

# Princes, Merchants, and Prelates

City Growth in the Holy Roman Empire, 1400-1800

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## **Abstract**

I explore whether the local political institutions of the Holy Roman Empire had an influence of the growth trajectories of German cities. Using newly available data on the territorial histories of German cities, I compare the construction activity observed in cities within territories ruled by secular (hereditary) princes to those within territories ruled by either merchant oligarchs (a.k.a. republics) or ecclesiastical (elected) princes. Although all three regime structures were relatively autocratic, the constitutional law of the latter two types institutionalized noteworthy constraints on the executive. Using two-way fixed effect regressions, I find evidence suggesting that oligarchies have an ambiguous effect on growth relative to hereditary monarchies, whereas ecclesiastical institutions have a positive effect, although not always precisely estimated. I hypothesize that this is because the election procedures in the ecclesiastical territories were resistant to capture and thus functioned as a significant constraint on rent-seeking, particularly after the Reformation.

# I. Introduction

In 1667, Samuel von Pufendorf famously labeled the Holy Roman Empire (HRE) as a “misshapen Monster” that would be difficult to evaluate “by the common Rules of Politicks and Civil Prudence.” Pufendorf recognized that the semi-federal system of semi-sovereign territories comprising the HRE was a special case in Europe (Schröder 1993). This irregular system perpetuated extreme political decentralization, which allowed idiosyncratic institutions such as the Free and Imperial Cities, Prince-Bishoprics, and Imperial Abbeys to survive into the 19th century.

In this paper, I divide the German territories into three institutional categories (Princely, Republican, and Ecclesiastical) to determine whether the persistence of these institutions influenced the growth trajectories of German cities. I contend that the Republican and Ecclesiastical territories were constitutionally distinct from the Princely territories and significantly less autocratic. Even though the laws, feudal privileges, and style of leadership varied significantly within each category, each category has pertinent defining features.

The defining feature of the (secular) Princely territories was hereditary succession of noble titles. The specific rules of inheritance varied, with Primogeniture only slowly beginning to replace partition in the late 15th Century (Whaley, 2011A). Hereditary fiefdoms were extremely secure, as the Imperial Diet (*Reichstag*) rarely approved attempts by the Emperor to revoke them; by the 18th century few Princes even bothered to renew their vows or participate in enfeoffment ceremonies. Local estates did check the power of princes somewhat, though their influence varied significantly, and was almost certainly lower than similar institutions in England or the Netherlands (Van Zanden et al, 2012).

The Ecclesiastical Prince-(Arch)bishops, on the other hand, were elected by the local cathedral chapter. In the larger territories, this is analogous to the local estates, as the cathedral chapter would have been filled with the local nobility. The electoral procedure is significant for two reasons: First, the newly elected Prince (Arch)bishop would be bound by a *Wahlkapitulation* (electoral capitulation). This document was prepared by the cathedral

chapter during each election and placed clear and usually effectively binding restrictions on the new sovereign's authority (Methuen, 2017). Second, political interference from outside actors in key elections was commonplace, making it significantly more difficult to ensure successive elections remained within the same family line.

Finally, there are the Republics, which include the Free and Imperial Cities, as well as some smaller, neighboring towns which were subordinated to them. Unlike the secular and ecclesiastical princes, these were not necessarily governed by nobles. Instead, they had oligarchic constitutions stipulating rule by a varying number of mayors and city councilmen. Election procedures varied, and were often tightly restricted to ensure the tenure of the ruling families. These procedures were not unique to the Republics; in many cases, Princes extended citizens of their cities the right to elect a mayor, or for certain guilds to hold permanent seats within their city councils (Wahl, 2019). However, the Republics were unique in that their constitutions were not granted by a local authority, but instead guaranteed by Imperial law. Only the Emperor could revoke these rights, and the political situation within the Empire generally precluded the possibility, at least until the Schmalkaldic War (Brady 1985).

For many reasons, one might expect these constitutional differences to have economic consequences. The seminal paper in this tradition is De Long and Shleifer (1993), which argued that more absolutist governments would prioritize personal revenue over state revenue. In their analysis, Germany is treated as an institutionally homogeneous area ruled by “petty despots.” I argue that the the election procedures in the Ecclesiastical territories and oligarchic rule by economic elites in the Republics should be recognized as significantly less absolutist than rule by hereditary princes. I adapt the methodology from the recent literature on the effect of democracy and democratic transitions (e.g., Papaioannou and Siourounis, 2008 and Acemoglu et al., 2019) to estimate the effect of institutional change within the German territories of the Holy Roman Empire. I augment newly available data on the construction activity in German cities (Cantoni 2020) and their local political histories (Cantoni et al. 2019). I augment this data by classifying territories as prince, republic, or ecclesiastic. For the

empirical analysis I measure economic expansion in a city by the number of construction events occurring within 25 year periods. Construction data is more comprehensive in terms of geography and time coverage than the population data originally developed by Bairoch (1988) which is commonly used in the literature. My initial results suggest that oligarchy has ambiguous effects that are difficult to measure precisely, whereas ecclesiastical institutions are positive, but only have a statistically significant effect on clerical construction.

Attempts to study the *effects* of the HRE's political institutions (in contrast to works focusing on *classification*, such as the aforementioned work by Pufendorf) go back to 1785 at least.<sup>1</sup> Modern scholarship also evaluates the legacy of the HRE's local political institutions. Strauss (1978), Ogilvie (1992), Whaley (2011), and Stollberg-Rilinger and Mintzker (2019) (to name only a few examples) all describe a German state with institutions that despite (or perhaps because of) being cumbersome, were often very effective at maintaining a delicate status quo.

In this paper, I ask whether the three main forms of territorial constitutional law in 15th-18th century Germany affected the growth trajectory of German cities. My paper contrasts with similar papers by emphasizing the role of the most fundamental constitutional distinctions between German territories, rather than laws or institutions that vary at a more local level. For example, Wahl (2019) looks at the city-level procedures for choosing mayors and town councils and finds that more participative political institutions have little to no effect on city growth. On the other hand, Dittmar and Meisenzahl (2019) have shown that cities which adopted *Kirchenordnungen* (Protestant church ordinances which shifted the responsibility of public goods provision from the church to the state) grew faster and attracted more human capital. Closest to my approach is Cantoni et al (2022 working paper), which finds that territories which developed a centralized fiscal administration were more

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<sup>1</sup>In 1785, Phillip Anton von Bibra asked why the ecclesiastical states seemed to be less fortunate than they should be for not only were they blessed, but they benefited from good governance. He blamed their constitutional law (*grundverfassung*). In response, von Moser (1787) wrote, "*konnte keine herrlicher und vor land und leute wohltuetige Anstalt, als diese, erfunden werden.*" (There can be no institution invented more agreeable to to the state and the people than this one.)

likely to survive and expand.<sup>2</sup>

Though I can not measure the influence of Protestantism directly, my results are closely connected to the literature assessing the broader impact of the reformation. Secularization<sup>3</sup> of Ecclesiastical territories accounts for at least 30% of all observed institutional transitions, and roughly half of the transitions from ecclesiastical to secular principalities. Because these institutional transitions will be highly correlated with the adoption of Protestantism, Protestantism may be a significant omitted variable (conversely, previous studies which have focused on the adoption of Protestantism may be omitting the effect of replacing elections with hereditary rule). However, despite the persistence of Weber's (2016) protestant work ethic hypothesis, the evidence for it is mixed. Cantoni (2015) finds no evidence that Protestantism led to increased city growth when measured by population. Cantoni et al. (2018) does find that cities which adopted Protestantism were more likely to reallocate both human and physical capital from clerical to secular purposes in the early 16th century, however, one should not immediately assume that secular investment is inherently more productive. The majority of the positive results surveyed in Becker et al. (2016) come from either Prussia or Switzerland, with little discussion of the "heartland" of the HRE. Overall, the evidence seems to suggest that Protestantism itself was not particularly important for economic growth, but that it may have be correlated with particular reforms that led to higher rates of public good provision and human capital acquisition. Because ecclesiastical institutions become increasingly correlated with Catholicism over time, this is an important source of bias that will need to be addressed by subsequent research.

What I do attempt to measure is the impact of transitioning between forms of government that are more or less autocratic. The interpretation of the results hinges on whether one is convinced that these constitutional forms are truly distinct. In the following section, I lay

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<sup>2</sup>A parallel work by Abramson (2017) looks at other determinants of state size.

<sup>3</sup>In the context of this paper, secularization is the legal process of transforming an ecclesiastical territory into a Princely one, for example the transformation of the Prince-Archbishopric of Magdeburg into the Duchy of Magdeburg in 1680. This is distinct from individual cities within Ecclesiastical territories being captured or purchased by secular princes.

out the evidence and theoretical arguments for my tripartite classification system. Section III discusses the data, and sections IV and V report results. Section VI concludes.

## II. Background on Institutions and Development in the Holy Roman Empire

Attempting to classify the institutions of the HRE is uniquely difficult for a variety of reasons. Foremost among these is the fact that for most of its history, the constituent territories of the HRE were not territorial monopolies and instead were closer what Frey and Eichenberger (1999) termed “Functional, Overlapping, and Competing Jurisdictions.”<sup>4</sup> The territories of the HRE possessed *landeshoheit*, sovereignty bounded by the laws of the Empire. Matters are further complicated by the fact that the boundary between local and imperial law was different between territories. For example, the largest territories eventually all enjoyed the *privilegia de non appellando* which made the territorial courts the supreme courts within their jurisdiction by precluding appeals to the Imperial courts. Certain types of cases, however, were exempt and could always be appealed (Oestmann, 2018).

Compounding the difficulty of mapping out the feudal nexus of overlapping rights and privileges are the sheer numbers of both territories and layers of centralization. The Empire had two competing supreme courts, a parliament, and was subdivided into ten *Reichskreisen* (Imperial Circles) which acted as federations within a federation. Some of these circles were impotent, but others played important roles in financial and security regulation (Whaley 2011). With the exception of the largest territories, it is essentially impossible to know the precise details of the legal landscape.<sup>5</sup> As for the small territories, there is no consensus

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<sup>4</sup>See Volckart (2002) for an in depth discussion of why this form of government obtained in Medieval and Early Modern Europe

<sup>5</sup>For example, consider that Van Zanden et al. (2012), the most comprehensive attempt to measure the prevalence of parliaments in Europe, only has data for the parliamentary meetings of six individual territories within the HRE, despite evidence that *all* territories within the HRE could not levy new taxes without consent from the appropriate local body (Whaley, 2011 p.45)

regarding their exact number, particularly since the territories of the Imperial Knights could be as small as a single manor.

It is important, then, to focus on what *can* be defined. The most straightforward way to define a territory, rather than trying to set some threshold level of independence, rights, or privileges is based on “Imperial Immediacy” (*Reichsunmittelbarkeit*). Immediate fiefs were those granted directly by the Emperor, with no intermediate lord. Immediacy generally implied a vote in the Imperial Diet as an Estate of the Empire (some especially small territories did not receive a vote, or only received a collective vote as a member of a “bench”), and receiving multiple titles could imply multiple votes.

The territories generally organized themselves into corporate bodies along three different dimensions, depending on the prevailing issues of the day. The first axis of division followed the official branches of the Imperial Diet: The College of Electors, the College of Princes, and the College of Imperial Cities. The Electors and Princes were further split into Ecclesiastical (*Geistliche*) and Secular (*Weltlichen*). Finally, following the Peace of Westphalia, the Diet was split into the *corpus Catholicorum* and *corpus Evangelicorum*. That these divisions were officially recognized in the proceedings of the Diet reflects the distinct special interests of diet members according to their position and confession.

To simplify the groups, I ignore two divisions—Catholic/Evangelical and Elector/Prince—which were not relevant to the *local* political situation. That is to say, the laws of the Empire did not generally specify differing rules for how Catholics and Evangelicals could rule their territories. Similarly, the constitutional law of an electoral Prince-Archbishopric was similar to that regular Prince-Bishopric. This reduces the types of territories to three: the ecclesiastical principalities (Prince-(Arch)bishoprics and Imperial Abbeys), the secular principalities (Dukes, Counts, Margaves, etc. . . ), and the Republican Free and Imperial Cities. This grouping is natural for two reasons: first, it is consistent with how the territories viewed and organized themselves as corporate interest groups; second, the constitutional laws of these territories were clearly and consistently distinct.

The defining institutional feature of the ecclesiastical territories is that they were elective monarchies. However, the electing body was extremely small and entry was tightly regulated. In the Prince-(Arch)bishoprics, the cathedral chapters responsible for electing the Prince-(Arch)bishop were dominated by nobles due to restrictive rules requiring members to have multiple generations of noble ancestry (Methuen, 2017). Not only was entry to the electing body restricted, but candidacy was tightly restricted as well, and typically on genealogy rather than qualifications. These restrictions not only specified a requisite number of noble agnates, but often attempted to limit eligibility to local or regional families, although locality requirements were subject to more legal challenges than simple residency requirements (Feine 1921). Theological training was only required in certain cases, and dispensations were often made to allow ecclesiastical Princes to delegate their religious responsibilities to suffragan bishops. The fact that some of these so-called bishops could not speak Latin (or could hardly speak at all, in 1516 the seven year old Magnus of Mecklenburg was elected bishop of Schwerin (Whaley, 2011) was one of the many pressures that lead to the Reformation. Furthermore, upon election, many of these rulers were bound by Electoral Capitulations (*Wahlkapitulationen*), which clearly delineated the boundaries of their executive power (Whaley, Methuen, Feine). Taken together with the strict requirements of membership in the Cathedral Chapter, it becomes clear that the local political elite were highly influential in the Ecclesiastical territories, in contrast to the Princely territories where the influence of local Estates is not well understood.

Participation in Republican government was also relatively constrained, although the specific rules of participation were quite heterogeneous. Generally, the Free and Imperial Cities were administered by a pair of mayors and one or two town councils. Political access was limited to citizens, but recent research by Minns et al. (2020) suggests higher rates of citizenship than previously believed. However, political access did not always translate real political influence, as some cities filled vacancies with co-optation rather than election. Furthermore, following an Imperial intervention in the mid-16th century, guild members (seen



as responsible for the spread of Protestantism) were systematically disenfranchised in favor of elite patricians (Brady, 1985). These restrictions persisted even in cities which formally adopted Protestantism.

Given that political participation in both the election of ecclesiastical princes and republican magistrates, one might suggest that neither form of government was significantly less autocratic than princely hereditary monarchy. There are two ways to refute this argument. First, one could collect much more granular data on the specifics of the election procedures in each territory, and use a more continuous measure of representation that would not code “false positives” as relatively more democratic. For example, omitting Republican territories which practiced co-optation. As this lies outside the scope of the current draft of this paper,<sup>6</sup> I dedicate the remainder of this section to making a theoretical argument supporting my classification system.

To understand how ecclesiastical elections may have had an influence on long run growth, it is important to clarify the agents involved. As discussed above, the electorate was a cathedral chapter with tightly restricted membership. Members were generally from the local nobility, such as local families of knights. The great dynasties were also keenly interested in filling these seats with younger non-inheriting sons or political allies to gain influence in future elections. This led to a tension between local, lower noble houses and the great dynasties competing for the prestige and power that came from the election of family members. Qualitative evidence collected by Feine suggests that genuine spiritual leaders were hardly ever elected, and it is consequently more reasonable to see these elections as a battleground between either a foreign great house and a local family, or two great houses competing for local support.

It could be said that restrictions on cathedral chapter membership led to non-competitive elections, particularly if the entire electorate comes from a single dynasty and its allies. Although some lines did repeatedly win elections, this does not necessarily mean that

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<sup>6</sup>The necessary data collection is ongoing, and I am deeply grateful to Joachim Whaley for directing me to where much of this data can be found for the ecclesiastical territories.

elections were non-competitive. For example, it is often written that the Archbishopric of Cologne was effectively a secundogeniture inheritance of the Wittelsbach dynasty as Wittelsbach second sons inherited the title uninterrupted between 1583 and 1761. During the same period, the Wittelsbachs also attempted to treat the bishoprics of Muenster and Liege as secundogeniture inheritances, but with less success, showing that perfect capture did not exist and there were limits to the ability to transform elected positions into hereditary ones; repeated victory is not the same as true capture, and there is not yet sufficient data to say whether obtaining repeated victory did not involve significant repeated costs. One significant check on the ability to capture elections was that the emperor retained the right to nominate the first new member of any cathedral chapter following his coronation (Whaley, 2011), which could be used to tip the balance in competitive elections.

Because success in repeated elections was never guaranteed and required substantial political and economic investments to fend off competitors, I argue that these elections aligned the incentives of rulers with the local elites. The continued support of the electorate is more likely to be contingent on the economic success of the local area than the larger “foreign” territory the elected dynast is concerned with. This is particularly pertinent in the case of ecclesiastical rulers elected to multiple simultaneous positions who made have needed to make separate capitulations to the cathedral chapters of each territory. This argument (and the existence of the electoral capitulations) is consistent with theory from Olson (1993), who states that “An independent capacity to install a new ruler would imply that this capacity can be used to remove or constrain the present autocrat.”

Thus, the elected monarchs face a trade-off between short-term looting for personal benefit, and cooperation with local economic elites to ensure the title remains within their dynasty. Unfortunately, the effect of political competition on the sovereign’s time horizon is likely non-monotonic. If there is no real competition and the monarch is from a non-local dynasty there is little to dissuade them from engaging in short-term looting or adopting policies that favor the dynastic homeland at the expense of the ecclesiastical territory. Similarly, if they

are certain they will lose the next election, there is little incentive not to engage in looting. A healthy amount of competition is necessary to prevent this outcome; if there are a variety of credible candidates, there can be a “race to the bottom” effect, which results in the eventual winner agreeing to a stricter electoral capitulation which is most favorable to the local elites. This leads to policies with a longer time horizon, or at least which favor local elites at the expense of distant dynastic lands, leading to relatively more local economic activity.

Surprisingly, there is less evidence to believe that Republicanism is associated with growth. The main argument for expecting Republicanism to be associated with higher growth is that the Free and Imperial Cities were at least as autonomous as other autonomous cities (and likely more), and autonomy has been associated with growth since Weber (1921). Furthermore, particularly in the 15th and 16th centuries, the leadership class of the Free and Imperial Cities was distinct. The oligarchies were non-noble and identified with the “common man”; Citizenship was based on oaths that affirmed a communal way of thinking (Brady). This, perhaps, is why Jacob (2010) finds persistently higher social capital in these cities today. Thus, we should view these cities as governed by a self-ruling economic elite, rather than an local elite in cooperation with a dynastic prince. Because this elite was closely linked to the economy, princes often delegated their minting rights to them to resolve commitment issues related to seigniorage (Volckart 2007).

Specific economic evidence about the free cities is hard to find, but Stasavage (2014) is much more pessimistic. He looks at all autonomous cities, which also includes cities within Principalities that received limited rights, and finds that an initially positive effect on city growth turns negative after about 160 years of autonomy. This is consistent with arguments from Olson (1982), Acemoglu (2008), or Ogilvie and Carus (2014), which all generally agree that when economic elites are also political elites, they will eventually use their control over property rights for rent seeking, rather than policies that might benefit competitors.

Note that these arguments are not specific to the independent Free and Imperial Cities, but refer generally to cities which received some degree of autonomy. Because this evidence

for autonomy is ambiguous, it is difficult to say whether more or less autonomy would be preferable, or under what circumstances. For example, a strong prince may want to prevent the local elites in an autonomous city from engaging in excessive counter-productive rent-seeking. One piece of supporting evidence that helps slightly, is evidence from Wahl (2019) which suggests that elections (in contrast to co-optation or direct appointment) are the most beneficial form of autonomy. Wahl's data only includes 10 of the 90 cities I find were ever under a Republican government, but he finds 5 of them held elections, a much higher rate than among cities under monarchs.

In summary, these two forms of limiting autocracy function through different mechanisms, and theoretical or qualitative arguments have ambiguous predictions. Elective monarchy implies that local political elites acted as a significant check on dynastic ambitions; ensuring their cooperation could have spilled over into local economic growth in many ways, particularly if the local political and economic elites overlapped. However, the effects of this check depend on how confident the dynasty is that it can secure reelection. Essentially, when the local elites have sufficient power to maintain a credible check on the executive, they can force dynasties (whose interests are generally selfish and broad) to care about their local context.

Republican government, however, involves a local political elite which governs itself that is usually also the local economic elite. The concerns are entirely local, and the trade-off is instead is about whether institutions should be set up to maximize overall wealth or to secure rents. The recent literature on this trade-off discussed above is extremely pessimistic about the choices that oligarchies usually make, especially when the oligarchies are long-lived.

This paper thus proposes two questions: First, what the ramifications of important checks on autocracy in Germany's early modern period? Second, which checks were most effective?

### III. Data

The independent variable of interest for this study is a classification of territorial institutions I derive from Cantoni et al. (2019). The core source is the *Deutsches Staedtebuch*, which includes information compiled by local historians on all 2390 locales within the 1937 borders of Germany that “at one point in the history of the Holy Roman Empire was awarded the status of a city” (Bogucka et al. 2019). Using the information within the *Staedtebuch* and supplementing it with other sources, Cantoni et al. create a timeline of each city’s territorial history. This tracks which territory any city belonged to at a given time<sup>7</sup>. I use the territory names in Cantoni et al, supplemented with additional sources such as Bühner (2019), to assign a classification to each territory code of either “princely,” “ecclesiastical,” or “republican.” Thus, at each point in time, I observe whether a city was part of a noble’s hereditary lands, an elected prelate’s jurisdiction, or a merchant oligarchy.<sup>8</sup>

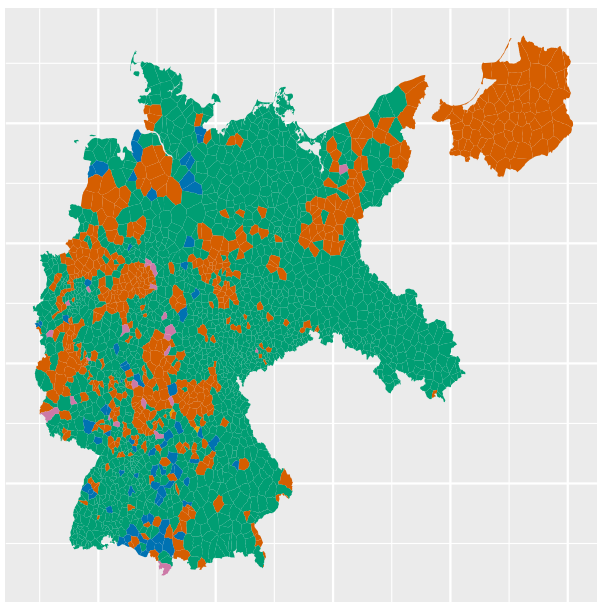
The distribution of institutions over time is visible in Figure 1. There is a clear trend away from ecclesiastical rule in the Protestant north. The two major events here are the creation of the Duchy of Prussia out of lands held by the Teutonic Order, and the Peace of Westphalia, which formally made many of the protestant “administrators” (as the lay rulers of protestant ecclesiastical principalities were styled) into secular princes. We can also see that institutional diversity increases as one moves South or West. By 1750, nearly all of the cities east of the Elbe are under Princely institutions.

To measure the effect of institutions, I use Cantoni’s (2020) data on significant construction events in each city, which also uses the *Staedebuch* as its primary source. The *Staedtebuch* does not have objective criteria for determining significance, but examples of inclusions are town halls, churches, and castles. The date for recorded constructions ranges from 100 to

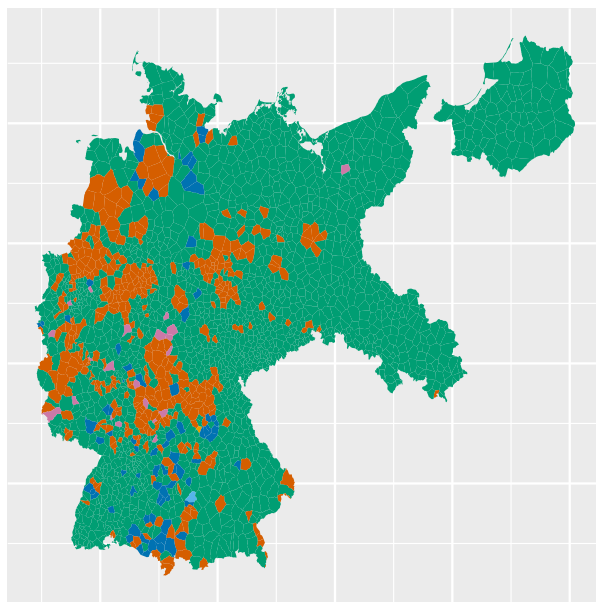
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<sup>7</sup>The publicly available dataset only reports territory in 1400, 1450, 1550, 1650, 1750 and 1850. I interpolate to a 25 year resolution and manually adjust the timing of transitions when the institutional category changes.

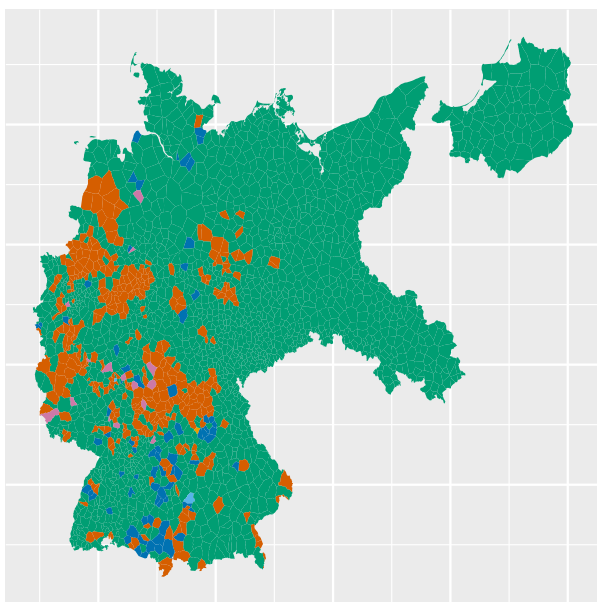
<sup>8</sup>Some cities belong to multiple territories due to power sharing arrangements. Currently, I code all arrangements according to which institutional category was dominant. Instances where the balance of power was evenly split between territories with different institutions are given a special case. A future appendix will test sensitivity to this choice.



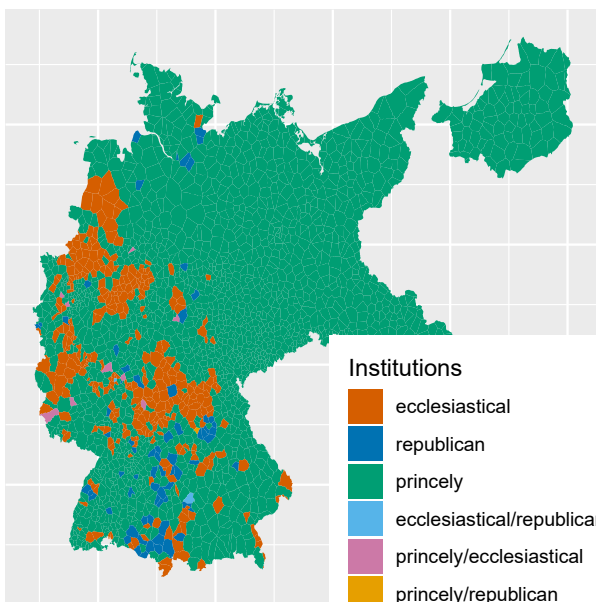
(a) 1450



(b) 1550



(c) 1650



(d) 1750

Figure 1: Distribution of institutions over time. Institutions source: Author's own classifications, derived from Cantoni et al. (2019). Shapefile source: Bogucka et al. (2019).

1800, so it is possible to calculate an initial stock of buildings in 1400 and trace the evolution of this stock as more constructions occur. For simplicity I assume zero depreciation. Thus, we have data on both economic growth (construction events) and economic levels (total stock)<sup>9</sup>. In the public version of the data-set, construction events are recorded at 25 year intervals. These constructions are also classified by type (e.g. clerical, administrative, economic...). I aggregate all non-clerical categories into a single new category. Construction events are rare, which is exacerbated by many of the “cities” in the panel being relatively rural.<sup>10</sup> On average, cities have one recorded construction event every half-century. The distributions of clerical and non-clerical buildings are nearly identical,

Typically, papers use population data from Bairoch, Batou, and Chevre (1988) as an outcome. However, construction data has two significant advantages over the population data, conditional on accepting this measure of construction activity as a similar quality proxy for economic growth. The first is that it allows us to study an order of magnitude more cities, and thus capture much more variation in institutions. The second is that there are no missing values. If there are no recorded construction events in a period, it can be interpreted as no construction being noteworthy enough to survive in the historical record, rather than there actually having been no construction. Unfortunately, because the criteria for a construction event to be noteworthy enough to be entered into the *Staedtebuch* is nebulous, it is difficult to test the quality of construction as a proxy for growth, although it can be shown that construction and population are significantly correlated.

I also incorporate rudimentary geographic controls. First, I use the “region\_id” variable from Cantoni et al. (2019). These regions correspond to *Staedtebuch* volumes which are grouped in a manner consistent with important political boundaries. I also code whether the city is on a river using data from data from Natural Earth.

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<sup>9</sup>Because stock is simply a running total of all construction events, it only increases. This no depreciation assumption certainly overestimates levels, particularly in areas disproportionately affected by war. Unfortunately, I am not aware of any comprehensive data that can be used to estimate a depreciation rate.

<sup>10</sup>The commonly used Bairoch et al. (1988) dataset includes 245 cities within the borders of modern Germany. This suggests that approximately 2,000 of the cities observed here never achieved a population of 5,000 before 1850.

In this draft, I restrict the sample to my preferred subset which is based on three conditions: First, I drop any city which was ever at one point not German ( $n = 435$ ), e.g. cities temporarily conquered by France or Sweden, or part of a foreign kingdom such as Denmark or Poland. I also drop cities in Bohemia during this step, as Bohemia was exempt from many of the laws of the HRE. Second, I drop any city where there was a power-sharing agreement between two territories with different institutional forms that did not have a dominant member ( $n = 55$ ). Finally, I drop any city which ever transitioned between Ecclesiastical and Republican institutions ( $n = 4$ ), for reasons explained shortly. Summary statistics for the main variables after subsetting are reported in Table 1.



Table 1: Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Princely	32,266	0.747	0.435	0	0	1	1
Ecclesiastical	32,266	0.218	0.413	0	0	0	1
Republican	32,266	0.036	0.185	0	0	0	1
newbuilds	32,266	0.489	1.083	0	0	1	31
newbuilds_clerical	32,266	0.249	0.649	0	0	0	21
newbuilds_nonclerical	32,266	0.240	0.701	0	0	0	21

Balanced panel: 1898 cities observed at 17 25-year intervals between 1400 and 1800.  
`asinh()` refers to the Inverse Hyperbolic Sine function.

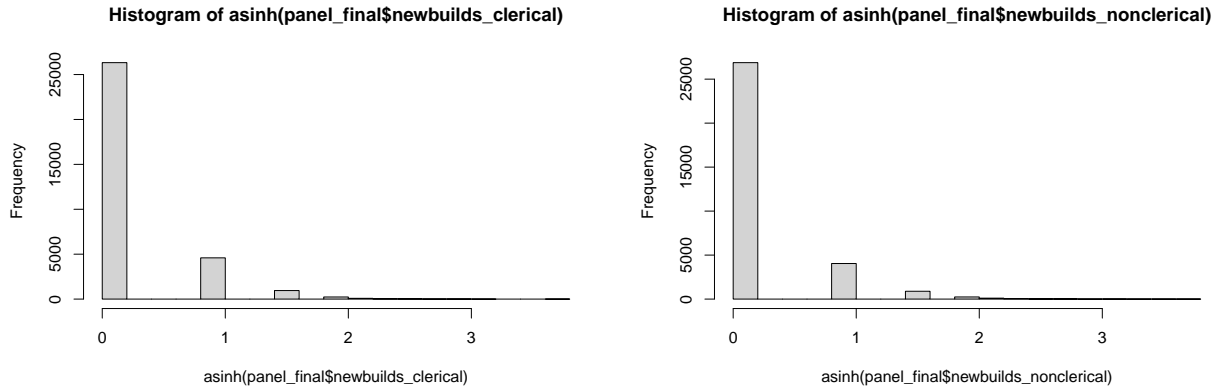


Figure 2 provides some useful intuition about the data by plotting the average growth and stock of construction grouped by institutions. There are a few key facts to note: republican cities start significantly larger and grow noticeably faster. Ecclesiastical cities start very similar to princely ones, but these trajectories diverge over time as ecclesiastical growth accelerates, particularly after 1600. It is important to note that institutions are not fixed, thus these trends are partly driven by cities switching between institutional types. In the following section, I exploit these changes to estimate the causal effect of institutions.

## IV. Baseline Model: Panel Regressions

The baseline model (Table 2, Column 1) regresses construction (using an inverse hyperbolic sine transformation, an alternative of the log transformation which is defined for 0) on dummy variables for institutional categories as defined above:

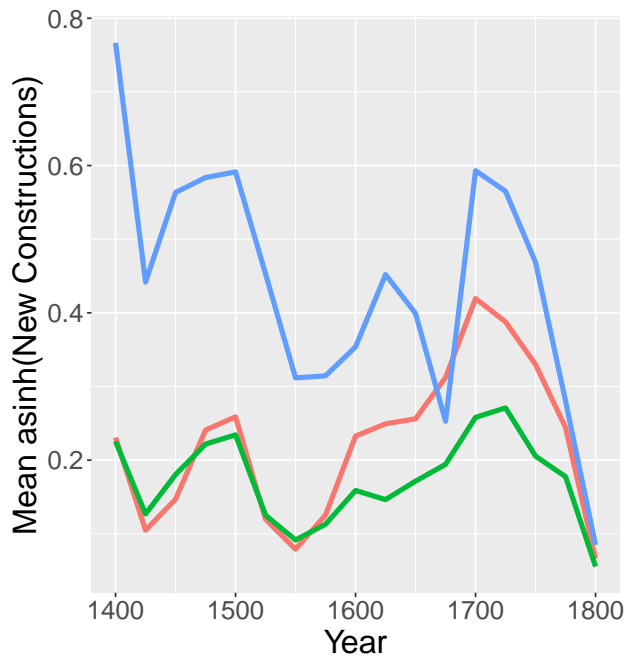
$$\begin{aligned} Construction_{i,t} = & \beta_1 Ecclesiastical_{i,t} + \beta_2 Republican_{i,t} + \alpha_i + \alpha_t \\ & + \sum_{t=1}^{17} \rho_t X_i \cdot t + \beta_3 stock_{i,t-1} + \sum_{j=1}^8 \gamma_j Construction_{i,t-j} + \epsilon \end{aligned}$$

Where  $\alpha_i$  and  $alpha_t$  are standard two-way fixed effects,  $\sum_{t=1}^{17} \rho_t X_i \cdot t$  allows the effect of fixed observables (such as geography) to vary over time. Finally, we control for current building stock levels (again transformed by the inverse hyperbolic sine function), measured prior to construction in period  $t$ , as well as the previous growth trajectory.<sup>11</sup>

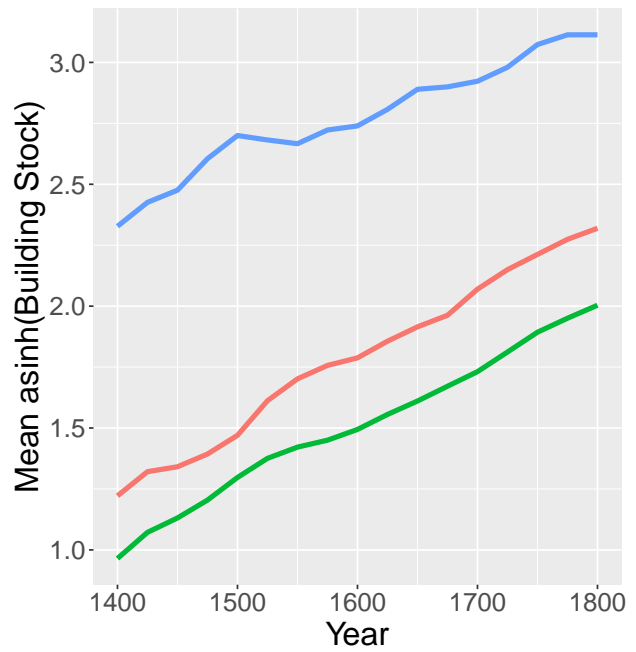
Table 2, Column 1 shows that the differences in Figure 3 that were apparent from a visual inspection are in fact statistically significant. However, all significance disappears in Column 2, which includes two-way fixed effects. Columns 3-5 each add one of the remaining terms, and the results do not substantively change. Based on this regression, there does not

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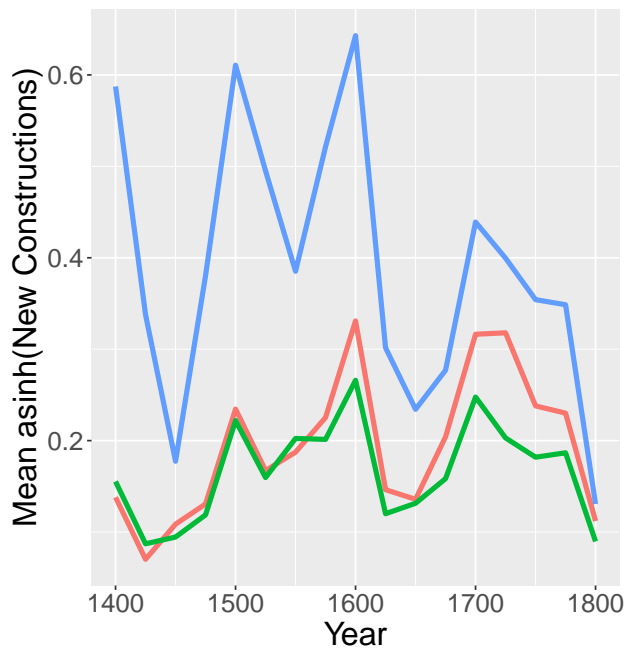
<sup>11</sup>Because this is a “high  $n$ , low  $t$ ” setting, Nickell bias (described in Nickell, 1981) is a serious concern. Future drafts will include the Arellano and Bond (1991) estimator to account for this.



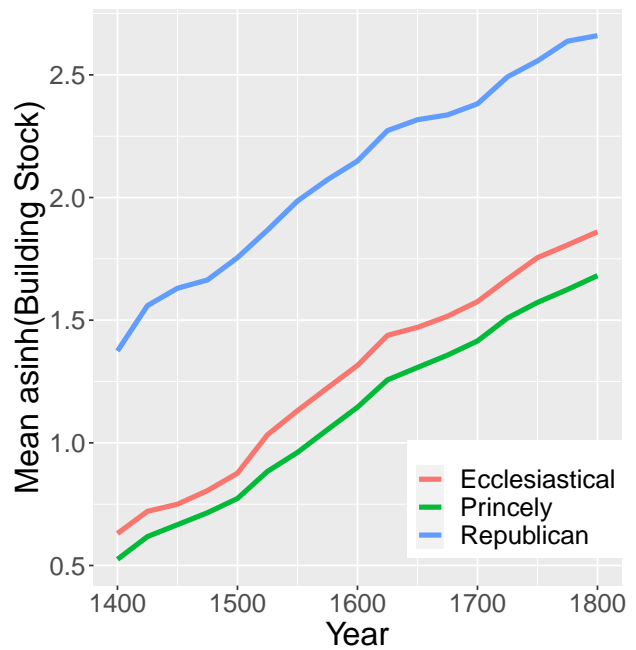
(a) Mean Clerical Construction



(b) Mean Clerical Building Stock



(c) Mean Non-Clerical Construction



(d) Mean Non-Clerical Building Stock

Figure 2: Institutions source: Author's own classifications, derived from Cantoni et al. (2019). Construction: Cantoni (2020).

appear to be a significant difference between institutions. However, this baseline specification should not be over-interpreted for two reasons: First, it averages the effect of transitioning either into or out of princely institutions, but as the next section will show, the effect of these transitions is not necessarily symmetrical. Second, the “control group” is not precisely defined since the reference group (ecclesiastical = 0 and republican = 0) includes cities which could at some point be in either non-prince category. Both of these facts can strain the parallel trends assumption. To account for this, in the next section I conduct event studies with precisely defined control groups so that the coefficients are consistent with a canonical difference-in-differences approach.

Table 2: Two-Way Fixed Effects Panel Regressions

Dependent Variable:	asinh(Construction)				
Model:	(1)	(2)	(3)	(4)	(5)
<i>Variables</i>					
(Intercept)	0.32*** (0.007)				
Ecclesiastical	0.05*** (0.02)	0.02 (0.02)	-0.006 (0.02)	-0.001 (0.02)	0.004 (0.02)
Republican	0.40*** (0.06)	0.09 (0.06)	0.07 (0.06)	0.07 (0.07)	0.08 (0.07)
asinh(stock)				-0.17*** (0.01)	-0.21*** (0.02)
Newbuilds.L1-L8	No	No	No	No	Yes
<i>Fixed-effects</i>					
city_id		Yes	Yes	Yes	Yes
Year		Yes	Yes	Yes	Yes
Year-region_id			Yes	Yes	Yes
<i>Fit statistics</i>					
Observations	32,266	32,266	32,266	32,266	32,266
Adjusted R <sup>2</sup>	0.02	0.25	0.27	0.28	0.28

*Clustered (city\_id) standard-errors in parentheses*

*Signif. Codes: \*\*\*: 0.01, \*\*: 0.05, \*: 0.1*

*Notes: Non-causal; average effect of switching in either direction*

## V. Difference-in-Differences

### Methods

In some cases, institutional transitions were only temporary<sup>12</sup> and two cities (Goerzke and Herford) even experience a double reversal. To simplify the interpretation of the following event studies, I restrict the set of transitions to the 242 cities which experience a single permanent transition. For each treatment, the sample is also further restricted so that the coefficients have a canonical difference-in-differences interpretation. For example, when studying the effect of transitioning from Ecclesiastical to Princely institutions, the control group is limited to only those cities which were remained ecclesiastical for all periods. Figure 3 presents the distribution of transitions over time. We can see that the vast majority of institutional transitions occurred prior to the 18th century; the institutional framework of the HRE was mostly stable for the hundred years before it began to collapse after the French Revolutionary Wars.

I treat each type of transition as a treatment, and run event studies based on the following specification:

$$\text{asinh}(\text{Construction}_{i,t}) = \sum_{k \in [-16, 16]} \beta_k TTT_{i,k} \cdot \text{Treated}_i + \alpha_i + \alpha_t + \sum_{t=1}^{17} \rho_t X_i \cdot t + \epsilon_{i,t}$$

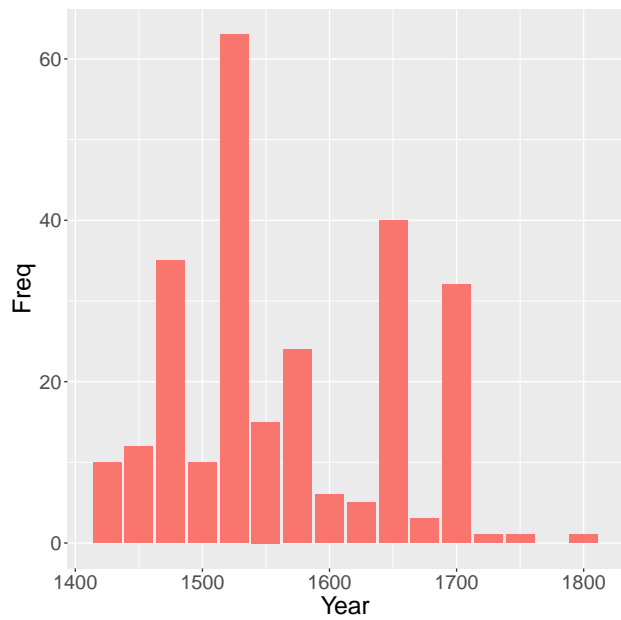
Where  $TTT_{i,k}$  is “time to treatment” following the standard event study framework, where  $t = 0$  is defined as the year in which the institutional transition for city  $i$  is observed. As we have shown in Table 2 (Columns 4 and 5) that the omission of lagged construction levels or growth did not significantly bias the coefficients on institutions, lagged construction and building stock are omitted to avoid potential Nickell bias.<sup>13</sup>

Because treatment timings are heterogeneous, the results are susceptible to biases if

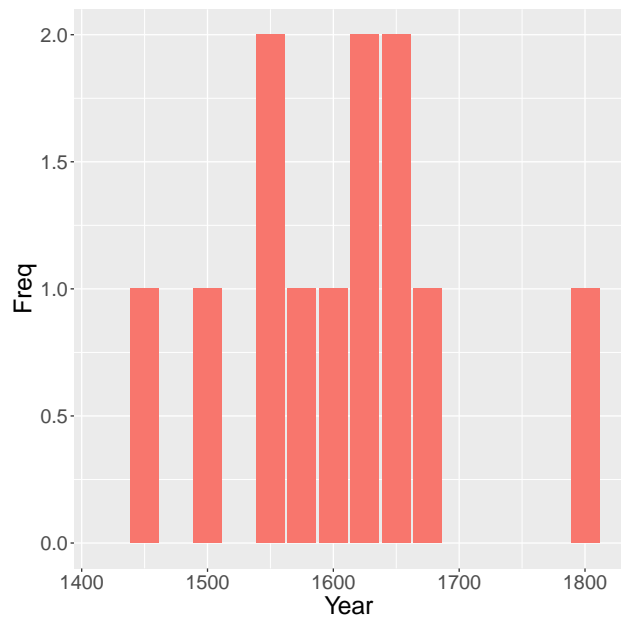
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<sup>12</sup>43 Prince to/from Ecclesiastical transitions revert back to Princely/Ecclesiastical institutions, while 6 Prince to/from Republic transitions revert back to Princely/Ecclesiastical institutions.

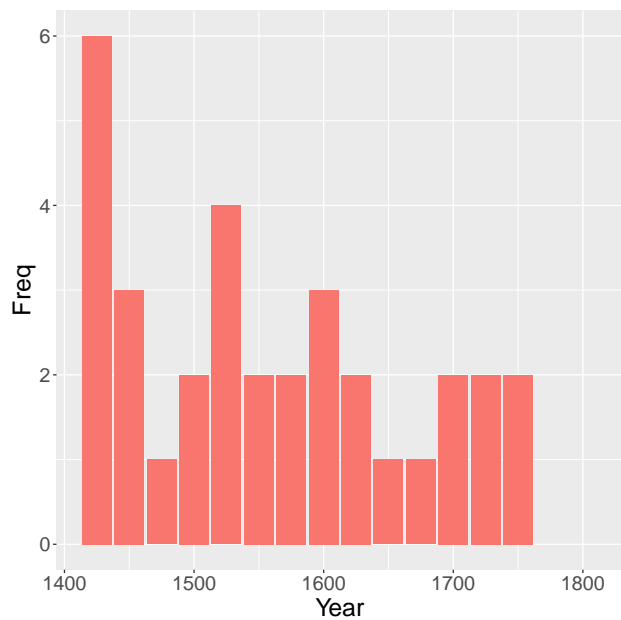
<sup>13</sup>Including either variable does not substantively change the results, which are not reported for brevity.



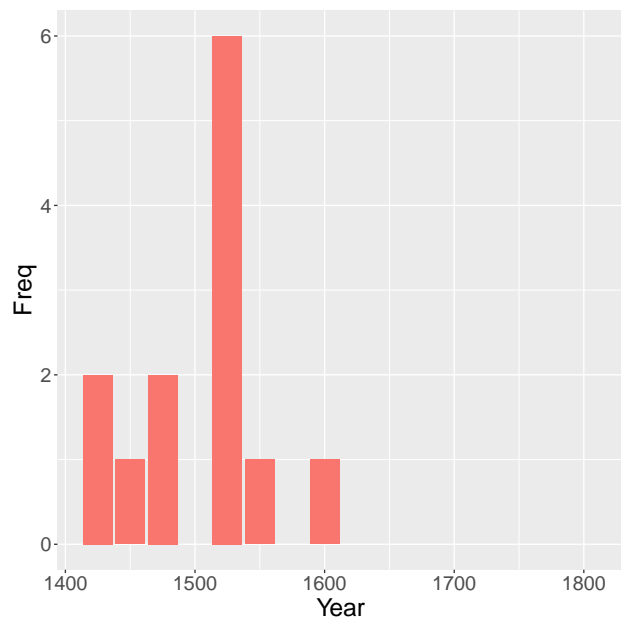
(a) Ecclesiastic to Prince,  $n = 190$



(b) Prince to Ecclesiastic,  $n = 11$



(c) Republic to Prince,  $n = 30$



(d) Prince to Republic,  $n = 11$

Figure 3: Frequency of permanent transitions from one institutional category to another. Note differing scale of y-axes.

treatment effects are also heterogeneous across time (Goodman-Bacon 2021). To address this, I use the “interaction-weighted” estimator proposed by Sun and Abraham (2021) which re-weights the coefficient estimates according to the size of treatment cohorts. This estimator is robust to bias introduced by heterogeneous treatment effects, but still requires the “parallel trends” and “no anticipatory behavior” assumptions to be satisfied. For brevity, the following section reports only the statistics estimated using this method.

Unfortunately, it is difficult to argue that the assumptions for a causal interpretation of the difference-in-differences coefficients hold. With few exceptions, one cannot argue that transitions between institutions are random, as shown in Figure 4. Purchase, conflict, and conquest are all deliberate actions made with the explicit purpose of taking ownership of a city. Furthermore, it is hard to say that targeting is random; one expects leaders to be strategic in their expansion choices, although purchase was frequently opportunistic rather than planned. Most purchases are due to insolvent princes pawning off territory, rather than a concerted effort by the purchaser to expand their territory. Failing cities might be easier to conquer or cheaper to purchase, so poor cities see more transitions. The correlation between social unrest and institutional transition remains a challenge to many papers in the literature, and the IV approaches typically used are hardly convincing.

Common shocks are also likely to bias estimates, particularly in the long run. Using a staggered implementation approach reduces the bias around the transition period when transitions are evenly distributed, but causes increasing bias in the long run. For this reason, I only report coefficient estimates of effects within 100 years of the transition. Pertinent examples of such common shocks are the Reformation, 30 Years’ War, and Counter Reformation, which all significantly shocked how the institutions of the Ecclesiastical territories interacted with the broader laws of the HRE. For the Republics, the most important shock was the Swabian War, which led to Emperor imposing changes in the constitutional laws of the Free and Imperial Cities, specifically the reduction of craft guild influence in favor of merchant patricians.

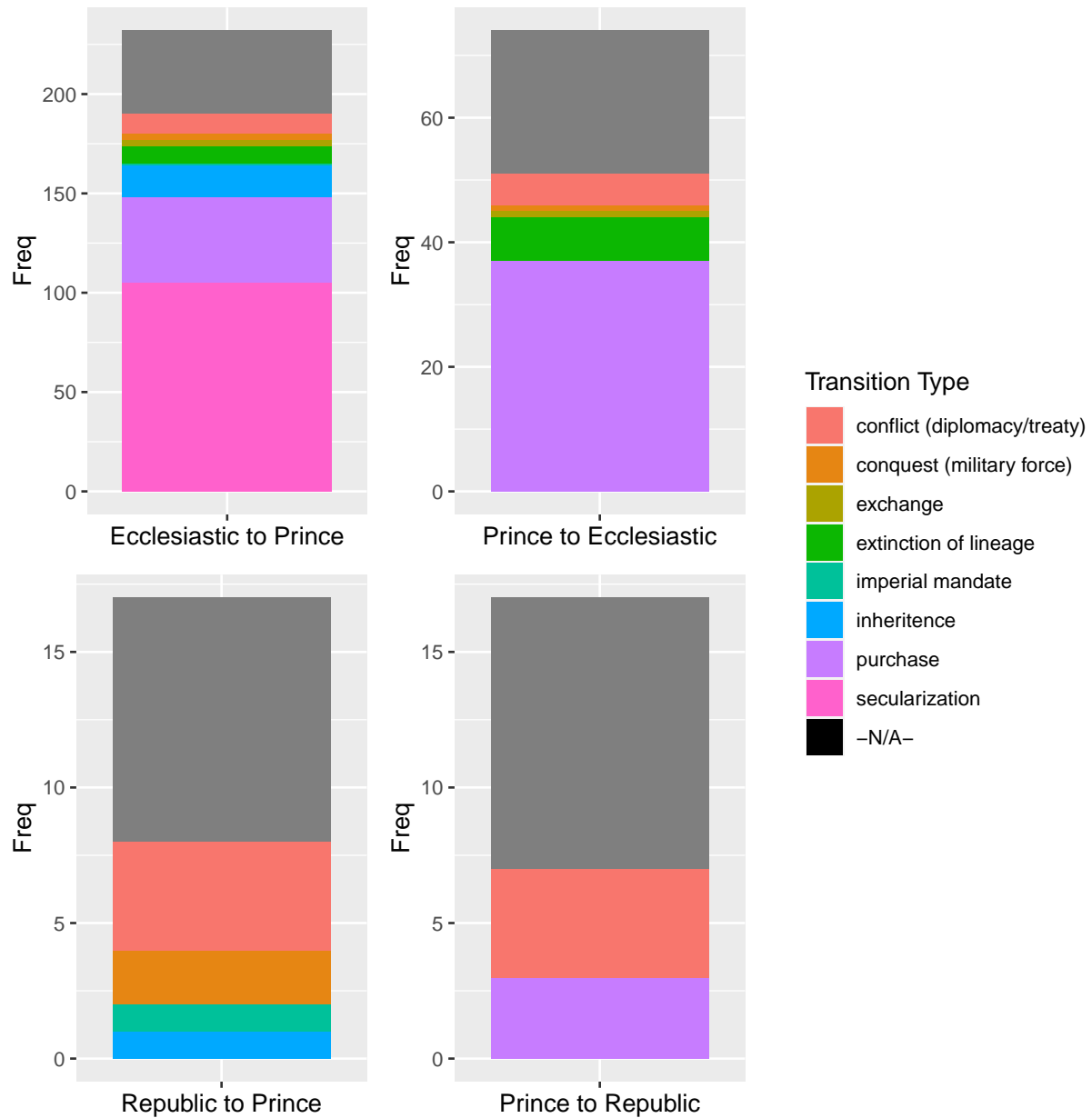


Figure 4: Circumstances of institutional transitions. Cantoni et al. (2019) records the circumstances of transition whenever a city changes territories. Based on my institutional classifications, I observe which transitional circumstances are associated with each type of institutional transition.



## Results

Figure 5 reports the benchmark event study results. Panel A shows that there does not appear to be a significant effect when transitioning from Princely to Ecclesiastical institutions. The parallel trends assumptions appears reasonably satisfied, but it is difficult to argue in favor of there being no anticipation effect. Secularization was an extremely politicized process, and often required drawn out legal procedures before changes were legally recognized. Furthermore, many ecclesiastical territories in Protestant territories were *de facto* secularized when they elected “lay administrators” instead of Bishops. Where possible, I use the dates of *de facto* secularization in favor of *de jure* secularization, but it is possible that these results are contaminated by the systematically different procedures of secularization that occurred in the Protestant regions.

Panel B shows that there is a positive effect of transitioning from Prince to Ecclesiastic, although it is not precisely estimated in all post-periods. The coefficient implies .6 more construction events per century, which is non-trivial considering the mean for new buildings is about 2. There does not appear to be a pre-trend, and anticipation effects are possible but less likely. Many Prince to Ecclesiastical transitions occurred when Princes desperate for money mortgaged or pawned their lands and titles; since the transitions we observe are permanent, we can assume that the original holders defaulted. It is reasonable to assume these circumstances are not anticipated in the time scale we are looking at.

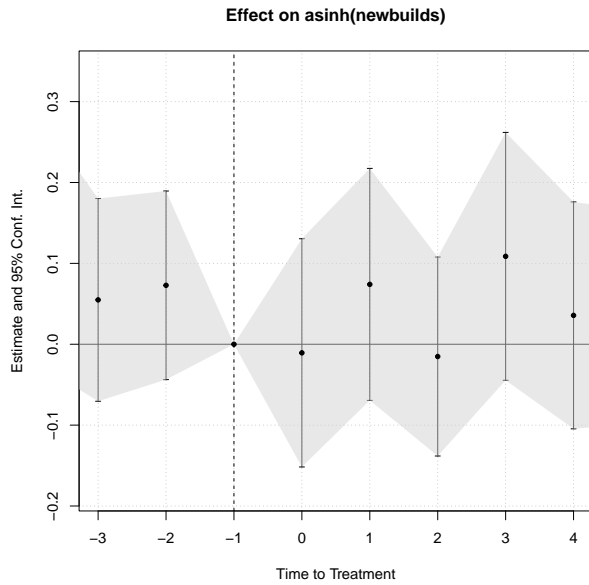
Panels A and B have a similar shape, with the effect of transitioning from elective to hereditary monarchy appearing to be negligible, while the effect of adopting ecclesiastical elections is very weakly positive. Further research is necessary to explore why the direction of the transition matters. On the other hand, Panels C and D, which report the effects of transitioning between Republican and Princely institutions, do appear to be symmetrical. However, it is important to note the statistical power of the lower panels is substantially lower, as there are far fewer observations.

Panel C shows that Free and Imperial Cities losing their imperial immediacy may have

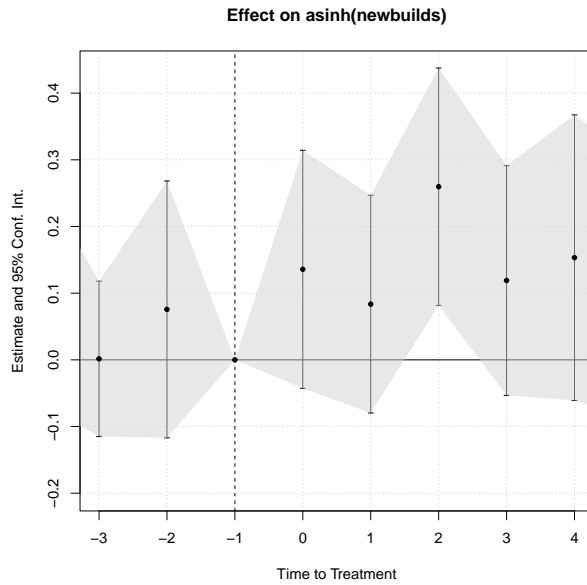
only recently regressed to the mean after periods of below-average growth. Transition is associated with an immediate negative effect, but rapid stabilization. This suggests that transitions may have been destructive, but the actual rule of Princes was not substantially worse than autonomy for these cities. It is possible that the most destructive oligarchies weakened themselves to the point that they could no longer withstand Princely encroachment upon their freedoms, at which point Princes were no worse than Oligarchs, but more research is necessary to support this hypothesis.

Panel D is more challenging to interpret, as the pre-trend has an irregular shape suggestive of an anticipation effect. Transitions to Republicanism can take two forms: first, if a city becomes sufficiently prosperous it may be able to buy or fight for its freedom; second, a prosperous city might expand outside of its walls. Because most instances of the first type of transition occurred prior to 1400, the transitions observed here are generally the second type. This means that cities transitioning to republicanism are likely benefiting from spillover effects of being near prosperous republican cities just before the transition. These effects are not particularly persistent, and again there is some weak evidence that the transition led to reduced growth in the long run, as the coefficients are all negative after 100 years.

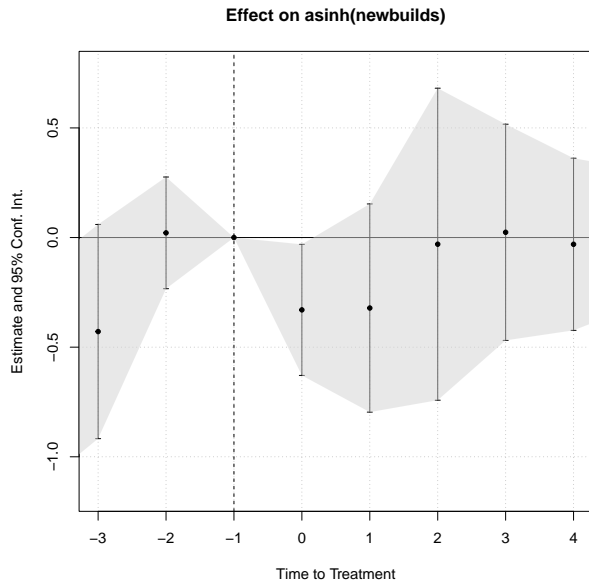
Figures 6 and 7 repeat the analysis, but look specifically at either clerical or non-clerical construction. In general, the results are qualitatively similar but there are two noteworthy differences: First, Figure 5 (clerical building) Panel B (prince to ecclesiastic) is the only panel which has a jointly significant overall post-treatment effect. However, the post-treatment effect is not much different in magnitude from a persistent pre-trend. It is unclear why a transition into ecclesiastical institutions would be associated with a significant and transient decrease in clerical construction. Figure 7 provides a view of Republicanism consistent with the hypotheses discussed above, as there appears to be a short run bump in non-clerical construction that turns weakly negative after around 100 years.



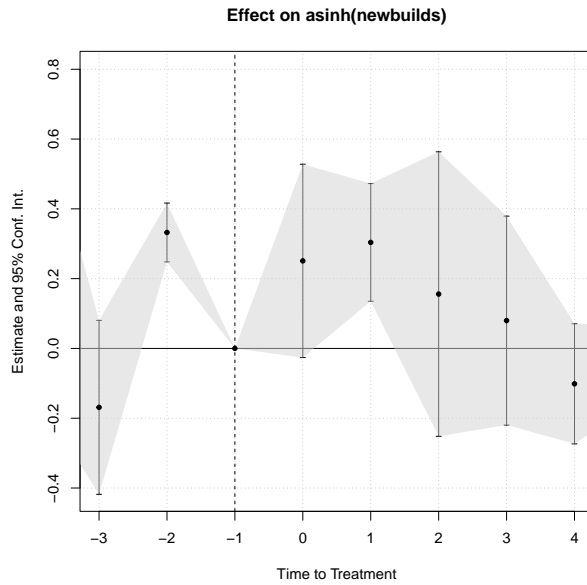
(a) Ecclesiastic to Prince,  $n = 8,432$   
 $t$  value: .26



(b) Prince to Ecclesiastic,  $n = 21,760$   
 $t$  value: 1.33

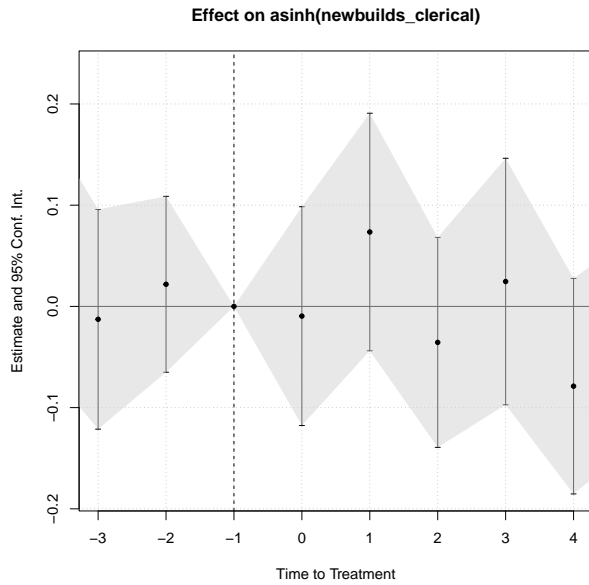


(c) Republic to Prince,  $n = 1,071$   
 $t$  value: -.15

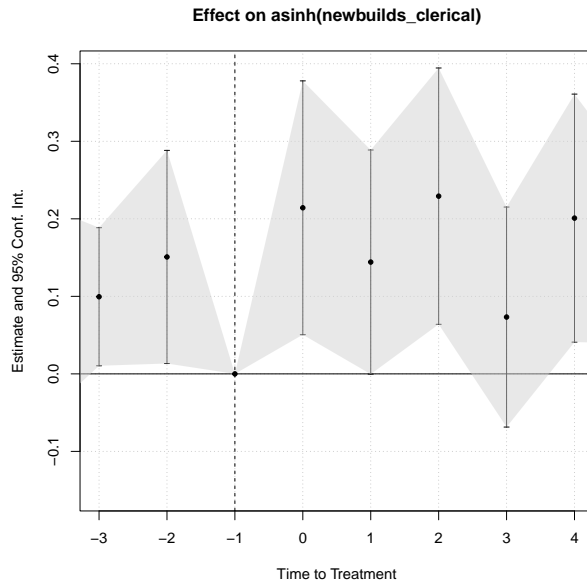


(d) Prince to Republic,  $n = 21,437$   
 $t$  value: .34

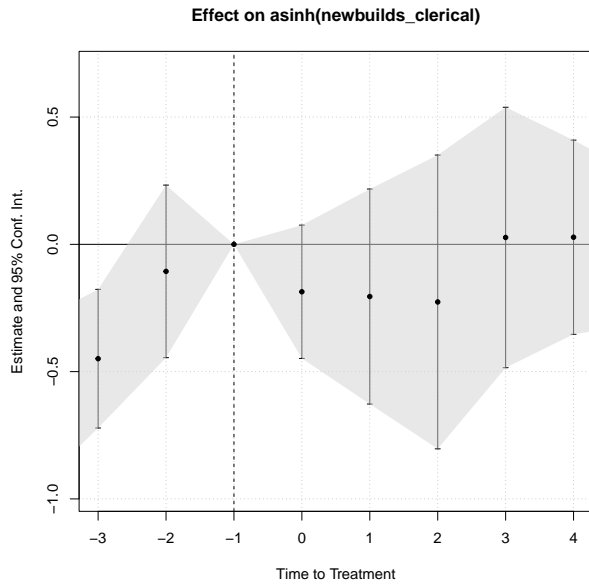
Figure 5: Event Study: The effect of institutional transitions on construction event frequency, using the Sun and Abraham (2021) IW estimator. Relative periods represent 25 year intervals.  $T$  value reports the significance of the "Average Treatment Effect for the Treated", the weighted average total post-treatment effect.



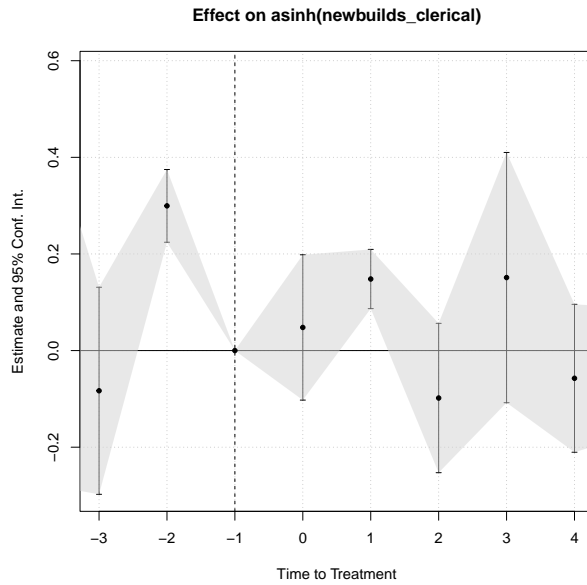
(a) Ecclesiastic to Prince,  $n = 8,432$   
 t value:  $-.19$



(b) Prince to Ecclesiastic,  $n = 21,760$   
 t value:  $3.12$

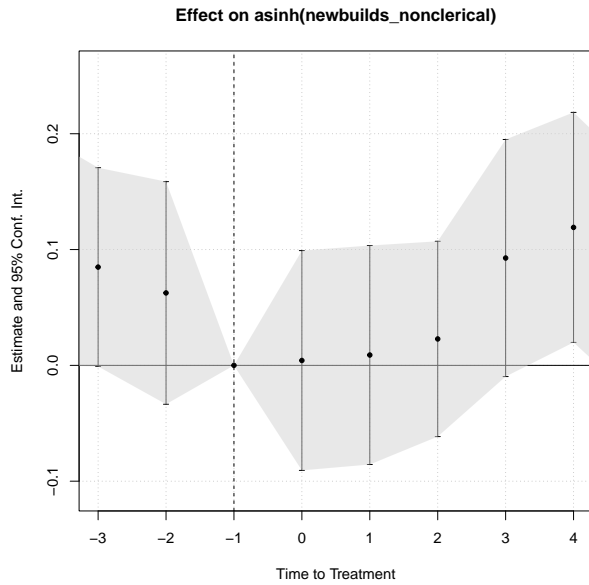


(c) Republic to Prince,  $n = 1,071$   
 t value:  $-.22$

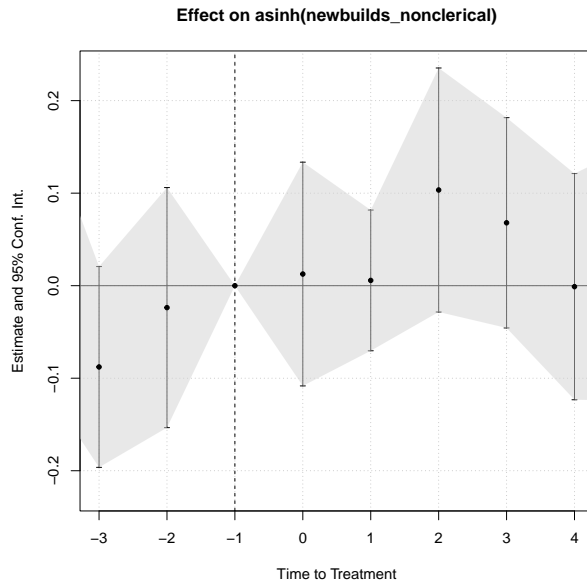


(d) Prince to Republic,  $n = 21,437$   
 t value:  $.09$

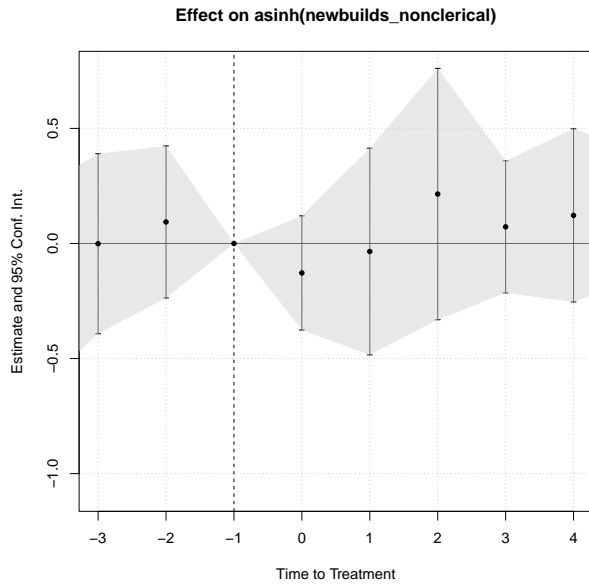
Figure 6: Event Study: The effect of institutional transitions on clerical construction event frequency, using the Sun and abraham (2021) IW estimator. Relative periods represent 25 year intervals. T value reports the significance of the "Average Treatment Effect for the Treated", the weighted average total post-treatment effect.



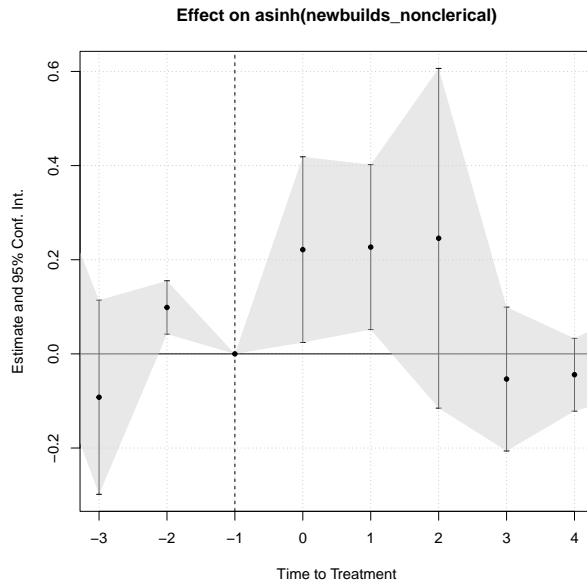
(a) Ecclesiastic to Prince,  $n = 8,432$   
 $t$  value: .72



(b) Prince to Ecclesiastic,  $n = 21,760$   
 $t$  value: .37



(c) Republic to Prince,  $n = 1,071$   
 $t$  value: .78



(d) Prince to Republic,  $n = 21,437$   
 $t$  value: .70

Figure 7: Event Study: The effect of institutional transitions on non-clerical construction event frequency, using the Sun and Abraham (2021) IW estimator. Relative periods represent 25 year intervals. T value reports the significance of the "Average Treatment Effect for the Treated", the weighted average total post-treatment effect.

## VI. Conclusion

This paper has focused on providing a proof of concept, rather than performing exhaustive robustness checks. As the available data is revised and expanded, it may be fruitful to repeat the analysis here using more sophisticated methods, such as Poisson regressions or explicitly modeling the selection on observables (e.g. by propensity score matching) to control for pre-trends. Unfortunately, there simply is no readily compiled data on observables for the vast majority of the cities in this sample yet.

Ultimately, these preliminary results lead to more questions than answers. Transitions into Republicanism appear to result in significant but transitory increases in construction activity, which does not strongly support the De Long and Shleifer hypothesis that these forms of government led to long run growth relative to more autocratic ones. On the other hand, the support for a long run negative effect is not there either, because the negative coefficients after 100 years are not statistically significant.

For ecclesiastical institutions, it is difficult to separate the observed increase in construction from the fact that after 1600 most ecclesiastical territories were Catholic, and engaged in much more clerical construction. Since we do not see a significant change in non-clerical construction, it is possible that this is driven by counter-reformation efforts and not by local growth. The fact that we do not see a matching decline in non-clerical construction suggests that resources are flowing into these cities rather than being reallocated. It is also possible that the Church was very effective at diverting resources away from private projects and towards clerical ones.

The two most promising avenues forward involve looking closer at the circumstances of transition. For example, transitions can be classified into violent or non-violent. Focusing on transitions as shocks would also expand the sample size, since all transitions could be included and not just permanent ones. It is also likely that the impact of transitions varied depending on regional or other factors, the most important of which to explore would be the impact of confessionalization. After the Reformation, the culture and purview of ecclesiastical

territories changed drastically.

In the end, it appears there is no reliable causal statement that can be made about the effect of this form of institutional variety in Germany. There are two possible ways to interpret this null result. First, it is possible that the institutional classifications used here are not appropriate for a variety of reasons. For example, following the *Bauernkrieg* of 1525, the constitutions of over 20 republics were amended to reduce the influence of guilds in favor of patricians more amenable to the Emperor (Brady, 1985). Similarly, the Reformation and other pressures altered fundamentally what it meant to be a Prince-Bishop; by the 18th century the titles were held by an increasingly insular and well-connected pool of candidates from preeminent dynasties. Not only were the fundamental characteristics of these groups changing, but election procedures simply may not have been important relative to the other institutional variables.

On the other hand, election procedures were fundamental distinctions that persisted across the entire sample. The robustness of the null result here runs contrary to expectations. This may suggest that democracy has prerequisites that were unmet in this setting. As research develops and richer sets of controls become available for the larger sample of cities contained within the *Staedtebuch* it may be possible to study the conditions for successful early democratic institutions.

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