Plague, Politics, and Pogroms: The Black Death, the Rule of Law, and the Persecution of Jews in the Holy Roman Empire

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Abstract

This paper explores the institutional determinants of persecution by studying the intensity of the Black Death pogroms in the Holy Roman Empire. We provide evidence that communities governed by archbishoprics, bishoprics, and imperial free cities experienced more intense and violent persecutions than did those governed by the emperor. We suggest that political fragmentation exacerbated competition for the rents generated by Jewish moneylending, which made Jews more vulnerable during periods of crisis.

1. Introduction

The Black Death pogroms were among the most severe of the Middle Ages (Cohn 2007; Voigtländer and Voth 2012; Jedwab, Johnson, and Koyama 2017). Some of the most intense anti-Jewish violence took place in the Holy Roman Empire. Within the empire there was a lot of variation in the intensity of persecution (hereafter, persecution intensity). In cities such as Mainz, Strasbourg, and Erfurt, chroniclers report thousands of Jews being burned alive (Jacobs 1912; Nohl 1926; Baron 1965; Breuer 1988). But elsewhere violence against Jews was insignificant. This paper studies the relationship between persecution intensity and political fragmentation.

We first document a relationship between persecution intensity and areas where the political authority of the emperor was contested, specifically, communities under the immediate local authority of imperial free cities, archbishops,

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or bishops. We interpret this association in light of the theory of the fiscal commons. Jewish moneylending was more valuable to rulers where the rights to tax it were uncontested. As a result, Jews received more protection in lands directly governed by the Holy Roman emperor.

Our historical setting is well suited to exploring how institutional variation at a local level can affect minorities. Many different political organizations, including independent city-states, flourished within the Holy Roman Empire, each with its own courts and jurisdiction. We are not the first to study the Black Death pogroms. Voigtländer and Voth (2012) use these persecutions to examine the persistence of antisemitic beliefs from the medieval period through to the 20th century. Our paper differs from Voigtländer and Voth (2012) because our interest is in the institutional determinants of antisemitic violence between 1347 and 1350.

In contrast to the rule of law in modern states that promises equal legal protection to all citizens, the Holy Roman Empire, like other premodern polities, was governed by laws based on differential treatment. It relied on identity rules, rules for which either the form or the enforcement of the rule depends on the social identity of the parties involved.[1] A classic example of using identity rules to generate rents are usury restrictions. Jews were discriminated against in medieval Europe, and yet they were allowed to lend openly at interest while Christian usury was prohibited. This made Jewish moneylending an important source of revenue to both the emperor and other elites. Viewed as chattel of the emperor, Jews relied on his authority for protection. But just as the de jure and de facto authority of the emperor varied greatly across the Holy Roman Empire, so did the degree of legal protection experienced by Jewish communities.

Our main data are from the *Germania Judaica* (Avneri 1968). We use this and a range of other sources to create a data set of Jewish communities in the Holy Roman Empire. To measure antisemitic violence, we first code the intensity of a persecution or pogrom along a 1–5 scale by reading and analyzing every entry in the *Germania Judaica* (Avneri 1968). Second, we construct a binary measure that distinguishes between persecutions that involved fatalities and those that did not.

We exploit the fact that political power in the Holy Roman Empire was highly fragmented: the emperor did not possess a territorial monopoly on violence, and his authority varied greatly across space (Volckart 2002; Wilson 2017). Our main finding is that Jewish communities in which the authority of the emperor was challenged by an archbishop, a bishop, or an imperial free city are associated with an increase in the intensity of a pogrom by approximately one-fourth to one-sixth of the range of our measure of persecution intensity.

A major challenge is a lack of experimental variation in the level of political contestation. We provide evidence that the results are not driven by variation in observables, including measures of the underlying wealth of a Jewish community, the community's experience of past pogroms, or the spread of the plague. We

[1] It is precisely the existence of general rules that legal scholars claim is a crucial feature of the rule of law as it is understood in modern liberal societies—rules that are stable, consistent, and applicable to all (Dicey 1908, pp. 198–99).

also use the approach developed by Altonji, Elder, and Taber (2005) and Oster (forthcoming) to show that potential bias from unobservables is unlikely to explain our results. Taken together, this analysis supports our hypothesis that political fragmentation made Jewish communities vulnerable.

In focusing on the institutional determinants of persecution intensity, our research question differs from that of previous studies of antisemitic violence. One line of research is to study the persistence of antisemitic culture. Voigtländer and Voth (2012) use medieval antisemitism as a measure of deep cultural beliefs, which they argue persisted through to the 20th century and explain local variation in support for the Nazi Party and pogroms in the 1920s and 1930s. Grosfeld, Rodnyansky, and Zhuravskaya (2013) examine the persistence of antimarket sentiments in the Pale of Settlement, where Jews were confined in the 19th century. Using a regression-discontinuity design, they find that the antimarket values that developed in that region have persisted to this day.

Other research explores the causes of antisemitic violence. Grosfeld, Sakalli, and Zhuravskaya (2017) find evidence for the role of both economic supply shocks and economic segregation in explaining pogroms in czarist Russia. Becker and Pascali (2016) examine how levels of antisemitism differed in Catholic and Protestant parts of Germany after the Reformation because of different patterns of economic specialization. Anderson, Johnson, and Koyama (2017) find that periods of cold temperatures reduced agricultural productivity, which made pogroms more likely, and that this effect was largest in areas with weaker states. Jedwab, Johnson, and Koyama (2017) use data on Black Death mortality rates across Europe to examine the incentive to scapegoat Jews. In contrast to these papers, our primary interest is in the institutional determinants of persecutions.[2]

2. Historical Setting and Puzzle

Jewish communities spread across western and central Europe in the Middle Ages. Communities in Germany—particularly along the Rhineland—were prosperous and well established (Bell 2001; Chazan 2006, 2010). Following the First Crusade, massacres and pogroms took place all across Europe, and in the late 13th and 14th centuries antisemitic pogroms and expulsions became more common (for the crusaders' massacres, see Golb 1998; Stow 1992, pp. 102–20).

The Black Death was the greatest demographic shock in European history (Jedwab, Johnson, and Koyama 2016), and it provoked large-scale antisemitic violence across Europe. Beginning in Switzerland in 1348, as rumors of the plague spread, Jews were accused of poisoning wells. Though the papacy opposed antisemitic violence, the majority of Jewish communities in the empire suffered violence between 1348 and 1350 (Chazan 2010, pp. 153–54).

These pogroms remain puzzling. Traditional historians have been perplexed by "the complete helplessness of the authorities against these outbursts of pop-

[2] Other related research focuses on the economic attributes of Jewish communities in the medieval period (Botticini and Eckstein 2012; Pascali 2016; Johnson and Koyama 2017).

ular fury" given that the "loss to imperial and princely treasures was immense" (Jacobs 1912, p. 278). In particular, they have struggled to understand why, "far from taking any steps to prevent outbreaks, the Emperor in several instances gave beforehand practical immunity to the perpetrators of the crime, by making arrangements as to what should be done with the houses and goods of the Jews in the event of a riot" (Jacobs 1912, p. 278).[3]

But while traditional historical accounts emphasize mob violence as the prime mover, Cohn (2007, p. 18) notes that in some cases, as in Strasbourg, the Jewish community was formally sentenced to death by the city's elite "before any peasant might have stabbed or drowned any escaping Jew." Cohn (2007, p. 18) argues that "[p]atrician-dominated city councils" made the conscious decision to expropriate, expel, or massacre Jewish communities.[4] Even where local authorities did not instigate pogroms, they were often lackluster in their attempts to protect the Jewish communities (Bell 2001). Two exceptions were King Casimir in Poland and the Holy Roman emperor Charles IV in Bohemia. However, in the rest of the empire, Charles either failed to prevent pogroms from occurring or handed over his rights to the Jews to cities such as Frankfurt, Nuremberg, and Worms, after which they were massacred (Breuer 1988).

Despite ongoing debate, the literature has not systematically established what factors were associated with variation in persecution intensity. This highlights the need for a political economy approach to address why so many Jewish communities in Germany suffered during the Black Death.

The Holy Roman Empire was a fragmented polity. As such, it offers a historical laboratory to study the conditions of minorities under a polycentric legal order. The emperor was elected by the seven electors, four of whom were secular princes—the king of Bohemia, the count palatine of the Rhine, the Duke of Saxony, and the margrave of Brandenburg—and three of whom were archbishops (those of Mainz, Trier, and Cologne). The other territorial princes ranked below the electors but were sovereigns in their own territories and included various dukes, counts, margraves, and landgraves.[5]

Archbishops and bishops in the empire possessed powers similar to those of secular rulers. They wielded independent political authority and were often tremendously wealthy.[6] The bishop of Constance owned two forests, 18 manors,

[3] For example, Nohl (1926, p. 181) comments, "The massacres of the Jews in the fourteenth century are so deeply revolting, because the ruling classes, as well as the clergy and the educated classes of that time, were perfectly conscious of the lack of foundation in the accusations brought by the people against the Jews."

[4] Cohn (2007, p. 19) notes that "city councils, mayors and noble castellans from Basel, Bern, Breisach am Rhein, Chillon, Colmar, Freiburg im Breisgau, Kenzingen, Lausanne, Mainz, Münsingen, Oberneheneim, Offenburg, Schlettstadt, Villeneuve, Waldkirch and Zofingen—supplied 'proof' that Jews had been found guilty in these cities' tribunals of causing the plague through poisoning."

[5] Online Appendix OB provides a more detailed description of the political organization of the Holy Roman Empire, including additional references. Figure OB1 in the Online Appendix presents a stylized depiction of the political structure of the Holy Roman Empire in the late Middle Ages.

[6] The independence of the bishoprics and archbishoprics resulted from the Investiture Controversy and was confirmed by the Concordat of Worms in 1122 (Whaley 2012, p. 26). For further details, see Arnold (1991a, 2000), Scales (2005), and Stubbs (1908).

eight abbeys, various mines and mints, and rights to tax markets and to collect tolls (Arnold 1991b, p. 220).[7]

The imperial free cities were also self-governing and politically independent.[8] Finally, there were numerous free lordships ruled by lords who owed fealty to the emperor directly. However, these lordships were small and did not possess important Jewish populations, so we ignore them.

We ask, what explains this variation in the response of political rulers to antisemitic violence? To answer this, we focus on the incentives of local rulers to protect Jewish communities from violence. These incentives reflected a fiscal overfishing problem (Buchanan and Yoon 2000; Berry 2008). Where the rights to tax Jewish communities were securely possessed by the emperor, he had a strong incentive to invest in protection. However, where the rents from Jewish moneylenders were contested and no one ruler had secure access to the future stream of revenue associated with moneylending, Jewish communities were much more vulnerable to mob violence and to predation from local rulers.

Our hypothesis is that political fragmentation meant that the rents from taxing Jewish moneylending were disputed between the emperor and local rulers. This contestation dissipated the value of these rents and made Jewish communities less valuable both to the emperor and to local rulers and, hence, more vulnerable to violence. Many other factors could also make Jewish communities vulnerable to persecution. What our hypothesis highlights is an institutional channel that can account for local variation in antisemitic violence.

3. Data and Empirical Strategy

We collect data from entries in the *Germania Judaica* (Avneri 1968) on settlements with a Jewish community that specifically mention the fate of the community during the Black Death period.[9] For each settlement that mentions the

[7] The archbishops of Trier and Mainz were particularly powerful. The bishops of Saxony and Bavaria were independent rulers in their own lands, and the archbishops of Salzburg were also powerful (Arnold 1991b, p. 27). For instance, "Archbishop Eberhard II (1200–46) was responsible for reinvigorating Salzburg as a notable power in the Empire. Although he aspired to no *ducatus,* he founded three propriety sees, at Chiemsee in 1215, Seckau in 1218 and Lavant in 1225, in order to extend his authority into Bavaria, Styria and Carinthia respectively. . . . The Archbishop also inherited countries from the Bavarian aristocracy, rebuilt castles and monasteries, and, above all, made good use of his forest rights to open up the Alpine valleys through colonization into a substantial principality in Salzburg's immediate hinterland" (Arnold 1991b, p. 224).

[8] This designation refers to both the imperial cities that were nominally subject to the authority of the emperor and the free cities that had originally been subject to the authority of the bishops and archbishops (Whaley 2012, p. 26). By the late Middle Ages, this distinction was obscure, and both types of cities were referred to as imperial free cities.

[9] The use of *Germania Judaica* was introduced by Voigtländer and Voth (2012). We have a larger sample than Voigtländer and Voth (2012) since we are not concerned with matching our settlements to towns in modern Germany. Unlike Voigtländer and Voth (2012), we include settlements that were part of the Holy Roman Empire but are now part of modern Austria, France, or Switzerland. We cross-referenced all entries from *Germania Judaica* with Spector and Wingoder (2001), Berenbaum and Skolnik (2007), Bowerman and Guttman (2017), and Joachim Hahn, *Alemannia Judaica: Arbeitsgemeinschaft für die Erforschung der Geschichte der Juden im süddeutschen und angrenzenden Raum* (http://www.alemannia-judaica.de).

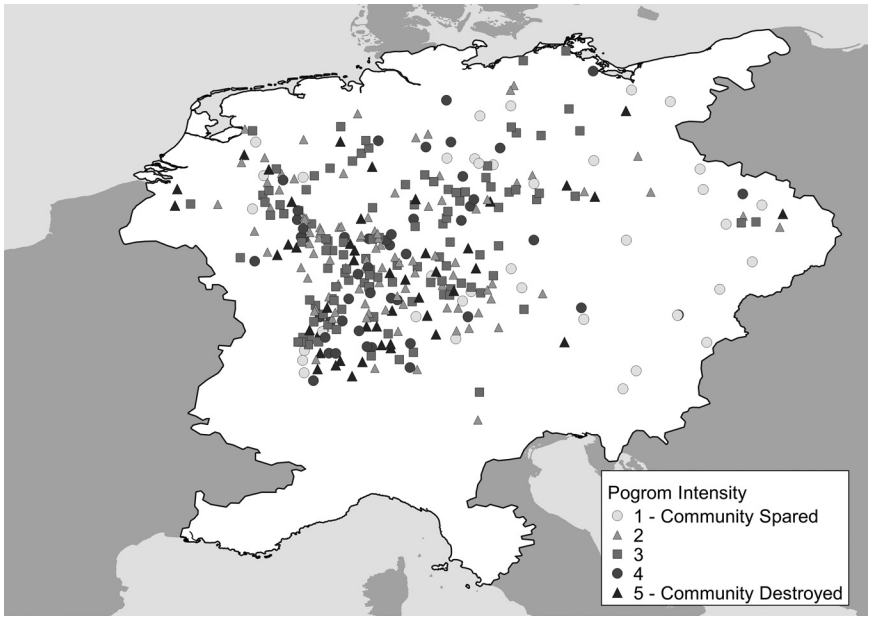

Figure 1. The intensity of pogroms in the Holy Roman Empire, 1348–50

Black Death, we collect information about the description of the community's experience.

Our dependent variable is persecution intensity. We focus on persecution intensity rather than the mere existence of a pogrom because very few Jewish communities were entirely spared during the Black Death period (Toch 1997, p. 70). Figure 1 depicts the Black Death pogroms in the Holy Roman Empire. Of the 340 Jewish communities in our data set, all but 37 suffered some antisemitic violence during the Black Death period. Among the communities that suffered some form of persecution, there was tremendous variance. In Strasbourg, thousands of Jews were burned alive by the residents. Elsewhere, violence against Jews was ad hoc and sporadic and did not result in the elimination of the community, while in still other parts of Germany orderly expulsions were carried out.

Our measure of persecution intensity varies from 1 to 5 and is scored after reading and analyzing every entry of the *Germania Judaica*. A value of 1 means that the community was spared from persecution. A value of 5 means that the entire community was eliminated through massacres and large-scale violence. Communities for which records indicate that Jews were killed in large numbers (including several martyred or burned), but not eliminated, receive a value of 4. A community that had a few deaths (but no indication of widespread deaths) receives a value of 3. Communities that were expelled receive a value of 2. Further

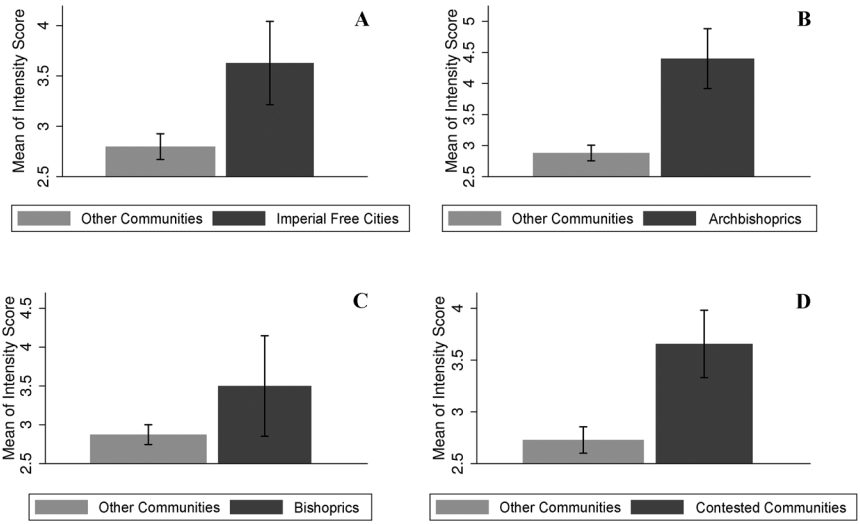

Figure 2. The intensity of persecution versus other communities. *A,* Imperial free cities; *B,* archbishoprics; *C,* bishoprics; *D,* contested communities.

detail on the scale of persecution intensity is included in Table OC1 in the Online Appendix.[10]

To measure political fragmentation, we use Avneri (1968) to determine the identity of the local ruler. We supplement this with novel geographic-information-system data to account for the territorial boundaries of the major secular rulers. This includes whether a town was under the jurisdiction of one of the five main territorial rulers (of Habsburg, Luxembourg, Wettin, Wittelsbach, and Wurtemberg).[11]

Figure 2*A* compares the mean intensity score (with 95 percent confidence intervals) of communities that are located in imperial free cities with those that are not. Figure 2*B–D* also provides equivalent comparisons between communities that are located in archbishoprics, bishoprics, or all contested regions and all other communities. In all cases, there is a visible difference in persecution intensity for communities in which the emperor faced a challenge to his direct authority compared with communities in which his authority was unchallenged.

Figure 3 shows the kernel density of the persecution-intensity score.[12] The den-

[10] This coding is ordinal and not cardinal. A level 4 persecution is more intense than a level 2 persecution, but it is not necessarily twice as intense. As an alternative to our main specification, we also code persecutions as either not involving fatalities (1–2) or involving fatal violence (3–5). We also vary the specification of the index. Our results are not sensitive to different ways of coding the data. We discuss alternative specifications in Section 5.2 and report the results in Tables OC12 and OC13 in the Online Appendix.

[11] The data on these territories come from geocoding Shepherd (1911), which contains a map of Europe in 1378.

[12] For kernel density plots, a bandwidth of .75 was used.

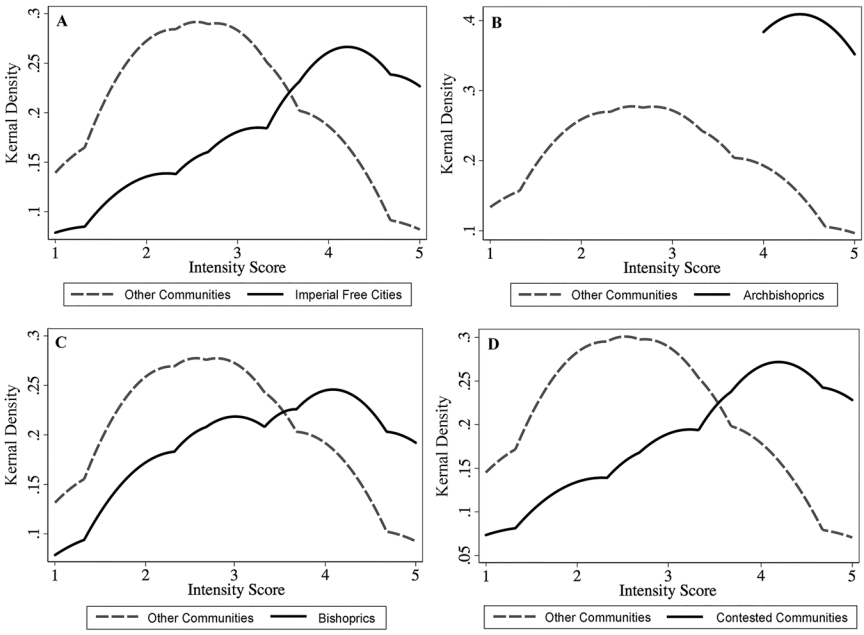

Figure 3. Intensity of pogroms versus other communities. *A,* Imperial free cities; *B,* archbishoprics; *C,* bishoprics; *D,* contested communities.

sities of communities located in imperial free cities, archbishoprics, and bishoprics are shifted to the left of the densities of all other communities, which implies that those contested communities experienced more severe persecutions.

Did imperial free cities, bishoprics, and archbishoprics differ from other towns and cities in the Holy Roman Empire? Figure 4 shows the location of communities governed by free cities, bishops, and archbishops.[13] Table 1 suggests that, in general, politically contested communities were similar to other communities with some exceptions. Such contested communities were likely to be less rugged and closer to trade routes. They were also likely to be closer to centers of urbanization.[14] This is consistent with these towns being located in more economically developed regions. Similarly, while contested and uncontested communities were fairly evenly distributed throughout the empire, there was a preponderance of imperial free cities, bishoprics, and archbishoprics in western and southern Germany, the economic heartland of the empire. Otherwise, contested communities did not vary systematically in terms of previous antisemitic violence or exposure to the Black Death.

To test our hypothesis that Jewish communities were likely to face more in-

[13] Geographic data for Figure 4 were compiled from Averni (1968), Jacobs (1912), and Shepher (1911).

[14] Further details on these and other covariates are provided in the Online Appendix.

tense persecutions where there were multiple political authorities vying for fiscal authority, we estimate

$$\text{Pogrom Intensity}_l = \alpha + \beta \text{Politically Contested}_l + \boldsymbol{X}'\boldsymbol{\Omega} + \Lambda_i + \varepsilon_l, \quad (1)$$

where our dependent variable Pogrom Intensity varies from 1 to 5 and our variable of interest, Politically Contested$_l$, takes a value of one if a community is located at the seat of a bishopric, the seat of an archbishopric, or in an imperial free city and zero if it was ruled directly by a territorial ruler or the emperor. We estimate both an ordered-probit model and a linear probability model.

As our setting is nonexperimental, we are cautious about interpreting our results as reflecting the causal impact of political contestation on persecution intensity. Identification relies on our ability to control for differences between communities ruled by ecclesiastical authorities and free cities. Conditional on the extent to which our vector of covariates $\boldsymbol{\Omega}$ picks up the relevant geographic, political, and economic city-level characteristics that might affect persecution intensity, our estimate of β will reflect the effect of contested political authority on persecution intensity.[15] Considering the challenges associated with obtaining data for the medieval period, we believe that we are able to include covariates for as many important economic and political differences between communities as is feasible. Fixed effects for higher-level political units Λ_i account for unobservable differences across political units, which correspond to aggregate regions in the Holy Roman Empire, such as Bavaria, Franconia, and Saxony. Finally, we attempt to quantify the magnitude of potential bias from unobservables.

4. Political Contestation and Pogroms' Intensity

Our three explanatory variables capture whether a community was located in an imperial free city, the seat of an archbishopric, or the seat of a bishopric. Table 2 presents the results from OLS and probit regressions measuring the effect of political fragmentation on the intensity of pogroms. All specifications employ robust standard errors clustered at the political-unit level.[16]

Before introducing covariates, we find that the presence of an imperial free city is associated with a greater persecution intensity of .841, or just less than one-fifth of the range of our intensity measure. This estimate remains comparable in magnitude when we introduce our baseline covariates, account for past pogroms, and control for spread of the Black Death.

Archbishops and bishops were important obstacles to imperial authority: they had religious authority, and they were territorial rulers in their own right. The effect of a bishopric on persecution intensity is comparable in size to the effect we obtain for an imperial free city, while archbishoprics are still more strongly associated with more intense pogroms. We find that a seat of a bishopric was associ-

[15] Details of the covariates are provided in Section OA2 in the Online Appendix. Figures OC1–OC4 present maps of select covariates collected using geospatial data.

[16] We cluster at the political-unit level. There are 22 clusters in all, corresponding to these 22 political units (see Figure 4*D*). Cameron and Miller (2015) discuss the appropriate number of clusters.

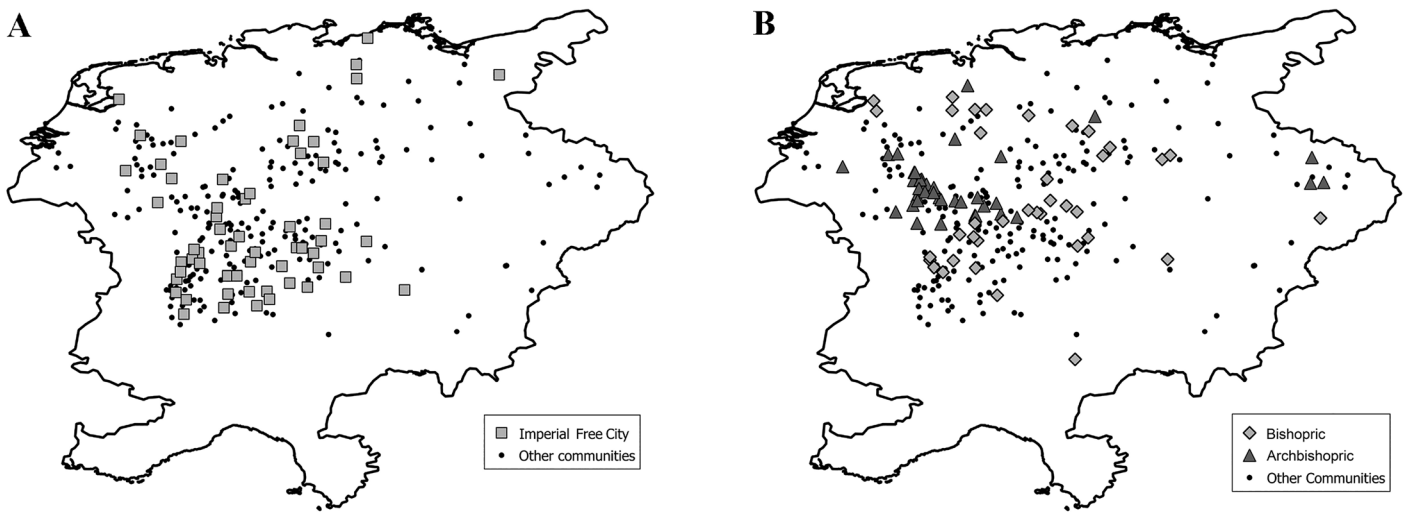

Figure 4. Explanatory variables and selected covariates. *A,* Imperial free cities; *B,* bishoprics and archbishoprics; *C,* territorial rulers; *D,* political units

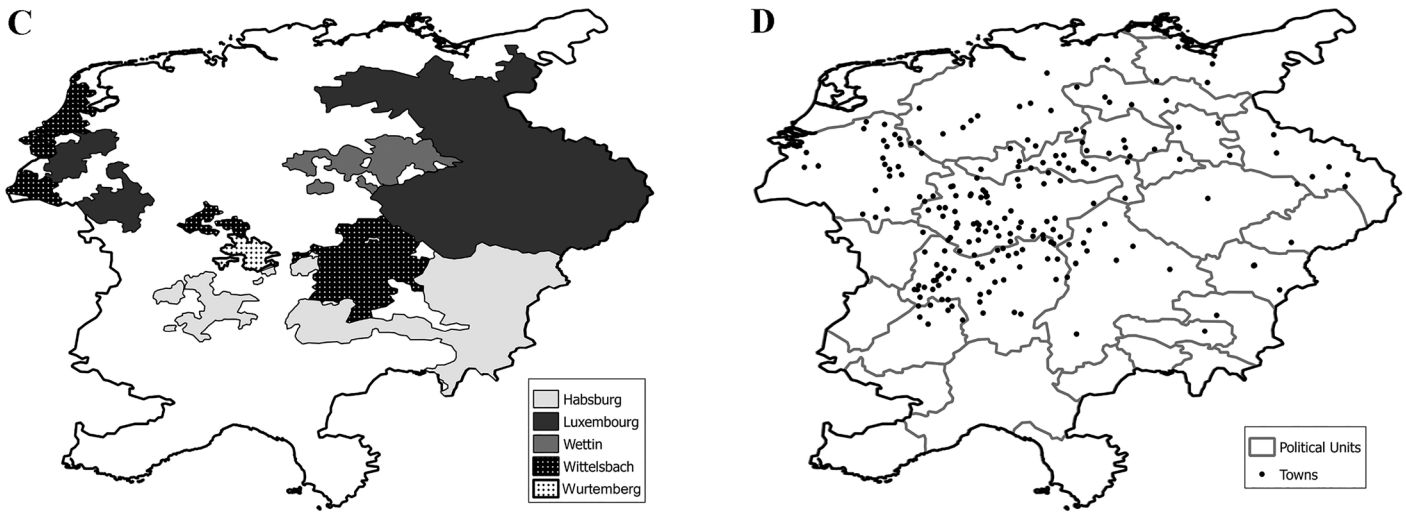

Figure 4. *Continued*

Table 1
Main Observable Characteristics

Variable	Other Communities	Contested Communities	Difference
Previous pogroms	.196	.250	.054
Ruggedness	17.607	13.158	−4.449+
Wheat suitability	.539	.546	.007
Navigable rivers	.130	.203	.073
Trade routes	.087	.234	−.147**
Textile production	.138	.078	−.060
Wine production	.293	.219	−.074
Grain production	.065	.016	−.049
Urbanization	.313	.273	−.040+
Onset of plague:			
Pre-1349	.011	.016	.005
January–March 1349	.004	.016	.012
April–June 1349	.130	.156	.026
July–September 1349	.319	.266	−.053
October–December 1349	.047	.109	.062+
January–March 1350	.108	.141	.033
April–June 1350	.196	.125	−.071
July–September1350	.076	.063	−.013
October–December 1350	.0217		
Spared	.152	.234	.082

Note. Values are means. The indicator variable for previous pogroms equals one if the community experienced a pogrom before the Black Death and zero otherwise. Ruggedness measures topographic differences between communities. Wheat suitability measures the soil's suitability for growing wheat. The indicator variable for navigable rivers and for trade routes equals one if the community is located within 5 kilometers of a navigable river or medieval trade route, respectively. Variables for textile, wine, and grain production are industrial indicators. Urbanization measures values from a geographic-information-system-generated population-density heat map created with data from Bosker, Buringh, and van Zanden (2013). No contested communities (imperial free cities, bishoprics, and archbishoprics) experienced the onset of the plague between October and December 1350. $N = 276$ communities and 64 imperial free cities, bishoprics, and archbishoprics.

+ $p < .10$.

** $p < .01$.

ated with an increase in intensity score of 1.055, while the seat of an archbishop was associated with a 1.156 higher intensity score.[17]

Our findings are consistent with qualitative evidence that pogroms were less severe where imperial authority was unchallenged. Charles IV protected Jews where his authority was strong. Conflict over the rights to tax Jewish moneylending heightened the vulnerability of Jewish communities. Historians note that in many towns "the municipal leadership's interest in protecting the Jews was

[17] We also estimate an ordered-logit model (Table OC5 in the Online Appendix) to obtain odds ratios. The odds of a more intense persecution are 1.6 times as high in an imperial free city, 1.8 times as high in a bishopric, and 2 times as high in an archbishopric.

Table 2

Effect of a Being near a Contested Community on the Intensity of Black Death Pogroms, 1348–50: Baseline Results

	Ordinary Least Squares				Ordered Probit			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Imperial Free City	.841**	.746**	.746**	.791**	.827**	.806**	.806**	.829**
	(.208)	(.265)	(.254)	(.277)	(.247)	(.255)	(.242)	(.264)
Archbishopric Seat	1.563**	1.275**	1.276**	1.156**	1.661**	1.296**	1.295**	1.153**
	(.288)	(.413)	(.358)	(.383)	(.139)	(.324)	(.246)	(.282)
Bishopric Seat	.735**	.915**	.916**	1.055**	1.018**	.893**	.893**	.958**
	(.211)	(.241)	(.234)	(.278)	(.232)	(.209)	(.202)	(.223)
Baseline controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Previous pogroms	No	No	Yes	Yes	No	No	Yes	Yes
Plague spread	No	No	No	Yes	No	No	No	Yes
Adjusted/pseudo-R^2	.121	.131	.129	.151	.033	.046	.047	.071

Note. Baseline controls include whether a community was close to navigable rivers or land routes; measures of textile, wine, and grain production; urbanization; wheat suitability; and ruggedness. Plague spread indicates the inclusion of indicator variables for the predicted onset of the Black Death. All regressions include larger political-unit fixed effects. Robust standard errors clustered at the political-unit level are in parentheses. $N = 340$.

** $p < .01$.

Table 3

Effect of a Being near a Contested Community on the Intensity of Black Death Pogroms, 1348–50: Major Territorial Rulers

	Ordinary Least Squares			Ordered Probit		
	(1)	(2)	(3)	(4)	(5)	(6)
Imperial Free City	.789**	.943**	.969**	.742**	.908**	.952**
	(.225)	(.220)	(.220)	(.235)	(.241)	(.241)
Archbishopric Seat	1.271**	1.392**	1.343**	1.171**	1.317**	1.297**
	(.271)	(.257)	(.263)	(.364)	(.345)	(.353)
Bishopric Seat	.706**	.859**	.928**	.748**	.913**	1.005**
	(.182)	(.182)	(.191)	(.213)	(.214)	(.223)
Luxembourg	−.540+	−.434+	−.443*	−.599*	−.493+	−.511*
	(.258)	(.224)	(.201)	(.293)	(.267)	(.250)
Other Major Territorial Rulers		.366**			.383**	
		(.125)			(.115)	
Habsburg			.973**			.999**
			(.239)			(.219)
Wettin			.471			.572
			(.376)			(.349)
Wittelsbach			−.0374			−.0212
			(.198)			(.198)
Wurtemberg			−.0175			.0179
			(.136)			(.131)
Adjusted R^2	.143	.153	.179	.076	.081	.094

Note. Baseline controls include whether a community was close to navigable rivers or land routes; measures of textile, wine, and grain production; urbanization; wheat suitability; and ruggedness.. Robust standard errors clustered at the political-unit level are in parentheses. All regressions include baseline controls, controls for previous pogroms and plague spread, and fixed effects. $N = 340$.

+ $p < .10$.

* $p < .05$.

** $p < .01$.

reduced by the fact that they had little or no share in the fiscal rights over the Jews, who were subjects of the town lord or other authorities" (Haverkamp 2015, p. 48). Where the emperor did not have the power to protect the Jews, he often "sold" them, thereby condoning whatever antisemitic violence he could not prevent. Perhaps the most striking example was Trier, where Charles IV granted the archbishop the right to collect the property and debts of Jews in the event of them being massacred; following this sale, the Jews of Trier were killed. In Nuremberg, the emperor "presented the city council with a letter exonerating it in advance from any responsibility for whatever harm might befall the 'servants' of the imperial treasury" (Lowenthal 1970, p. 129). When the plague appeared, "the Jews were driven to a square, thereafter known as the Judenbühl, and burned or slaughtered to a man" (Lowenthal 1970, p. 129). Table 2 suggests that the experiences in Trier and Nuremberg were generalizable.

What about other territorial rulers? Our results hold when we include information about the identity of the major territorial rulers of the empire. Table 3 reports whether a community was located in Luxembourg territory (columns 1 and

4). The negative and weakly significant coefficients imply that communities located in Luxembourg territories were less intensely persecuted. This is consistent with our hypothesis, since Charles IV was the head of the House of Luxembourg and directly controlled those lands.

The coefficients for other major territorial rulers are positive and statistically significant. When we decompose the term by creating dummy variables for each ruling house, we find that the effect is driven by communities in Habsburg lands. The positive coefficients associated with lands under the control of the Habsburg family is surprising from a historical perspective, as Albert II, the Habsburg duke, was known as "a supporter of Jews" by his enemies and attempted to protect Jewish communities during the Black Death (Haverkamp 2015, p. 47). This result, however, is consistent with our rent-contestation hypothesis. The Habsburgs were the major competitor to the Luxembourg family, so a positive coefficient is in line with the emperor's authority being more contested in communities ruled by the Habsburgs.

Taken together, our results help explain why the Black Death pogroms were most severe in the Holy Roman Empire. Absent political fragmentation, it is extremely likely that some Jewish communities would have suffered violence during the Black Death: Jews were victimized in many other parts of Europe.[18] Our estimates suggest that the contested nature of imperial authority in the Holy Roman Empire can help to explain local variation in persecution intensity across communities in the empire. Our results also present a plausible explanation for the unusual severity of the Black Death pogroms in the Holy Roman Empire compared with other major polities in the medieval era.

5. Alternative Hypothesizes

5.1. Community Wealth

We first consider the hypothesis that "'[t]he ready cash in the hands of the Jews was also the poison which killed them. Had the Jews been poor, they would not have been burned'" (Jacob Twinger von Königshofen, *Chroniken,* quoted in Breuer 1988, p. 150). We provide evidence that this wealth channel is compatible with the rent-contestation hypothesis.

Did greater wealth make Jewish communities more vulnerable? Table OC4 in the Online Appendix suggests that economic development was associated with persecution intensity. The estimated effects of the presence of trade routes and the wine trade are positive and significant, which suggests that Jews in more commercial and prosperous regions were victims of more violent persecutions.

This wealth channel does not conflict with the rent-contestation hypothesis. Recall that the rent-contestation hypothesis holds that the greater the number of political rulers who challenged the authority of the emperor, the lower the expected tax revenue from that Jewish community compared with revenue under

[18] This is supported by Jedwab, Johnson, and Koyama (2017), who document pogroms even in polities with relatively more centralized authority, such as France.

Table 4
Indicators of Jewish Communities' Wealth, 1348–50

	(1)	(2)	(3)	(4)	(5)	(6)
Free Imperial City	.711**	.811**	.795**	.768**	.718**	.985**
	(.234)	(.249)	(.249)	(.259)	(.218)	(.255)
Archbishopric Seat	1.127**	1.151**	1.152**	1.127**	1.119**	1.481**
	(.216)	(.273)	(.258)	(.266)	(.242)	(.320)
Bishopric Seat	.849**	.945**	.957**	.893**	.888**	1.066**
	(.221)	(.224)	(.225)	(.231)	(.224)	(.272)
Cemetery	.379+					.274
	(.216)					(.213)
Synagogue		.0564				−.0349
		(.127)				(.122)
Bathhouse			.141			−.165
			(.322)			(.304)
Ghetto				.175		−.00127
				(.188)		(.261)
First Principal Component					.0608	
					(.0432)	
Second Principal Component					.0696**	
					(.0223)	
Adjusted R^2	.191	.180	.180	.183	.190	.203

Note. Indicators of wealth are from Haverkamp (2002). Column 5 includes the first two principal components of the controls for community characteristics (presence of a cemetery, synagogue, bathhouse, ghetto, hospital, governing body, and municipal seat) and whether it is a designated community. Results in column 6 are from a double-lasso regression to select covariates. Baseline controls include proximity to navigable rivers or land routes; measures of textile, wine, and grain production; urbanization; wheat suitability; and ruggedness. Robust standard errors clustered on the political-unit level are in parentheses. All regressions include baseline controls, controls for previous pogroms and plague spread, and larger political-unit fixed effects. $N = 340$.

* $p < .05$.

** $p < .01$.

a single ruler. Hence, a Jewish community in a contested jurisdiction would be poorer than it otherwise would have been under the rule of a single authority. But this does not mean that Jewish communities in prosperous but contested localities were poorer than Jewish communities in less economically developed regions that were ruled by a single contested political authority.

The inclusion of these covariates for economic development in Table OC4 does not reduce the size of the coefficient on any of our variables of interest. This suggests that the effect of wealth was independent of that of political fragmentation.

While information about the wealth of Jewish communities (hereafter, community wealth) in the Holy Roman Empire has not survived, we can probe this relationship further using proxies for community wealth from Haverkamp (2002). In Table 4 we sequentially introduce covariates for the presence of a cemetery, synagogue, bathhouse, and ghetto. In general, these measures of community wealth were more likely to be present in communities in imperial free cities, bishoprics, and archbishoprics simply because these were often larger settlements (see Table OC3 in the Online Appendix). The only proxy for Jewish wealth that is

significant is the presence of a cemetery.[19] Other measures of community wealth are not associated with persecution intensity.

One reason that the characteristics of a community may not have been associated with persecution intensity is that Jews in this period kept their wealth liquid. They often avoided dressing ostentatiously or spending money on fixed possessions that could attract envy. This may help to explain why communities' characteristics are not correlated with persecution intensity.

There are still evident issues of interpretation with including each measure of community wealth. To address this, we first take the principal components of all characteristics of a Jewish community. The first and second principal components are positively correlated with persecution intensity but do not detract from the magnitude of the coefficients on our measures of political contestation. Second, we estimate a double-lasso (least absolute shrinkage and selection operator) model to select relevant covariates and predict our main independent variables of interest (see Section OC6 in the Online Appendix for further details). In column 6 of Table OC6 we report the estimates for our main independent variables of interest: Imperial Free City, Archbishopric Seat, and Bishopric Seat. We also present the coefficients for the covariates that are related to the treatment and thus potentially important confounders. In the selected model, the coefficients on Imperial Free City and Archbishopric Seat are slightly larger than in our baseline model.

Finally, we collect several additional measures of community wealth: the presence of a governing body, a hospital, age of the settlement, and proximity to the Rhine River. Table OC7 in the Online Appendix shows that these additional proxies for community wealth are not associated with persecution intensity, and the size of the coefficients on our variables of interest remains unchanged. Thus, while we cannot rule out the possibility that community wealth played a role in the pogroms, the best evidence we have suggests that this effect was less important than the incentive that rulers had to permit antisemitic violence.

5.2. Other Potential Explanations

5.2.1. Spread of the Black Death

A natural explanation of the intensity of the pogroms faced by Jewish communities in this period would be the intensity of the Black Death, as the antisemitic violence was sparked by the libel that the Jews caused the plague by poisoning wells (see Nohl 1926). Among modern historians, Aberth (2010) makes the case for the pogroms as a seemingly rational response to the plague.[20]

Despite its plausibility, this does not accord with the evidence. Table 2 ac-

[19] One interpretation of this finding is provided by accounts from the mid-14th century such as in Breslau in 1345 when the Jewish cemetery was "violated in order that the tombstones might be used for building purposes" (Singer and Adler 1907, p. 338). But this is speculative.

[20] Aberth (2010, p. 163) writes, "[W]hat lay behind the pogroms was a quite rational attempt to avert or end the plague, an unprecedented and unexpected catastrophe the fear of which trumped all other considerations."

counts for the spread of the Black Death using predictions by Christakos et al. (2005) and demonstrates that this is not driving our results. We find no meaningful relationship between the incidence of plague and persecution intensity. This result is consistent with the findings of Jedwab, Johnson, and Koyama (2017). Our results cannot be explained by a scapegoating story whereby Jews were killed simply in response to a natural disaster.[21] Figure OC5 presents a map of the predicted spread of the Black Death; see also Table OC18.

5.2.2. Other Differences in Political Institutions

Different regional histories in the Holy Roman Empire could be a source of potential bias if these factors affected both the location of bishoprics and imperial free cities and the intensity of a pogrom. Table OC8 in the Online Appendix presents results that take account of these differences.

Stasavage (2011) argues that collapse of the Kingdom of Lotharingia, which lay between Western and Eastern Francia, in the 9th century left a legacy of political weakness.[22] When we include information about whether a community was located in what was Lotharingia, our results are unaffected.

As a proxy for state power, we also measure distance to the border of the relevant political entity (that is, the Duchy of Lower Lorraine). Table OC8 also includes results when a community was ruled by one of the seven electors of the empire and for the distance from Prague, the capital of emperor Charles IV's domain. The coefficients for our variables of interest remain largely unchanged.[23]

5.2.3. Patterns of Economic Specialization among Jews

Jha (2013, 2014, 2018) argues that patterns of economic complementarities affect the ability of a minority community to survive. Becker and Pascali (2016) similarly argue that in post-Reformation Germany, Jews were more likely to be persecuted in Protestant than in Catholic regions, as in the latter they still played an important role as moneylenders whereas in the former they had been supplanted.

While we cannot test this directly, we can control for factors identified as shaping the economic role played by Jews. Haverkamp (2015, p. 26) notes that Jews played an important commercial role "in regions characterized by viticulture."

[21] It is often supposed that Jewish mortality rates were lower than those of Christians during the Black Death. We discuss this in Section OB3 in the Online Appendix. There is no evidence for this claim, and it would not affect our estimates in any case.

[22] Lotharingia bisected the Low Countries, the Rhineland, Switzerland, and northern Italy. Stasavage (2011, p. 99) observes that "[t]he divisions laid out at Verdun in 843 would have lasting implications not only because Lotharingia collapsed but also because stronger kingdoms emerged elsewhere in the other parts of the former Carolingian Empire. . . . Lotharingia, in strong contrast, remained a border zone of fragmented and shifting political control, flanked by larger powers on either side." For the territory of Lotharingia, see Figure OC3.

[23] Note that the coefficient for ln(Distance to Prague) is statistically insignificant. This result does not conflict with our predictions, as the territories where the emperor's power was uncontested were widely dispersed. He was, for instance, Count of Luxembourg as well as king of Bohemia.

For this reason, as part of our baseline controls, we include covariates to account for areas where wine production was important (notably in the Rhine valley, Alsace, Franconia, and Swabia). We also include economic variables in our baseline controls such as distance to trade routes and urbanization that should control for differences in levels of economic development that might give rise to Jews playing a different role in different parts of the empire. Including these covariates does not affect the coefficients of interest.

5.2.4. Prior Levels of Christianization

Another hypothesis is that prior levels of Christianization or the influence of the Catholic Church caused antisemitism. Many historians argue that the church helped create antisemitic stereotypes, associating Jews with both heretics and the Antichrist (see Nicholls 1963; Cohen 1982; Lehmann 1995). Saint Augustine, however, taught that the Jews were to be protected so as to be "witnesses" to the errors of their ancestors who had refused Christ (Fredriksen 2008). And Haverkamp (2015, p. 30) observes that "[i]n the German Kingdom as elsewhere, many churchmen shared the view that Jews were useful, even indispensable, for key concerns of Christian traditions and belief." In 1348–50, the pope sought to protect Jewish communities.

Given conflicting historical accounts, we do not anticipate a direct relationship between Christianization per se and antisemitism. Nevertheless, historians like Nohl (1926) claim that the lower clergy fomented hatred against the Jews. To test whether the lower clergy were indeed associated with the intensity of antisemitic violence, we control for the presence of monasteries. Following Pfaff and Corcoran (2012), we use Jürgensmeier and Schwerdtfeger (2005) to collect information about whether a town had a monastery established before the Black Death. Our results remain largely unchanged (Table OC9 in the Online Appendix).[24]

5.2.5. Flagellants

The flagellants were religious zealots who roamed Europe following the plague. They sought to atone for sins by flagellating themselves. Traditional historians associate them closely with antisemitic violence. Ziegler (1969, p. 106) notes that "[i]n July, 1349 when the flagellants arrived in procession at Frankfurt, they rushed directly to the Jewish quarter and led the local population in wholescale slaughter." Flagellants were associated with antisemitic violence in Freiburg, Augsburg, Nüirnberg, Munich, Königsberg, and Regensburg (Nicholls 1963, p. 246). More recent accounts downplay the idea that the flagellants were antisemitic mobs: "The simple fact is that the timing is not quite right in many places for the flagellants to have instigated Jewish pogroms," as in many cases Jews were killed prior to the arrival of the flagellants (Aberth 2010, p. 155). To test this al-

[24] We also conducted tests with the number of monasteries. The results were unchanged.

Table 5
Selection on Observed and Unobserved Variables

	β	Uncontrolled	R^2	Controlled	R^2
$R^2_{max} = 1.3\tilde{R}^2$:					
Free Imperial Cities	.830	.762	.055	4.394	.209
Archbishopric Seats	1.519	1.227	.024	6.602	.209
Bishopric Seats	.627	.590	.013	10.342	.209
$\delta = 1$:					
Free Imperial Cities	.727	.830	.055	.762	.209
Archbishopric Seats	1.128	1.519	.024	1.227	.209
Bishopric Seats	.578	.627	.013	.590	.209

Note. Values indicate the amount of selection on unobservables relative to selection on observables needed to produce a coefficient equal to our baseline estimates and the estimated treatment effects under the assumption of equal selection on observables and unobservables. Results for the controlled effect include baseline controls, controls for past pogroms and plague spread, and proxies for the wealth of a Jewish community.

ternative hypothesis, we collect data on the known path of flagellant movements, a map of which is provided in Figure OC4. But we find no evidence of a link between the flagellants and antisemitic violence (Table OC9).[25]

5.3. Potential Bias from Unobservables

Finally, we follow the approach suggested by Altonji, Elder, and Taber (2005) and Oster (forthcoming) to place bounds on how large any bias from unobservables would have to be to undermine our results.[26] First, in Table 5 we show the magnitude of selection on unobservables relative to selection on observables needed to produce a treatment effect of 0 for a given R^2-value. The R^2-value in our baseline specification is .18; we label this $\tilde{R}$. If we impose $R_{max} = 1.3\tilde{R}$, as suggested by Oster (forthcoming), the ratio of selection on unobservables (δ) would have to be between 4 and 10 times greater than selection on observables to generate a treatment effect of 0. Oster (forthcoming) suggests that if $\delta \geq 1$, then one can discount the effect we estimate as being the product of selection on unobservables.

Table 5 presents results that assume that selection on unobservables is equal to that on observables ($\delta = 1$). We report the corresponding estimate of β under different hypothesized values of R_{max}. For $R_{max} = 1.3\tilde{R}$, our estimated values of β are very close in magnitude to the coefficients we obtain under our benchmark analysis. This reassures us that our results are not driven by unobserved differences between contested and uncontested communities.

[25] Further robustness checks are available in the Online Appendix. These include propensity-score matching (Table OC10), using a binary measure of persecution intensity (Table OC13), varying the sample (Table OC14), and controlling for the length of each entry in the *Germania Judaica* as an approach to dealing with sample-selection bias (Table OC15). We also conduct placebo tests (Table OC16).

[26] See Section OC5 in the Online Appendix for a list of included covariates.

6. Implications and Conclusion

Does political fragmentation make minority groups vulnerable to persecution? To answer this question, we examine the Holy Roman Empire, a fractured and weak state troubled by perennial warfare between claimants to the throne and power struggles between religious and secular authorities.

Studying the Black Death era, we find that political fragmentation in the Holy Roman Empire was associated with more intense antisemitic violence. Pogroms occurred across the Holy Roman Empire, but persecutions in communities controlled by archbishoprics, bishoprics, and imperial free cities were significantly more intense than those in areas controlled by the emperor. This finding is robust to controlling for previous pogroms, the geographical and economic characteristics of the community, and a range of other economic, political, and institutional variables. We also assess potential bias from unobservables.

The events we study were of decisive importance for Jewish history—large numbers of Jews left Germany for Poland and eastern Europe in the wake of these massacres, not to return until the 17th century. This had important economic consequences, as Jews had higher levels of human capital than their Christian neighbors (Botticini and Eckstein 2012) and provided vital financial services (D'Acunto, Prokopczuk, and Weber, forthcoming; Pascali 2016), and cities with Jewish communities grew faster than other cities in the early modern period (Johnson and Koyama 2017). Furthermore, Voigtländer and Voth (2012) show that the pogroms in the Black Death period left a persistent legacy of antisemitism in the 20th century.

In addition, our results have implications for understanding what institutions make minority groups vulnerable to violence (Horowitz 2001; Wilkinson 2004; Jha 2013, 2014). While ethnic and religious minorities receive the protection of strong states and the rule of law in modern developed economies, in other parts of the world such as the Middle East they remain vulnerable to the threat of violence. Alawites, Druze, Christian Copts, Yazidis, Samaritans, and Zoroastrians have all faced intensified religious persecution in recent years as the authority of centralized states has collapsed in the region (Russell 2014). There are many notable examples of powerful and centralized states persecuting and exterminating minority groups, particularly in the 20th century. But the number of persecutions associated with the absence of political direction is often not well appreciated (see Chua 2004). Our analysis suggests that the reasoning of McGuire and Olson (1996) regarding the incentives of a stationary bandit is highly relevant for understanding what conditions make ethnic or religious minorities vulnerable. In the absence of the rule of law, minority groups may be better protected under the authority of a single autocrat and may become particularly exposed to the threat of violence in periods when power is contested.

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