

Pandemic Shock and Economic Divergence: Political Economy Before and After the Black Death

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The Black Death as Critical Juncture

Political economy of shock to labor supply and prices

- Kills 1/3 of European population in second half of 1300s
- Shifts income to urban sector, induces conflict between cities and feudal lords – who claw back money and power
- Interacts with underlying differences in regional politics

Leads to divergence in development of *self-governing city*

- Politically fragmented West v. settler *Colonial* East
- In Colonial East, lords powerful, city development declines

Regional divergence led by cities within Germany

- Predicts later adoption of coercive agrarian institutions
- Divergence follows historic border, the River Elbe

The Study Area

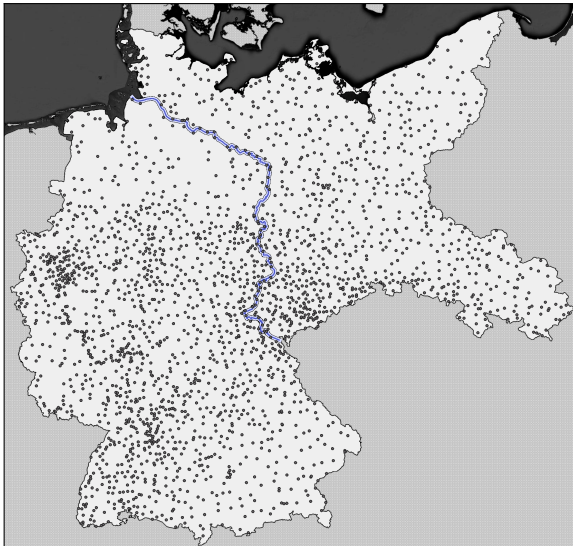


Figure: Cities in German-Speaking Europe

Urban Construction Before and After Pandemic

East and West of Elbe River is “pivotal comparative case” – Robert Brenner

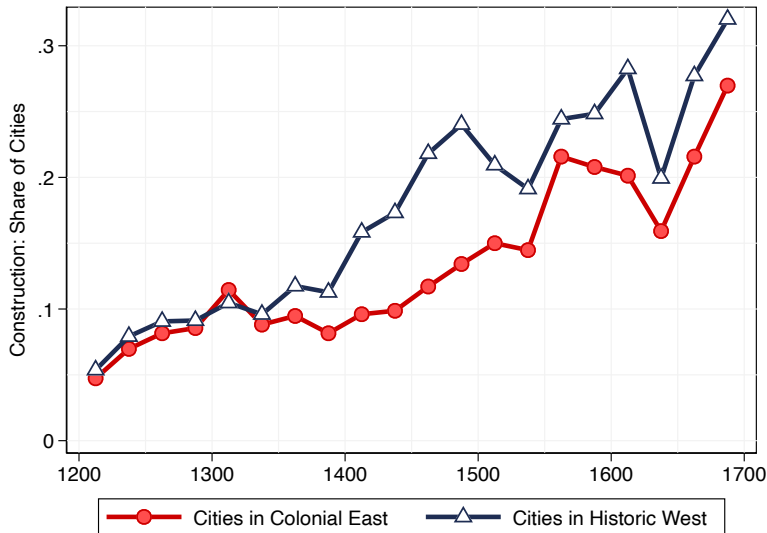


Figure: Evidence from 2,200+ cities in German-speaking Europe

The Analytic Narrative

Political fragmentation imposed constraints on the executive

This varied across regions

In Colonial East, territories were less fragmented

Shock to prices makes underlying politics relevant

Leads to divergence in urban development

Origins of Underlying Political Differences

Germanic colonization of territories East of Elbe River

- Labor scarce in Colonial East into 1300s, rulers promote mass migration 900s into 1200s
- Institutions in Colonial East established by rulers using templates — larger, less fragmented states with planned cities, homogeneous city charters
- Economic and cultural integration with different institutions
- Location of ‘the West’ was dynamic — Eastern German, Hungarian, Polish areas were once in *Europa Occidentalis*

“The Elbe, hitherto Germany’s eastern frontier, henceforth ran through the heart of the land.”

River traced boundary between a “politically disjointed west” . . .

. . . and a Colonial East with “systematic quasi-modern administration, organised on rational territorial principles” – Barraclough (1953)

“From their beginnings, the princely states of eastern Europe differed from their western prototypes, though the differences were not mainly economic or social in origin, but political and constitutional.” – Postan (1973)

How can we think about the Elbe boundary?

- “most significant socio-economic divide in Europe” (Kriedte 1983), offers “pivotal comparative case” (Brenner 1976)
- “a sharp contrast, emerging from the later Middle Ages... east and west of the River Elbe and its tributary the Saale, which formed a line bisecting Germany” (Perkins 1986)
- “no clear divide” (Scott 2001)
 - There is *heterogeneity* — ‘Saxony is not Brandenburg!’
 - Any divide is *fuzzy* — ‘Brandenburg straddles the river!’

Evidence

1. Underlying Political Differences

- Local fragmentation of feudal rule over cities
ruler competition ↓↓ 'price of politics' for ruled (North 1981)

2. Urban Development

- Economics: construction, manufacturing
- Politics: conflicts with lords and city alliances; city councils, mayors, charters; selection rules for councils and courts
- 2200+ German cities 1200-1700 in *Deutsches Städtebuch*

3. Agrarian Development

- Agriculture on nobles' estates – village-level data
- Laws limiting mobility of agrarian labor – territorial data

The Study Area

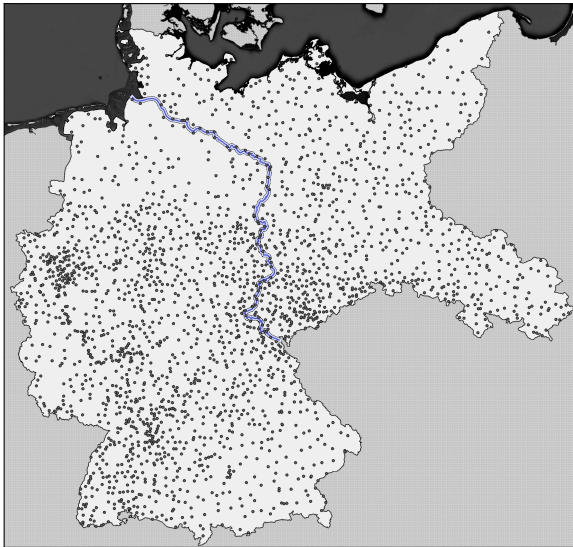


Figure: Cities in German-Speaking Europe

Political Fragmentation Example

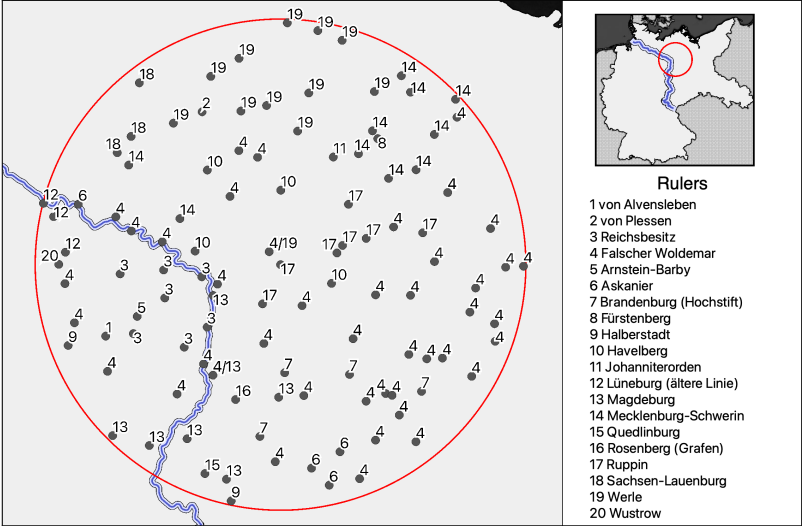


Figure: Fragmentation in rulers' claims over cities in 1348

Distribution of Political Fragmentation

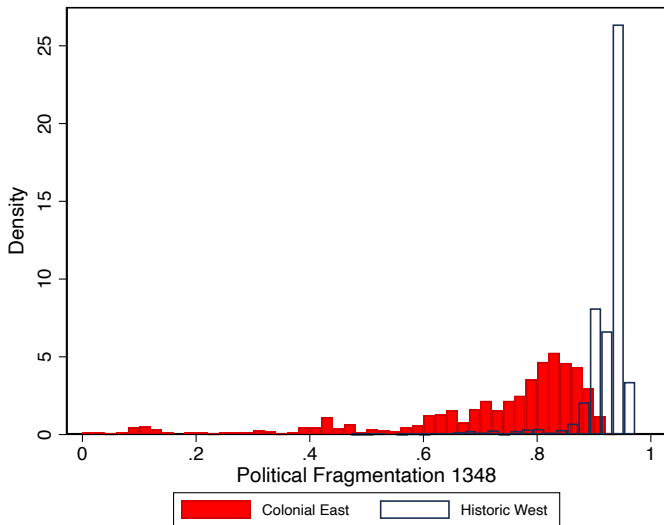


Figure: Political Fragmentation across Regions

► detail on difference across the border

Cross-Sectional Shifts in Colonial East circa 1350

	All Cities			Within 100 km of Border		
	β Col. East	SE	Mean	β Col. East	SE	Mean
<i>Region-Level Institutions</i>						
Political Fragmentation c. 1350	-0.20***	(0.04)	0.85	-0.09***	(0.02)	0.87
<i>City-Level Institutions</i>						
City Charter by 1349	-0.02	(0.06)	0.47	-0.02	(0.08)	0.35
Council by 1350	0.01	(0.04)	0.25	0.03	(0.07)	0.21
Mayor by 1350	-0.06**	(0.03)	0.13	-0.00	(0.02)	0.08
<i>Economics</i>						
Construction 1200-1349	-0.01	(0.03)	0.30	0.01	(0.06)	0.28
Manufacturing 1200-1349	-0.00	(0.01)	0.06	0.01	(0.01)	0.03
Urban Density: Neighbors 50km	-11.69	(7.44)	49.36	6.96	(10.10)	52.83
Rye Yields (Log)	0.09***	(0.03)	8.35	0.04	(0.05)	8.37
<i>Shock</i>						
Plague 1348-51	-0.04**	(0.02)	0.10	-0.04	(0.03)	0.09

Regression estimates of: $y_i = \alpha + \beta(\text{colonial east})_i + \epsilon_i$, with Conley SEs.

- 2,250 cities in total, 685 cities along the 100 kilometer border
- Cultural similarity, certainly along border

Comparison One: All the Variation in the Data

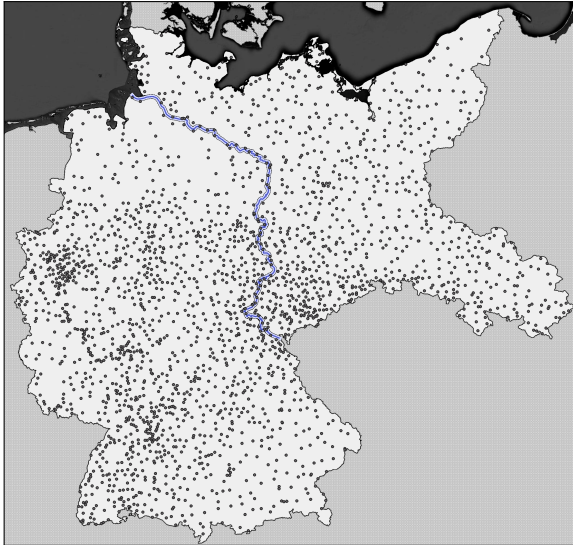


Figure: Cities in Colonial East versus West

Comparison Two: Cities Near the Border

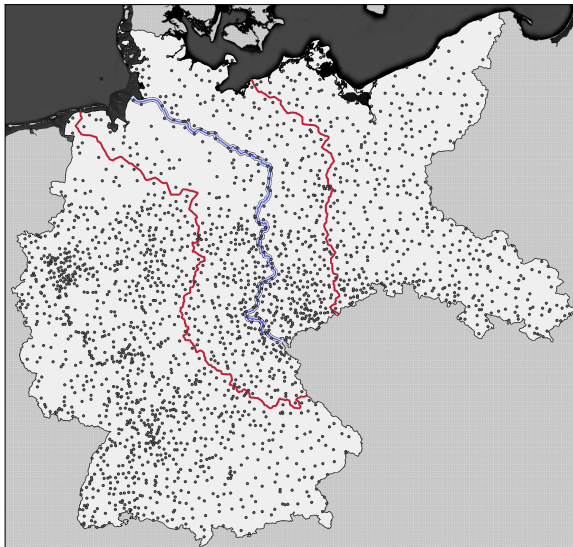


Figure: Border cities — 343 are in Colonial East and 342 in West

Comparison Three: Neighboring Cities on the Border

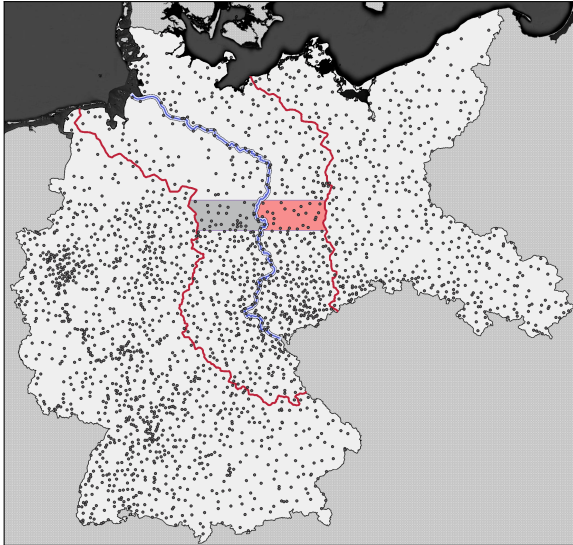


Figure: Compare border cities in same latitude cells at the same time

Quantitative Analysis of Development

Compare Colonial East to West

$$y_{it} = \beta_1(\text{colonial east}_i \times \text{post}_t) + \beta_2(\text{colonial east}_i \times \text{time}_t) \\ + \beta_3(\text{colonial east}_i \times \text{post}_t \times \text{time}_t) + \beta_4(x_i \times \text{post}_t) \\ + \beta_5(x_i \times \text{time}_t) + \beta_6(x_i \times \text{post}_t \times \text{time}_t) + \alpha_i + \delta_t + \epsilon_{it}$$

Control for time-varying implications of other factors

- Distance from border, rye yields, city plague outbreaks

Sequence of comparisons

- All variation, 100 km border, neighbors on the border

Shifts in Urban Construction

Construction from 1200 through 1699 in 50-year periods

	(1)	(2)	(3)	(4)	(5)
	Outcome: Indicator for Construction Activity				
	All Cities			100 km Border	
Colonial East \times Post 1350	-0.08*** (0.02)	-0.10*** (0.03)	-0.17*** (0.05)	-0.19*** (0.07)	-0.20*** (0.07)
Colonial East \times Trend in Centuries		0.02 (0.02)	0.02 (0.03)	0.07 (0.06)	0.07 (0.06)
Colonial East \times Post \times Trend		-0.02 (0.02)	-0.02 (0.04)	-0.01 (0.07)	0.00 (0.06)
Plague 1348-51 \times Post			-0.05 (0.05)	-0.09 (0.13)	-0.07 (0.13)
Plague 1348-51 \times Trend			0.07 (0.05)	0.06 (0.10)	0.06 (0.10)
Plague 1348-51 \times Post \times Trend			-0.11** (0.05)	-0.08 (0.10)	-0.08 (0.10)
Time FE	Yes	Yes	Yes	Yes	No
Time FE \times Latitude-Cell	No	No	No	No	Yes
Time-Varying Controls	No	No	Yes	Yes	Yes
Mean Outcome	0.27	0.27	0.27	0.24	0.24
Observations	22500	22500	22500	6850	6850
Western Cities	1490	1490	1490	342	342
Eastern Cities	760	760	760	343	343

Conley spatial SE's. Time-varying controls: crop suitabilities, distance as running variable.

Interpretation: Threats to Identification

Confounder must vary across time and space, along the border across neighbors

Did pandemic interact with prior economic differences?

- Development trends and levels similar before pandemic
- Urban density, climate, soils similar along border

Didn't trade and expansion of serfdom drive divergence?

- Divergence for neighboring border cities before 1500

Could local plague variation explain patterns?

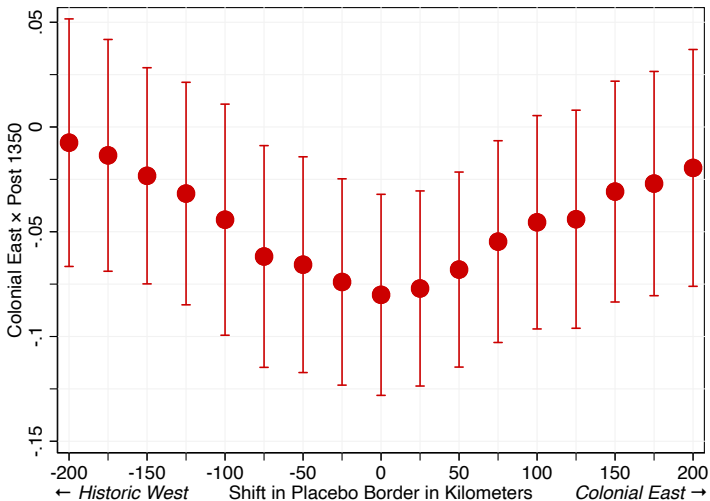
- We gather city-level data – does not drive divergence

Other shocks might have shaped process? Yes but...

- Hussite wars — actually hit East where effects muted
- Teutonic-Polish wars — a bit outside our area, no...

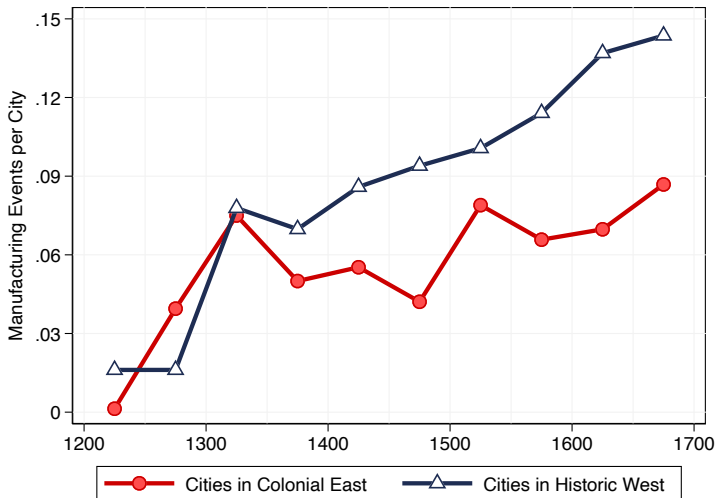
Saliency of Elbe-Saale Border

The effect of shifting the border on the “Colonial East × Post 1350” estimate



Shifts in Urban Manufacturing

Manufacturing provides corroborating evidence, where dating is known



Institutions and Politics of the Self-Governing City

- **Major urban institutions:** city council, mayor, charter
- **City council selection:** picked by lord or city interests?
- **City courts:** what jurisdiction? who picks judges?
- **Collective action:** city alliances, conflicts with lords, autonomous laws as 'legal acts of anti-lordly revolution'
— *trace classic dimensions of self-government à la Weber*

The Self-Governing City was Endogenous

Pandemic Shock Shifts These Processes

- From above – can be offered by lords to attract merchants

This is the ‘charter cities’ model, prevalent in the East
— where cities are subsequently suppressed by rulers

- From below – very often via extra-legal seizure of power

‘The noble. . . is watched, deprived of the suffrage and outlawed, as the Russian bourgeoisie were by Lenin.’

— Max Weber (1923)

Shifts in Urban Politics: Example Brandenburg

Before 1350

- Brandenburg cities secure legal right to destroy castles

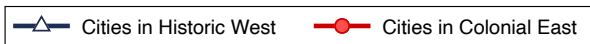
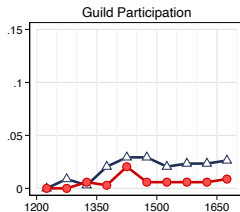
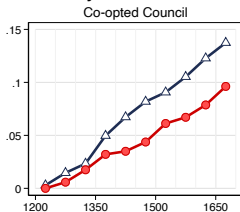
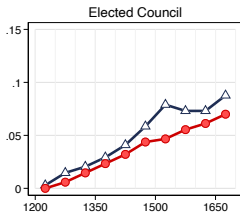
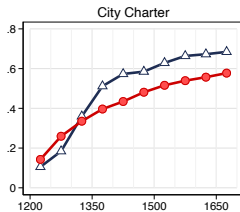
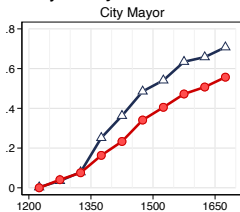
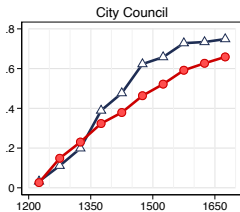
After 1350

- Lord crushes cities by force — “Berlin and Cölln had to cede to the margrave their common town hall, their right of staple, the higher and lower jurisdiction and a site in Cölln for the construction of a castle. Thus they lost their most important privileges, their independence and their unions with the other towns and the Hansa” (Carsten 1943)

Shifts in Urban Politics

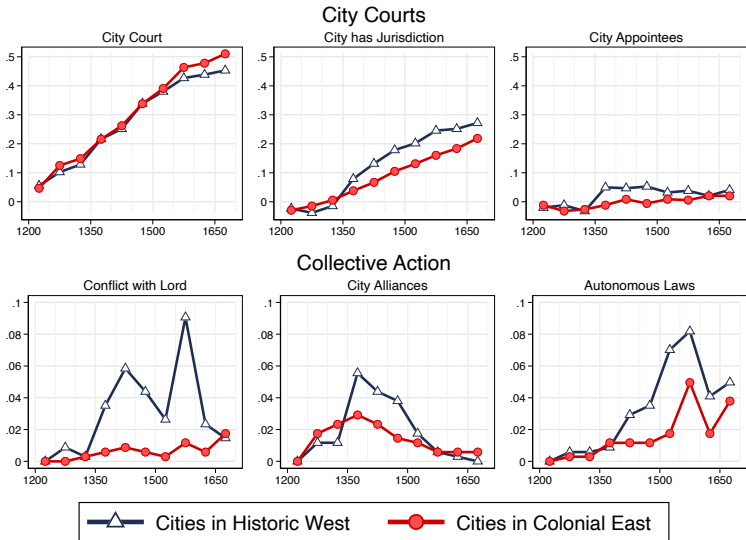
Within 100km of border

Major City Institutions



Shifts in Urban Politics

Within 100km of border



Shifts in Urban Politics – A Unified Index

	(1)	(2)	(3)	(4)	(5)
	Outcome: City Politics Index				
	All Cities			100 km Border	
Colonial East × Post 1350	-0.03*	-0.11***	-0.11***	-0.10***	-0.11***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
Colonial East × Trend in Centuries	-0.01	-0.01	-0.00	-0.00	-0.01
	(0.02)	(0.03)	(0.03)	(0.04)	(0.03)
Colonial East × Post × Trend	0.03	0.00	-0.00	0.01	0.01
	(0.02)	(0.04)	(0.04)	(0.05)	(0.05)
Observations	22500	22500	22500	6850	6850
City and Time FE	Yes	Yes	Yes	Yes	Yes
Distance & Rye Yield Interactions	No	Yes	Yes	Yes	Yes
Plague Shock Interactions	No	No	Yes	Yes	Yes
Latitude-Cell × Time FE	No	No	No	No	Yes
Mean Outcome	0.33	0.33	0.33	0.32	0.32
Western Cities	1490	1490	1490	342	342
Eastern Cities	760	760	760	343	343

■ Outcome: principal components index. Conley (1999) spatial standard errors

Mechanism — Political Fragmentation

Underlying political differences reflect 'institutional matrix' (North)

Variation in underlying politics *across* regions

- *IV analysis*: Examine how shifts in fragmentation *across* border explain the pattern of divergence after the shock

Variation in underlying politics *within* Colonial East

- *Heterogeneity analysis*: Compare development of more and less fragmented Eastern regions after the shock
— Fragmentation more 'Western' in Saxony-Thuringia

The implications of political fragmentation

Use location East of Elbe-Saale as IV for political fragmentation

<i>A. OLS and IV Estimates</i>	(1)	(2)	(3)	(4)
	OLS Estimates		IV Estimates	
	All Cities	Border	All Cities	Border
<i>Outcome: Construction</i>				
High Fragmentation \times Post	0.06** (0.03)	0.15** (0.06)	0.22*** (0.06)	0.37*** (0.14)
<i>Outcome: City Politics Index</i>				
High Fragmentation \times Post	0.02** (0.01)	0.06** (0.03)	0.14*** (0.02)	0.19** (0.06)
<i>B. First Stage: High Fragmentation \times Post</i>				
Colonial East \times Post			-0.75*** (0.03)	-0.53*** (0.06)
First-Stage F-statistic			719.41	90.76
Observations	22500	6850	22500	6850
City and Time FE	Yes	Yes	Yes	Yes
Time-Varying Controls	Yes	Yes	Yes	Yes

- 'High Fragmentation' defined as above median in 1348, i.e. before shock

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	OLS Estimates		IV Estimates	
	All Cities	Border	All Cities	Border
<i>Outcome: Construction</i>				
High Fragmentation \times Post	0.06** (0.03)	0.15** (0.06)	0.22*** (0.06)	0.37*** (0.14)
<i>Outcome: City Politics Index</i>				
High Fragmentation \times Post	0.02** (0.01)	0.06** (0.03)	0.14*** (0.02)	0.19** (0.06)
<i>B. First Stage: High Fragmentation \times Post</i>				
Colonial East \times Post			-0.75*** (0.03)	-0.53*** (0.06)
First-Stage F-statistic			719.41	90.76
Observations	22500	6850	22500	6850
City and Time FE	Yes	Yes	Yes	Yes
Time-Varying Controls	Yes	Yes	Yes	Yes

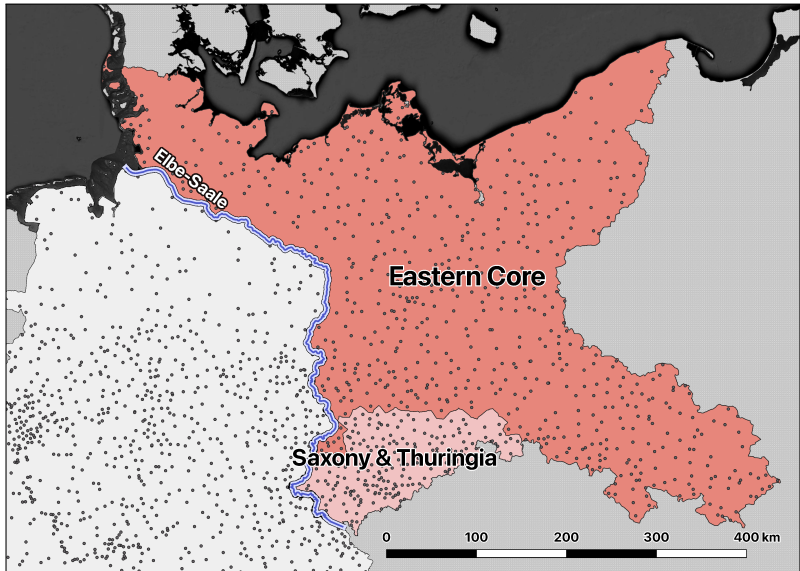
- 'High Fragmentation' defined as above median in 1348, i.e. before shock
- Conceptually: fragmentation measures the 'institutional matrix' (Douglass North) – which we argue was causal – implying care in interpreting exclusion restriction

Political fragmentation across Colonial Eastern regions

Region	All Cities	100 km Border
West – West of Elbe-Saale	0.92	0.92
Colonial East – Saxony & Thuringia	0.83	0.85
Colonial East – Eastern Core	0.68	0.81

- Coercive agrarian institutions adopted in 'Eastern core' around 1500
- Invites study of differential response to shock pre-1500

Saxony and Thuringia versus Eastern Core



Urban Development in Colonial East Before 1500

	All Cities			Border
<i>A. Outcome: Construction</i>				
Colonial Eastern Core \times Post	-0.06** (0.03)	-0.17*** (0.05)	-0.17*** (0.05)	-0.11 (0.08)
Saxony-Thuringia \times Post	-0.01 (0.02)	-0.09** (0.04)	-0.10** (0.04)	-0.03 (0.09)
<i>B. Outcome: Manufacturing</i>				
Colonial Eastern Core \times Post	-0.04** (0.02)	-0.04* (0.02)	-0.04* (0.02)	-0.02 (0.03)
Saxony-Thuringia \times Post	-0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.02)
<i>C. Outcome: Index of City Politics</i>				
Colonial Eastern Core \times Post	-0.03** (0.01)	-0.11*** (0.03)	-0.11*** (0.03)	-0.07** (0.03)
Saxony-Thuringia \times Post	0.01 (0.01)	-0.05*** (0.02)	-0.06*** (0.02)	-0.05** (0.02)
Observations	13500	13500	13500	4110
City & Time FE, Region Trends	Yes	Yes	Yes	Yes
Distance & Rye Yield Interactions	No	Yes	Yes	Yes
Plague Shock Interactions	No	No	Yes	Yes

Conley spatial SE's, distance as running variable.

Agrarian Development as Counterpoint

Agrarian political economy is often emphasized, in particular

- I **The development of estate agriculture** in Colonial East — nobles expand estates and export-oriented production
- II **New restrictions on labor mobility** — institutionalized in law — what Engels called ‘Second Serfdom’ in Eastern Europe
- III **The pattern of rural class struggle** including peasant revolts
Peasants’ Revolt 1381 England, Peasants’ War 1525. . .

I. Allocation of Land to Noble Estates in Colonial East

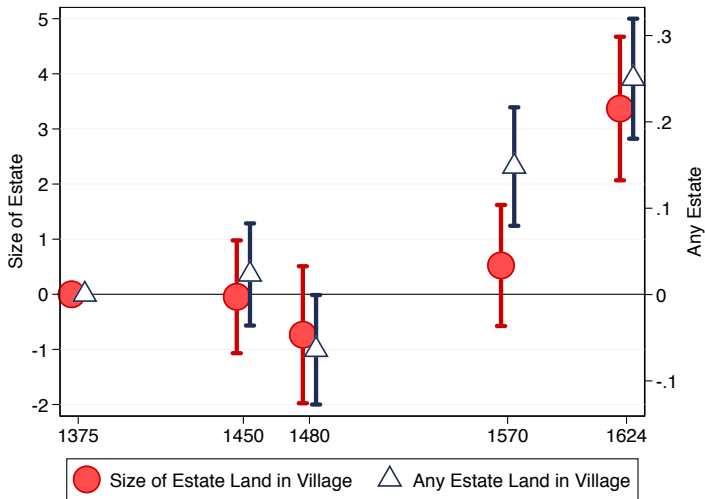


Figure: Estimates from village level data in Brandenburg tax register

II. Institutional Architecture of Serfdom

Territory	Date of Legislation
Brandenburg	1536
Mecklenburg	1516, 1572
Schleswig	1461, 1614
Holstein	1524
Upper Lusatia	1551
Pomerania	1616
Silesia	1505, 1512, 1528

Table: Passage of laws restricting mobility of tenant farmers

III. Political Struggle in Agrarian Sector

Peasant revolts against nobility are often emphasized

- Few revolts before 1500, none near key stretches of Elbe

Urban divergence clear by 1500 — before

- Significant reallocation of land to noble estates
- Legal changes institutionalizing coercion in agriculture
- Major confrontations between lords and peasants

Take Aways

- 1. Black Death as critical juncture in urban development**
 - Common shock led to regional divergence in urban sector
- 2. Cities play leading role in larger political economy**
 - Spatial pattern of urban divergence predicts later adoption of coercive agrarian institutions — quantitative evidence consistent with Marx, Weber, Perry Anderson (vs. Brenner)
- 3. Canonical example of time-varying effects of politics**
 - Political fragmentation and constraints on rulers — do not matter transhistorically but come to life after economic shock