

Online Appendix for "Why Was Central Europe Characterized by
Political Fragmentation?"

Contents

A Historical background on urban self-government and public services	2
B Data	3
Descriptive statistics	3
C Additional tests	6
Alternative map of the Empire	6
Triple differences with controls	7
Spatial dependence in transitions	7
Split by outcome	8
Geopolitical competition over time	10
C References	12

A Historical background on urban self-government and public services

In my second set of analyses, I examine four historical outcomes that capture the relocation of political power and public services from rulers to towns: self-government, defensive walls, hospitals, and schools. Urban self-government was the most common form of political organization practiced by medieval townspeople (e.g. Stasavage 2011; Bosker et al. 2013), and it was often introduced to ensure the security of the townspeople (e.g. Johanek 2000; Becker et al. 2018). Self-governing towns often sprang up when public power broke down (Wickham 2015, 9; Doucette and Møller 2021), and they were one of the key constraints on European rulers until the modern period. Urban political autonomy forced rulers to bargain with townspeople when raising money for war, causing the calling of parliaments wherein negotiations could take place (Cox et al. 2021; Tilly 1990; Møller and Doucette 2022).

A key public security measure was the construction of town walls that could fend off attacks (Tracy 2000). After the demise of the western Roman Empire, urban fortifications were largely left to decay as European towns shrunk. While the re-emergence of royal and imperial power around the ninth century had effectuated the construction of new urban defences, many towns built stone and brick fortifications with looming towers and fortified gates (Wolfe 2009, 9-16). This greatly improved the defensive capabilities of towns, as walls allowed a small number of townsmen to fight off much larger groups of attackers (Tracy 2000; Dincecco and Onorato 2016).

Initially, monasteries remained the main centers of poor relief, elderly care, and care for the sick. However, this left many townspeople without help, as monasteries were often located in the countryside (Ziegler 2018, CH. 4). Therefore, towns began establishing hospitals during the medieval period (Jetter 1986, 220-231; Davis 2019, 16; Fralick 2020; Brodman 2009, 55). The new urban hospitals became a relatively common fixture of the urban landscape and were, in most cases, administered by religious actors, such as monks or nuns. However, their foundation and operation usually depended on donations from either

townspeople or rulers (Brodman 2009, 178).

Schools, like hospitals, were the purview of religious actors in the eleventh century. At this point in time, education was seen primarily as a necessary prerequisite for a later clerical career. However, a new type of school began to appear in European towns during the medieval period. The new schools better met the demands of urban life – that is, had a stronger emphasis on practical skills such as reading, writing, and math. Nevertheless, the schools were still run by different Catholic organizations (Sheffler 2010, 1067-1070; Sheffler 2008, 3-12; Rörig 1971, 218; Kintzinger 1995). The expansion of urban education occurred across the West. The church-run schools also depended on the charity of townspeople or rulers (Brodman 2009, 178).

B Data

Descriptive statistics

Table A1 provides descriptive statistics for the variables used in the across-Europe analyses, while Table A2 does the same for the variables used in the within-empire analyses.

Table A1: Descriptive statistics for across-Europe analyses

Variable	Mean	SD	Min	Max
<i>Outcome</i>				
Self-government	0.37	0.48	0	1
<i>Treatment status</i>				
Imperial town	0.29	0.45	0	1
Hohenstaufen town	0.02	0.14	0	1
<i>Controls</i>				
Ln(city size)	1.24	1.46	0	6.86
Bishop	0.40	0.49	0	1
Conflict	0.02	0.17	0	4
University	0.07	0.26	0	1
Capital	0.04	0.20	0	1
Distance (km) Cluniac movement	393	342	0.30	2181
Dominican monastery	0.07	0.25	0	1
Crusader	0.07	0.26	0	1

Table A2: Descriptive statistics for within-empire analyses

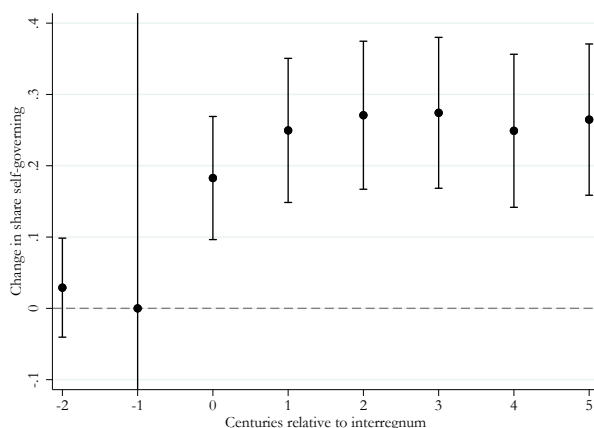
Variable	Mean	SD	Min	Max
<i>Outcomes</i>				
All institutions	1.02	1.32	0	4
Self-government	0.30	0.46	0	1
Defensive wall	0.39	0.49	0	1
Hospital	0.17	0.38	0	1
School	0.16	0.37	0	1
<i>Treatment status</i>				
Hohenstaufen town	0.12	0.32	0	1
<i>Controls</i>				
Market	0.48	0.50	0	1
Long-distance trade	0.11	0.31	0	1
Proto-industries	0.16	0.44	0	2
Lending	0.06	0.23	0	1
Castle	0.47	0.50	0	1
Rhine	0.12	0.32	0	1
Conflict	0.01	0.09	0	1
Distance (km) university	504	267	0.42	973
Distance (km) Cluniac movement	142	99	0.14	346
Dominican monastery	0.03	0.17	0	1
Crusader	0.20	0.40	0	1

C Additional tests

Alternative map of the Empire

One might worry that the results depend on the specific map used for assigning imperial ownership. Therefore, I also report results using an alternative map. The Euratlas (Nüssli and Nüssli 2008) presents maps of European states in century intervals. Therefore, I use their map of the Roman Empire of the German Nation in 1200 to assign ownership to the towns in my across-Europe dataset. Next, I repeat my main specification including control variables using the alternative indicator for imperial towns. Figure C.1 shows the results. Reassuringly, the empirical pattern remains the same.

Figure C.1: Alternative map of Empire

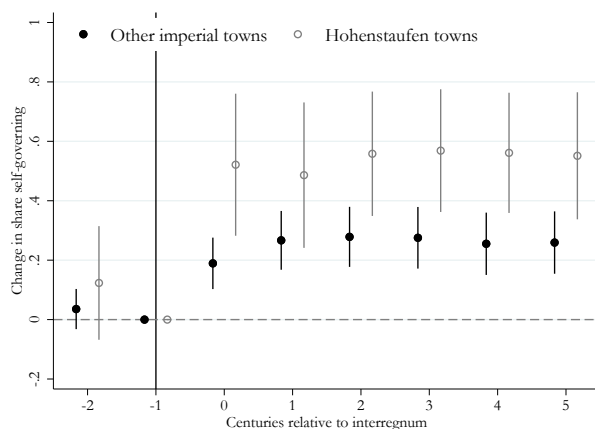


Note: Estimated using OLS. 95% confidence intervals based on town-level clustering. The coefficients show the share of urban political autonomy (relative to its level in the period just before the interregnum – the vertical black line). Estimates prior to and including the vertical line are pre-interregnum, while subsequent estimates are post interregnum. The horizontal gray dashed line indicates the development in non-imperial towns.

Triple differences with controls

Figure C.2 presents the event triple difference estimates using models that include all controls, their interaction with the treatment period, and region trends. Reassuringly, I still observe a similar pattern in urban self-government.

Figure C.2: Including controls, their interaction with treatment period, and region trends

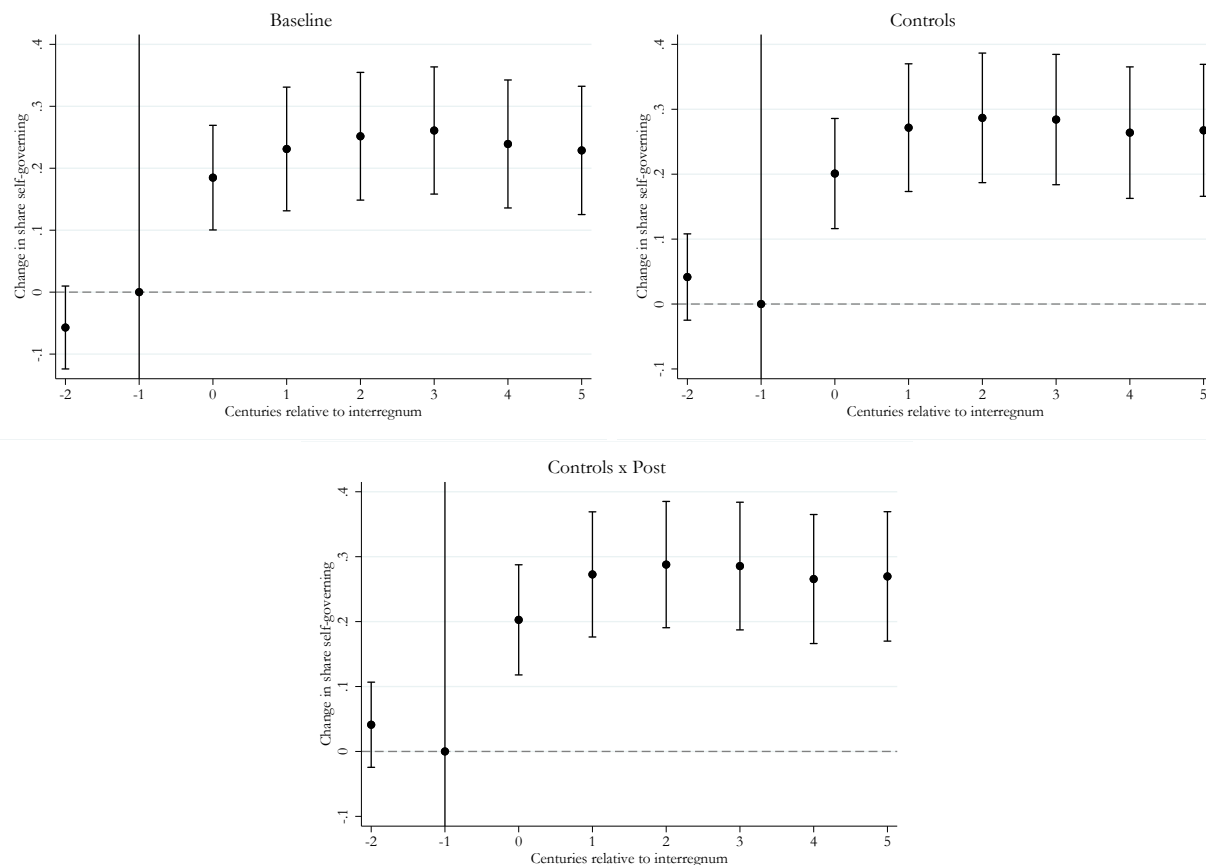


Note: Estimated using OLS. 95% confidence intervals based on town-level clustering. The coefficients show the share of urban political autonomy (relative to its level in the period just before the interregnum – the vertical black line). Estimates prior to and including the vertical line are pre-interregnum, while subsequent estimates are post interregnum. The horizontal gray dashed line indicates the development in non-imperial towns.

Spatial dependence in transitions

One might worry that there is contagion in transitions to urban self-government. To assess whether this alters my findings, I repeat my main models from the across-Europe analysis and include an interaction between the distance to the nearest transition to self-government in 1200 and a post-1250 dummy, and an interaction between the distance to the nearest self-governing town in 1200 and post-1250 dummy in all models. This does not alter my findings (see Figure C.3).

Figure C.3: Are the results driven by spatial dependence?



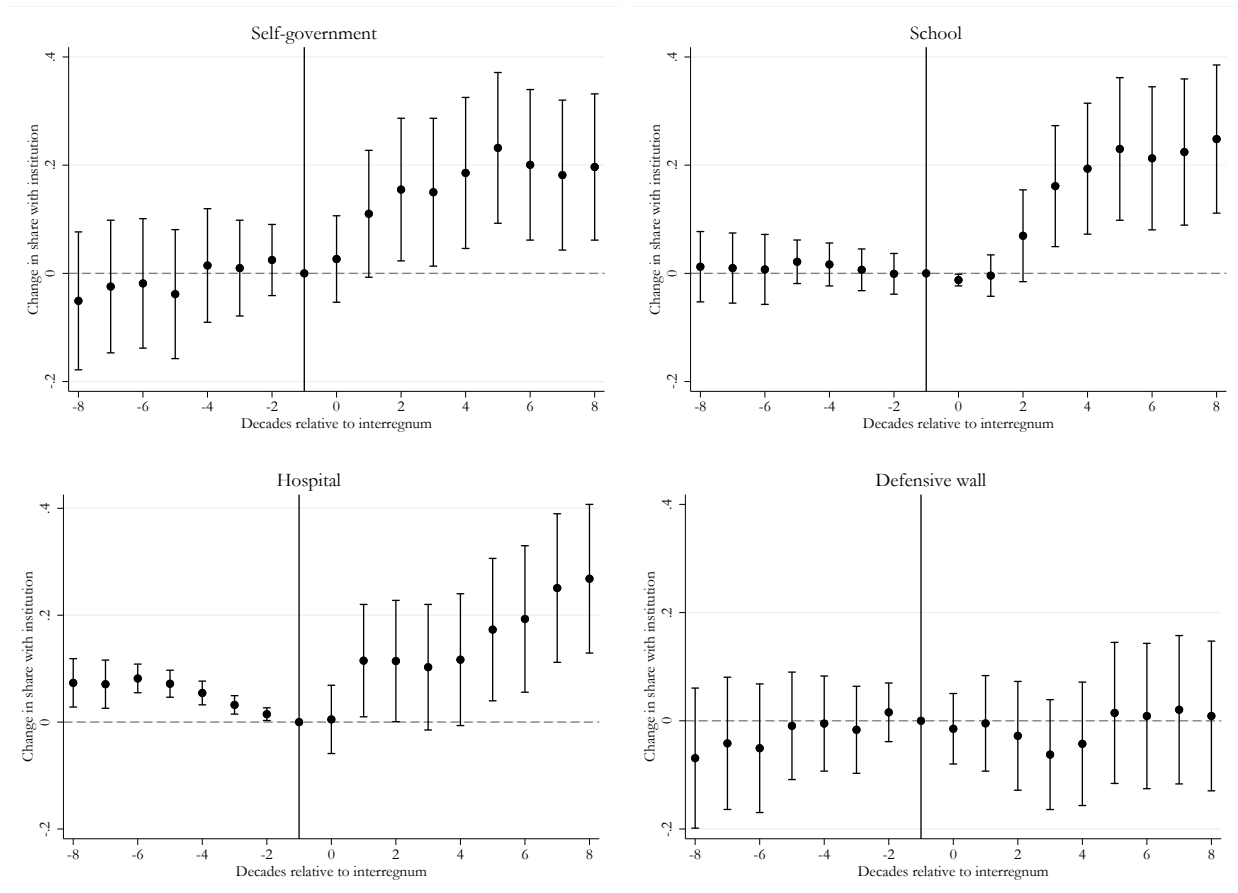
Note: Estimated using OLS. 95% confidence intervals based on town-level clustering. The coefficients show the share of urban political autonomy (relative to its level in the period just before the interregnum – the vertical black line). Estimates prior to and including the vertical line are pre-interregnum, while subsequent estimates are post interregnum. The horizontal gray dashed line indicates the development in non-imperial towns. All models include an interaction between post-1250 dummy and distance to nearest transition and self-governing town.

Split by outcome

Is this differential development visible across all four outcomes? Figure C.4 shows the results where the outcome is split into its four components. Hohenstaufen towns did not have additional self-government, schools, or walls prior to the interregnum. After the death of Frederick II, they experienced more political autonomy and were more likely to have a

school and hospital compared to other imperial towns. Hohenstaufen towns did not build more defensive walls, and they were slightly more likely to have a hospital prior to 1250. Overall, however, these findings suggest that former Hohenstaufen towns diverged from other imperial towns following the interregnum.

Figure C.4: Split by outcome

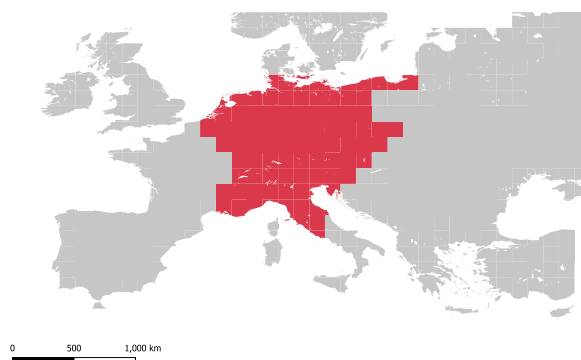


Note: Based on baseline model. Estimated using OLS. 95% confidence intervals based on town-level clustering. The coefficients show the number of institutions (relative to its level in the period just before the interregnum – the vertical black line). Estimates prior to and including the vertical line are pre-interregnum, while subsequent estimates are post interregnum. The horizontal gray dashed line indicates the development in non-Hohenstaufen towns.

Geopolitical competition over time

The hypothesized consequence of political fragmentation, measured as urban autonomy in this article, was an increase in geopolitical competition. Thus, if the divergence in self-governing towns reflect an increase in political fragmentation, I would expect a subsequent increase in warfare. To test if this is the case, I examine a dataset of approximately 100 km by 100 km grids, and I split the grids into two groups: one group of grids where at least 50% of the territory of the grid was covered by the Roman Empire of the German Nation in 1250 and another that was not part of the Empire. Figure C.5 depicts the data.

Figure C.5: Data on imperial control

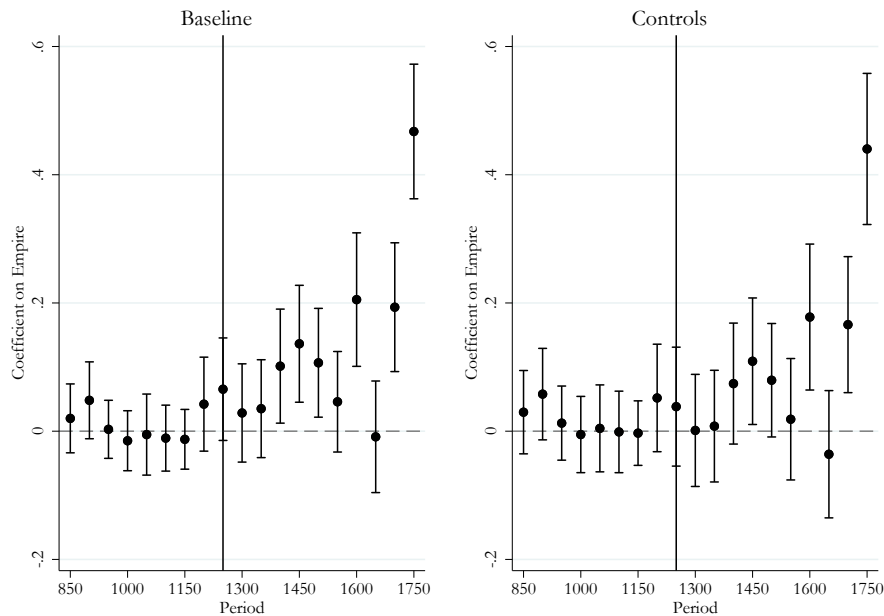


Note: Red grids belong to the Roman Empire of the German Nation in 1250.

As my outcome, I construct an indicator that is equal to 1 if a grid saw at least one war within a 50-year period, and 0 otherwise (based on Kitamura 2021). I combine this with data on my control variables based on the same sources used in my across-Europe analyses. Figure C.6 reports the results. There is little evidence of a difference in geopolitical pressure prior to 1250 when I compare imperial and non-imperial areas. There is some indication of an increase in warfare between 1200 and 1300 within the Empire, which fits with the campaigns of Frederick II and the subsequent conflict over the imperial throne. Yet, the difference is not significant. From around 1400 and onwards, the territory that belonged to the Empire in 1250 generally sees more war than other parts of Europe. This is consistent with a

process where political authority first becomes fragmented, which later leads to additional war between political units that try to reacquire political control over the former imperial territory.

Figure C.6: Warfare in imperial and non-imperial areas



Note: Estimated using OLS. 95% confidence intervals based on grid-level clustering. Estimates prior to and including the vertical lines are pre-interregnum, while subsequent estimates are post interregnum. The control setup includes grid and period fixed effects, and the following controls and their interaction with post-1250 indicators: logged urban population size, bishop, capital, crusader, university, Dominican order, and Cluniac monasteries. Periods correspond to 50 years. For example, *1000* includes all years from 1000 to 1049.

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