); our results are robust to the use of either definition.

[21]This allows us to move beyond existing, coarse digital maps that have been used in the literature so far (e.g., Nüssli, 2006), and beyond maps that have been drawn by historians for single territories at selected points in time. We do acknowledge that exact borders of territories were ambiguous in the Middle Ages, but the assignment of cities to territories is clear during the entire time period of interest.

measures of compactness, or roundedness.

Finally, our dataset also considers the dynastic (network) dimension of the terriorial history of the Empire. We identify 2,799 rulers of secular territories in an extensive kinship and marriage network of over 133,000 members of noble families from Marek (2018). For each individual, we know the dates of birth, death, and marriage, and a full set of offspring and marriage links between individuals. We assign rulers to their land holdings from Cantoni et al. (2019), and add the start and end years of their reign. Building on this, we calculate network-based measures of dynastic connectedness for territorial rulers across time.[22]

3.2 Territory-level Institutions

Complementing this detailed information on rulers, rule changes, and territorial holdings, we collect several measures relating to the fiscal-institutional development of these territories. Most importantly, we measure fiscal centralization, our key variable of interest. We construct a novel dataset on the timing of the introduction of a Chamber in the territories of the Holy Roman Empire by supplementing and rigorously verifying information from a comprehensive handbook on the administrative history of Germany (Jeserich et al., 1983) with a large number of publications on fiscal and regional histories. We find evidence for fiscal centralization in 39 territories, which are listed in Appendix Table A.1 along with the corresponding dates and the exact type of institution that was introduced. There is considerable variation in the timing of the introduction of a Chamber: Württemberg and Albertine Saxony are the first territories to fiscally centralize at the beginning of the 16th century, whereas Schaumburg-Lippe, Paderborn and Reuß-Greiz first have a Chamber in the 18th century.[23]

The other major institutional development within princely bureaucracies were advisory councils. For all territories which eventually adopted a Chamber, we collect information about the adoption of these councils (see Appendix Table B.1). For these territories, we also note time periods in which Estates and territorial diets were active (see Appendix Table B.2).

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[22]Relatedly, Benzell and Cooke (2021) and Marcassa et al. (2020) also consider kinship and marriage networks of the European nobility.

[23]We are confident that territories did not fiscally centralize if there is no evidence of the existence of a Chamber. The historical literature agrees that fiscal centralization in the Empire set out in Württemberg in 1521, so we do not miss events before 1521. Also, there is broad variation in the size of territories with a Chamber, ranging from very large (such as Prussia) to comprising only a few cities (for example Münster or Trier). Similarly, we observe that some territories with a Chamber cease to exist in our coverage period, so that survivorship bias is unlikely.

Finally, we map the territories in our data to the Imperial Register of 1521 (Zeumer, 1913, p. 313-317).[24] We also note the timing and size of the Imperial tax levy, to which territories had to contribute according to their share in the Imperial Register (Steglich, 1972, pp. 54–55; Schulze, 1978, pp. 79-80; Rauscher, 2012, p. 345). Appendix Figure A.4 shows the distribution of contribution shares as well as the level and timing of the required Imperial tax contributions, which were raised 30 times between 1522 and 1740.

3.3 Other Variables

We collect an extensive set of additional information on the geography, economy and conflict involvement of cities. We calculate distance to the closest sea coast or navigable river (Map 2 in Kunz, 1991). Measures of agricultural suitability are taken from the FAO's Global Agro-Ecological Zones (GAEZ) 2002 database,[25] matched to the Thiessen polygons of city borders. Similarly, we also calculate terrain ruggedness for the area surrounding each city. To assess mining suitability of a city's surrounding area, we identify town charters which contained provisions on mining.

From the *Deutsches Städtebuch*, we extract information on construction events associated with military spending such as castles, arsenals, or fortifications, and pooled construction events as an economic indicator (Cantoni, 2020). As another proxy for economic activity, we collect the number, type and timing of markets in the covered cities (Cantoni et al., 2020b). We document the presence of town charters to account for the (fiscal) developedness of cities (Cantoni et al., 2020a). The *Städtebuch* moreover records attacks to cities, which we take as indicators of (defensive) conflict involvement and military threat to a territory.[26] Finally, we know the neighbors for each city. Combining this with information on territories, we record military construction events taking place in foreign neighboring cities, or whether a city has neighbors that belong to a fiscally centralized territory.

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[24]Similar data has been used in Cantoni (2012). We also assign Imperial Register shares from the repartition of 1648 from Universitäts- und Landesbibliothek Sachsen-Anhalt (2008 [1663]) to our territorial entities.

[25]This data was kindly shared by Nathan Nunn due to the FAO download center being defunct at the time of writing this paper.

[26]Note that information on these attacks is not dyadic, so that we are agnostic about the identity of attacking troops throughout our analysis.

4 Origins of Fiscal Centralization

To speak to the empirically observed Chamber adoption patterns (Appendix Table A.1), the historical account of Section 2 suggests a stylized framework of (the timing of) fiscal centralization of the territories of the Empire:[27] The main benefit of introducing a Chamber, a specialized administrative layer in the territorial hierarchy, is an increased utilization rate of fiscal knowledge (Garicano, 2000). In the baseline without a Chamber, complex fiscal tasks cannot be addressed adequately even by the individuals at the top of the knowledge hierarchy (the prince and his advisors). This inadequate treatment of complexity results in an efficiency loss in raising and spending revenues from demesnes. Introducing a Chamber introduces a new layer to the territorial hierarchy that increases bureaucratic overview. For a given level of fiscal demands and demesne size, this narrows the efficiency gap and hence benefits the princely finances. Changes in the size of fiscal demands primarily determine Chamber adoption. One salient shock to fiscal demands, and hence Chamber adoption, are the imposition of Imperial taxes: if the territorial ruler increases the efficiency of Imperial tax processing, he can retain a surplus that scales with the size of the taxation request. Such benefits stand against the fixed costs of introducing a Chamber, like setting up offices and employing Chamber officials. In each period, when deciding whether to introduce a Chamber, rulers consider these static efficiency gains and fixed costs.

We take this framework to our data and consider the adoption of Chambers. We estimate the treatment hazard of territories in a linear model. Our panel contains one observation for each territory existing in a given decade and the dependent variable (fiscal centralization) is a binary indicator of the introduction of the Chamber in a territory in that decade. Reflecting the absorbing state of this treatment, we omit a territory from our sample once it is treated.

Our regression equation is as follows:

$$Treated_{jt} = \beta X_{jt} + \alpha_j + \alpha_t + \varepsilon_{jt} \tag{1}$$

It predicts the eventual adoption of the Chamber ($Treated_{jt}$) at the territory-decade level, using a vector of covariates X. The regression includes a full set of territory and decade fixed effects, α_j and α_t. β can thus be interpreted as the effect of decade-to-decade changes in the

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[27]A formal treatment of the adoption decision is provided in Appendix Section C.

variables contained in X. We multiply the dependent variable by 100.[28] Standard errors are clustered at the territory level.

The choice and grouping of covariates in X is informed by the stylized framework of Chamber adoption. We distinguish factors related to the geography, internal composition, and economy of territories, as well as proxies of external military pressure and a measure of the Imperial tax burden.[29,30]

Geographic conditions influenced the complexity associated with extracting revenues from a territory's demesnes. We thus include a vector encompassing average terrain ruggedness, distance to water, agricultural suitability, and the presence of mining activity in territory j in decade t. The efficiency loss associated with fiscal undertakings was moreover impacted by the internal capacity of territorial lords. We include the share of cities with secondary rulers, which proxies for the relative power of territorial lords vis-à-vis the local nobility, as well as the share of cities that are members of the Hanse or have a town charter, which indicates the presence of more powerful urban centers. Among factors that influence the (economic) size of the demesnes, we consider princely income sources related to the increasing commercialization during the late 14th and 15th century: the overall size of a territory (measured through the number of cities controlled), average construction activity, and the average number of market grants in this territory in the past decade.

We also turn to potential determinants of fiscal capacity that stem from fiscal demand shocks related to inter-territorial conflicts (Gennaioli and Voth, 2015). We capture this with a vector consisting of the average construction of military buildings in neighboring territories and exposure to warfare over the last decade as well as the share of fiscally centralized neighbors. Finally, we look at a territory's contribution to the Imperial tax as a particular fiscal demand shock: the higher this taxation request, the larger the incentive to introduce a

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[28]In Appendix Table D.1, we also consider a specification without entity fixed effects, following other hazard models estimated as linear probability regressions (Currie and Neidell, 2005; Corno et al., 2020). Instead, we control for the initial level of the variables contained in X ($X_{j,1500}$), measured in 1500 (or at the earliest available time period for territories that start to exist after 1500), to recover the interpretation of β as an effect of relative changes in the variables contained in X.

[29]These factors correspond to the following model parameters: *Geography* and *InternalComposition* proxy for the baseline collection and spending inefficiency (ρ), *Economy* proxies for the overall (monetary) demesne size (D), *MilitaryPressure* is a source of fiscal demand shocks to territories (T), and *ImperialTax* is explicitly modelled (IT).

[30]We observe all covariates on a yearly basis and aggregate to the decade level. Note that all characteristics in X_{jt} are time-varying, since the extent of territories changes over time.

Chamber to process the request more efficiently.

Table 1 presents results from the OLS estimation as described in equation (1). Factors relating to the geography or internal composition of territories (viz., changes thereof) are not statistically related to the Chamber indicator (p-values for joint significance of coefficient vectors shown in columns 1–2). Variables reflecting a territory's demesne economy, or exposure to external threats, are generally (positively) related to the adoption variable (columns 3–4). The natural logarithm of Roman Months levied, multiplied by the fixed contribution share, is significantly positively related to the Chamber indicator (column 5), also when considering all potential determinants jointly in column 6.

Table 1: Predicting Fiscal Centralization

	Fiscal Centralization					
	(1)	(2)	(3)	(4)	(5)	(6)
Geographic (p-value)	[0.22]					[0.36]
Internal Power (p-value)		[0.38]				[0.87]
Commercial (p-value)			[0.03]			[0.59]
External Pressure (p-value)				[0.00]		[0.00]
Contribution (share) $\times$ ln Roman Months					0.877***	0.849***
					(0.240)	(0.238)
Observations	10,449	10,449	10,449	10,449	10,449	10,449
R^2	0.12	0.12	0.12	0.12	0.14	0.14
Territory FEs	✓	✓	✓	✓	✓	✓
Decade FEs	✓	✓	✓	✓	✓	✓

Note Table presents results of estimating equation (1). Observations are at the territory-decade level. The sample comprises 39 decades and 636 territories. The dependent variable is an indicator that reflects whether a territory j vanishes in year t. We omit the territory from our sample thereafter, reflecting the absorbing state of this treatment. The columns group different reasons for the vanishing of territories. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively. Appendix Table D.1, column 1, shows the full set of coefficient estimates of the specification in column 6 above, as well as different empirical approaches, including baseline controls and Cox hazard rate regressions, in the remaining columns.

Appendix Table D.1, column 1, shows the full set of coefficient estimates of the specification of Table 1, column 6, as well as additional empirical approaches, including estimations with baseline controls and Cox hazard rate regressions. We obtain very similar results: the size of the Imperial tax contribution emerges as the only factor consistently significantly correlated with the Chamber adoption indicator throughout all specifications.

This predictive effect of Imperial tax levies is substantial: Conditional on a given share of contributions, being required to raise 10% more Roman Months (monetary equivalents) in a given decade increases the likelihood of fiscally centralizing in that decade by 0.85 percentage points, against a baseline probability of 0.20 percentage points. This suggests

that territories adopted a Chamber when required to process the Empire's taxation requests, taking advantage of the increased efficiency surplus from a centralized fiscal administration.

5 Effects of Fiscal Centralization

In the eyes of contemporaries, as the will of Frederick the Great attests, "the first concern of a ruler has to be to survive, only then comes the question of enlargement" (Friedrich II. von Preußen, 1769). We thus consider survival and two aspects of territorial "enlargement" — size and compactness — to depict the major aspects of consolidation. We first turn to these ultimate outcomes of state consolidation, before considering mechanisms in Section 6.

5.1 Survival of Fiscally Centralized Territories

The most striking feature of state consolidation in the Holy Roman Empire was the survival of some territorial entities at a time when others vanished. To understand the role of fiscal centralization and test whether territories that became centralized were more likely to survive than those that did not, we estimate a linear probability model of the following form:

$$Vanish_{jt} = \beta_1 Treated_{jt} + \beta_2 Treated_{jt} \times DecadesTreated_{jt} + \alpha_j + \alpha_t + \varepsilon_{jt} \qquad (2)$$

where *Vanish* is a binary variable that reflects whether a territory j vanishes in year t. The specification is thus a hazard estimation in a linear probability setting, analogous to regression equation (1). We multiply the dependent variable by 100. $Treated_{jt}$ is a dummy that takes value 1 if territory j is fiscally centralized at time t, and $DecadesTreated_{jt}$ measures for how many decades territory j is already treated in year t. This allows the effect of fiscal centralization to change in magnitude over time. α_j and α_t are territory and year fixed effects. Standard errors are clustered at the territory level.[31]

The detailed nature of our data allows us to consider three major reasons for territorial vanishing: conflicts, purchase, and extinction of the ruling lineage. Vanishing by dynastic extinction, when a ruling family does not produce a potential heir, is the most common

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[31]Appendix Table D.2 explores different approaches to inference for all outcomes of Sections 5 and 6, including clustering at higher levels, and Conley standard errors. Significance is mostly unaffected, and clustering at the territory level is often the more conservative approach. Results also hold when additionally allowing for autocorrelation within units over time, with lag cutoffs of 50, 100, or 200 years (not shown).

impediment to territorial survival; nearly half of all vanishing territories fall in this group. We consider dynastic extinction to constitute a largely uncontrollable part of territorial survival, whereas the remaining reasons are endogenous to a territory's actions.[32]

Annexation was a constant threat for territories which were unsuccessful in building foreign relations and military strength. An early example is the Burgravate of Dohna, which vanished in a conflict with the Margravate of Meissen over territory in the middle Elbe region in 1402. Similarly, rulers who resorted to selling lands risked ending up in a self-reinforcing circle of ever-growing land pawns and vanishing by purchase. In 1548, Count Berthold of Henneberg-Aschach sold off his last substantial land holdings to the Mansfeld family, thus dissolving the territory, which ended up with Albertine Saxony shortly thereafter.

Table 2 shows results.[33] Columns 1 and 2 indicate a significantly negative relationship between our treatment and an indictor of vanishing because of conflict. Columns 3 and 4 consider an indicator of whether territories cease to exist because they are sold, where again there is a negative relationship. The last two columns instead show that coefficients on treatment variables are small and insignificant with respect to vanishing by extinction.

The fact that there are no differences between fiscally centralized and non-centralized territories in dynastic extinction due to the lack of (male) heirs is consistent with the view that this outcome could not be influenced by a territory's fiscal capacity. As opposed to the birth of male offspring, however, fiscal capacity increases the probability to survive due to military success and financial strength: There is a large, significant reduction of the probability of vanishing by purchase following fiscal centralization of around 84% of the baseline probability. We further examine these military and financial mechanisms in Section 6.

To examine vanishing dynamics over time, we estimate an event study framework:

$$Vanish_{jt} = \sum_{\tau=1}^{10} \beta_\tau Treated_{jt} \times RelativeDecade_{\tau(j,t)} + \alpha_j + \alpha_t + \varepsilon_{jt} \, , \tag{3}$$

where $Treated_{jt}$, α_j, and α_t are defined as above. The analysis is at the territory-year level. We interact the treatment indicator with a set of relative decade dummies for the decades after treatment; the dummy for $\tau = 10$ is defined to include all time periods ten decades

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[32]As late as 1799, in a territory as significant as the Electorate of Bavaria, the ruling family died out, even though they hired major specialists and underwent fertility treatments multiple times (Stein, 2011).

[33]Similar to Section 4, Appendix Table D.3 omits territory fixed effects, and Appendix Table D.4 includes only territories extant in 1500. Again, we obtain very similar results throughout.

Table 2: Territorial Survival: Probability of Vanishing

	Conflict and Conquest		Vanishing Purchase		Extinction	
	(1)	(2)	(3)	(4)	(5)	(6)
Treated	-0.144***	-0.112***	-0.0501***	-0.0226**	0.0710	0.0706
	(0.0249)	(0.0221)	(0.0136)	(0.0105)	(0.124)	(0.140)
Treated × Decades Since		-0.00413**		-0.00361**		0.0000514
		(0.00175)		(0.00170)		(0.00924)
Observations	102,825	102,825	102,825	102,825	102,825	102,825
R^2	0.07	0.07	0.08	0.08	0.03	0.03
Mean dep. var	0.13	0.13	0.06	0.06	0.21	0.21
Territory_FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓

Note Table presents results of estimating equation (2). Observations are at the territory-year level. The sample comprises 390 years and 636 territories. The dependent variable is an indicator that reflects whether a territory j vanishes in year t. We omit the territory from our sample thereafter, reflecting the absorbing state of this treatment. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively. Appendix Table D.3 shows results including only year fixed effects, and Appendix Table D.4 includes only territories extant in 1500.

or later relative to the year of treatment. Thus, for each decade after the introduction of Chambers, we estimate the probability of vanishing for treated territories relative to those territories not (yet) treated. Since our sample is conditional on a territory having survived up to time τ, i.e. the introduction of the Chamber, we cannot estimate β_τ for $\tau < 0$.[34]

Figure 1, Panel A, shows the probability of vanishing due to purchase or conflict (i.e. excluding dynastic extinction) over time. Following fiscal centralization, there is an immediate, clear, and sustained decrease in this probability (by about 20%), compared to territories without a Chamber.

5.2 Size of Fiscally Centralized Territories
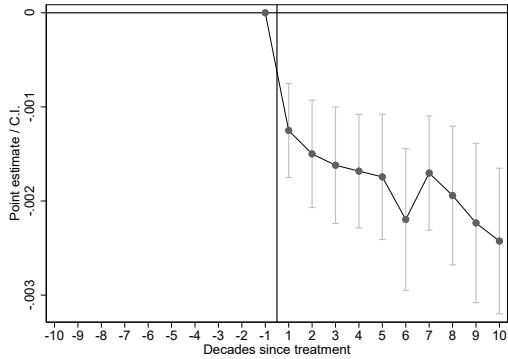
A second important aspect of state consolidation is the size of territories. From 1400 to 1789 the size of the average territory increased substantially. In 1400 the average territory consisted of around 6 cities, in 1789 this had doubled to 12 cities. While the largest territory in 1400 held 185 cities, the largest territory in 1789 consisted of 598 cities.

The financial efficiency of territories and their ability to grow in size were closely linked,

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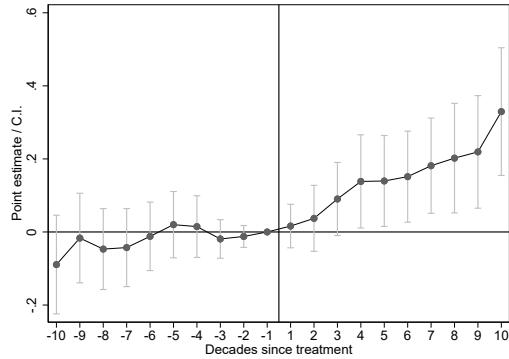
[34]This baseline event study also includes never-treated territories. Since $Treated_{jt}$ is zero throughout for these entities, they only enter the estimation via the year fixed effects.

Figure 1: Territorial Consolidation Event Studies (I)

A: Vanishing

B: Size

Note The plot shows results of event study regressions of the effect of fiscal centralization on territorial survival and size, with 95 percent confidence intervals. Observations are at the territory-year level. The sample comprises 390 years and 636 territories. The dependent variables are (A) a binary variable whether a territory j vanishes due to conflict or purchase in year t, (B) the natural logarithm of cities that j rules alone in t. Standard errors are clustered at the territory level.

and rulers spent large parts of their revenues to enlarge their territories. The case of Albertine Saxony shows how acquisitions were directly influenced by state revenue: after the introduction of a Chamber in 1524, the electoral prince spent 700,000 fl. in the next four decades to buy up rural estates, villages, and entire lordships (Jeserich et al., 1983, p. 71, p. 816).

Financial capacity was not only necessary to purchase additional land holdings directly, but also to acquire land by other, seemingly non-financial means such as inheritance and warfare. The case of Brandenburg — which installed a Chamber in 1577 — in the first decades of the 17th century illustrates the manifold linkages between financial means and size. In 1614 and 1618, the Electorate incorporated Ducal Prussia and the Duchy of Cleves-Mark. Brandenburg's expansion hinged on its financial efficiency in three ways: The foundation for the territorial expansion was laid by building inheritance claims through strategic marriages. In 1591, the Elector of Brandenburg, Joachim Friedrich, had married his son Johann Sigismund to Anna of Prussia, which served as the basis for the claims to both the gain of Cleves-Mark and Ducal Prussia. In the case of Cleves-Mark, where the ruling dynasty died out in 1609, the inheritance claims were contested, as Philipp Ludwig of Palatinate-Neuburg also laid claim to the entire territory, giving rise to military disputes. The strength of Brandenburg's military forces ensured a division of the lands in which the larger part of Cleves-Mark went to the Electorate. Finally, disposable income played a direct role to complete the acquisitions, which necessitated large funds: 300,000 fl. to the King of Poland for

Ducal Prussia, and 600,000 fl. for Cleves-Mark (Jeserich et al., 1983, p. 872ff.).

In Section 6, we demonstrate how the above factors — disposable income, and foreign relations through strategic marriages and warfare — were substantially influenced by fiscal centralization. A very direct mechanism through which Chambers influenced land holdings was through the introduction and improvement of bookkeeping. In Hesse, administrative statistics of the Chamber first documented the exact extent of the ruler's lands, powers and privileges; changes were to be reported and discussed on an annual basis; by the late 16th century, there was no scope for the alienation of land pawns and fiefs from the sovereign's belongings (Zimmermann, 1933, p. 41, p. 75).

First, we test the reduced form relation between fiscal centralization and territory size. We estimate the following equation:

$$Size_{jt} = \beta_1 Treated_{jt} + \beta_2 Treated_{jt} \times DecadesTreated_{jt} + \alpha_j + \alpha_t + \varepsilon_{jt} \qquad (4)$$

The outcome $Size_{jt}$ is the natural logarithm of cities in territory j in year t. The analysis is at the territory-year level. α_j and α_t are territory and year fixed effects. Ownership of cities in the Holy Roman Empire was commonly disputed between several rulers; in addition, cities frequently had a hierarchy of rulers, for example as part of a pawn or a fief. To capture these aspects of state capacity, we consider for each territory the following dependent variables: *(i)* cities it rules alone, *(ii)* uncontested cities, and *(iii)* total number of cities.

Table 3 shows that there is a significant positive relationship between treatment status and the logarithm of the number of directly ruled cities in a territory (β_1). This positive association grows stronger over time (β_2 in column 2), and it holds when considering the number of uncontested cities and the number of all cities — contested, given away, or ruled alone — in columns 3 and 4 and columns 5 and 6, respectively.[35]

We conclude that fiscally centralized territories grow larger over time, which points to territorial expansion taking hold gradually. A territory that has been fiscally centralized for 100 years controls around 27.3 percent more cities directly than before the introduction of a Chamber. Similarly, centralized territories hold 22.8 percent more uncontested cities and 20.8 percent more cities overall after having been fiscally centralized for 100 years. These results suggest that fiscally centralized territories are not only able to grow in size, but also

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[35]These results on territory size also hold if we exclude city states, which arguably have different means of organizing their finances (Stasavage, 2007), from the analysis.

Table 3: Territory Size

	Single Ruler		Uncontested		All	
	(1)	(2)	(3)	(4)	(5)	(6)
Treated	0.225***	0.0696	0.182***	0.0316	0.169***	0.0419
	(0.0608)	(0.0485)	(0.0502)	(0.0394)	(0.0506)	(0.0378)
Treated × Decades Since		0.0203***		0.0196***		0.0166***
		(0.00471)		(0.00508)		(0.00467)
Observations	102,825	102,825	102,825	102,825	102,825	102,825
R^2	0.95	0.95	0.95	0.95	0.95	0.95
Territory FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓

Note Table presents results of estimating equation (4). Observations are at the territory-year level. The sample comprises 390 years and 636 territories. The dependent variable is the natural logarithm of cities in territory j in year t. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

that this growth is neither disputed by rivaling territories, nor shared with other stakeholders.

We also estimate the analogue of the event-study setup in equation (3). Additionally, we include a series of interaction terms for the decades prior to the treatment (with $\tau = \{-10, ..., 10\}$), where $\tau = -10$ encompasses all periods ten decades or more prior to the year of fiscal centralization. This setup allows us to examine the timing of the increase in size following fiscal centralization and any potential pre-trends in more detail. Figure 1, Panel B, shows the relationship between fiscal centralization and territory size over time. There is no clear indication of a trend in territory growth before the adoption of a Chamber. After fiscal centralization, the event study graph shows a clear increase in size over time, consistent with the positive estimates of β_2 in Table 3.

5.3 Compactness of Fiscally Centralized Territories

Compared to today, the territorial fragmentation of medieval and early modern polities is visually striking. Often territories consisted of disconnected areas with many gaps in their land holdings. State consolidation led to more compact territories. Consider again the example of Brandenburg: following the annexations between 1600–1625, which had fragmented the belongings, territorial growth in the following century rounded off the territory, even connecting previously separate parts of the Brandenburg lands (Appendix Figure A.5). Just as with overall size increases, achieving a more rounded territory hinged on the acquisition of

lands, so that the factors discussed in the context of size growth — from financial solvency to functioning bookkeeping — all apply.

Measuring compactness is not straightforward in a context in which territories sought, at the same time, both to expand and to round off the shape of their land holdings. Standard measures of compactness will, in general, not be invariant to overall size, and decline in value as territories grow: in the extreme, a territory that consists of only one city will have a large overall compactness.

We define two alternative metrics for compactness, both based on the underlying partition of Holy Roman Empire's area into polygons surrounding each city. The first measure captures compactness at the territory level. If a territory is maximally spread out, it consists of a set of disconnected cities; the length of its border is then equal to the sum of all city polygons' borders. In a more compact territory, cities will lie adjacent to each other, and thus their polygons will consist of longer "internal" (shared) borders. We thus define compactness as ratio of "internal borders" (between ruled cities) to the length of all city polygons' borders in that territory. This measure is 0 for disconnected territories. As more cities from the same territory share borders, the measure gets larger. For example, our measure of territorial compactness for Brandenburg increases from 0.78 to 0.81 between 1625 and 1725.

Alternatively, we measure territorial compactness from the perspective of individual cities: for each city, we calculate the share of its associated polygons' border that is adjacent to cities under the same ruler. The measure reflects how territorial consolidation reduces border exposure for single cities. This approach allows for the inclusion of city fixed effects, accounting for possible differences in city's innate potential for compactness, for example because they are situated along the coast.[36]

We estimate the analogue of equation (4) with the above compactness measure as the outcome of interest (defined either at the level of territories j or of cities i, in each year t). We multiply the dependent variable by 100. The specification with city-level compactness as the outcome of interest includes both city fixed effects α_i and territory fixed effects α_j.

Table 4 shows results. Positive coefficients indicate that a larger share of borders are internal borders, i.e. shared with cities of the same territory. We find a positive relationship between our treatment variable and the compactness measure for both levels of observation (columns 1 and 3), which is taking hold over time (columns 2 and 4). Our measure

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[36]$DecadesTreated_{ijt}$ measures the number of decades a city has belonged to a fiscally centralized territory.

Table 4: Territorial Compactness

| | Domestic Border | | | |
| | Territories | | Cities | |
	(1)	(2)	(3)	(4)
Treated	3.736***	1.456	3.328***	1.231
	(1.239)	(0.941)	(1.098)	(0.991)
Treated × Decades Since		0.299***		0.422***
		(0.105)		(0.142)
Observations	102,825	102,825	826,298	826,298
R^2	0.94	0.94	0.87	0.87
City FEs			✓	✓
Territory FEs	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓

Note Table presents results of estimating the analogue of equation (4), considering the compactness of territory j in year t as an outcome. Observations are at the territory-year level for the first two columns, and at the city-year level for the last two columns. The sample comprises 390 years and 636 territories (2,382 cities). Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

of territory-level compactness increases by around 4.4 percentage points in the first century after fiscal centralization (5.5 percentage points in the case of city-level compactness), compared to a baseline level of 11 percent (41 percent, respectively) on average for the control group. We hence find that fiscally centralized territories become substantially more compact after centralization, and that this process occurs over time.
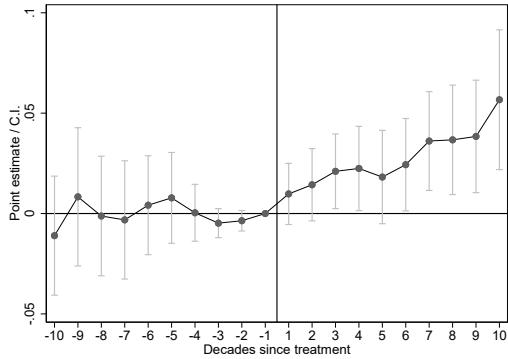
Panels A and B in Figure 2 present coefficients from the event-study approach in equation 3 with our compactness measure at the territory or city level as an outcome. We find no changes to compactness in the decades prior to fiscal centralization in treated territories. After the introduction of a Chamber, there is a continued and sustained increase in compactness in all following decades.

5.4 Robustness: Confounding Factors
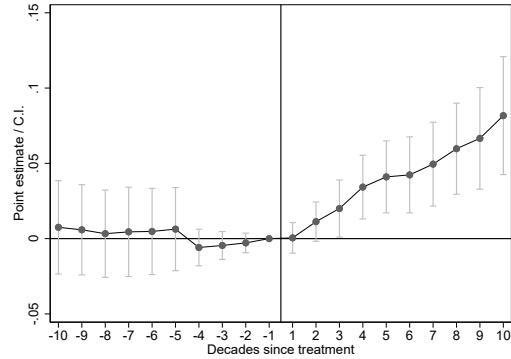
The results of our previous analyses strongly suggest a positive association between the introduction of fiscal institutions and a range of outcomes relating to territorial consolidation and survival. However, this naturally raises the question about the causal nature of these correlations. Can these positive developments be interpreted as the effect of the introduction

Figure 2: Territorial Consolidation Event Studies (II)

A: Compactness (Territories)

B: Compactness (Cities)

Note The plot shows results of event study regressions of the effect of fiscal centralization on territorial compactness, with 95 percent confidence intervals. Observations are at the territory-year level for Panel A and at the city-year level for Panel B. The sample comprises 390 years and 636 territories (2,382 cities). The dependent variables are the compactness measure defined either (A) at the level of territories j or (B) of cities i, in each t. Standard errors are clustered at the territory level.

of fiscal chambers? Clearly, it is impossible to observe the path of territorial expansion and consolidation in the absence of a Chamber. In this section, we offer a carefully optimistic take, suggesting that the results shown so far likely represent in fact a positive, causal effect of the introduction of fiscal institutions.[37]

The baseline research design, with panel data regressions and two-way fixed effects, takes into account two major groups of potential omitted variables relevant in this context. These could be time-invariant characteristics of territories which affect both their propensity to invest in fiscal capacity and to consolidate, such as core geographic features; or, they could be historical shocks affecting all territories in equal measure, such as technological paradigm shifts from the military revolution.

Furthermore, the event-study analyses of Figures 1 and 2 show that the introduction of a Chamber represents a distinct break from the periods preceding it. This absence of immediate pre-trends speaks against territories embarking on paths of successful expansion and consolidation *before* reforming their fiscal institutions.[38]

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[37]Section 6, which is concerned with mechanisms, further bolsters this claim by more explicitly connecting Chambers to ultimate consolidation outcomes.

[38]Coefficients more than 70 years prior to Chamber adoption are less clearly centered at zero. Those decades often pertain to the 15th century, where coverage of treated territories declines substantially, leading to a relatively less balanced sample. This is especially relevant for the leftmost, pooled coefficient. In Appendix Section D.2, we discuss case studies which highlight how this institutional volatility might skew our early estimates.

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Our empirical setting is particularly challenging since the effect of the Chambers takes hold slowly. As such, it is more difficult to disentangle differences in long-term trends from the effect of the reform; for example, some of our results are not robust to the inclusion of linear territory trends. However, a potential confounding factor would need to vary over time and across territories, roughly coincide with the adoption of a Chamber, and produce an immediate and persistent kink or discontinuity in consolidation outcomes.

To address this concern, we control explicitly for a range of time-varying, territory-specific potential confounders. First, we account for (possibly persistent) changes to the external political environment of a territory in Appendix Section D.3. We control for past military attacks, military construction activity among neighbors, and the fiscal centralization of neighbors.[39]

Second, we examine potentially concurrent institutional changes within territories. If Chambers were part of a series of other reforms that modernized the state administration, our estimates would reflect the effect of an entire bundle of changes occurring at the same time. For princely administrations, the historical literature is clear that the only institutional innovation of importance comparable to the Chamber during the 16th and 17th centuries are advisory councils (*Hofräte* or *Geheime Räte*) (Jeserich et al., 1983). The historical accounts suggest that Chamber ordinances were decreed separately and were not immediately preceded or followed by council ordinances. In Appendix Section B.2, we empirically explore the dates of introduction of these councils to demonstrate that other branches of the ruler bureaucracy do not confound our results.

Looking at the internal developments within territories more broadly, a large literature (Schumpeter, 1991; Tilly, 1975; North and Weingast, 1989) suggests a link between the increase in fiscal capacity and representative assemblies, approving the imposition of taxes and controlling revenue streams. However, the developments in the Holy Roman Empire differ from other parts of Europe with regard to the development of a taxation-representation nexus. In Appendix Section B.3 we show that empirically accounting for Estates does not affect our results: Chambers did not form part of the coordination between local nobility, clergy, and towns, but instead were closely tied to the sovereign's finances and a bureaucratic-absolutist

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[39]By focusing on control variables that are arguably determined outside a territory, we also avoid controlling for potentially endogenous developments. We acknowledge, however, the potential reflection problem, in a setting in which military investments and institutional innovations may be mutually interdependent. This is why these regressions are best seen as suggestive; reassuringly, our results are not particularly sensitive to the inclusion of these controls.

form of government. We hence demonstrate that a wide range of potential confounders which vary across territories and time periods do not affect our results.

Further concerns about unobservable, time-varying shocks to groups of ex-ante similar territories can be addressed by varying the set of territories that are considered in the analysis. First, we restrict our sample only to territories that eventually fiscally centralize. In Appendix Section D.3, we show that all our results are very comparable (both qualitatively and quantitatively) when referring only to the "intensive margin" of fiscal centralization.[40] Second, we implement a wide range of matching approaches. Based on the predictors in Section 4 in the year 1500, we predict the propensity to ever fiscally centralize in a cross-section Probit model. Appendix Section D.4 displays the result of nearest neighbor matching, full matching, and only considering those territories in the 90th percentile of adoption probability (Appendix Tables D.12, D.13, and D.14). Results are robust to considering these restrictive subsets only. We also repeat these three matching strategies for the size of territories in 1500, and for the tax contribution share in the Imperial register of 1521. Again, results are robust.

5.5 Robustness: Instrumental Variables

Our results in Section 4 suggest that the variation in Chamber adoption is primarily driven by the quasi-random timing and size of the Imperial taxes (even after taking into account territory fixed effects and all other predictors in column 6 of Table 1). This further limits the scope for a potential unobserved, coincident, persistent confounding factor.

To address endogeneity concerns more directly, we note that the interaction between the fixed contribution share and the overall size of the Imperial taxation request represents an idiosyncratic, time-varying driver of the likelihood to adopt a Chamber. We can thus employ this interaction term to construct an instrumental variable for our main regressions. Analogously to other "shift-share" instrumental variable settings, the share may be determined endogenously, but the temporal shocks are orthogonal (Borusyak et al., 2022). To reflect the absorbing nature (i.e., weakly monotonically increasing state) of Chamber adoption, and in line with the simple model framework of Appendix Section C, we define our instrumental variable as the maximum Imperial tax contribution a territory has faced up to year t.

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[40]Note that the results in the "intensive margin", by limiting the analysis to few, larger territories, also speak to concerns about violations of the SUTVA assumption and potential spillovers from larger territories to smaller, neighboring ones.

We present and discuss the instrumental variable approach in Appendix Section D.5. In particular, we argue that the conditions for a valid instrument — exclusion, random assignment, monotonicity, and relevance — hold. Nevertheless, two limitations apply to this exercise. First, the instrumental variable estimates only recover the treatment effect for compliers: the sub-population of territories that were induced into the treatment by the external pressure of the Imperial tax contribution. The effects of fiscal centralization on our main outcomes are qualitatively similar, but larger than the OLS analogues. Potentially, returns to adopting a Chamber were higher for compliers than for territories that would have adopted a Chamber under all circumstances. In addition to only recovering the local average treatment effect, a second limitation stems from the fact that our treatment is binary and absorbing, whereas the instrumental variable is continuous. The analysis hence only allows for the estimation of a pre/post treatment comparison, but not an interaction with "time since treatment", and not an event-study analysis. This is particularly relevant in a context like ours, where, for most outcomes, the effect of the treatment does not materialize immediately, but builds up gradually over time. Due to these limitations, we focus on the results of the OLS analysis in the main part of the text, leaving an important, but ancillary role for the IV approach.

5.6 Robustness: Heterogeneous Treatment Effects

A final concern relates to the possible heterogeneity of treatment effects: our estimates might be driven by the extraordinary consolidation of individual territories. Also, in the presence of heterogeneous treatment effects in staggered adoption designs, two-way fixed effects estimation procedures may not be robust, as suggested by recent literature (Sun and Abraham, 2021; De Chaisemartin and d'Haultfœuille, 2020). To address concerns about heterogeneity, we first note that our data does not only contain the more powerful or (eventually) most successful territories: its uniquely broad coverage allows us to observe every territory and every city in the Holy Roman Empire over the entire period 1400–1789. Also, our results are not driven by single outliers, such as the remarkable trajectory of Prussia: Appendix Figures D.2 and D.3 demonstrate that our results (both the differences-in-differences estimates and the event-study analyses) are robust to leaving out single territories from the treatment group. Finally, in Appendix Table D.23, we provide evidence that our two-way fixed effects results do not suffer from confounding heterogeneity, drawing on the estimator suggested by De Chaisemartin and d'Haultfœuille (2022).

6 Mechanisms

6.1 Revenues

Levying and spending funds from their income sources was a complex task for most rulers at the dawn of the early modern period. Chambers were thus charged with a twofold objective: An improved exploitation of these existing sources of revenue, and a more efficient spending of levied funds at court. Hesse's Chamber ordinance of 1568, for example, states the overarching goal of the institution as having to increase steady revenues from the existing demesnes and taxes (Zimmermann, 1933, p. 102).
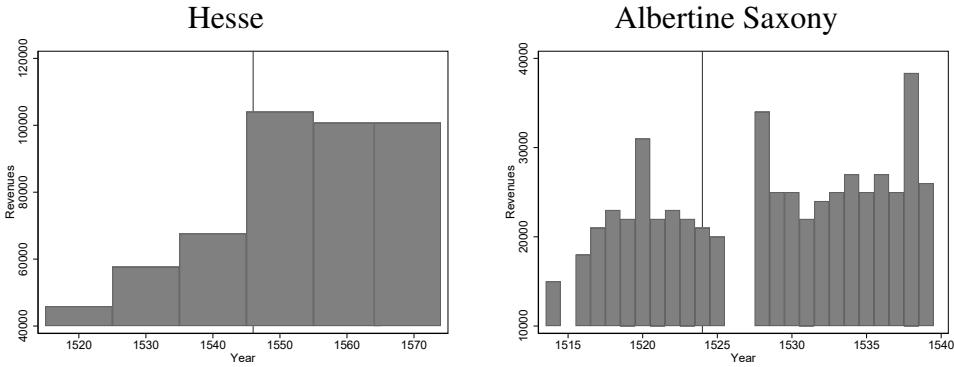
Comprehensively documenting increases in revenues resulting from the introduction of a Chamber is challenging, as systematic record-keeping was directly linked with the institution of the Chamber. Data about revenues in the periods prior to fiscal centralization are thus scarce. For two territories — Hesse and Albertine Saxony — revenue estimates spanning the periods before and after the reform exist.

Figure 3 depicts the evolution of revenues for these territories over time, with the vertical line indicating the year of the introduction of a Chamber. In both cases, funds increase following fiscal centralization. In Hesse, the substantial and sustained revenue jump of over 36,000 guilders in the decade between 1540 and 1550 stands out, even against the moderate pre-trend in the period 1520–1540. In Albertine Saxony, drink excise tax revenues average 20,000 guilders yearly before the replacement of the *Landrentmeister* with a collegial Chamber in 1524; after the reform, revenues are stably at a higher level of approximately 24,000 guilders per year. Following the introduction of centralized fiscal Chambers, revenues in both territories thus increased. Historical accounts of Hesse (Brakensiek, 2004, pp. 142–3), Bavaria, and Brandenburg (Jeserich et al., 1983, pp. 334, 884) further confirm that rulers managed these substantial increases in revenues by relying on existing sources of revenues, rather than new forms of taxation.

6.2 Alternative Methods of Raising Revenue

While revenues are observed directly only for a minority of territories, we indirectly test for improvements in fiscal administration: Better finances would reduce the reliance of rulers on

Figure 3: Revenues

Hesse   Albertine Saxony

Note The plot shows revenues in Hesse and Albertine Saxony before and after the introduction of a Chamber. Sources: Chamber revenue estimates for Hesse are drawn from North (1999). Albertine Saxony recorded revenues from a drinks excise tax, one of the ruler's primary sources of disposable income during the time period considered Schirmer (2006, p. 235, 252-253, 605).

pawning away land holdings to local nobility and wealthy burghers.[41]

Up to the introduction of Chambers, for a large number of rulers pawns were the predominant means of raising funds, since they provided short-term revenue without requiring improved fiscal capacity such as sophisticated bookkeeping. Rulers under financial pressure exhausted these means until very little of their territory remained under direct control, setting off a vicious circle of further financial pressure due to lower revenue streams. These lands could even be lost permanently, if sovereign rights were not exercised for a sufficiently long time, or the proofs of ownership were lost in the princely bureaucracy (Jeserich et al., 1983, p. 790). Keeping track of pawn arrangements also further complicated raising revenues from existing demesnes. Pawns were thus an inefficient and non-sustainable way of raising revenue, and there were large incentives to redeem pawned settlements, forests and acres.

For example, in 1561 the Chamber clerk in Hesse filed a complaint that he still found it impossible to cover expenditures from revenues of the local offices, since the majority of them had been put in pawn before. By 1569 the Chamber had redeemed 28 local offices, and it spent another 100,000 guilders in the following decade on redeeming pawns. A similar development can be traced for Albertine Saxony, where the largest ducal expenditures in the years following fiscal centralization (46,190 guilders) were spent on redeeming pawns.

Our data records pawnings of cities to secondary rulers at the yearly level. To esti-

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[41]Since rulers could command over their own land holdings autonomously, pawns did not require consent from the Estates (see Klein (1974, p. 19) or Jeserich et al. (1983, p. 712)).

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Table 5: Pawning

	City Put in Pawn		
	(1)	(2)	(3)
Treated	-1.142	-1.190*	-1.189*
	(0.855)	(0.715)	(0.710)
Treated × Decades Since		0.00976	0.00564
		(0.0956)	(0.0956)
At Foreign Border			-0.528
			(0.693)
Observations	826,298	826,298	826,298
R^2	0.52	0.52	0.52
City FEs	✓	✓	✓
Territory FEs	✓	✓	✓
Year FEs	✓	✓	✓
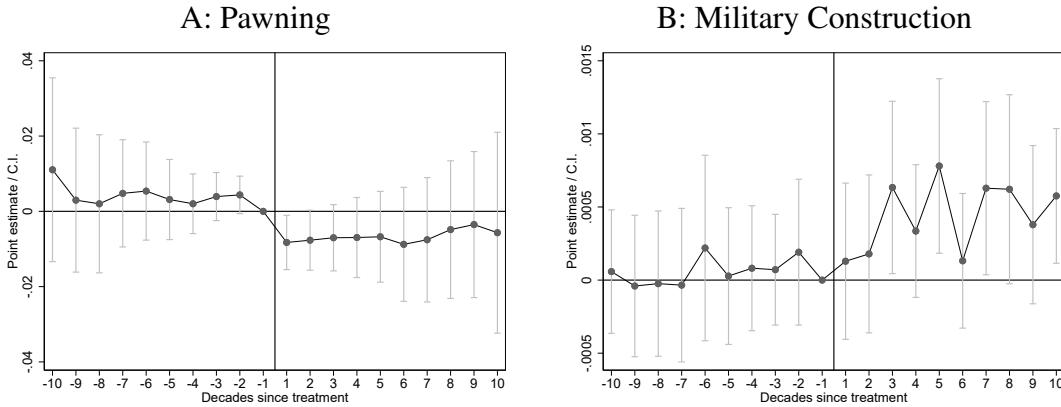
Note Table presents results of estimating the analogue to equation (4), considering whether city i was pawned to a territory $j' \neq j$ in year t as an outcome. The sample comprises 390 years and 2,382 cities. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

mate whether the introduction of a Chamber reduces the likelihood of a city being pawned, we estimate the analogue of equation (4) at the city level, where the dependent variable, *PawnedCity*$_{ijt}$, is an indicator whether city i in territory j is pawned to another ruler $j' \neq j$ in year t. We again include a full set of city, territory, and year fixed effects.

Table 5 shows results. Cities in fiscally centralized territories are slightly less likely to be put in pawn (column 1). The decrease in pawning probability is immediate (column 2). Results are similar when taking into account whether a city is located at the border to a foreign territory, which might make it more attractive for other rulers to pawn it (column 3).

A more informative picture emerges when considering changes in pawning probability over time, in the event-study graph of Figure 4, Panel A. In the decade immediately after fiscal centralization, cities in centralized territories experience a sharp drop in their probability of being pawned. This effect slowly attenuates over the following decades, leading to the weakly significant overall effect estimated in the differences-in-differences regressions of Table 5. The timing of effects suggests that the additional stream of revenues guaranteed by the new fiscal administration was immediately used by princes and Chamber officials

Figure 4: Mechanisms Event Studies (I)

A: Pawning   B: Military Construction

Note The plot shows results of an event study regression of the effect of fiscal centralization on pawning of cities and military construction, with 95 percent confidence intervals. Observations are at the city-year level. The sample comprises 390 years and 2,382 cities. The dependent variables are (A) an indicator whether city i in territory j is pawned to a territory $j' \neq j$ in year t, (B) an indicator variable for new military construction in city i in year t. Standard errors are clustered at the territory level.

to reduce the number of cities temporarily pawned away to other rulers — a step towards internal territorial consolidation, and an indicator of increased overall disposable revenue.[42]

6.3 Military Investments and Success

How exactly did rulers profit from this internal consolidation to expand the size of their territories and increase the probability of survival? Acquisitions through military interventions and marriage diplomacy strongly relied on financial means and bookkeeping, as do direct purchases of lands. In the context of warfare, Chambers usually were put in charge of handling relevant expenditures, especially for military buildings.[43]

We test for an increase in the number of military buildings in cities following fiscal centralization by estimating equation (4) at the city-year level, including relevant fixed effects. The dependent variable is an indicator variable for new military construction in a city×year.[44] Results are shown in Table 6. Military construction increases by around 0.04 buildings per century (column 1). This is a significant and sizable effect, considering that

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[42]The leftmost, pooled coefficient, relating to observations more than one century prior to treatment, is not centered at zero in the case of pawning. As discussed in Section 5.4, we place less emphasis on these very early periods due to sample imbalance.

[43]Albertine Saxony is exemplary in that following the 1530s, expenditures for armories, fortresses, and defense increased substantially (Schirmer, 2006, p. 569).

[44]We multiply the dependent variable by 100, thus coefficients can be interpreted as increases per century.

Table 6: Military Construction

	Military Construction				
	(1)	(2)	(3)	(4)	(5)
Treated	0.0405***	0.0372**	0.0368**	0.0367**	0.0368**
	(0.0138)	(0.0154)	(0.0154)	(0.0154)	(0.0154)
Treated × Decades Since		0.000662	0.000673	0.000635	0.000732
		(0.00108)	(0.00108)	(0.00109)	(0.00108)
Attack, past decade			0.0272	0.0272	0.0271
			(0.0201)	(0.0201)	(0.0201)
Any Neighb. Mil. Constr., past decade				-0.0153	
				(0.0220)	
Near Foreign Cities				-0.00140	
				(0.00286)	
At Foreign Border					0.00756
					(0.0105)
Observations	826,298	826,298	826,298	826,298	826,298
R^2	0.01	0.01	0.01	0.01	0.01
City FEs	✓	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓

Note Table presents results of the analogue to equation (4), considering military construction events in city i in territory j in year t as an outcome. Observations are at the city-year level. The sample comprises 390 years and 2,382 cities. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

average military construction in our sample amounts to 0.051 buildings per city in a treated territory and century. The effect on construction does not become larger over time (columns 2 to 5).

One potential confounder is a change in the threat environment: military construction could increase more in centralized territories because these are attacked more. In column 3 we account for attacks to cities in the current decade. This does not affect military construction at conventional significance levels, and the treatment coefficient remains unaffected. We also add measures for the threat of war, such as military construction by neighboring foreign territories and the number of foreign cities in the vicinity. Again, the coefficient of interest remains unchanged (column 4). The same holds when considering the length of the foreign border as another measure for the threat of war (column 5).

To examine the trajectory of building activity for military purposes over time, and to rule out the presence of immediate pre-trends, we show event-study coefficients in Figure 4, Panel B. Military construction is constant before and increases steadily after the introduction of a Chamber. After three decades, military construction mostly remains on an increased level compared to the decade prior to fiscal centralization.

33

Increased military investments can serve two purposes: they can allow to conquer new cities, thereby consolidating a territory's position and increasing the likelihood of survival, or they can allow to better defend existing cities. Our dataset — in which we observe attacks to cities, but not the identity of the aggressors — allows to examine the defensive channel. To do so, we consider the relationship between rule changes for cities as a result of attacks in treated and untreated territories by estimating

$$
\begin{aligned}
ChangeRuler_{ij(t+1)} \quad = \quad & \beta_1 Treated_{ijt} + \beta_2 Treated_{ijt} \times DecadesTreated_{ijt} \\
& + \gamma_1 Attack_{ijt} + \gamma_2 Attack_{ijt} \times Treated_{ijt} \\
& + \delta M_{ijt} + \alpha_i + \alpha_j + \alpha_t + \varepsilon_{ijt} \quad\quad\quad (5)
\end{aligned}
$$

where *ChangeRuler* is an indicator whether city i changed from territory $j' \neq j$ to territory j in a given year. The analysis is at the city-year level. *Attack* is a dummy whether a city is attacked in year t, and M is a vector of military covariates. We include city, territory and year fixed effects.

The results in column 1 of Table 7 show that cities that are attacked have a 1.2 percentage points higher probability of changing ruler, relative to a baseline probability of rule change of 0.65 in each year. However, if a city belongs to a fiscally centralized territory, the conditional probability of changing hands if attacked is essentially reduced to zero ($0.109 = 1.244 - 1.135$).

As a plausibility check, we compare the effect of attacks on three different types of rule changes. The relevant interaction term (Attack × Treated) is sizable and significant only if the outcome considered is rule changes due to violence (column 2), but not for subsequent rule changes due to sales of cities or dynastic extinction (columns 3 and 4). This confirms that military investments following fiscal centralization substantially increase the defensive capabilities of territories.

6.4 Marriages

While warfare constituted an important feature of early modern polities, the predominant forms of rule expansion were peaceful. Marriage alliances played a central role, both for sons — potential successors — and daughters of rulers.

Marriages were prestigious and hence costly endeavors. Chambers, through their close

Table 7: Retaining

| | Change Ruler Due To | | | |
| | All | Violence | Purchase | Extinction |
	(1)	(2)	(3)	(4)
Treated (t-1)	-2.148*	-0.607	-0.113**	-0.557*
	(1.254)	(0.474)	(0.0497)	(0.323)
Treated × Decades Since (t-1)	0.0366	0.00494	0.00127	0.000851
	(0.0234)	(0.00710)	(0.00120)	(0.0137)
Attack	1.244***	0.783***	-0.00412	0.0579
	(0.338)	(0.247)	(0.0250)	(0.153)
Attack × Treated (t-1)	-1.135***	-0.734***	0.0134	-0.0667
	(0.372)	(0.266)	(0.0250)	(0.148)
Observations	826,298	826,298	826,298	826,298
R^2	0.04	0.03	0.02	0.03
Mean dep. var	0.65	0.07	0.04	0.23
Military Covariates	✓	✓	✓	✓
City FEs	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓

Note Table presents results of equation (5). Observations are at the city-year level. Standard errors are clustered at the territory level. The sample comprises 390 years and 2,382 cities. The dependent variable is an indicator whether city i changed from territory $j' \neq j$ to territory j in a given year. Military covariates are the natural logarithm of military buildings in a city and an indicator whether a city is located at a foreign border. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

relation to the private finances of rulers, were important to finance these undertakings. Albertine Saxony in the years of a Chamber's introduction illustrates this point. To successfully marry off the ruler's daughter Magdalene to Joachim II of Brandenburg, a prince who had been previously offered the hand of the French king's daughter, the Albertine Chamber paid 20,952 guilders of dowry. Lavish wedding ceremonies also burdened rulers' treasuries as 3,000 guests had to be entertained, including 24 princes of the Empire (Schirmer, 2006, pp. 275–6). While marriage arrangements served to signal and secure prestige, they foremost had very tangible territorial consequences: In case of a lineage's extinction, inheritance claims were made based on marriage ties.

We quantify the strength of inheritance claims and ties to powerful dynasties in a graph of kinship and marriage connections. We observe the yearly network between members of noble families, and use it to calculate the marriage success for all daughters of territorial

rulers.[45] Marriage success is defined as the change in dynasty connectedness resulting from the union. To measure dynasty connectedness, we count the number of territorial rulers within three degrees of family separation (kinship or marriage) in a daughter's network, as well as the number of cities that rulers within this immediate network preside over (excluding members of the same dynasty). We calculate this measure once in the full network, and once in a network without the daughter's marriage link to assess the quality of marriage links.[46]

We estimate the effect of fiscal centralization on marriage outcomes through an analogue of equation (4), where the outcome is the logarithm of the marriage success for territory j in year t.[47] Table 8 presents results. The outcomes of marriage politics improve after the adoption of a Chamber: a daughter's immediate network comprises 29% more rulers after her marriage (column 1), and the number of ruled cities in their network increases by 70% (column 3).

Panels A and B in Figure 5 show marriage gains in an event-study framework. There are no clearly discernible, immediate pre-trends for both the number of rulers and the number of ruled cities within the network.[48] Following fiscal centralization, there is a large and persistent increase in inheritance claims gained by marriage: rulers' daughters have more successful marriages after the introduction of a Chamber.[49]

6.5   Mediation Analysis

To conclude, we provide evidence that our proposed mechanisms map empirically into improved consolidation outcomes for those territories that have a Chamber. We identify two

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[45]To capture the consequences of fiscal centralization, we focus on the marriage success of daughters and not of the rulers themselves which might have been determined before the institutional reforms. Also, marriages of noble daughters were more directly linked to princely revenues, e.g. through the payment of dowries.

[46]The difference between married and unmarried connectedness will be weakly positive, since a daughter cannot be less connected by adding a link to her network.

[47]To account for limited coverage of the dynasty data, we restrict the sample to secular territories that eventually fiscally centralize. We furthermore exclude all rulers who never had marriage-age daughters.

[48]Coefficients more than eight decades prior to treatment are not centered at zero. Note that the historical reasons for sample imbalance discussed in Section 5.4 are more severe in this data context, since the genealogical information on noble lineages and marriage networks is sparse and less reliable for years pre-1500.

[49]An alternative definition of dynasty connectedness is mean "closeness" to the three closest rulers, defined as the inverse of the number of degrees of separation. No connected rulers implies a closeness of 0, and being married to a ruler implies a closeness of 1. To account for land holdings, we weight closeness values with the number of cities the closest (second-closest, third-closest) ruler reigns over. Results are comparable (Appendix Table D.25 and Figure D.4).

Table 8: Marriage Gains

| | Connectedness Gains | | | |
| | Rulers | | Land Holdings | |
	(1)	(2)	(3)	(4)
Treated	0.289**	0.285*	0.700	0.774
	(0.140)	(0.159)	(0.537)	(0.616)
Treated × Decades Since		-0.00228		0.0402
		(0.0298)		(0.135)
Observations	4,296	4,296	4,296	4,296
R^2	0.31	0.31	0.36	0.36
Territory FEs	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓

Note Table presents results of estimating the analogue to equation (4), considering the logarithm of the marriage success for territory j in year t as an outcome. Observations are at the territory-year level. The sample only includes secular territories that eventually fiscally centralize. The sample comprises 390 years and 29 secular territories. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

features of territories that limit or improve access to our proposed mechanisms: for the case of building military infrastructure, we consider whether the Chamber ordinance explicitly included a construction mandate; for the case of marriage success, we consider whether the ruler had any female offspring.[50]
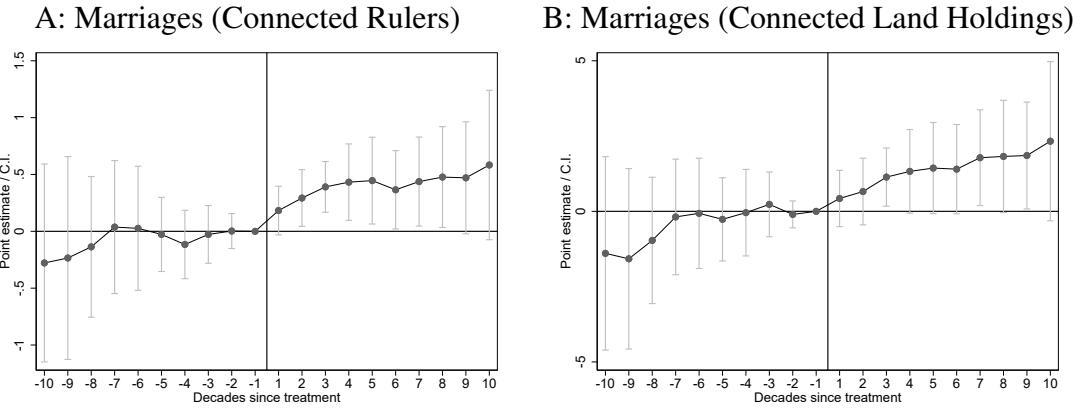
In a mediation exercise, we repeat our main analysis including an interaction term of the treatment with the presence of a feature amplifying the mechanism of interest. Panel A in Table 9 considers the interaction with a construction mandate in the Chamber ordinance, and Panel B considers the presence of daughters.

It is important to note that the statistical power of our analysis is limited given the small number of territories for which the interaction term equals to one. Accordingly, ex-post power calculations yield large minimum detectable effect sizes.[51] Nevertheless, for both mechanisms, the estimated interaction coefficients point in the expected direction as well as

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[50]Specifically, we identify territories where the first ruler who had a Chamber at his disposal throughout the entire reign (i.e. the successor of the ruler who introduced it) had any female offspring.

[51]Drawing on Schochet (2022), we find that a conservatively estimated MDE of the construction mandate interaction for territory size and compactness outcomes, respectively, is 2.07 and 1.89 times that of the baseline MDE, and the MDE for the daughter mechanism interaction 1.28 and 1.17 times the baseline MDE. The methodology cannot be used to output meaningful MDEs in our vanishing sample, due to its hazard structure.

Figure 5: Mechanisms Event Studies (II)

A: Marriages (Connected Rulers) B: Marriages (Connected Land Holdings)

Note The plot shows results of an event study regression of the effect of fiscal centralization on ruler daughters' marriage gains, with 95 percent confidence intervals. Observations are at the territory-year level. The sample comprises 390 years and 29 secular territories. The dependent variables are the logarithm of the marriage success for territory j in year t, defined either (A) as gains in close territorial rulers or (B) ruled cities. Standard errors are clustered at the territory level.

being quantitatively meaningful (in five out of six of cases) and statistically significant in one case.[52]

7 Conclusion

In this paper we trace the early stages of the development of fiscal capacity. We study the Holy Roman Empire from 1400 to 1789, a time and setting that was marked by profound state consolidation that reorganized the political landscape of Europe. Using a novel and extensive dataset, we show that the introduction of Chambers, the first step towards a modern fiscal administration, increased the probability of survival, size, and compactness of territories — three key elements of state consolidation. By introducing a centralized administrative layer that specialized on fiscal problems, territories were able to resolve administrative inefficiencies and increase their revenues. This allowed rulers to invest in the military, making them more successful in conflicts with other territories, and to pursue strategic marriages, forming linkages with other, powerful families. The results of this paper speak to the broader literature on fiscal capacity and state consolidation. One implication of our findings is that specialized institutions, staffed with professional bureaucrats, are fundamental in explaining the rise and consolidation of modern states.

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[52]In Appendix Table D.26, we present results based on data-driven definitions of mechanism access.

Table 9: Mediation Analysis

	Vanishing		Size		Compactness	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Chamber Controls Construction						
Treated	-0.194***	-0.191***	0.225***	0.167**	3.736***	3.350**
	(0.0296)	(0.0301)	(0.0608)	(0.0665)	(1.239)	(1.444)
Treated × Mechanism		-0.0166		0.314**		2.090
		(0.0477)		(0.130)		(2.385)
Panel B: Ruler Has Daughter						
Treated	-0.194***	-0.219***	0.225***	0.157**	3.736***	2.301
	(0.0296)	(0.0312)	(0.0608)	(0.0655)	(1.239)	(1.554)
Treated × Mechanism		0.0574		0.152		3.259
		(0.0350)		(0.121)		(2.340)
Observations	102,825	102,825	102,825	102,825	102,825	102,825
Territory FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓

Note Table presents results of estimating the effect of differential access to Chamber mechanisms on the consolidation outcomes from Section 5. The panels distinguish different exogenous drivers of mechanism access: territories where the first ruler who had a Chamber at his disposal throughout the entire reign (i.e. the successor of the ruler who introduced it) had any female offspring (Panel A), or territories in which the Chamber ordinance explicitly included a construction mandate (Panel B). Observations are at the territory-year level. The sample comprises 390 years and 636 territories. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (columns 1 and 2), the natural logarithm of cities in territory j in year t it rules alone (columns 3 and 4), the compactness measure defined at the level of territories in each year t (column 5 and 6).

While our research has shed light on the outward effects of fiscal centralization on the growth and consolidation of territories, we want to conclude with some considerations on the internal consequences of Chamber adoption. At a critical juncture in the 16th century, this institution tilted the internal power balance increasingly in the favor of territorial rulers, at the expense of early parliaments (Estates). Chambers were ideally situated to play a central role in this internal consolidation of territories. As state finances became increasingly important, so did the financial bureaucracy. At the center of the princely administration — Chambers officials often were the only point of contact between rulers and their subjects — they amassed more competences over the centuries, and grew to become the largest and most important administrative agency in many territories of the Holy Roman Empire.[53] This naturally came at the expense of other institutions, most notably reducing the importance of

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[53]For example, in Bavaria the Chamber soon after its introduction became the largest government office; similarly in Brunswick-Calenberg and the Electoral Palatinate (Jeserich et al., 1983, pp. 582, 754, 568; also pp. 331, 337).

advisory councils (Jeserich et al., 1983, pp. 314, 332, 337, 579).

By virtue of their bureaucratic capacity, over the long run Chambers also assumed an increasing number of fiscal tasks that had been traditionally associated with the Estates (Reuschling, 1984, p. 20).[54] Estatal diets were increasingly relegated to separate, considerably less powerful, committees. Territories growing in size further eroded the power of Estates, as newly acquired territories were put under direct fiscal control of the Chamber. The financial base and hence the importance of Chambers grew steadily, in parallel with the progressive fading of the role of Estates. In terms of the historical "bifurcation" between absolutism and parliamentary control (Cox et al., 2022), the taxation-representation nexus was resolved in favor of absolutist regimes with the fiscal bureaucracy at their center. Empirical studies of other historical trajectories will shed further light on the nexus between bureaucracy, taxation, and state consolidation.

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[54]After the introduction of a Chamber in Ansbach, a committee of the Estates, tasked with fiscal auditing, was dissolved and its tasks transferred to the Chamber with reference to its superior fiscal-bureaucratic capacity (Schaupp, 2004, p. 116); similarly in Bavaria, Hesse, Würzburg, and Albertine Saxony (Jeserich et al., 1983, pp. 589, 824; Krüger, 1980, p. 113; Reuschling, 1984, p. 20; Heß, 1993, p. 22).

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Figure .1: Hessian Administrative Statistics
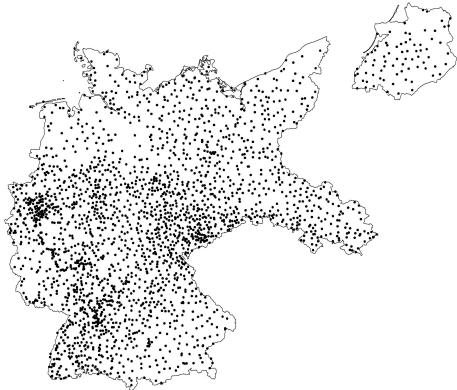
Supplementary Appendix: For Online Publication
A   Data Description

Note Example page of the "Ökonomischer Staat", an administrative statistic compiled for Count Wilhelm IV of Hesse, which was completed in 1585. The source is p. 220. It lists the revenues of local offices, separately for money and natural goods. This page shows the local offices of Allendorf to Helmershausen.

Figure A.2: Locations of Cities
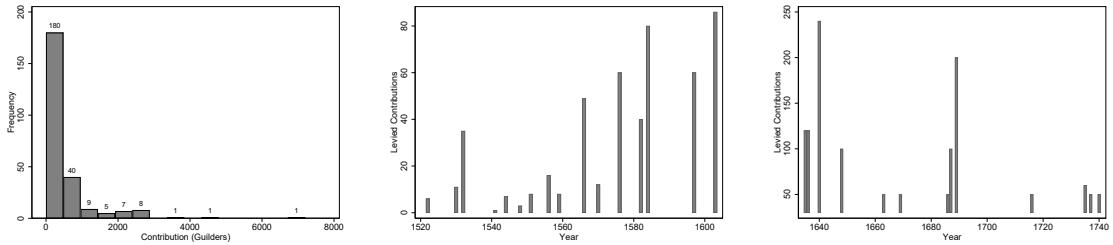
Note The map illustrates the location of each city in our data.

Figure A.3: Territories Over Time
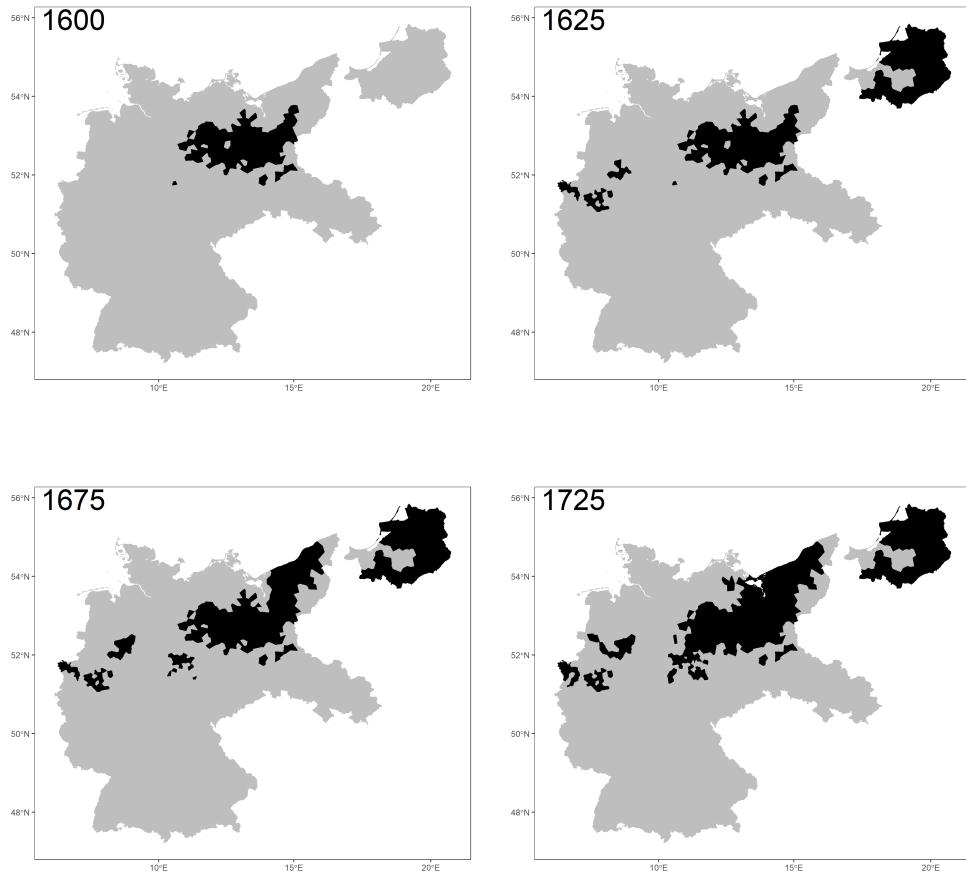
Note The maps show territorial borders for the years 1400, 1500, 1600, 1700, and 1789. To map territories, we aggregate all cities' Thiessen polygons that belong to the same territory in a given year.

Figure A.4: Imperial Tax Contributions

Note The first graph shows the distribution of territories' contributions to one "Roman Month" (128,000 guilders) of Imperial Taxes in the Imperial Register of 1521. The horizontal axis denotes binned contributions, the vertical axis the number of territories in each bin. The second and third graph show the size of contributions in terms of multiples of "Roman Months" levied 1521 to 1618 and 1619 to 1789.

Figure A.5: Brandenburg, 1600-1725

Note The maps show the area governed by the dynasty ruling Brandenburg(-Prussia) between the years 1600 and 1725.

Table A.1: Dates of Fiscal Centralization

Territory	Year	Name	Selected Sources
Prince-Bishopric of Augsburg	1718	Hofkammer	Wüst (1987, p.39)
Margraviate of Baden-Baden	1588	Rentkammer	Carlebach (1906, p. 43)
Margraviate of Baden-Durlach	1578	Rentkammer	Taddey (2000, p. 168)
Prince-Bishopric of Bamberg	1638	Hofkammer	Caspary (1976, p. 47-53)
Duchy of Bavaria	1550	Hofkammer	Spindler (1988, p. 378)
Principality of Bayreuth	1576	Hofkammer	Schaupp (2004, p. 171)
Margraviate of Brandenburg	1577	Amtskammer	Schultze (2004, p. 142-3)
Duchy of Brunswick-Calenberg	1680	Kammer	Jeserich et al. (1983, p. 754)
Duchy of Brunswick-Lüneburg	1616	Kammer	Jeserich et al. (1983, p. 753)
Duchy of Brunswick-Wolfenbüttel	1636	Kammer	Jeserich et al. (1983, p. 752)
Duchy of Cleves-Mark	1557	Rechenkammer	Schottmüller (1896, p. 66)
Electorate of Cologne	1587	Hofkammer	Wüst (1987, p. 37)
Bishopric of Eichstätt	1681	Hofkammer	Braun (1991, p. 94)
Landgraviate of Hesse	1546	Rentkammer	Krüger (1980, p. 53)
Landgraviate of Hesse-Darmstadt	1590	Rentkammer	Jeserich et al. (1983, p. 648)
Landgraviate of Hesse-Marburg	1567	Rentkammer	Jeserich et al. (1983, p. 642)
Duchy of Jülich-Berg	1547	Rechenkammer	Sallmann (1902, p. 8)
Electorate of Mainz	1532	Hofkammer	Wüst (1987, p.37)
Duchy of Mecklenburg-Güstrow	1659	Kammer	Hamann (1965, p. 83)
Duchy of Mecklenburg-Schwerin	1660	Kammer	Hamann (1965, p. 83)
Duchy of Mecklenburg-Strelitz	1701	Kammer	Hamann (1965, p. 99)
Prince-Bishopric of Münster	1573	Rechenkammer	Jakob (1965)
County of Oldenburg	1623	Rentekammer	Ahrens (2003, p. 87)
Prince-Bishopric of Paderborn	1723	Hofkammer	Jeserich et al. (1983, p. 735)
Electoral Palatinate	1557	Rechenkammer	Press (1970, p. 99-100)
Principality of Palatinate-Sulzbach	1615	Hofkammer	Jeserich et al. (1983, p. 573)
County of Reuß-Greiz	1770	Kammer	Heß (1993, p. 51)
Duchy of Saxe-Eisenach	1672	Rentkammer	Heß (1993, p. 33)
Duchy of Saxe-Gotha	1640	Kammer	Heß (1993, p. 35)
Duchy of Saxe-Hildburghausen	1680	Kammer	Jeserich et al. (1983, p. 857)
Duchy of Saxe-Meiningen	1680	Kammer	Heß (1993, p. 42)
Albertine Saxony	1524	Rentkammer	Schirmer (2006, p. 597)
Duchy of Saxe-Weimar	1633	Kammer	Heß (1993, p. 30-31)
County of Schaumburg-Lippe	1728	Rentkammer	Schneider (1983, p. 24)
County of Schwarzburg-Rudolstadt	1707	Kammer	Müller (2012)
Electorate of Trier	1719	Hofkammer	Flach (2021)
County of Waldeck	1696	Rentkammer	Martin and Wetekam (1971, p. 229)
Duchy of Württemberg	1521	Rentkammer	Bernhardt (1971, p. 32-33)
Bishopric of Würzburg	1553	Kammer	Reuschling (1984, p. 232-234)

Note Table shows fiscally centralized territories and dates of fiscal centralization. Full references can be found in the reference section to the Online Appendix.

B Advisory Councils and Estates

B.1 The Nature of Chambers

As detailed in Section 2.3, we propose to see the Chamber as a layer in the bureaucracy of princes that employs "specialized problem solvers", and hence increases the utilization rate of fiscal knowledge. In this section, we discuss other plausible interpretations of the Chamber, providing evidence that they are not predominantly at play in the historical context we study.

Limiting corruption of high-ranking officials was not the primary reason to choose a collegial organization of Chambers. Instead, this structure was recommended so that Chamber officials could balance tasks and have a "more complete knowledge of the fiscal proceedings" (Jeserich et al., 1983, p. 336), consistent with the notion that knowledge is the central aspect of Chambers. While Chamber officials were compensated well, their salaries were not extraordinarily high, ranking 6th in personnel expenses in Hesse in the 1570s.[1]

Similarly, Chambers were not primarily trying to limit corruption of local administrators — centralized bookkeeping was also in the interest of local officials, who now had more legal security in the case of an audit (Jeserich et al., 1983, p. 138). In this sense, the introduction of Chambers had some features of a "Coasian bargain", although it was not the factor that initiated it.

Neither was the Chamber primarily an instrument to discipline princely expenses. The success of interventions in this sense[2] is unclear, and the literature generally agrees that a collegial Chamber did not substantially curtail the discretionary spending power of the prince (Reuschling, 1984, p. 115). In Hesse, Chamber officials attempted to discipline princely spending, but unpredictable ruler spending continued to preclude the introduction of budget planning (Zimmermann, 1933, p. 109). In Württemberg, expenses labelled "at my merciful prince and lord's behest" constituted an irregular and large part of overall expenses (Bütterlin, 1977, p. 4). Somewhat tellingly, Veit Ludwig von Senckendorff's "The German Principality" (1655), a handbook for rulers, mentioned that princes cannot be blamed if "they, to refresh themselves in the light of cumbersome governing work, use some of the Chamber funds on princely delights and practices".

B.2 Advisory Councils

In the late 15th century, collegially organized advisory councils to the prince (*Hofräte*) began to appear. Their mandate related more to the legal than the financial realm. Some territories,

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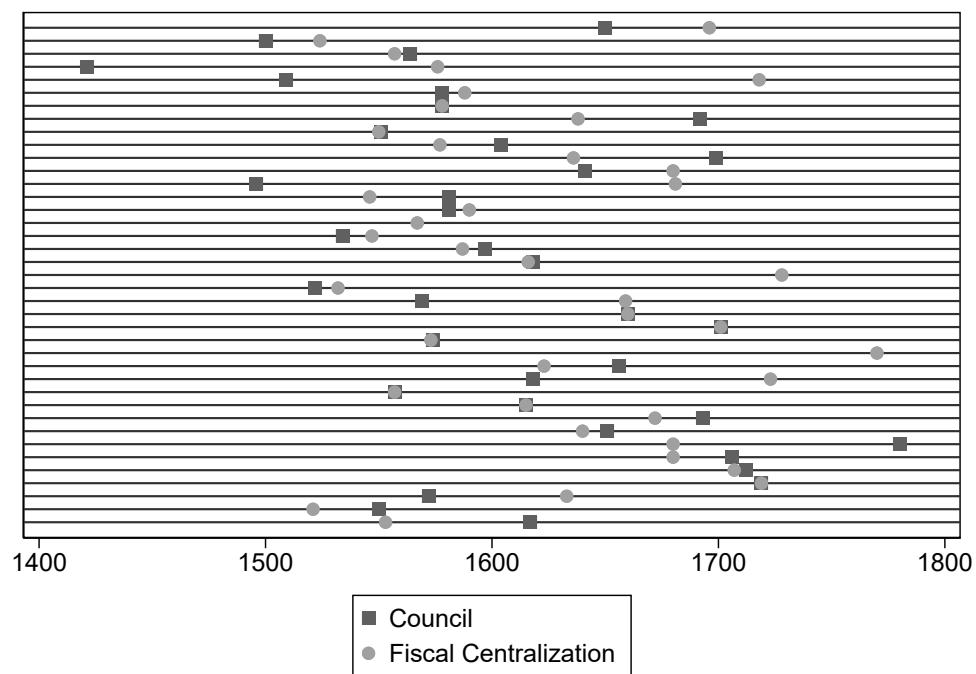
[1] The Chamber master was paid 150 fl., less than other high-ranking administration officials such as the governor (*Stathalter*), chancellor, or vice-chancellor, whose salaries ranged from 160 to 200 fl. (Zimmermann, 1933, p. 158).

[2] E.g., in the case of Bavaria, where duke Albrecht V committed to run all his expenses by the Chamber (Jeserich et al., 1983, p. 581).

like Brandenburg, never introduced a Hofrat. We hence also collect data on privy councils (*Geheime Räte*), which were devised later and had a similar function.

Appendix Figure B.1 shows the timing of the introduction of a collegial council relative to the introduction of a Chamber. There is no visible correlation between these events, confirming our reading of the historical literature. Moreover, in the (intensive margin) regressions in Appendix Tables D.10 and D.11, we directly control for the presence of councils. The main coefficient for fiscal centralization remains unaffected, and we find no direct effects of councils on our outcomes of interest.

Figure B.1: Introduction of Councils and Fiscal Centralization
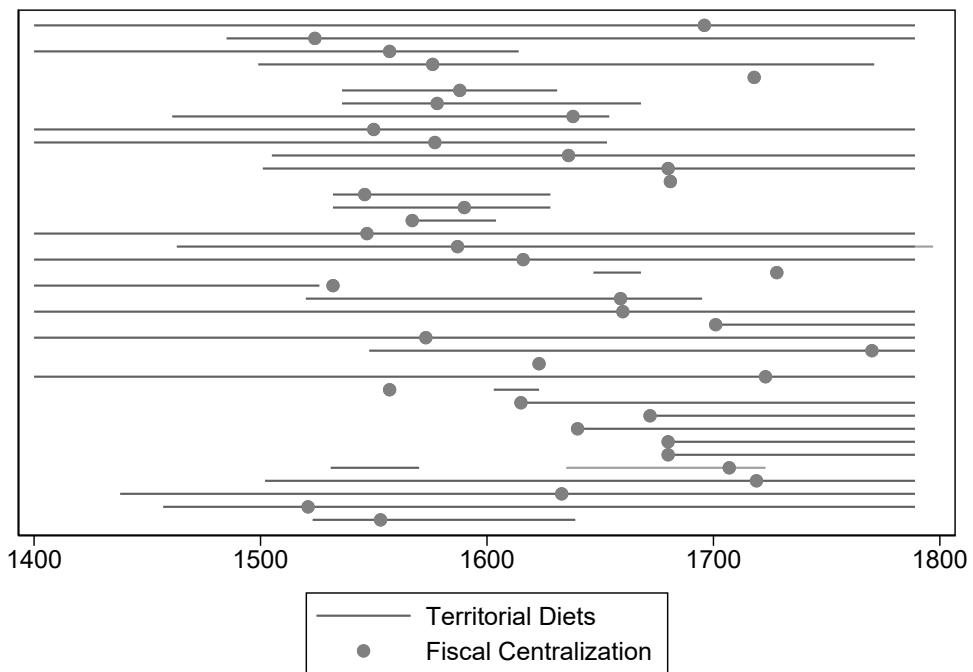
Note The figure shows the first introduction of collegial councils, and the timing of the adoption of Chambers across all territories that ever had a council or a Chamber.

B.2

B.3 Estates

Estates in the territories of the Empire gained in importance during the 15th century. They controlled extraordinary and large taxation requests, but were ultimately sidelined in favor of the princely Chambers, which controlled increasingly broad revenue streams. In Section 2, we present historical evidence that Chambers did not form part of the coordination between local nobility, clergy, and towns, but instead were closely tied to the sovereign's finances.[3]

Appendix Figure B.2 shows the timing of the introduction of a Chamber relative to the time periods during which Estates were in existence. There is no correlation between these events, confirming our reading of the historical literature. Moreover, in the (intensive margin) regressions in Appendix Tables D.10 and D.11, we directly control for the presence of Estates. The main coefficient for fiscal centralization remains largely unaffected, and we find no direct effects of Estates on our outcomes of interest.

Figure B.2: Activity of Estates and Fiscal Centralization

Note The figure shows the time period during which Estates were active, for all territories that ever fiscally centralize. Dots indicate the timing of the introduction of a Chamber.

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[3]Although increasingly sidelined from financial matters, for most territories Estates remained important pillars along other dimensions: They helped arbitrate inheritance disputes within noble lineages, and ensured ruler continuity in the case of underage rulers (Bütterlin, 1977, p. 29).

Table B.1: Dates of Council Adoption

Territory	Year	Name	Selected Sources
Prince-Bishopric of Augsburg	1509	Hofrat	Söhner (2021)
Margraviate of Baden-Baden	1578	Hofrat	Jeserich et al. (1983, p. 308)
Margraviate of Baden-Durlach	1578	Hofrat	Jeserich et al. (1983, p. 309)
Prince-Bishopric of Bamberg	1692	Geheimer Rat	Weiß (2010)
Duchy of Bavaria	1551	Hofrat	Jeserich et al. (1983, p. 309)
Principality of Bayreuth	1421	Hofrat	Winkler (1999, p. 198)
Margraviate of Brandenburg	1604	Geheimer Rat	Jeserich et al. (1983, p. 309)
Duchy of Brunswick-Calenberg	1641	Geheimer Rat	Jeserich et al. (1983, p. 320)
Duchy of Brunswick-Lüneburg	1618	Hofrat	Ohe (1955, p. 45)
Duchy of Brunswick-Wolfenbüttel	1699	Geheimer Rat	Jeserich et al. (1983, p. 309)
Duchy of Cleves-Mark	1564	Hofrat	Jeserich et al. (1983, p. 309)
Electorate of Cologne	1597	Hofrat	Jeserich et al. (1983, p. 309)
Bishopric of Eichstätt	1496	Hofrat	Heidingsfelder (1911, p. 43)
Landgraviate of Hesse	1581	Hofrat	Jeserich et al. (1983, p. 309)
Landgraviate of Hesse-Darmstadt	1581	Hofrat	Jeserich et al. (1983, p. 309)
Landgraviate of Hesse-Marburg		–	Jeserich et al. (1983, p. 309)
Duchy of Jülich-Berg	1534	Hofrat	Jeserich et al. (1983, p. 320)
Electorate of Mainz	1522	Hofrat	Jeserich et al. (1983, p. 320)
Duchy of Mecklenburg-Güstrow	1569	Hofrat	Jeserich et al. (1983, p. 309)
Duchy of Mecklenburg-Schwerin	1660	Geheimer Rat	Jeserich et al. (1983, p. 309)
Duchy of Mecklenburg-Strelitz	1701	Geheimer Rat	Hamann (1965, p. 99)
Prince-Bishopric of Münster	1574	Hofrat	Press (1970, p. 38)
County of Oldenburg	1656	Geheimer Rat	Jeserich et al. (1983, p. 792)
Prince-Bishopric of Paderborn	1618	Hofrat	Jeserich et al. (1983, p. 735)
Electoral Palatinate	1557	Hofrat	Jeserich et al. (1983, p. 736)
Principality of Palatinate-Sulzbach	1615	Hofrat	Rösel (2010)
County of Reuß-Greiz		–	Willoweit (1982)
Duchy of Saxe-Eisenach	1693	Geheimer Rat	Jeserich et al. (1983, p. 771)
Duchy of Saxe-Gotha	1651	Geheimer Rat	Schwebel (1944)
Duchy of Saxe-Hildburghausen	1780	Geheimer Rat	Jeserich et al. (1983, p. 309)
Duchy of Saxe-Meiningen	1706	Geheimer Rat	Jeserich et al. (1983, p. 853)
Duchy of Saxe-Weimar	1572	Hofrat	Jeserich et al. (1983, p. 854)
Albertine Saxony	1500	Hofrat	Jeserich et al. (1983, p. 854)
County of Schaumburg-Lippe		–	Wahl (1938)
County of Schwarzburg-Rudolstadt	1712	Geheimer Rat	Heß (1993, p. 23)
Electorate of Trier	1719	Hofrat	Schnelling (1991, p. 14)
County of Waldeck	1650	Samtrat	Willoweit (1982)
Duchy of Württemberg	1550	Hofrat	Heß (1993, p. 23)
Bishopric of Würzburg	1617	Geheimer Rat	Heß (1993, p. 23)

Note Table shows dates of the introduction of the first collegial councils. Full references can be found in the reference section to the Online Appendix.

Table B.2: Presence of Estates

Territory	Years	Selected Sources
Prince-Bishopric of Augsburg	–	Lanzinner (2011)
Margraviate of Baden-Baden	1536–1631	Gut (1970, p. 355)
Margraviate of Baden-Durlach	1536–1668	Gut (1970, p. 379)
Prince-Bishopric of Bamberg	1461–1654	Staudenmaier (2014)
Duchy of Bavaria	1302–1803	Folz (1974, p. 197)
Principality of Bayreuth	1499–1771	Schaupp and Schnupp (2017)
Margraviate of Brandenburg	1345–1653	Sieg (2003, p. 128)
Duchy of Brunswick-Calenberg	1501–1803	Wieden (2004, p. 280)
Duchy of Brunswick-Lüneburg	1392–1807	Wieden (2004, p. 359)
Duchy of Brunswick-Wolfenbüttel	1505–1801	Wieden (2004, p. 414)
Duchy of Cleves-Mark	1347–1614	Schulze (1907, p. 18-20)
Electorate of Cologne	1463–1794; 1797–1803	Ruppert (1972, p. 57)
Bishopric of Eichstätt	–	Lanzinner (2011)
Landgraviate of Hesse	1532–1628	Siebeck (1914, p. 1)
Landgraviate of Hesse-Darmstadt	1532–1628	Siebeck (1914, p. 1)
Landgraviate of Hesse-Marburg	1567–1604	Siebeck (1914, p. 53-54)
Duchy of Jülich-Berg	1347–1802	Below (1885, p. 18)
Electorate of Mainz	1346–1526	Fischer (2010)
Duchy of Mecklenburg-Güstrow	1520–1695	Folz (1974, p. 197)
Duchy of Mecklenburg-Schwerin	1279–1918	Folz (1974, p. 197)
Duchy of Mecklenburg-Strelitz	1701–1918	Folz (1974, p. 197)
Prince-Bishopric of Münster	1278–1802	Schmitz-Kallenberg (1936, p. 34-35)
County of Oldenburg	–	Oldenburgische Landschaft (2014, p. 80)
Prince-Bishopric of Paderborn	1326–1802	Jacobs (1937, p. 46)
Electoral Palatinate	1603–1623	Gothein (1888, p. 39-41)
Principality of Palatinate-Sulzbach	1615–1808	Rösel (2010)
County of Reuß-Greiz	1548–1867	Espig (2008, p. 265)
Duchy of Saxe-Eisenach	1674–1809	Schirmer (2008, p. 61-64)
Duchy of Saxe-Gotha	1640–1810	Stievermann (2008)
Duchy of Saxe-Hildburghausen	1680–1807	Witter (2008, p. 253-258)
Duchy of Saxe-Meiningen	1680–1789	Witter (2008, p. 239-241)
Albertine Saxony	1485–1831	Sächsischer Landtag (2021)
Duchy of Saxe-Weimar	1438–1831	Sächsischer Landtag (2021)
County of Schaumburg-Lippe	1647–1668	Stieglitz (2004, p. 391-404)
County of Schwarzburg-Rudolstadt	1531–1570; 1635–1723	Herz (1997, p. 13-15)
Electorate of Trier	1502–1801	Dillinger (2009)
County of Waldeck	1400–1789	Martin and Wetekam (1971)
Duchy of Württemberg	1457–1805	Baden-Württemberg (2008)
Bishopric of Würzburg	1523–1639	Neumaier (2010)

Note Table shows fiscally centralized territories and years of Estate activity. If 1789 is given as the end date, Estates existed until at least the year 1789 (similarly for 1400 as start date).

C Chamber Framework

In the following, we present a formal model of the decision to introduce a Chamber, based on the historical narrative from Section 2. Due to narrow foresight and limited knowledge about future costs and benefits of Chambers, the decision is static. Rulers aim to maximize spending R. They have demesnes of size D and are facing a fiscal demand shock of size T, for example through the holding of court. Handling revenues is complex — hence, the ruler can only utilize a fraction $(1-\rho)D$ of the demesnes, and he needs to spend $(1+\rho)T$ out of the demesnes to absorb the fiscal shock, where $\rho \in [0,1]$ is the baseline fiscal inefficiency of the princely administration.[1] In accordance with the historical evidence, the level of efficiency loss scales with the size of the demesnes and the fiscal shock. Hence, the ruler can spend

$$(1-\rho)D - (1+\rho)T = R.$$

Consulting the Estates is necessary if the territory is facing existential financial crises, but it does not provide revenue to the ruler above this purpose.[2] A ruler can institute a Chamber C, adding a layer to the princely administration that specializes on fiscal tasks. This reduces the fiscal inefficiency by a factor of $\mu_C \in [0,1]$: $\rho_C = \rho(1-\mu_C)$. Demesnes are fully exploited ($\rho_C = 0$) if $\mu_C = 1$. There are fixed costs P_C associated with the introduction of a Chamber. The Emperor levies Imperial taxes IT, with the territorial lords acting as mediators. Territorial lords will not agree to acting as mediators if they are financially harmed by levying the tax. On the other hand, the Emperor, the Imperial diet, and the Estates will tightly monitor compliance and bar arbitrary taxation under the guise of the Imperial tax. Hence, the ruler can credibly ask $IT(1+\rho)$ from his tax base, which is the amount necessary to entirely cover the Imperial tax, with which he needs to comply, in the absence of a Chamber.

The full spending maximization problem hence is

$$(1-\rho(1-\mu_C C))D - (1+\rho(1-\mu_C C))T - (1+\rho(1-\mu_C C))IT + (1+\rho)IT - P_C C = R,$$

where C is an indicator whether a ruler has instituted a Chamber. This expression simplifies to

$$(D-T) - (D+T)\rho + (D+T+IT)\rho\mu_C C - P_C C = R.$$

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[1] We assume here that the inefficiency of spending and raising revenue is the same to keep the number of parameters low.

[2] To finance extraordinary expenses, a ruler can petition the Estates for taxes. However, these are tightly earmarked: both levying and spending takes place outside the ruler's fiscal bureaucracy. Hence, the budget constraint becomes

$$(1-\rho)D - (1+\rho)T + E = R + E,$$

with E the size of the Estate tax.

The first term describes the size of net demesnes (after taking into account the spending shock), absent efficiency considerations. The second term is the efficiency loss on net demesenes. The third term is the gain in efficiency from introducing a Chamber. Chamber adoption is then determined by the threshold rule

$$(D + T + IT)\rho\mu_C > P_C .$$

The likelihood of Chamber adoption increases with the size of the princely demesnes, the size of the fiscal demand shock, the size of the Imperial tax levy, the baseline inefficiency of revenue collection, and the efficiency gain resulting from the Chamber; it decreases with the cost of Chamber adoption. Furthermore, princely revenues increase with Imperial tax levies if there is a Chamber, and are not affected if there is no Chamber.

Since Chambers are permanent, a Chamber is present in a territory at time t according to the following equation:

$$C_t \equiv \max\left\{ \mathbb{1}\left[(D_\tau + T_\tau + IT_\tau)\rho_\tau\mu_{C_\tau} > P_{C_\tau}\right]\right\}_{\tau=\underline{t}}^{t} .$$

From the historical evidence, we expect fiscal demand shocks T and IT to be the main dynamic (intensive margin) drivers of Chamber adoption, in line with anecdotes of overwhelmedness of bureaucracies. We expect ρ_τ, μ_{C_τ}, and P_{C_τ} to be relatively time-invariant, with the fixed costs of adopting a Chamber mainly governing the extensive margin of whether a territory ever adopts a Chamber.

C.2

D Robustness

D.1 Alternative Estimation Specification

Table D.1: Predicting Fiscal Centralization, Alternative Specifications

	Fiscal Centralization					
	(1)	(2)	(3)	(4)	(5)	(6)
Ruggedness	-0.000748	0.453	-0.0868	-0.0355	-0.209	-0.0211
	(0.108)	(1.058)	(0.0679)	(0.0432)	(0.132)	(0.0467)
Distance to Water	0.0263*	0.302*	0.0105	0.000242	-0.0102	-0.00628
	(0.0154)	(0.172)	(0.00672)	(0.00965)	(0.00922)	(0.0141)
Agricultural Suitability	0.0968	-0.835	0.132	-0.000103	0.319	-0.0747
	(0.163)	(0.992)	(0.124)	(0.0787)	(0.246)	(0.0547)
Mining	8.840	3.553	-1.317	-0.790	0.105	9.786
	(7.221)	(3.081)	(1.215)	(6.709)	(0.975)	(10.25)
Secondary Rulers	-0.125	-0.261	-0.149	-0.303	0.172	0.169
	(0.243)	(0.635)	(0.172)	(0.458)	(0.497)	(1.277)
Hanse Cities	0.0278	0.195	-0.763	0.332	-0.256	1.015
	(0.761)	(1.224)	(1.053)	(0.736)	(1.245)	(1.164)
Charter Cities	-0.121	-0.186	-0.351	0.378	0.222	0.828
	(0.193)	(0.275)	(0.507)	(0.788)	(0.765)	(0.811)
Markets, past decade	0.0419	0.252	0.187*	0.126*	0.212	0.130
	(0.0803)	(0.422)	(0.113)	(0.0702)	(0.148)	(0.0999)
Construction, past decade	0.0403	0.194	-0.160*	-0.247***	-0.231*	-0.396***
	(0.0451)	(0.219)	(0.0905)	(0.0876)	(0.121)	(0.144)
Cities	0.147	0.0834	0.105	0.546	0.403	0.222
	(0.182)	(0.648)	(0.619)	(1.409)	(0.976)	(2.350)
Attacks, past decade	0.0426	0.892	0.208	0.0941*	0.355	0.182***
	(0.0980)	(0.604)	(0.178)	(0.0548)	(0.298)	(0.0454)
Neighb. Mil. Constr., past decade	-0.103	-0.583	-0.425	-0.728	-0.288	-0.400
	(0.0648)	(0.549)	(0.277)	(0.578)	(0.309)	(0.505)
Centralized Neighbors	-0.795***	0.760*	-0.219	0.0483	-0.215	0.192
	(0.196)	(0.392)	(0.548)	(0.721)	(0.612)	(0.803)
Contribution (share) × ln Roman Months	0.849***	0.854***	0.371**	0.320***	0.292**	0.362**
	(0.238)	(0.237)	(0.149)	(0.0731)	(0.130)	(0.149)
Observations	10,449	10,449	10,143	10,143	7,828	7,828
Model	OLS	OLS	OLS	Cox	OLS	Cox
Territories	all	all (sums)	all (fd)	all (fd)	1500 (fd)	1500 (fd)
R^2	0.140	0.144	0.0643		0.0736	
Baseline Controls			✓		✓	
Territory FEs	✓	✓				
Decade FEs	✓	✓	✓		✓	

Note Table presents results of estimating equation (1) in different specifications. Observations are at the territory-decade level. The sample comprises 39 decades and 636 territories. The dependent variable is a binary indicator reflecting the decade of introduction of the Chamber in a territory. We omit the territory from our sample thereafter, reflecting the absorbing state of this treatment. "Baseline Controls" indicates controls for the initial level of the independent variables, measured in 1500 or at the earliest available time period (for territories that start to exist after 1500). In column 1, we divide predictors (excluding the number of cities and the Imperial tax) by the number of cities in a territory. In column 2, we include all predictors as (log) sums at the territory level. In columns 3–6, we consider the first differences of all predictor variables. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table D.2: Alternative Standard Errors

	Territory	Imperial Circle	Conley (100km)	Conley (200km)	Conley (400km)
Vanishing					
Treated	0.025 (***)	0.041 (***)	0.028 (***)	0.036 (***)	0.011 (***)
Treated × Decades Since	0.002 (***)	0.002 (***)	0.002 (***)	0.002 (***)	0.002 (***)
Size					
Treated	0.048	0.054	0.052	0.052	0.053
Treated × Decades Since	0.005 (***)	0.006 (***)	0.004 (***)	0.006 (***)	0.005 (***)
Compactness (Terr.)					
Treated	0.9	0.9	1.06	0.71 (**)	0.46 (***)
Treated × Decades Since	0.1 (***)	0.1 (**)	0.06 (***)	0.09 (***)	0.06 (***)
Compactness (Cities)					
Treated	1.0	0.8	1.0	0.9	0.5 (**)
Treated × Decades Since	0.1 (***)	0.2 (**)	0.1 (***)	0.1 (***)	0.1 (***)
Pawns					
Treated	0.7 (*)	0.41 (***)	0.25 (***)	0.008 (***)	0.02 (***)
Treated × Decades Since	0.1	0.06	0.04	0.064	0.06
Marriages (Rulers)					
Treated	0.16 (*)	0.14 (**)	0.16 (*)	0.13 (**)	0.14 (**)
Treated × Decades Since	0.03	0.03	0.03	0.03	0.03
Marriages (Cities)					
Treated	0.6	0.5 (*)	0.6	0.4 (**)	0.4 (*)
Treated × Decades Since	0.1	0.1	0.1	0.1	0.1
Military					
Treated	0.015 (**)	0.013 (***)	0.013 (***)	0.006 (***)	2e-04 (***)
Treated × Decades Since	0.001	0.001	0.001	0.001	8e-04

Note Table presents standard errors of estimating the effect of fiscal centralization on outcomes and mechanisms from Sections 5 and 6 in their baseline specifications. The columns show results for standard errors clustered at the territory level (1), the Imperial Circle level (2), and Conley standard errors with a bandwidth of 100km (3), 200km (4), and 400km (5). Observations are at the territory-year level (for vanishing, size, compactness (terr.)), at the city-year level (for compactness (cities), pawns, and military), and at the secular territory-year level (for marriages). The sample comprises 390 years and 636 territories (2,382 cities and 29 secular territories). The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t, the natural logarithm of cities in territory j in year t it rules alone, the compactness measure defined at the level of territories or cities in each year t, a binary variable considering whether city i was pawned to a territory $j' \neq j$ in year t, the number of military construction events in city i in territory j in year t, the marriage success for territory j, as measured by the number of connected rulers or cities in each year t. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table D.3: Territorial Survival: Probability of Vanishing, Only Year FEs

	Conflict and Conquest		Vanishing Purchase		Extinction	
	(1)	(2)	(3)	(4)	(5)	(6)
Treated	-0.127***	-0.147***	-0.0486***	-0.0430***	-0.0404	-0.0509
	(0.0167)	(0.0196)	(0.0107)	(0.0105)	(0.0650)	(0.110)
Treated × Decades Since		0.00229*		-0.000637		0.00119
		(0.00131)		(0.00112)		(0.00901)
Observations	102,825	102,825	102,825	102,825	102,825	102,825
R^2	0.01	0.01	0.00	0.00	0.00	0.00
Mean dep. var	0.13	0.13	0.06	0.06	0.21	0.21
Year FEs	✓	✓	✓	✓	✓	✓

Note Table presents results of estimating equation (2), including only year fixed effects. Observations are at the territory-year level. The sample comprises 390 years and 636 territories. The dependent variable is an indicator that reflects whether a territory j vanishes in year t. We omit the territory from our sample thereafter, reflecting the absorbing state of this treatment. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table D.4: Territorial Survival: Probability of Vanishing, Territories in 1500

	Conflict and Conquest		Vanishing Purchase		Extinction	
	(1)	(2)	(3)	(4)	(5)	(6)
Treated	-0.102***	-0.147***	-0.0359***	-0.0297**	0.0382	0.130
	(0.0170)	(0.0271)	(0.0109)	(0.0122)	(0.0841)	(0.144)
Treated × Decades Since		0.00455***		-0.000629		-0.00932
		(0.00151)		(0.00134)		(0.00707)
Observations	78,250	78,250	78,250	78,250	78,250	78,250
R^2	0.01	0.01	0.01	0.01	0.01	0.01
Mean dep. var	0.07	0.07	0.03	0.03	0.1	0.1
Year FEs	✓	✓	✓	✓	✓	✓

Note Table presents results of estimating equation (2), including only year fixed effects and for the subset of territories that exist in 1500. Observations are at the territory-year level. The sample comprises 390 years and 636 territories. The dependent variable is an indicator that reflects whether a territory j vanishes in year t. We omit the territory from our sample thereafter, reflecting the absorbing state of this treatment. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

D.2 Illustration of Lineage Coding

We consider the exemplary case of Brandenburg (later Brandenburg-Prussia) to illustrate the frequently encountered conceptual impossibility of tracing territories far into the 15th century.

In our data, the Hohenzollern-Brandenburg lineage comes into existence in 1486, 91 years before it introduces a Chamber in 1577.
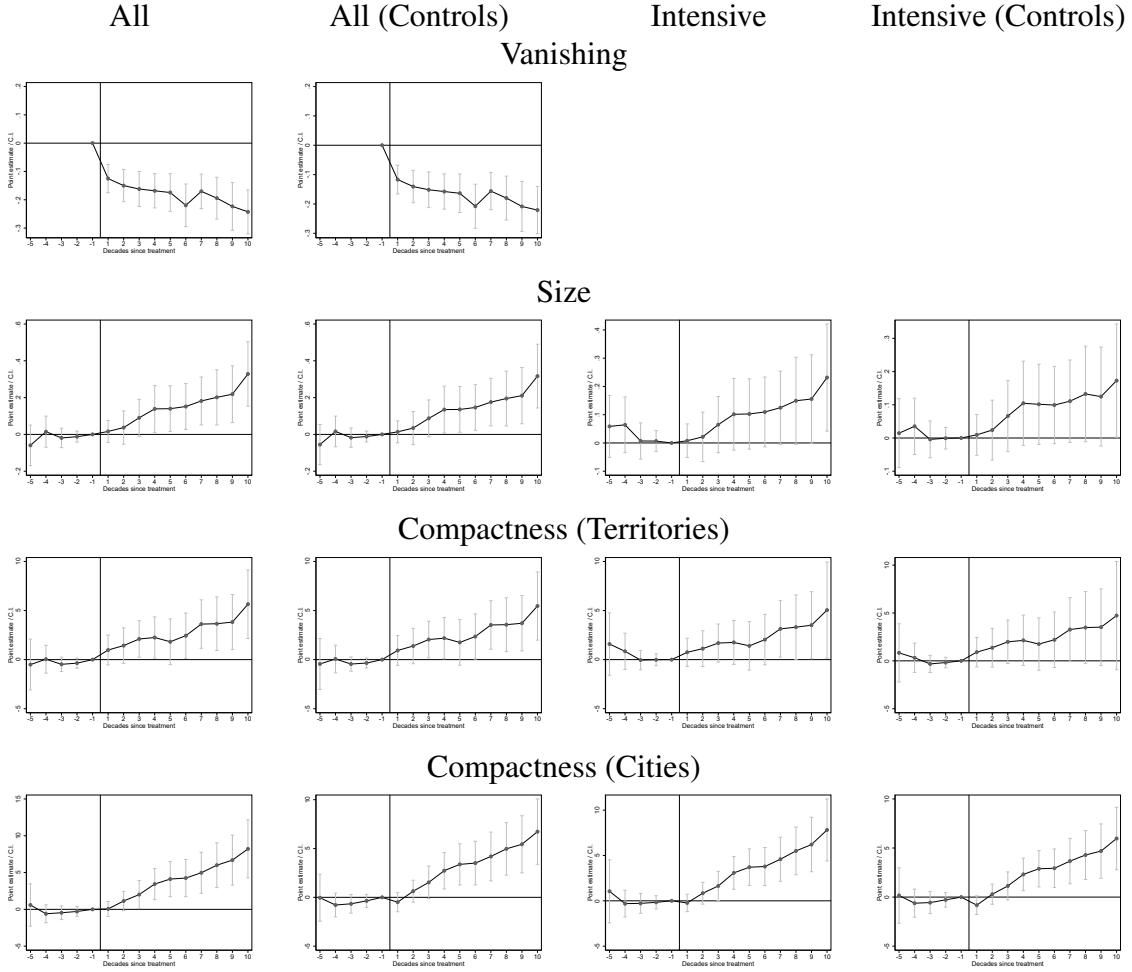
This lineage is the result of a three-way split of the inheritance of Albrecht Achilles among three brothers: his lands in Franconia were split into the territories of Ansbach and Kulmbach (where Ansbach, the historical seat of the lineage, constituted the main inheritance part), and into Brandenburg, ruled by Johann Cicero. Previously, Margrave Frederick of Ansbach had been awarded Brandenburg in 1417, split the inheritance three-way in 1440, but the split had been short-lived, since Johann, who had been granted Kulmbach, died in 1464, and Frederick II., who had been granted Brandenburg, had died in 1471, so Albrecht Achilles, the brother who had been awarded Ansbach, jointly ruled the three parts until his death.

In our data, we hence record a short-lived Hohenzollern-Brandenburg lineage, ruled by Frederick II. and going extinct with his heirless death, and then the Hohenzollern-Brandenburg lineage of Johann Cicero, starting in 1486.

Note that this will add considerable selection to our event study estimates in the "long" pre-period window: Hohenzollern-Brandenburg is not observed more than 9 decades prior to the treatment. At the same time, the Margravian lineage, which combines Kulmbach, Ansbach, and Brandenburg at times, but is broken up in 1486 and never treated, will enter the estimation through year fixed effects for other eventually-treated territories that existed in the first half of the 15th century, thus pulling their coefficient for far-back pre-periods down. Similar feudal remnants of briefly large, loosely governing lineages that are broken up in the 15th century and are no clear predecessors for the states that followed them existed in the area of Saxony, Bavaria, and Lower Saxony.

D.3 Intensive Margin and Controls

Figure D.1: Territorial Consolidation, Intensive Margin and Controls

Note Figure shows the equivalent of Figures 1 and 2 in the first column. Second column shows results from including controls in the estimation. Third column shows results from only considering territories that ever fiscally centralize. Fourth column shows results for the intensive margin, including controls. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (first row), the natural logarithm of cities in territory j in year t it rules alone (second row), the compactness measure defined either at the level of territories j (third row) or of cities i (fourth row), in each year t. Controls are an indicator for whether there were any attacks to the territory (city) in the past decade, an indicator of neighboring military construction activity in the past decade, an indicator of any fiscally centralized neighbors, and an indicator of the presence and activity of Estates (where applicable).

Table D.5: Territory Size, Intensive Margin

	Single Ruler		Uncontested		All	
	(1)	(2)	(3)	(4)	(5)	(6)
Treated	0.0167	0.0140	-0.00555	-0.00801	0.00435	0.00220
	(0.0459)	(0.0445)	(0.0418)	(0.0401)	(0.0420)	(0.0405)
Treated × Decades Since		0.0220***		0.0200***		0.0174**
		(0.00679)		(0.00660)		(0.00645)
Observations	9,241	9,241	9,241	9,241	9,241	9,241
R^2	0.95	0.95	0.96	0.96	0.96	0.96
Territory FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓

Note Table shows the equivalent of Table 3, including only intensive-margin territories into the analysis. The sample comprises 390 years and 39 territories. The dependent variable is the natural logarithm of cities in territory j in year t.

Table D.6: Territorial Compactness, Intensive Margin

	Domestic Border			
	Territories		Cities	
	(1)	(2)	(3)	(4)
Treated	0.529	0.480	1.358	0.449
	(1.060)	(1.008)	(1.029)	(0.996)
Treated × Decades Since		0.400*		0.461**
		(0.218)		(0.180)
Observations	9,241	9,241	662,808	662,808
R^2	0.92	0.93	0.85	0.85
City FEs			✓	✓
Territory FEs	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓

Note Table shows the equivalent of Table 4, including only intensive-margin territories into the analysis. The sample comprises 390 years and 39 territories (1,938 cities). The dependent variable is the compactness measure defined either at the level of territories j (columns 1 and 2) or of cities i (columns 3 and 4), in each year t.

Table D.7: Territorial Survival: Probability of Vanishing (Controls)

	Conflict and Conquest		Vanishing Purchase		Extinction	
	(1)	(2)	(3)	(4)	(5)	(6)
Treated	-0.136***	-0.108***	-0.0432***	-0.0194*	0.0653	0.0680
	(0.0248)	(0.0217)	(0.0147)	(0.00994)	(0.125)	(0.140)
Treated × Decades Since		-0.00366**		-0.00314*		-0.000360
		(0.00180)		(0.00183)		(0.00929)
Observations	102,825	102,825	102,825	102,825	102,825	102,825
R^2	0.07	0.07	0.08	0.08	0.03	0.03
Mean dep. var	0.13	0.13	0.06	0.06	0.21	0.21
Controls	✓	✓	✓	✓	✓	✓
Territory_FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓

Note Table shows the equivalent of Table 2, including controls into the analysis. The sample comprises 390 years and 636 territories. The dependent variable is a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t. Controls are an indicator for whether there were any attacks to the territory in the past decade, an indicator of neighboring military construction activity in the past decade, and an indicator of any fiscally centralized neighbors.

Table D.8: Territory Size (Controls)

	Single Ruler		Uncontested		All	
	(1)	(2)	(3)	(4)	(5)	(6)
Treated	0.214***	0.0649	0.167***	0.0248	0.155***	0.0357
	(0.0598)	(0.0481)	(0.0483)	(0.0387)	(0.0491)	(0.0373)
Treated × Decades Since		0.0197***		0.0187***		0.0158***
		(0.00466)		(0.00498)		(0.00459)
Observations	102,825	102,825	102,825	102,825	102,825	102,825
R^2	0.95	0.95	0.95	0.95	0.95	0.95
Controls	✓	✓	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓

Note Table shows the equivalent of Table 3, including controls into the analysis. The sample comprises 390 years and 636 territories. The dependent variable is the natural logarithm of cities in territory j in year t. Controls are an indicator for whether there were any attacks to the territory in the past decade, an indicator of neighboring military construction activity in the past decade, and an indicator of any fiscally centralized neighbors.

Table D.9: Territorial Compactness (Controls)

| | Domestic Border | | | |
| | Territories | | Cities | |
	(1)	(2)	(3)	(4)
Treated	3.566***	1.379	2.679***	1.049
	(1.239)	(0.946)	(0.943)	(0.914)
Treated × Decades Since		0.289***		0.332***
		(0.104)		(0.120)
Observations	102,825	102,825	826,298	826,298
R^2	0.94	0.94	0.88	0.88
Controls	✓	✓	✓	✓
City FEs			✓	✓
Territory FEs	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓

Note Table shows the equivalent of Table 4 with controls. The sample comprises 390 years and 636 territories (2,382 cities). The dependent variable is the compactness measure at the level of territories j (columns 1 and 2) or of cities i (columns 3 and 4), in each year t. Controls are indicators for whether there were any attacks to the territory (city) in the past decade, for neighboring military construction activity in the past decade, and for any fiscally centralized neighbors.

Table D.10: Territory Size, Intensive Margin (Controls)

	Single Ruler		Uncontested		All	
	(1)	(2)	(3)	(4)	(5)	(6)
Treated	0.0378	0.0379	0.0255	0.0255	0.0302	0.0303
	(0.0449)	(0.0449)	(0.0417)	(0.0411)	(0.0420)	(0.0415)
Council	-0.0375	-0.0445	-0.0615	-0.0672	-0.0463	-0.0511
	(0.0559)	(0.0550)	(0.0535)	(0.0529)	(0.0544)	(0.0538)
Estates	-0.113	-0.0856	-0.0976	-0.0755	-0.0736	-0.0550
	(0.0765)	(0.0776)	(0.0666)	(0.0680)	(0.0670)	(0.0681)
Treated $\times$ Decades Since		0.0155***		0.0127**		0.0107*
		(0.00531)		(0.00582)		(0.00536)
Observations	9,241	9,241	9,241	9,241	9,241	9,241
R^2	0.95	0.96	0.97	0.97	0.96	0.97
Controls	✓	✓	✓	✓	✓	✓
Territory FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓

Note Table shows the equivalent of Table 3, including only intensive-margin territories into the analysis, and including controls. The sample comprises 390 years and 39 territories. The dependent variable is the natural logarithm of cities in territory j in year t. Controls are an indicator for whether there were any attacks to the territory in the past decade, an indicator of neighboring military construction activity in the past decade, and an indicator of any fiscally centralized neighbors.

Table D.11: Territorial Compactness, Intensive Margin (Controls)

| | Domestic Border | | | |
| | Territories | | Cities | |
	(1)	(2)	(3)	(4)
Treated	1.114	1.115	1.844*	1.457
	(1.120)	(1.066)	(1.028)	(0.914)
Council	-1.014	-1.153	-1.751	-2.043
	(1.114)	(1.065)	(1.832)	(1.695)
Estates	-0.419	0.117	-1.786	-1.471
	(0.998)	(1.099)	(1.596)	(1.584)
Treated × Decades Since		0.308		0.296**
		(0.236)		(0.147)
Observations	9,241	9,241	662,808	662,808
R^2	0.93	0.93	0.86	0.86
Controls	✓	✓	✓	✓
City FEs			✓	✓
Territory FEs	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓

Note Table shows the equivalent of Table 4, including only intensive-margin territories and with controls. The sample comprises 390 years and 39 territories (1,949 cities). The dependent variable is the compactness measure defined either at the level of territories j (columns 1 and 2) or of cities i (columns 3 and 4), in each year t. Controls are an indicator for whether there were any attacks to the territory (city) in the past decade, an indicator of neighboring military construction activity in the past decade, and an indicator for fiscally centralized neighbors.

D.4 Matching

Table D.12: Matching (1500 Probit Propensity Score): Nearest Neighbor

	Vanishing (1)	Size (2)	Compactness (3)	(4)
Treated	-0.0004	0.0403	0.6421	0.2090
	(0.0007)	(0.0585)	(1.337)	(1.182)
Treated × Decades Since	-4.39×10^{-5}	0.0180***	0.2470	0.4981**
	(6.11×10^{-5})	(0.0063)	(0.1503)	(0.1976)
R^2	0.04731	0.94563	0.91171	0.85284
Observations	15,858	15,858	15,858	583,022
Number of Units	78	78	78	2,166
Territory fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
City fixed effects				✓

Note Table presents results of estimating the effect of fiscal centralization on outcomes from Section 5 in a subsample obtained by nearest neighbor matching of territories, based on their predicted baseline probability of Chamber adoption. Observations are at the level of territories (columns 1-3) or cities (column 4). The sample comprises 390 years. The number of territories or cities in the sample is given in the table. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (column 1), the natural logarithm of cities in territory j in year t it rules alone (column 2), the compactness measure defined at the level of territories (column 3) or cities (column 4) in each year t. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table D.13: Matching (1500 Probit Propensity Score): Full

	Vanishing (1)	Size (2)	Compactness (3)	Compactness (4)
Treated	-0.0131	0.0906	4.803	7.000*
	(0.0084)	(0.0722)	(3.269)	(4.204)
Treated × Decades Since	-0.0019	0.0009	-0.0762	-0.1645
	(0.0014)	(0.0081)	(0.2342)	(0.2468)
R^2	0.10128	0.90627	0.89521	0.79373
Observations	102,825	102,825	102,825	826,408
Number of Units	636	636	636	2,382
Territory fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
City fixed effects				✓

Note Table presents results of estimating the effect of fiscal centralization on outcomes from Section 5 in a subsample obtained by full matching of territories, based on their predicted baseline probability of Chamber adoption. Observations are at the level of territories (columns 1-3) or cities (column 4). The sample comprises 390 years. The number of territories or cities in the sample is given in the table. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (column 1), the natural logarithm of cities in territory j in year t it rules alone (column 2), the compactness measure defined at the level of territories (column 3) or cities (column 4) in each year t. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table D.14: Matching (1500 Probit Propensity Score): 90th Percentile

	Vanishing (1)	Size (2)	Compactness (3)	Compactness (4)
Treated	-0.0247	0.1126	1.810	0.3276
	(0.0253)	(0.0969)	(2.081)	(1.222)
Treated × Decades Since	-0.0013	0.0212**	0.3629	0.4935**
	(0.0014)	(0.0098)	(0.2194)	(0.1921)
R^2	0.03180	0.89573	0.85520	0.84555
Observations	13,952	13,952	13,952	594,226
Number of Units	68	68	68	2,113
Territory fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
City fixed effects				✓

Note Table presents results of estimating the effect of fiscal centralization on outcomes from Section 5 in a subsample obtained by restricting to the 90th percentile of territories, based on their predicted baseline probability of Chamber adoption. Observations are at the level of territories (columns 1-3) or cities (column 4). The sample comprises 390 years. The number of territories or cities in the sample is given in the table. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (column 1), the natural logarithm of cities in territory j in year t it rules alone (column 2), the compactness measure defined at the level of territories (column 3) or cities (column 4) in each year t. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table D.15: Matching (1500 Territory Size): Nearest Neighbor

	Vanishing (1)	Size (2)	Compactness (3)	Compactness (4)
Treated	-0.0322	0.0971*	1.996*	0.4252
	(0.0329)	(0.0577)	(1.146)	(1.201)
Treated × Decades Since	-0.0024	0.0220**	0.3387	0.5672***
	(0.0026)	(0.0095)	(0.2318)	(0.1860)
R^2	0.03753	0.92320	0.89956	0.85681
Observations	14,111	14,111	14,111	566,205
Number of Units	77	77	77	2,134
Territory fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
City fixed effects				✓

Note Table presents results of estimating the effect of fiscal centralization on outcomes from Section 5 in a subsample obtained by nearest neighbor matching of territories, based on their size in 1500. Observations are at the level of territories (columns 1-3) or cities (column 4). The sample comprises 390 years. The number of territories or cities in the sample is given in the table. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (column 1), the natural logarithm of cities in territory j in year t it rules alone (column 2), the compactness measure defined at the level of territories (column 3) or cities (column 4) in each year t. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table D.16: Matching (1500 Territory Size): Full

	Vanishing (1)	Size (2)	Compactness (3)	Compactness (4)
Treated	-0.0604	0.1940**	3.635**	3.322**
	(0.0575)	(0.0833)	(1.486)	(1.381)
Treated × Decades Since	-0.0080	0.0152	0.2434	0.4023***
	(0.0054)	(0.0117)	(0.2973)	(0.1518)
R^2	0.06952	0.85737	0.86838	0.86100
Observations	102,825	102,825	102,825	826,408
Number of Units	636	636	636	2,382
Territory fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
City fixed effects				✓

Note Table presents results of estimating the effect of fiscal centralization on outcomes from Section 5 in a subsample obtained by full matching of territories, based on their size in 1500. Observations are at the level of territories (columns 1-3) or cities (column 4). The sample comprises 390 years. The number of territories or cities in the sample is given in the table. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (column 1), the natural logarithm of cities in territory j in year t it rules alone (column 2), the compactness measure defined at the level of territories (column 3) or cities (column 4) in each year t. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table D.17: Matching (1500 Territory Size): 90th Percentile

	Vanishing (1)	Size (2)	Compactness (3)	Compactness (4)
Treated	0.0100	0.2271	4.871*	0.7277
	(0.0199)	(0.1463)	(2.631)	(1.334)
Treated × Decades Since	-0.0109	0.0324*	0.7912**	0.6105***
	(0.0106)	(0.0173)	(0.3286)	(0.2092)
R^2	0.04812	0.84587	0.84782	0.83724
Observations	11,074	11,074	11,074	577,447
Number of Units	68	68	68	2,086
Territory fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
City fixed effects				✓

Note Table presents results of estimating the effect of fiscal centralization on outcomes from Section 5 in a subsample obtained by restricting to the 90th percentile of territories, based on their size in 1500. Observations are at the level of territories (columns 1-3) or cities (column 4). The sample comprises 390 years. The number of territories or cities in the sample is given in the table. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (column 1), the natural logarithm of cities in territory j in year t it rules alone (column 2), the compactness measure defined at the level of territories (column 3) or cities (column 4) in each year t. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table D.18: Matching (1521 Imperial Tax Register): Nearest Neighbor

	Vanishing (1)	Size (2)	Compactness (3)	Compactness (4)
Treated	-0.0446*	0.0584	1.631	0.2078
	(0.0265)	(0.0620)	(1.473)	(1.073)
Treated × Decades Since	-0.0017	0.0204***	0.2760*	0.5621**
	(0.0018)	(0.0062)	(0.1547)	(0.2158)
R^2	0.02617	0.96400	0.92185	0.87462
Observations	19,054	19,054	19,054	514,080
Number of Units	77	77	77	2,073
Territory fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
City fixed effects				✓

Note Table presents results of estimating the effect of fiscal centralization on outcomes from Section 5 in a subsample obtained by nearest neighbor matching of territories, based on their Imperial Register share in 1521. Observations are at the level of territories (columns 1-3) or cities (column 4). The sample comprises 390 years. The number of territories or cities in the sample is given in the table. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (column 1), the natural logarithm of cities in territory j in year t it rules alone (column 2), the compactness measure defined at the level of territories (column 3) or cities (column 4) in each year t. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table D.19: Matching (1500 Imperial Tax Register): Full

	Vanishing (1)	Size (2)	Compactness (3)	Compactness (4)
Treated	-0.0584	0.0319	1.245	2.667
	(0.0409)	(0.0524)	(1.188)	(2.159)
Treated × Decades Since	-0.0019	0.0172***	0.2290**	0.2635
	(0.0047)	(0.0048)	(0.1064)	(0.2205)
R^2	0.04336	0.95808	0.93303	0.87757
Observations	102,825	102,825	102,825	826,408
Number of Units	636	636	636	2,382
Territory fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
City fixed effects				✓

Note Table presents results of estimating the effect of fiscal centralization on outcomes from Section 5 in a subsample obtained by full matching of territories, based on their Imperial Register share in 1521. Observations are at the level of territories (columns 1-3) or cities (column 4). The sample comprises 390 years. The number of territories or cities in the sample is given in the table. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (column 1), the natural logarithm of cities in territory j in year t it rules alone (column 2), the compactness measure defined at the level of territories (column 3) or cities (column 4) in each year t. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Table D.20: Matching (1500 Imperial Tax Register): 90th Percentile

	Vanishing (1)	Size (2)	Compactness (3)	Compactness (4)
Treated	-0.0231	0.0472	1.595	0.0864
	(0.0171)	(0.0604)	(1.265)	(1.326)
Treated × Decades Since	-0.0001	0.0200***	0.2340*	0.5819***
	(0.0003)	(0.0053)	(0.1246)	(0.2178)
R^2	0.02111	0.97839	0.95514	0.88482
Observations	22,388	22,388	22,388	491,798
Number of Units	68	68	68	2,019
Territory fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
City fixed effects				✓

Note Table presents results of estimating the effect of fiscal centralization on outcomes from Section 5 in a subsample obtained by restricting to the 90th percentile of territories, based on their Imperial Register share in 1521. Observations are at the level of territories (columns 1-3) or cities (column 4). The sample comprises 390 years. The number of territories or cities in the sample is given in the table. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (column 1), the natural logarithm of cities in territory j in year t it rules alone (column 2), the compactness measure defined at the level of territories (column 3) or cities (column 4) in each year t. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

D.5 Instrumental Variables Estimates

Motivation and assumptions We leverage the random timing and size of overall Imperial tax levies in an instrumental variables framework. In line with the model-derived expression of Chamber adoption, we define our instrumental variable for the presence of a Chamber as the maximum Imperial tax contribution a territory has faced up to year t:

$$z_{it} = \max \left\{ IT_{i\tau} \right\}_{\tau=1400}^{t} \, ,$$

where $IT_{it} = s_i g_t$ and s_i is the Imperial register share of territory i and g_t the overall Imperial tax request of the Emperor.

The instrument satisfies the relevance condition both in historical reading — the Imperial tax is a large fiscal demand shock, compared to other proceedings of the prince — and in the empirical analysis: the Imperial tax is a consistent predictor of Chamber adoption our hazard model, and the F-statistic associated with the instrument coefficient in the first stage is 24.31. Since the probability of introducing a Chamber monotonically increases in the Imperial tax, monotonicity also holds.

The proposed instrumental variable shares the features of shift-share (or "Bartik") instruments, being the product of a share s_i and historical shocks g_t. Identification in this shift-share design comes from the exogeneity of the shocks, even in presence of endogenous exposure weights (Borusyak et al., 2022). In our setting, Imperial taxation requests can be considered orthogonal to territory's internal developments, since they are presented to the entire Imperial diet based on the Ottoman army movements on the Eastern border, far from the territories studied in our sample. Taxation requests are uncorrelated across Imperial diets. We hence have a setting with quasi-random shock assignment and many sufficiently weakly correlated shocks.

Finally, in the present setting ruler revenues are not affected by Imperial taxes in the absence of a Chamber. This is a result of the political economy of the Holy Roman Empire: since rulers need to comply with being mediators of the Imperial tax, they will not accept reduced revenues. On the other hand, since Estates, the Imperial diet, and the Emperor do not want to strengthen the ruler, he cannot increase revenues through the Imperial tax absent the Chamber. In the framework of Section C, we have that $\frac{\partial R}{\partial IT} = \rho \mu_C C$ and hence $= 0$ if there is no Chamber. As such, one can be confident that the exclusion restriction holds.

Results Under these conditions, the maximum Imperial tax contribution a territory has faced up to year t is a valid instrumental variable for the presence of a Chamber. The IV estimator then yields a local average treatment effect, and compliers in this setting are territory-years for which

$$\max \left\{ \mathbb{1} \left[(D_\tau + T_\tau + IT_\tau) \rho_\tau \mu_{C_\tau} > P_{C_\tau} \right] \right\}_{\tau=\underline{t}}^{t} = 1$$

D.16

Table D.21: Main Outcomes, Instrumental Variables Approach

	Vanishing	Size	Compactness
	(1)	(2)	(3)
Panel A: Fiscal Centralization (OLS)			
Treated	-0.194***	0.225***	3.736***
	(0.0296)	(0.0608)	(1.239)
Panel B: Fiscal Centralization (IV)			
Treated	-0.935***	0.803***	12.07***
	(0.214)	(0.258)	(4.257)
Observations	102,825	102,825	102,825
Territory FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note Table presents results of estimating the effect of fiscal centralization on vanishing probability, size, and territorial compactness. Panel A presents results for actual fiscal centralization treatment. Panel B shows results when using Imperial tax contributions as an instrumental variable for the treatment. Observations are at the territory-year level. The sample comprises 390 years and 636 territories. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (column 1), the natural logarithm of cities in territory j in year t it rules alone (column 2), the compactness measure defined at the level of territories in each year t (column 3). In Panel A, column 1 pools the results of Table 2, column 3 and 5 (vanishing due to conflict or purchase). Column 2 is the same as Table 3, column 1. Column 3 is the same as Table 4, column 1. We use the maximum Imperial tax contribution a territory has faced up to year t as an instrumental variable for the presence of a Chamber as described in Section 5.5. The F-statistic associated with the instrument coefficient in the first stage is 24.31. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

but

$$\max \left\{ \mathbb{1}\left[(D_\tau + T_\tau)\rho_\tau\mu_{C_\tau} > P_{C_\tau} \right] \right\}_{\tau=\underline{t}}^{t} = 0 \,,$$

so that these territories would not (yet) have adopted a Chamber, were it not for the Imperial tax.

Table D.21, Panel B, shows the effect of fiscal centralization on the main outcomes of Section 5, employing the maximum Imperial tax contribution a territory has faced up to year t as an instrumental variable for the presence of a Chamber.[1] Point estimates are highly

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[1]Importantly, Imperial tax levies were driven by external political developments, especially the rise of the Ottoman Empire, which affected most directly the eastern Habsburg lands. These territories are far from our area of analysis, and we exclude scattered minor Habsburg land holdings from our data for consistency.

significant, of the same sign but larger in magnitude than the corresponding OLS estimates (reported in Panel A for comparison). Note that we cannot estimate an IV analogue of the specification with time-varying effects (i.e., we cannot estimate a "Treated $\times$ Decades Since" interaction), since the instrumental variable does not predict an exact date of adoption.

Instrument robustness   Additionally, we explore the relevance of the instrument in robustness checks. One implication of the relevance assumption is that any instrumental variable derived from counterfactual shock paths should have less explanatory power over our treatment than the realized shock path. We hence conduct randomization inference by repeating our first stage estimation with counterfactual Imperial tax requests. We hold fixed the size and order of taxation requests, and only consider the random timing of the shocks. We proceed in four steps. First, we randomly distribute Imperial tax requests between the years 1500 to 1740, drawing from the uniform distribution without replacement and preserving the order of requests. We then compute the instrument based on this shock path. Third, we compute the associated F-statistics for the first stage, based on the counterfactual instrument. Finally, repeating these steps 1,000 times, we compute the fraction of times in which F-statistics from the realized shock path are larger than those from counterfactual shock assignments. If there is signal in the realized instrumental variable, the F statistic of the associated first-stage regression should be larger than those obtained with counterfactual instruments.

This analysis is demanding, since our instrument is defined as the backward-looking maximum, and the counterfactual instrument will coincide with the realized instrument in many time periods, limiting the variation between counterfactual and realized instrument. Comparing the results of 1,000 simulated shock paths to the realized shock path, we find the associated first stage F statistic of the true instrument to be lower in 7% of cases. We additionally assess the robustness of this finding to assumptions about the shock distribution. Assuming instead a truncated normal distribution of the shocks (governed by the empirically observed mean and standard deviation), the first stage F statistic of the true instrument is lower in 8.1% of cases. Drawing from a truncated log-normal distribution, we find this fraction to be 9%. To assess the influence of the left- or right-skewedness of the distribution in a more disciplined way, we turn to a continuous Bernoulli distribution, where the shape parameter $\lambda \in (0,1)$ governs the mass of the distribution in the left tail (λ close to 0) or right tail (λ close to 1).[2] When searching over values of $\lambda = \{0.1, 0.2, \ldots, 0.9\}$, we find the maximum fraction of times in which the true instrument produces a lower first stage F statistic to be 4.3%. We take this as evidence that, despite the high correlation between realized and counterfactual instruments, there is significant influence even in the year-by-year timing of the shocks.

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[2]The continuous Bernoulli distribution is defined on the unit interval. We shift and rescale drawn values so that they lie in the same years as the uniform and truncated (log-)normal simulated values. For all continuous distributions, we round to the nearest integer value. We achieve sampling without replacement by re-drawing a shock vector if it has repeated integer values.

Table D.22: Main Outcomes, Instrumental Variables Approach
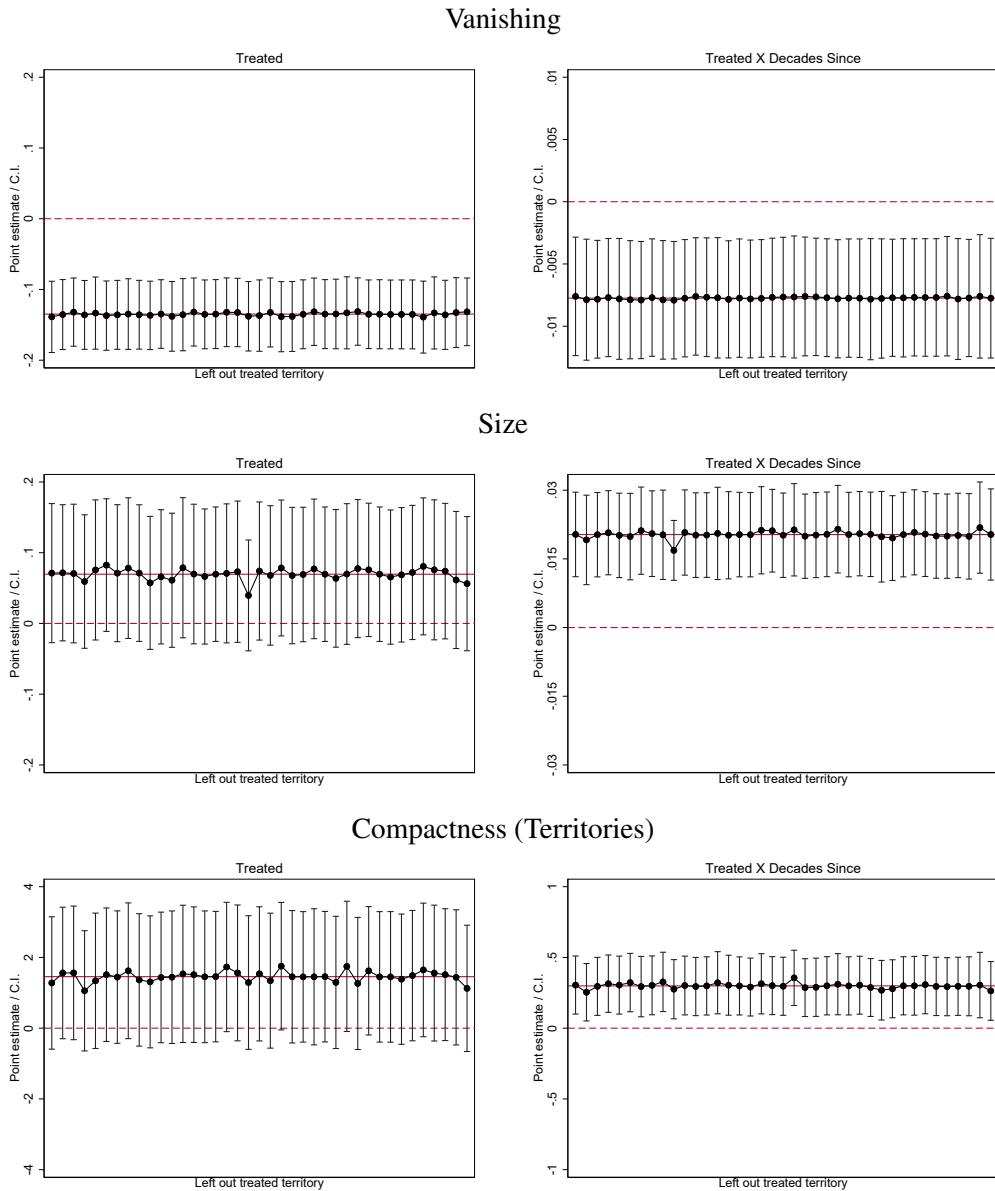
	Vanishing	Size	Compactness
	(1)	(2)	(3)
Panel A: Fiscal Centralization (OLS)			
Treated	-0.194***	0.225***	3.736***
	(0.0296)	(0.0608)	(1.239)
Panel B: Fiscal Centralization (IV)			
Treated	-0.949***	0.729***	11.02***
	(0.216)	(0.232)	(3.971)
Observations	102,825	102,825	102,825
Territory FEs	✓	✓	✓
Year FEs	✓	✓	✓

Note Table presents results of estimating the effect of fiscal centralization on vanishing probability, size, and territorial compactness. Panel A presents results for actual fiscal centralization treatment. Panel B shows results when using Imperial tax contributions as an instrumental variable for the treatment. Observations are at the territory-year level. The sample comprises 390 years and 636 territories. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (column 1), the natural logarithm of cities in territory j in year t it rules alone (column 2), the compactness measure defined at the level of territories in each year t (column 3). In Panel A, column 1 pools the results of Table 2, column 3 and 5 (vanishing due to conflict or purchase). Column 2 is the same as Table 3, column 1. Column 3 is the same as Table 4, column 1. We use the maximum Imperial tax contribution a territory has faced up to year t as an instrumental variable for the presence of a Chamber as described in Section 5.5. The F-statistic associated with the instrument coefficient in the first stage is 37.71. Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

Alternative IV definition In Table D.22, we additionally consider a definition of the instrument that is the cumulative sum of past Imperial taxation requests. In this interpretation of the fiscal shock, the fiscal administration does not "learn": also taxation requests smaller than the largest previously encountered request will provide an incentive to introduce a Chamber. The results are robust to this alternative specification.
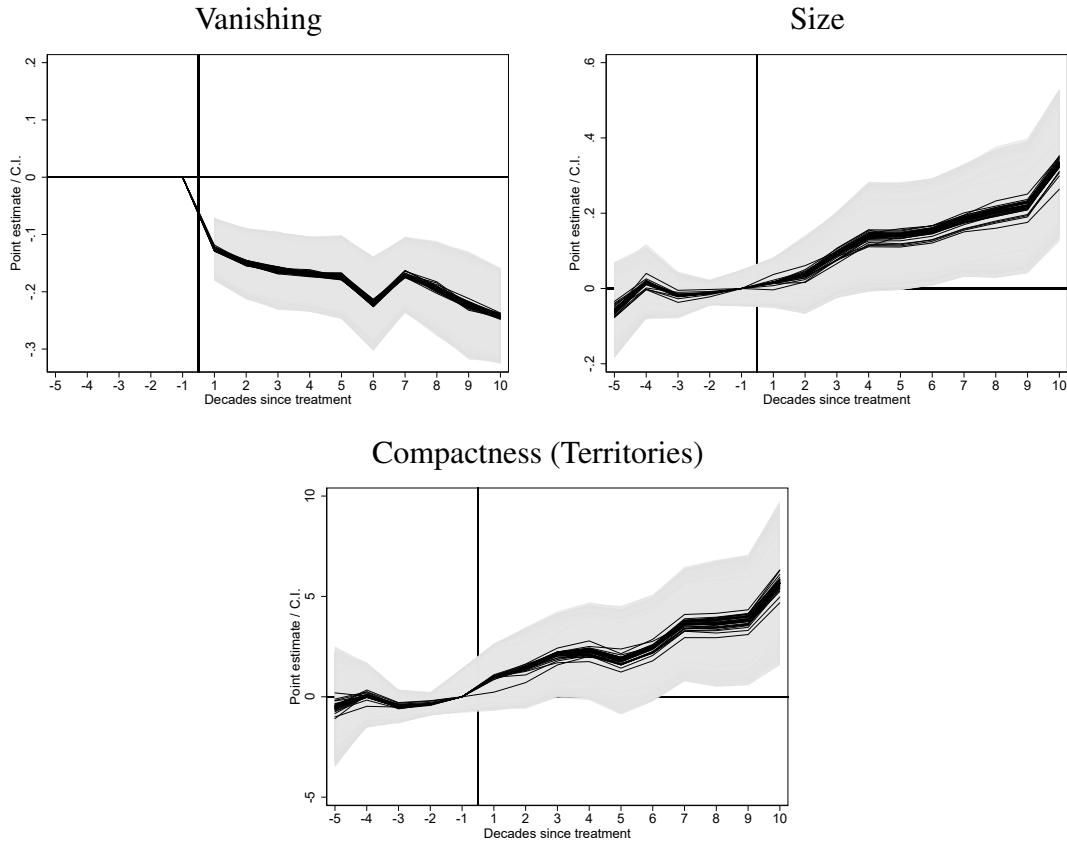
D.6 Heterogeneous Treatment Effects

Figure D.2: Leave-Out Coefficient Plots

Note The plots shows results for omitting one (eventually) fiscally centralized territory at a time from the sample, with 95 percent confidence intervals. Top panel shows the probability of vanishing as in Table 2. Middle panel shows territory size as in Table 3, column 2. Bottom panel shows territorial compactness as in Table 4. Left column shows β_1, and right column shows β_2. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (top panel), the natural logarithm of cities in territory j in year t it rules alone (middle panel), the compactness measure defined at the level of territories in each year t (bottom panel).

Figure D.3: Leave-Out Event Study Plots

Vanishing

Size

Compactness (Territories)

Note The plots shows results for omitting one (eventually) fiscally centralized territory at a time from the sample, with 95 percent confidence intervals. Panels A, B, and C correspond to the respective panels in Figures 1 and 2. The dependent variables are (A) a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t, (B) the natural logarithm of cities in territory j in year t it rules alone, (C) the compactness measure defined at the level of territories in each year t.

D.21

Table D.23: De Chaisemartin and d'Haultfœuille (2022)

	Vanishing	Size	Compactness	Comp. (Cities)
	(1)	(2)	(3)	(4)
Panel A: Two-Way Fixed Effects				
Treated	-0.186***	0.230***	4.040***	3.084***
	(0.0282)	(0.0634)	(1.303)	(1.120)
Panel B: De Chaisemartin and D'Haultfoeuille				
Treated(Avg.)	-0.145***	0.213***	3.556**	5.594**
	(0.0187)	(0.0810)	(1.461)	(2.338)
Observations	10,619	10,619	10,619	87,910

Note Table presents results of applying the estimator in De Chaisemartin and d'Haultfœuille (2022) to our main outcome regressions. In Panel A, we report the coefficients from two-way fixed effects regression. We deviate from the results in the main text body in two ways: i) we aggregate our data from yearly to decadal frequency, and ii) we also proxy three-way fixed effects through a territory-city and a decade fixed effect. Despite the deviations, results are very similar to their counterparts in the main text body. The deviations ensure comparability with Panel B, in which we report the average effect from the $DID_{+,l}$ estimator from De Chaisemartin and d'Haultfœuille (2022) for $l \in \{0, 1, \dots, 20\}$. By averaging the effect of 200 years following the treatment, this is (asymptotically) similar to the differences-in-differences interpretation of the fixed effects regression. We run 200 bootstrap replications. Observations are at the territory-decade level. The sample comprises 39 decades and 636 territories (2,382 cities). The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (column 1), the natural logarithm of cities in territory j in year t it rules alone (column 2), the compactness measure defined at the level of territories in each year t (column 3), the compactness measure defined at the level of cities in each year t (column 4). Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.
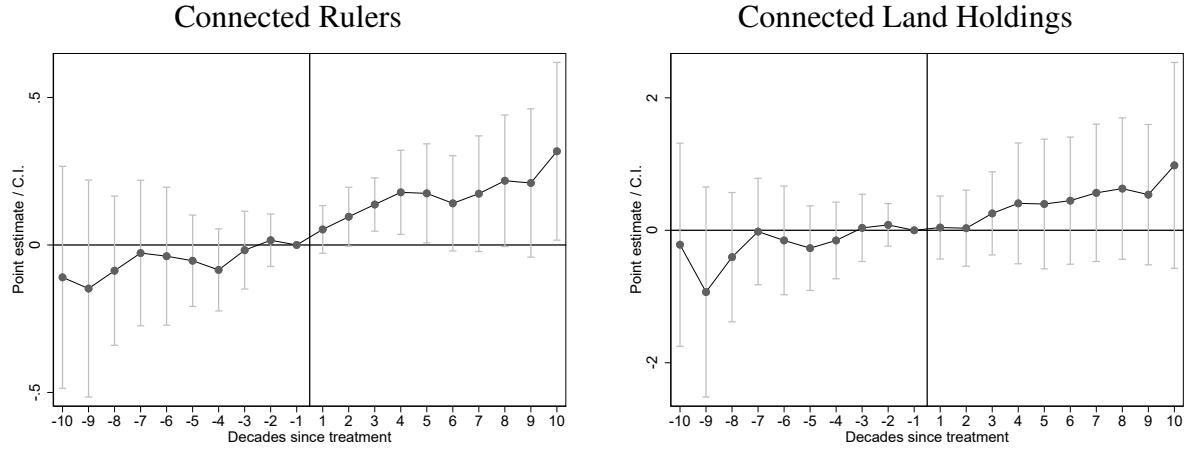
Table D.24: Weights

	Territories	Cities
Pos. Weight ATT	495	23628
Neg. Weight ATT	48	8698
Sum Neg. Weight	-0.0036	-0.087

Note Table shows the weights associated with territory-level and city-level two-way fixed effects regressions in our sample. The first row shows the number of observations that receive a positive weight. The second row shows the number of observations that receive a negative weight. The final row shows the sum of negative weights.

D.7 Alternative Outcome Definition

Figure D.4: Marriage Gains (Alternative Connectedness Measure), Event Study

Connected Rulers	Connected Land Holdings

Note Figure presents the analogue to Panels A and B in Figure 5, considering gains in closeness to rulers instead of gains in immediate network connectedness.

Table D.25: Marriage Gains (Alternative Connectedness Measure)

	Connectedness Gains			
	Rulers		Land Holdings	
	(1)	(2)	(3)	(4)
Treated	0.0969*	0.114*	0.115	0.326
	(0.0542)	(0.0625)	(0.310)	(0.332)
Treated × Decades Since		0.00920		0.115
		(0.0138)		(0.0891)
Observations	4,296	4,296	4,296	4,296
R^2	0.34	0.35	0.57	0.58
Territory FEs	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓

Note Table presents the analogue to Table 8, considering gains in closeness to rulers instead of gains in network connectedness.

D.23

D.8 Mediation Analysis

Table D.26: Mediation Analysis (Data Rules)

	Vanishing		Size		Compactness	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Reduction of Pawns						
Treated	-0.194***	-0.174***	0.225***	0.112**	3.736***	2.870*
	(0.0296)	(0.0308)	(0.0608)	(0.0539)	(1.239)	(1.477)
Treated × Mechanism		-0.0563		0.312**		2.407
		(0.0372)		(0.128)		(2.523)
Panel B: Construction of Military Buildings						
Treated	-0.194***	-0.155***	0.225***	0.126**	3.736***	1.823
	(0.0296)	(0.0304)	(0.0608)	(0.0594)	(1.239)	(1.116)
Treated × Mechanism		-0.0947***		0.238**		4.609*
		(0.0327)		(0.121)		(2.454)
Panel C: Successful Marriage Politics						
Treated	-0.194***	-0.212***	0.225***	0.137***	3.736***	3.288**
	(0.0296)	(0.0305)	(0.0608)	(0.0447)	(1.239)	(1.464)
Treated × Mechanism		0.0718*		0.353**		1.802
		(0.0398)		(0.176)		(2.567)
Observations	102,825	102,825	102,825	102,825	102,825	102,825
Territory FEs	✓	✓	✓	✓	✓	✓
Year FEs	✓	✓	✓	✓	✓	✓

Note Table presents results of estimating the effect of differential access to Chamber mechanisms on the consolidation out-comes from Section 5. The panels distinguish different data-driven definitions of mechanism access: territories that, in the first 100 years following the introduction of a Chamber, reduced the number of pawns at least three times (Panel A), had at least three military buildings (Panel B) or were in the 75th percentile of marriage success (Panel C). Observations are at the territory-year level. The sample comprises 390 years and 636 territories. The dependent variables are a binary variable that reflects whether a territory j vanishes due to conflict or purchase in year t (columns 1 and 2), the natural logarithm of cities in territory j in year t it rules alone (columns 3 and 4), the compactness measure defined at the level of territories in each year t (column 5 and 6). Standard errors are clustered at the territory level. *, **, and *** denote significance on the 10 percent, 5 percent, and 1 percent level, respectively.

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