Origins of Political Change
Structural vs. Exogenous Factors as Cause of the Late Medieval Guild Revolts

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Abstract
This study investigates the origins of guild revolts and guild participation in the government of late medieval central European cities. It finds that both structural factors, i.e. the prosperity of proto-industry as well as exogenous events like the agricultural crisis and the Black Death were important factors triggering the outbreak of the revolts and the turn towards more participative political institutions in the cities. Interestingly, important medieval trade cities had a lower probability of guild participation indicating that not economic institutions and prosperity per se is the decisive point but rather that formerly poor groups of citizens like craftsmen profit from the economic upswing. Hence, inclusive growth was the key for the emergence of participative political institutions in late medieval cities. At last, the study also finds evidence for the existence of spatial spillovers from the developments in neighboring cities implying that strategic considerations played a role in the spread of participative political institutions.

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1 Introduction

In the last decades there has been an increasing interest in the role institutional innovations in the later medieval and early modern period played in the so called “Rise of the West” and the so called “Great Divergence”. This literature, is usually concerned with the consequences of the changes that occurred in this period in national or communal level political institutions and regimes (e.g. Allen 2003, Bosker et al. 2013, De Long and Shleifer 1993, Greif 2006, Stasavage 2007,2011,2013 or Van Zanden et al. 2012). However, these studies rarely provide a systematic empirical analysis of the origins of these institutional innovations. Yet, unveiling the roots of participative (or inclusive) institutions in later medieval central Europe is essential for understanding the medieval roots of the “Great Divergence”(Van Zanden 2008) and, even more important, the origins of political change. Furthermore, it can also be informative about the relationship between economic and political changes as the political change of this period paralleled a notable economic recovery, the so called “commercial revolution” (Lopez 1976).

By investigating the origins of the late medieval guild revolts this study seeks to shed light on these issues. It is supposed that the guild revolts constituted an important trigger for the turn towards more inclusive political institutions documented for the later medieval period. They often resulted in craftsmen and other groups of citizens gaining political rights to have a say in the city council and in election procedures that gave more groups of citizens the right to vote. Therefore, the study of their causes is informative about the origins of the “institutional revolution” in late medieval cities. Furthermore, while there is a vast historical literature on the causes and consequences of the late medieval guild revolts (e.g., Dumolyn and Hamers 2005 or Luther 1966) there

1During the later medieval period many other institutional, social, economic and educational innovations emerged that contributed to a renewal of prosperity and growth. Among those innovations are the rise of Protestantism (Cantoni 2012), the invention of the printing press (Dittmar 2011) and the foundation of universities (Cantoni and Yuchtman 2014).
2Under guild or burgher revolts I understand the uprisings of craftsmen—and oftentimes other group ofburghers—against the rulers of the town (e.g. a merchant elite).
is no quantitative empirical assessment of their causes. Hence, this study also provides an empirical test of the existing qualitative historical arguments.

Historians identified two types of factors primarily responsible for the outbreak of a revolt. First, many historians consider structural factors as main determinants of the guild revolts. They argue that the renewal of economic prosperity during the commercial revolution shifted the economic but not political power away from the merchants to craftsmen. Hence, the guild revolts are understood as an attempt of newly enriched craftsmen to gain not only economic but also political power. Furthermore, an often enclosed, degenerated and quarreling ruling class promoted the emergence of revolts. On the one hand, this was due to the fact that this elite found itself in a weaker position and on the other hand because their excessive expenditures financially ruined the cities (e.g. Luther 1968, Planitz 1966).

Second, exogenous factor or shocks are are given major responsibility for the revolts. Proponents of this view argue that, most importantly, the interplay between the late medieval agrarian crisis and the Black Death alongside more regional events like the double election of the German king or the persecution of Jews (often the context of the plague) caused the revolts (e.g. Blickle 1988, Cohn 2008).

While some scholars put forward one kind of factors as primary source of the guild revolts, most research (e.g. Luther 1968, Planitz 1966) consider both kind of factors to be important for the outbreak of the revolts. Thus, this study seeks to investigate empirically whether structural or exogenous factors or both accounted for the occurrence of guild revolts.

The study is based on uniquely large and systematic data on the prevalence and outcomes of guild revolts in 104 cities in Germany, Austria, the German-speaking area of Switzerland (plus Geneva), Alsace-Lorraine and the Low Countries for every hundred year period between 800 and 1800 AD (i.e., it covers the German-speaking parts of the Holy Roman Empire (HRE) and the institutionally and culturally similar Low
Countries). This data is part of the “Participative Political Institutions in Medieval Europe Database” created by the author and also contain information about other types of political institutions in central European cities (Wahl 2015). The collected data is the most comprehensive and detailed collection of information about the late medieval guild revolts that the author is aware of. Furthermore, it is the first data set on political institutions on city-level and thus making it possible to exploit variation in political institutions between cities.

Based on this data set the article first provides an overview of the temporal evolution and spatial distribution of successful guild revolts. Afterwards, I conduct an empirical analysis of the origins of the guild revolts. For the empirical analysis I supplement the database on participative political institutions with variables from the city level panel data set of Bosker et al. (2013) and further variables coded by making use of other sources and the participative political institutions database. I conduct cross-sectional regressions, accounting for endogeneity by regressing pre-treatment values of the explanatory variables on the guild revolts/participation measures.

A first important results is that cities that were centers of proto-industry had a higher and important centers of medieval trade had a lower probability of guild participation in the city council. This shows that structural factors played a significant role in triggering the guild revolts and the political change towards more participative political institutions. However, I also find that being located in a rural area—but not agricultural productivity—mattered, suggesting that the agricultural crisis and the Black Death were important. Being located in the countryside made a city more severely affected by rural-to-urban migration flows that increased intra-urban conflicts between craftsmen and the ruling elite. At last, the empirical analysis suggests a certain role of neighborhood spillovers, i.e. there is a higher probability of guild participation if the share of neighborhood cities with such a participation is higher. Therefore, strate-
logic considerations and expectations about the probability of a success or failure of the revolts were of relevance.

The paper proceeds as follows: In section two, an overview of the guild revolt data is given and the temporal evolution and spatial distribution of successful guild revolts is discussed. Then, the causes of guild revolts identified by the historical literature are discussed and connected to arguments from the theoretical economic literature on political institutions. In section four, I conduct the empirical analysis of the causes of the guild revolts and discuss their implications. Finally, section five concludes.

2 Late Medieval Guild Revolts—Data and Descriptive Patterns

2.1 Data on Guild Revolts

The data on guild revolts and other types of political institutions in cities stems from the “Participative Political Institutions in Pre-Modern Europe Database” created by the author (Wahl 2015). Among others, the database includes information on the occurrence and outcome of guild revolts for the German-speaking area (i.e., Germany, Austria and Switzerland) as well as the Netherlands, Belgium and three cities located in the Alsace-Lorraine region of today’s France (Colmar, Metz and Strasbourg) but historically belonging largely to the Holy Roman Empire (for reasons of simplicity, in the following I will call this area “central Europe”). The inclusion of the Netherlands and Belgium is justified because parts of those countries belonged to the Holy Roman Empire throughout the later medieval period. The institutional environment and economic and social developments in these countries were comparatively similar to that in the German-speaking area as, for example, there were also guild revolts and there also existed imperial cities and cities of the Hanseatic League. In including the territory of

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3Furthermore, I include Flensburg in the dataset. Flensburg was Danish until it became Prussian in 1846. Nevertheless, it is contained in the “Deutsche Städtebuch” and its history and development is closely connected with Germany and e.g., the Hanseatic League. Due to this I decided to include Flensburg.
today’s Belgium and the Netherlands I follow other historians, like Luther (1968), who have previously studied the guild revolts.

The starting point for the collection of data was the city level panel data set on European and Muslim cities assembled by Bosker et al. (2013). They follow Bairoch et al. (1984) and consider a place to be a city if it had more than 10000 inhabitants at least one time in its history. Each of the variables in this data set has a value at the beginning of each 100 year period from 800 AD to 1800 AD (i.e. there is data for 800, 900, 1000, 1100 and so on). The rationale for choosing this data set was that the variables it contains are used to conduct the empirical investigation on the origins of participative political institutions later on. For each city in the sampling area described above and included in the Bosker et al. (2013) data set I tried to find information on whether and when their was a guild revolt in a city and what its outcome was.

My main source for the coding of the variables was the “Deutsche Städtebuch” (Handbook of German Cities) edited by Keyser and Stoob (1939–1974) an eleven volume encyclopedia with systematic information on various aspects of the history of all German cities within the 1937 border of the German Empire. I coded the cities in Austria primarily according to a similar handbook for Austria, the “Österreichisches Städtebuch”, or from monographs about city history. The cities in Belgium and the Netherlands were coded primarily according to Prak (2006a,b), Lis and Soly (2006), the second volume of Hegel (1891), Dumolyn and Hamers (2005), Van Zanden and Prak (2006) and various other sources.

Since the coding requires comparatively detailed data and because there is a considerable amount of uncertainty in information about developments and institutions in the medieval and early modern period I additionally consulted sources about the history of each individual city (e.g., Borst 1968 or Csendes and Opll 2001) and about their historical constitutions, guilds or political institutions (such as Blaschke 2002, Endres 1994 or Jecht 1908). Overall, I consulted more than 100 sources for the coding of the
variables. The city specific sources on which the coding is based are reported city-wise in Table A.1. In Appendix A.1-A.3 I elaborate on the data and discuss its construction in more detail. There, I also discuss concrete coding examples and critical cases.

However, even when using such a large amount of sources, I was unable to find reliable information for each of the cities considered in Belgium and the Netherlands. Overall, I was able to collect information on participative political institutions in 104 cities. In 51 of them successful guild revolts took place somewhere between the 13th and the 15th century. In eleven cities, primarily in the north of Germany, unsuccessful revolts were recorded. An overview of the number of revolts and the number of cities with participation of the guilds in the city government in each century is given in Table 1.

It could be instructive to look at the temporal evolution of the guild participation—especially at the share of cities with guild participation—as depicted in Table 1. The general temporal evolution pattern is the same for both kinds of revolt outcomes. Their spread began after 1200 AD and their diffusion continued until the end of the 15th century (consistent with e.g., Pirenne 1964 or van Werveke 1963). From the 16th century onward their prevalence declines remarkably (e.g., the share of cities with guild participation declined from around 50 % to around 30 %). Both types of participative institutions were abolished, often in the early modern period when local rulers or the emperors became strong again or when the cities lost their commercial and strategic importance.

\[\text{Table 1 about here}\]

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4In two cities, Berlin and Chemnitz, two successful revolts took place, the first in the 13th century and then, after the guilds lost their participation in the council the regained it in the 15th century.

5Apart from a few cases (Nuremberg in 1348/49) it is not possible to two identify how many unsuccessful revolts took place as the information on this is often very unspecific. Thus, I cannot meaningfully attribute these events to one of the observation years. Furthermore, I am primarily interested in the triggers of economic change and therefore in successful guild revolts.
2.2 The Spatial Distribution of Guild Revolts and Participation

To get an overview of the distribution of guild revolts and guild participation in the city council and to discover potentially existing spatial patterns that could contribute to the understanding of their origins it is useful to look at maps showing the spatial distribution of these revolts in the considered countries and across different waves.

Figure 1 therefore maps the distribution of cities with successful revolts in the 13th and 14th century, i.e. in the first two waves of the revolts. Cities that had at least some participation of craftsmen in the council for any period are blue colored and cities with a guild constitution (i.e., where the guilds were a major political force) are red.

The maps show that the first wave of guild revolts was concentrated in western and northern Germany, i.e. in the later Upper Rhenish Circle of the HRE and in the Lower Saxon Circle. The Upper Rhenish Circle in particular was highly politically fragmented and thus lacked a strong central authority that could probably prevent successful revolts. This first wave is perhaps also connected with a lack of central power and the anarchic situation after the collapse of the Staufer dynasty and the subsequent “great interregnum”. It is also visible that in this first wave the guilds were only able to gain some participation in city government but not to become the dominant political force.

More than half of all revolts took place in the second wave of the revolts in the 14th century. This time, the geographic focus was more in the south of the empire (i.e., in the Swabian Circle and in today’s Switzerland as well as in the Westphalian and Burgundian Circle). Contrary to previous revolts, this time the guilds succeeded in a complete take over of the city government in many cases. The newly gained strength of the Southern and Western German imperial and trade cities as well as the outbreak of the Black Death were likely to have been responsible for this wave of revolts.

[Figure 1 about here]

Figure 2 maps the third and last wave of the revolts (the upper map) and also visu-
alizes the overall picture of guild participation in 1500 AD, a date after which no new successful guild revolts are recorded (the lower map). The last wave of the revolts in the 15th century saw only a few revolts, mainly in the Low Countries (Burgundian Circle) and in the Franconian Circle. In general, the shift of the revolts to the South and in particular to the north mirrors the regional economic and social development patterns in this period. Again, none of the revolts in the third wave resulted in a complete take-over of the city government. In Table 2, I conducted OLS regressions to predict the occurrence of a revolt in a respective wave by the geographic coordinates of the cities and Imperial Circle dummies. These linear probability models complement the visualization of the evolution of guild revolts in Figure 1. They confirm that the first wave of revolts in the 13th century were concentrated in the upper Rhenish circle while the subsequent wave in the 14th century primarily took place in the south west of the sampling area (in low latitudes and longitudes) especially in the Swabian circle (probability of a successful guild revolt is around 50% higher than for the Bavarian circle constituting the base group). But the second wave seems to have had another north-eastern regional core in the Saxon Circle (later separated into the lower and upper Saxon circles). Finally, the last wave of revolts in the 15th century was geographically concentrated in the Low Countries (i.e., the Burgundian Circle) and in the Franconian Circle (nowadays in Hesse and the north of Bavaria) although the significant negative coefficient of Longitude in column (5) indicates that the main center of revolts was in the Low Countries.

[Figure 2 about here]

[Table 2 about here]

|6| Imperial circles were established as administrative units in the Holy Roman Empire in 1512—that is shortly after the period of the revolts. Nevertheless, they could capture much of the heterogeneity between the areas of the Holy Roman Empire in the previous centuries. Furthermore, as the 104 cities in the data set are located in 73 territories it is no alternative to use territory fixed effects instead. I also include a separate dummy for the “electorate” territories, the so called “Kurfürstentümer”, i.e. the territories of the “Kurfürsten” the secular rulers and archbishops who were allowed to elect the German king. |
Finally, the overall picture of guild participation after the end of the revolts in 1500 AD is depicted in the lower map of Figure 2. When looking at this map one can infer that there were almost no cities with guild participation in the north of Germany and the Netherlands, i.e. in core area of the Hanseatic League (Dollinger 1966). This is in line with historical evidence that the Hanseatic League often successfully suppressed guild revolts and defended the ruling merchant elite in its member cities (e.g. Luther 1968). I also see that guild participation was mainly concentrated in south-west Germany, today’s Alsace-Lorraine and Belgium (the duchies of Flanders and Brabant). In central Germany there is a medium frequency of guild participation and there are only a few cities with a guild constitution (Brunswick, Goslar and Magdeburg) all of which were members of the Hanseatic league and important political, commercial or ecclesiastical centers and therefore probably predestined for the outbreak of a guild revolt. In those cities the guilds succeeded in their attempts to gain political power despite the opposition of the Hanseatic League. There are almost no cities with guild participation in Bavaria which could be due the comparatively strong position of the Bavarian ruler and to the fact that bishops there (e.g. in Passau) were often successful in suppressing the guilds.

3 Origins of Guild Revolts—Historical Discussion and Theoretical Considerations

Broadly spoken, existing historical research on the causes of the guild revolts identified two kind of factors as playing a major role in the occurrence of the late medieval guild revolts.

First, many scholars highlight the role structural (or endogenous) factors played in the causation of the revolts (e.g. Blickle 1988, Czok 1966, Epstein 1991, Luther 1968, Maschke 1959 or Pirenne 1963). Hence, the guild revolts are understood as consequence
of the revival of trade, commerce and the institutional innovations connected with this “commercial revolution” of the late medieval period. Many researchers (e.g. Blickle 1988, Luther 1968) have pointed to the stark contrast between the economic importance of the craftsmen and their non-existent political rights as major cause of the revolts. The theoretical framework of Acemoglu et al. (2005) and Acemoglu and Robinson (2006) is useful to understand this argument. While the de jure political power was concentrated in the hand of the patriciate, the de facto political power shifted to the craft guilds and non-patriciate merchants. This shift was the outcome of the economic institutions, which allocated more and more resources to the guilds. This was true not only for economic resources but also for military resources, as the guilds often also provided the city’s military. Consequently, the guilds aimed on gaining de jure political power by making a revolt—and they actually most often succeeded at least temporarily.

This story also fits with a second often-mentioned structural reason for the guild revolts: the decline or degeneration of the elite (Blickle 1988, Luther 1968, Planitz 1966, Pirenne 1963). What began as the rule of economically successful and sometimes even philanthropic merchants engaged in long-distance trade activities usually ended-up in an enclosed, oligarchic rule of a few families. This oligarchic rule increased inequality, which is a major cause of revolts and revolutions (Acemoglu and Robinson 2001, 2006). Furthermore, this degeneration had various other effects giving rise to the occurrence of a revolt.

At first the families often fought against each other often resulting in the deaths of important members of such dynasties leaving both a vacuum of power and a rational reason—the restoration of peace—for the guilds and burghers to take over government. Second, corruption, misgovernment and wars led by the elites resulted in financial problems and tax increases not for the elite but for the majority of people without political rights (e.g. Wissell 1971). This increased inequality and the likelihood of revolt. Last, the elites lost their economic and educational advantages since they stopped
being engaged in long-distance trade and lived as gentlemen of leisure or pensioners (Luther 1968). The degeneration of patrician and oligarchic rule is in line with the theoretical considerations of Acemoglu (2008), the empirical findings on that matter for a cross-section of European cities (e.g. Epstein 2000 or Stasavage 2011, 2013) for particular cases like e.g. Venice (Puga and Trefler 2014) and classical ideas about a “political” or “regime cycle” going back to Plato and Aristotle and which are also emphasized by Pirenne (1963). More generally, this picture underlines that economic opportunities and institutions are essential prerequisites for political change and the emergence of participative political institutions. If this is true, the guild revolts can be seen as a phenomenon similar to the increase of Atlantic trade in the early modern period that laid the ground for further institutional improvements (Acemoglu et al. 2005). To sum up, according to this argument, the elite became the victims of the prosperity, economic and social complexity it had generated by itself.

Second, historians discuss several exogenous factors potentially important for the occurrence of guild revolts. Most prominently, they argue that the outbreak of the Black Death in the 14th century was connected to the occurrence of guild revolts in various way (e.g., Blickle 1988, Cohn 2008, Luther 1968 or Planitz 1966). For example, it led—together with climatic changes at the end of the medieval warm period—to a severe agrarian crisis resulting in a decline in the prices of agricultural goods and a corresponding increase in the prices of industrial commodities and real wages in cities—as mortality from the plague was higher in cities than in the countryside. This divergence of living standards between rural and urban areas led to massive migration movements of people from the countryside to the cities. This influx of people, especially craftsmen, resulted in a conflict about the restrictiveness of migration policy between the urban craftsmen and the city council controlled by the merchant elite. Moreover, the perse-

\footnote{More on the nexus between the Black Death, the Agrarian crisis and its impact on the economy can be found in Henning (1994).}
cution of Jews was often connected with an upheaval of the old elites (Luther 1968) and was also connected with the Black Death epidemics (Cohn 2007). Finally, the double-election of the German King in 1314 AD was a source of intra-city conflicts as the guilds and the elite were often loyal to other kings and were strategically supported by the king to which they were loyal. Sometimes the guilds used this conflict to revolt against the elites and to come to power themselves (Luther 1968).

What is more, most scholars agree that probably both type of factors jointly contributed to the emergence of the guild revolts (e.g. Luther 1968). Hence, it is likely that the both exogenous and structural factors are jointly responsible for the causation of the revolts.

Therefore, it is the aim of this article to test whether structural or exogenous factors or both were responsible for the occurrence of the late medieval guild revolts.

4 Explaining the Guild Revolts—Empirical Evidence

4.1 Variables

4.1.1 Dependent Variables

To explore the roots of the guild revolts in the 14th and 15th century I make use of three different dummy variables acting as dependent variables.

The first dependent variable is a dummy variable equal to one if a city experienced a successful guild revolt and the guilds participated in the city council (“Guild Participation Dummy”). Second, I use a dummy variable reporting the occurrence of guild revolts in a city, i.e. it is equal to one if the sources indicate a guild uprising, regardless of whether it was successful (i.e. the guilds participated in the city government after the revolt) or not (“Guild Revolt” Dummy). Third, a dummy variable serves as dependent variable indicating cities with a guild constitution, i.e. cities in which the guilds not
only participate in the city council but also had the majority or all of the seats (“Guild Constitution Dummy”).

The three different guild revolt measures are chosen because using only one of them would potentially lead to erroneous conclusions. This is because focusing only on successful revolts could give the wrong picture of their underlying causes. This is especially true if there were systematic reasons behind the failure of some revolts. The choice to consider separately those cities under full political control of the guilds is justified for several reasons. First, the influence of guilds on the actual politics of a city was much lower when they only had e.g., one third of the representatives in the city council instead of the majority. Even if the guilds held half of the seats the actual influence of those representatives was often limited (Maschke 1959). Hence, the effect of successful guild revolts is expected to be lower in those cities than in cities where the triumph of craftsmen was absolute and they became the dominant political force.

4.1.2 Main Explanatory Variables

The main explanatory variables are proxies for the structural and exogenous factors discussed in the previous section. Structural factors are proxied by economic variables.

If it is correct that the guild revolts endogenously emerged as a byproduct of the commercial revolution they should have occurred primarily in the commercial and economic centers of the late medieval HRE. To test this, I collected data on the centers of proto-industry in the HRE, i.e. I construct a variable that is equal to zero if a city was

Some historians, e.g., Luther (1968) argue for the necessity of a even more fine-grained categorization scheme of the political influence of guilds. He distinguishes between five categories of cities: (i) Cities where the majority of the seats in the city council is held by the patriciate, (ii) cities in which guilds and the patriciate have half of the seats respectively, (iii) cities where the guilds provide the majority of the representatives in the city council, (iv) cities where the guilds have all seats in the city council and (v) cities that remain under the complete control of the patriciate. However, it is not obvious what the difference between e.g. category (iii) and (iv) actually is. In conclusion, these five categories seem to be much more arbitrary than necessary. Moreover, for many cities the information provided by the sources is not detailed enough to code the cities according to such a categorization scheme. This is why I follow e.g. Fuhrmann (1939) and stick to a three category scheme (i.e., (i) no guild participation, (ii) some guild participation and (iii) guilds are the major political force).
not an important center of proto-industry, one if it was a center of textile (cloth, linen, silk or woolen industry) or metal industry and two if it was a center of both industries. As second measure, I include a dummy variable indicating whether a city was an important supra-regional center of trade. Being an important trade center could raise the probability of a guild revolt since medieval trade and commerce created the economic opportunities and high inequality that were conductive for guild uprisings. On the other hand, the local merchant elite had a strong incentive to suppress these revolts and to defend its power by all available means and it can be assumed that the power of guilds was higher in industrial centers than in commercial centers primarily engaged in trade but not production (e.g. Maschke 1959). Furthermore, it is justified to consider the interaction of commercial and industrial importance (i.e. a city that was both a center of industry and trade) as it was probably decisive for the outbreak of a revolt. This for example can be illustrated with the case of Brunswick—that was a notable center of production—there was a successful guild revolt despite the fact that it was a member of the Hanseatic League. Actually, many of the important members of the Hanseatic League were only engaged in large-scale trade and not production activities. In effect, the craft guilds were not that powerful in these cities. Hence, it was easier for the merchant elites to prevent a revolt of the craft guilds there.

The most important exogenous trigger of the revolts is the nexus of the late medieval agrarian crisis and the Black Death. To capture the effect of these events I use two variables. First, I include a variable reporting the suitability of the soil around a city for agriculture. Agricultural suitability serves as a proxy for the agricultural productivity of a city’s hinterland which could be decisive for the outbreak of guild revolts because of the agrarian crisis. It is supposed that areas with better soils showed a higher agricultural productivity and were not so severely affected by the crisis and its consequences. Furthermore, I consider a measure of a city’s urban potential, i.e. the distance-weighted

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9 Details about the construction of these variables (sources etc.) is provided in the Appendix A.4.2.
sum of the population of all other cities in the data set of Bosker et al. (2013)\(^{10}\) “Urban Potential” serves as a measure for the centrality of a city within the European city network and therefore as a proxy of e.g. the size of its potential markets but also of the characteristics of its surrounding hinterland (Bosker et al. 2013). As it proxies for the importance of a city relative to its hinterland, it is related to the extent to which a city was affected by the agricultural crisis, the Black Death and the migration from rural areas to cities following both events. For example, if a city was located in a rural area, it is supposed to be subject to larger flows of migrants from the countryside and thus it should be more affected by the agricultural crisis (especially, as the mortality rates due to the Black Death were considerably higher in the cities than in the countryside).

4.1.3 Further Explanatory Variables

Following insights of the historical and economic literature I include several variables to diminish concerns about omitted variables.

First, I take into account the pre-existing political institutions in cities and territorial states. I include dummy variables that indicate the existence of institutionalized burgher representation and participative election of city government. These variables also originate from the “Participative Political Institutions in Medieval Europe Database”. They should account for the pre-existing institutional environment in the city. Furthermore, they consider the fact that the outbreak of a revolt is less likely if the political institutions in a city are already relatively inclusive.

Third, I include several other variables that proxy for the political and ecclesiastical importance of a city. All these variables are considered to be relevant factors in the causation of the guild revolts by some of the consulted historical studies and were relevant in some of the studied cases of revolts. Among them are variables indicating the

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presence of a bishop or archbishop, whether a city had the status of a free or imperial
city or was a residence of a secular ruler. A city had to have a relatively large degree
of autonomy for a guild revolt to occur. Due to this, imperial cities should have a high
probability of a guild revolt (Blickle 1988, Kluge 2009). Complementary, a residence
city of a secular ruler might have a lower probability for a revolt since the autonomy of
such cities was usually limited—although kings in general had a relatively pragmatic
attitude toward guild participation. A special case are the residences of archbishops.
While archbishops were sometimes on the side of the guilds, supporting them to regain
power in the city, they sometimes fought against the attempts of the guilds. Thus, it is
not a priori certain what the effect of the presence of an archbishop should be. The ef-
frect of archbishops is also unclear because their military strength was more limited than
those of secular rulers. Moreover, their relationship with local secular rulers was often
conflicting. These aspects strengthen the arguments for a positive effect of archbishops
on the occurrence of guild revolts (Isenmann 1988). It is also possible that negative and
positive effects offset each other leading to no detectable effect of archbishops.

Finally, Kluge (2009) mentions that successful revolts inspired revolts in neighbor
cities, although the revolts in general remained a local phenomenon. This gives rise
to the conjecture that spatial spillovers and strategic considerations played a certain
role in the diffusion of guild revolts similar to, for example, the case of the spread of
Protestantism (Cantoni 2012). Hence, it is likely that the institutional arrangements
of neighboring cities could have influenced the introduction of participative political
institutions and the occurrence of guild revolts. Yet, it is not clear in which direction
these strategic spatial spillovers worked. On the one hand, a guild revolt in a neighbor
city may have increased the probability of a successful guild revolt, e.g. because the
guilds, craftsmen and other burghers saw higher chances of success or found support
from their neighbor city in their revolutionary attempts. On the other hand, the elites
of a city that saw a successful guild revolt in a neighbor city could try to prevent it by
forming an alliance with the elites of other cities. If this was the case, I expect negative neighborhood spillovers. Such negative neighborhood spillovers will also occur when the elite, in order to prevent a likely revolt, introduce some kind of institutions giving the citizens a right to have a say in the political matters of the city. At last, if significant neighborhood spillovers existed this means that the individual observations are not independent from each other, making it necessary to account for this fact to have unbiased estimates.

To consider the impact of such spatial spillovers, I will include a variable for the share of neighbor cities with guild participation within a 150km distance band around the city under consideration to some of the regressions.\footnote{I also tried a 250 and 500km buffer distance band around a city. The result was that with an increasing distance band the influence of the neighborhood spillovers become smaller and smaller indicating that—as proposed by Kluge (2009)—revolts more far away than 150km did not matter much for the outbreak of a revolt in a city.}

These variables are coded by the author. Appendix A.4 provides an overview of all variables, their sources and definitions.

4.2 Empirical Approach and Results

To unravel the origins of guild revolts and the political change connected with successful ones, a straightforward strategy consists in running probit regressions where the above mentioned independent variables are regressed on one of the three dependent variables. Such estimates are probably biased by reverse causality since the dependent variable are likely to influence some of the included regressors. A first approach to avoid these kind of endogeneity problem is to use pre-treatment values of the regressors in the estimation. To achieve this I created, based on the panel data set, a cross-sectional data set containing the values of the regressors in the immediate period before the revolt before a (successful) guild revolt broke out in a city. For cities that did not experience guild revolts I keep the observations in the year 1500 AD. This is
because after 1500 AD no new guild revolts occurred and the treatment period ended (probability of a new revolt becomes zero after 1500 AD). A descriptive overview of this cross-sectional data set is given in Table A.2.

I investigate which pre-treatment characteristics of cities determined the occurrence and success of guild revolts by estimating variants of the following equation using the probit method:

\[
\Pr(GUILDPART_{ci}, t | STR_{ci, Pre-Treatment}, EXOG_{ci, X_{ci, Pre-Treatment}}) = \Phi(\alpha + \beta' STR_{ci, Pre-Treatment} + \gamma' EXOG_{ci, Pre-Treatment} + \delta' X_{ci, Pre-Treatment} + \lambda_c + \epsilon_{ci})
\] (1)

Where GUILDPART$_{ci}$ represents the three dummy variables measuring guild revolts and guild participation in the city council, STR$_{ci, Pre-Treatment}$ is a vector containing proxies for the structural triggers of the revolts, EXOG$_{ci, Pre-Treatment}$ represents the variables capturing the most important exogenous factors and X$_{ci, Pre-Treatment}$ is a vector of control variables. \(\lambda_c\) are imperial circle fixed effects and electorate fixed effects and \(\epsilon_{ci}\) is the error term capturing unobserved factors. I choose to estimate this equation using probit estimation. For each of the three dependent variable the results are presented in a separate Table.

Additionally, I will investigate whether and how structural factors interacted in the causation of the revolts by interacting the trade city dummy and the proto-industry variable. Hence, equation one becomes to:

\[
\Pr(GUILDPART_{ci}, t | STR_{ci, Pre-Treatment}, EXOG_{ci, TRADE * PROTOIND_{ci}, X_{ci, Pre-Treatment}}) = \Phi(\alpha + \beta' STR_{ci, Pre-Treatment} + \gamma' EXOG_{ci, Pre-Treatment} + \delta' TRADE * PROTOIND_{ci} + \theta' X_{ci, Pre-Treatment} + \lambda_c + \epsilon_{ci})
\] (2)

Where TRADE * PROTOIND$_{ci}$ is the interaction term and the rest of the equation is identical to equation (1).
Results of estimating equations (1) and (2) are presented in Tables 3–5. In all three
tables, the variables proxying structural and endogenous factors are introduced sepa-
rately first and then they are included simultaneously. Afterwards, the regressions form
first columns are repeated but this time including the neighborhood spillover variable
(share of cities with guild participation in a radius of 150 km around a city). Each regres-
sion additionally includes all mentioned control variables and imperial circle dummies.
The tables report average marginal effects.

Table 3

In Table 3, the dependent variable is guild participation in the city council, the main
variable of interest in this study. With regard to the structural factors, columns (1) and
(2) of Table reveal that both important trade cities as well as centers of proto-industry
played a significant role for explaining guild participation. Both variables are indi-
vidually and jointly (as indicated by the \( \chi^2 \) test reported at the bottom of the Table)
significant and show a sizable positive effect on the probability of guild participation
in the city council. However, in line with the discussion in section 3, the estimates sug-
gest that while industrial centers had a significantly higher probability of a successful
revolt, trade cities had a smaller. Therefore, it is confirmed that the commercial revolu-
tion strengthened the craft guilds and lead them to make revolt to get political rights to
say in cities where their position was strong as they were centers of proto-industry. In
contrast, cities that primarily concentrated on trade (and not production) like most of
the cities of the Hanseatic league, had a lower probability of a successful revolt. This is
in line with historical evidence and supports the argument that a strong merchant elite
could successfully handle to remain in power after a revolt or to prevent a revolt in
the first place. This ambiguity in the effect of structural factors is interesting, as it tells
us, that not economic prosperity per se but mainly the upswing of proto-industry was
conducive to political changes and a transition towards more inclusive political insti-

20
tutions. Hence, only when economic growth enriched new, formerly poor groups of the society it sometimes resulted in political changes. Finally, when the proto-industry and trade city dummy are interacted (column 2) there is no evidence for a significantly different revolt probability of cities that are both centers of proto-industry and trade (like e.g. Brunswick). However, as there are only 6 cities that are identified as centers of proto-industry and trade the insignificance of the interaction term (that actually shows a comparatively large coefficient) is probably due to the small amount of variation.

The agricultural crisis and the black death also matter jointly ($\text{Chi}^2 = 14.24$) but only the urban potential variable shows a significant negative coefficient throughout all observations, while agricultural productivity is always insignificant. Thus, it seems that cities with a low urban potential, i.e. that are surrounded by a rural area have a higher revolt probability than cities in urbanized areas while agricultural productivity seems not to play a role.\textsuperscript{12} Nevertheless, this result delivers evidence in support of those historians that argue for the revolt-triggering effect of the considerable urban-rural migration following the agricultural crisis and the Black Death.

In column (4) both kind of variables are included together in one regression. Urban potential and the proto-industry variable remain significant with a virtually identical coefficient while the coefficient of the trade city dummy becomes smaller and insignificant. Most likely, this loss of significance can be attributed to the fact that there is an intuitive significant positive correlation between urban potential and and the trade city dummy.\textsuperscript{13} Hence, the urban potential variable takes away some of the effect of the trade city variable.

In sum, the results suggest that both, exogenous factors like the agricultural crisis and

\textsuperscript{12}A possible interaction of both factors would also not yield a significant result and hence, the effect of urban potential and agricultural productivity do not depend on each other.

\textsuperscript{13}The bivariate correlation between both variables is around 0.2
structural factors like the commercial revolution and the prosperity of proto-industry were prominent factors in the causation of the revolts.\textsuperscript{14}

In columns (5)–(8) I additionally add the share of cities with guild participation within a 150km radius around the city to the specification. It always enters with a significant and large positive coefficient providing evidence for the existence of neighborhood spillovers and the importance of strategic considerations in the spread of the revolts. Existing participation of guilds as result of a successful revolt increases the probability of a successful revolt in the city under consideration by around 38%. Interestingly, the spillover variable reduces the significance and robustness of the proto-industry and trade city dummy. Again, this is expectable and follows from the fact that not only the guild revolts but also trade and proto-industry was clustered in space and therefore, the spillover variable is significantly correlated with both structural variables. Nevertheless, the existence of neighborhood spillovers and hence, the non-independence of the observations, does not change the overall conclusions drawn before.

Table 4 repeats the regressions of Table 3 but with the guild revolts dummy, i.e. also including unsuccessful revolts that did not lead to participation of the guilds in the city council. Here, the interaction between trade and proto-industry is not included as the interaction term would be a perfect predictor and hence is excluded from the probit model.\textsuperscript{15} The results are identical, but the trade cities and neighborhood spillovers are not significant here. Additionally, the effect of urban potential is also considerably reduced yet remains statistically significant. Despite this, especially when both structural variables and crisis variables are included jointly (as in column (3)) the differences between the results with and without unsuccessful revolts (Table 4 column (4)) are mi-

\textsuperscript{14}I ran additional regressions were I interact the agricultural productivity dummy and the proto-industry variable or the urban potential and proto-industry variable. In both cases the interaction term was always insignificant and had a low amount of additional variation. I therefore decided not to include this regressions in the main text. However, the estimations are available from the author upon request.

\textsuperscript{15}Alternatively, I estimated the specification as linear probability model using OLS. The results are similar to the probit model with the interaction and the interaction term itself is clearly insignificant.
nor suggesting that there are no systematic differences between cities with successful
and unsuccessful revolts responsible for success or failure of a revolt. However, it is
to mention that according to the estimates revolts per se are significantly more likely
in imperial cities, what is not the case for guild participation. In conclusion, while
there seems to be no connection between the success of a revolt and imperial cities, the
outbreak of a revolt per se is significantly more likely in an imperial city. This find-
ing confirms the reasoning of historians and the conclusion of many quantitative case
studies (e.g. Blickle 1988 or Kluge 2009). It also suggests that the revolts were pri-
marily intra-urban power struggles taking place in independent city states and not so
much revolts against a territorial ruler and its representatives. The insignificance of the
neighborhoods spillovers indicates that the revolts per se were less spatially clustered
and that, the preventive effect of failed revolts might had offset the reinforcing effect of
successful ones.

[Table 4 about here]

Finally, in Table 5, I consider only the cities in which the guilds succeeded in com-
pletely taking over the government (i.e., gained the majority or all seat in the city coun-
cil). To consider these cities separately could be useful if there were systematic dif-
ferences in the determinants of revolts that resulted in such a complete success of the
guilds. Furthermore, in considering only these cities I avoid the more gray areas of
guild participation were the guilds are only a minority in the council and there actual
political influence remains unclear. Hence, in Table 5 I only look at cities in which a
guild revolt resulted in considerable actual political influence of the guilds. As in Table
3, being a center of proto-industry is robustly and positively associated with having
a guild constitution after a successful revolt and neighborhood spillovers also have a
positive and significant influence. However, urban potential is insignificant and exoge-
nous factor were not decisive for the implementation of this type of political change after a successful revolt.

[Table 5 about here]

5 Discussion and Conclusion

What caused political change towards more participative city governments in late medieval cities? Was it the result of exogenous circumstances like the plague or climatic changes or was it a consequence of economic prosperity and the improvement of economic institutions during the commercial revolution, or both? The result of this study suggest that both factors played a decisive role in the causation of the late medieval guild revolts and the political changes towards participation of the guilds. Being a center of proto-industry as well as being located in a rural area are significant predictors of guild participation in the city council and the outbreak of a revolt. This means, that purely institutional explanations of the transition towards more inclusive institutions according to which a virtuous cycle of better economic institutions leading to better political institutions leading to even better economic institution and so forth, tell only one part of the story. Nature, History and strategic considerations of guilds and elites tell the rest. Given this results, it seems that political change in the late medieval neither was the pure result of structural factors nor of purely exogenous events.

However, the fact that only structural factors seem to be significant predictors when the guilds achieved the full control of a city’s government indicates that structural factors might have played the more prominent role giving credit to the institutionalist view of political change as outlined, among others, in Acemoglu and Robinson (2012). Yet, the interesting result that trade cities are less likely to have guild participation in the city council, suggests an even more differentiated picture: It was not the economic upswing of the late medieval period itself that caused the emergence of participative
political institutions, it was the prosperity of proto-industry that enriched new groups of the society, namely the craftsmen and their political and economic associations, the craft guilds. The lesson here is, that not economic prosperity per se matters, but that all groups of citizens profit from economic growth and not only the ruling elite. A top-down diffusion of wealth, so called inclusive growth, therefore was the key for the political emergence of participative political institutions in late medieval cities.
References


Figures and Tables

Figure 1: Spatial Distribution of the First Two Waves of Guild Revolts
Figure 2: Spatial Distribution of the Guild Revolts and Their Third Wave
Table 1: Guild Revolts and Participation in the City Council—Descriptive Overview

<table>
<thead>
<tr>
<th></th>
<th>1300</th>
<th>1400</th>
<th>1500</th>
<th>1600</th>
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<th>1800</th>
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<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>Guild Participation (cumulated)</td>
<td>13</td>
<td>25</td>
<td>29</td>
<td>21</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Guild Constitution (cumulated)</td>
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<td>13</td>
<td>19</td>
<td>16</td>
<td>14</td>
<td>13</td>
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<tr>
<td>Share of Cities with Guild Participation</td>
<td>12.50%</td>
<td>36.50%</td>
<td>46.20%</td>
<td>35.60%</td>
<td>30.80%</td>
<td>29.80%</td>
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</table>
Table 2: Geographic Evolution of the Guild Revolutions

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>13th century</th>
<th>14th century</th>
<th>15th century</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Latitude</td>
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<td>-0.011</td>
<td><strong>-0.057</strong>*</td>
</tr>
<tr>
<td></td>
<td>(0.017)</td>
<td>(0.030)</td>
<td>(0.022)</td>
</tr>
<tr>
<td>Longitude</td>
<td>0.011</td>
<td>-0.008</td>
<td><strong>-0.035</strong></td>
</tr>
<tr>
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<td>(0.008)</td>
<td>(0.025)</td>
<td>(0.013)</td>
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<tr>
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<td>0.138</td>
<td>0.205</td>
<td><strong>0.204</strong>*</td>
</tr>
<tr>
<td></td>
<td>(0.136)</td>
<td>(0.157)</td>
<td>(0.111)</td>
</tr>
<tr>
<td>Upper Rhenish Circle</td>
<td>0.393*</td>
<td>0.07</td>
<td>0.068</td>
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<tr>
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<td>(0.227)</td>
<td>(0.225)</td>
<td>(0.059)</td>
</tr>
<tr>
<td>Saxon Circle</td>
<td>0.150</td>
<td>0.389*</td>
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<tr>
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<td>(0.184)</td>
<td>(0.224)</td>
<td>(0.1)</td>
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<td>(0.096)</td>
<td>(0.264)</td>
<td>(0.023)</td>
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<td>-0.118</td>
<td><strong>0.35</strong>*</td>
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<td>(0.178)</td>
<td>(0.12)</td>
<td>(0.207)</td>
</tr>
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<td>Westphalian Circle</td>
<td>-0.095</td>
<td>0.264</td>
<td>0.234</td>
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<tr>
<td></td>
<td>(0.175)</td>
<td>(0.271)</td>
<td>(0.149)</td>
</tr>
<tr>
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<td>(0.222)</td>
<td>(0.248)</td>
<td>(0.063)</td>
</tr>
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<td>Burgundian Circle</td>
<td>-0.112</td>
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<td><strong>0.420</strong></td>
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<tr>
<td></td>
<td>(0.231)</td>
<td>(0.305)</td>
<td>(0.173)</td>
</tr>
</tbody>
</table>

No. of Revolts 14 28 11
Obs. 104 104 104 104 104 104
R² 0.017 0.163 0.111 0.201 0.011 0.132

Notes. Heteroskedasticity robust are reported in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. The unit of observation is a city. The base group for the Imperial Circle dummies is the Bavarian circle. Each regression includes a constant not reported.
Table 3: Explaining Guild Participation in City Government

<table>
<thead>
<tr>
<th>Dep. Var.</th>
<th>Guild Participation (Successful Revolt)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) (2) (3) (4) (5) (6) (7) (8)</td>
</tr>
<tr>
<td></td>
<td>With Local Spatial Spillovers</td>
</tr>
<tr>
<td>Proto-Industry</td>
<td>0.286*** 0.212** 0.282** 0.236** 0.161  0.230**</td>
</tr>
<tr>
<td></td>
<td>(0.104) (0.105) (0.122) (0.106) (0.101) (0.116)</td>
</tr>
<tr>
<td>Trade City</td>
<td>-0.174* -0.229** -0.137 -0.142 -0.202* -0.085</td>
</tr>
<tr>
<td></td>
<td>(0.101) (0.116) (0.094) (0.100) (0.118) (0.093)</td>
</tr>
<tr>
<td>Proto-Industry × Trade City</td>
<td>0.342 0.342</td>
</tr>
<tr>
<td></td>
<td>(0.239) (0.241)</td>
</tr>
<tr>
<td>Urban Potential</td>
<td>-0.040*** -0.039*** -0.040*** -0.039***</td>
</tr>
<tr>
<td></td>
<td>(0.011) (0.011) (0.011) (0.010)</td>
</tr>
<tr>
<td>Agricultural Productivity</td>
<td>0.221 0.266 0.056 0.114</td>
</tr>
<tr>
<td></td>
<td>(0.207) (0.198) (0.194) (0.194)</td>
</tr>
<tr>
<td>% of Cities with Guild Participation (150km radius)</td>
<td>0.378** 0.382** 0.471*** 0.350**</td>
</tr>
<tr>
<td></td>
<td>(0.177) (0.175) (0.163) (0.157)</td>
</tr>
<tr>
<td>Imperial Circle Dummies</td>
<td>Yes Yes Yes Yes Yes Yes Yes Yes</td>
</tr>
<tr>
<td>Electorate Dummy</td>
<td>Yes Yes Yes Yes Yes Yes Yes Yes</td>
</tr>
<tr>
<td>Controls</td>
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</tr>
<tr>
<td>Obs.</td>
<td>104 104 104 104 104 104 104 104</td>
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<tr>
<td>p-value</td>
<td>0.004 0.003 0.000 0.000 0.037 0.037 0.000 0.000</td>
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</table>

Notes. Robust standard errors are reported in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. In all columns average marginal effects (AME) are reported. The unit of observation is a city. Each regression includes a constant not reported as well as a set of control variables including a dummy variables reporting whether a city was an imperial city, a residence of a secular ruler or of a bishop or archbishop as well as dummy variables showing whether there were participative election procedures or institutionalized burgher representation in a city.
**Table 4: Explaining Guild Revolts (Successful & Unsuccessful)**

<table>
<thead>
<tr>
<th>Dep. Var.</th>
<th>Guild Participation (Successful Revolt)</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
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<tr>
<td>With Local Spatial Spillovers</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proto-Industry</td>
<td></td>
<td>0.301**</td>
<td>0.271**</td>
<td>0.291**</td>
<td>0.255**</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
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<td>(0.125)</td>
<td>(0.130)</td>
<td>(0.126)</td>
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<td>0.048</td>
<td>-0.022</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>(0.103)</td>
<td>(0.098)</td>
<td>(0.105)</td>
<td>(0.101)</td>
<td></td>
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<td>-0.029***</td>
<td>-0.028***</td>
<td></td>
<td>-0.029***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.008)</td>
<td>(0.008)</td>
<td>(0.008)</td>
<td>(0.008)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Productivity</td>
<td></td>
<td>0.063</td>
<td>0.051</td>
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<tr>
<td></td>
<td></td>
<td>(0.200)</td>
<td>(0.198)</td>
<td>(0.207)</td>
<td>(0.208)</td>
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<td>% of Cities with Guild Participation (150km radius)</td>
<td>0.109</td>
<td>0.190</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>(0.165)</td>
<td>(0.162)</td>
<td>(0.155)</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
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<td>Electorate Dummy</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Obs.</td>
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<td>104</td>
<td>104</td>
<td>104</td>
<td>104</td>
<td>104</td>
<td>104</td>
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<tr>
<td>$Ch^2$</td>
<td>5.716</td>
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<td>p-value</td>
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<td>0.001</td>
<td>0.081</td>
<td>0.001</td>
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</table>

Notes. Robust standard errors are reported in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. In all columns average marginal effects (AME) are reported. The unit of observation is a city. Each regression includes a constant not reported as well as a set of control variables including a dummy variables reporting whether a city was an imperial city, a residence of a secular ruler or of a bishop or archbishop as well as dummy variables showing whether there were participative election procedures or institutionalized burgher representation in a city.
Table 5: Explaining Guild Constitutions

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<th>Dep. Var.</th>
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<td>(1)</td>
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<td>With Local Spatial Spillovers</td>
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<tr>
<td>Proto-Industry</td>
<td>0.193***</td>
</tr>
<tr>
<td></td>
<td>(0.063)</td>
</tr>
<tr>
<td>Trade City</td>
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<tr>
<td></td>
<td>(0.091)</td>
</tr>
<tr>
<td>Proto-Industry × Trade City</td>
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</tr>
<tr>
<td></td>
<td>(0.174)</td>
</tr>
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<td>Urban Potential</td>
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<tr>
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<td>(0.007)</td>
</tr>
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</tr>
<tr>
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<tr>
<td>% of Cities with Guild Participation (150km radius)</td>
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<td>Electorate Dummy</td>
<td>Yes</td>
</tr>
<tr>
<td>Controls</td>
<td>Yes</td>
</tr>
<tr>
<td>Obs.</td>
<td>104</td>
</tr>
<tr>
<td>Chi²</td>
<td>9.776</td>
</tr>
<tr>
<td>p-value</td>
<td>0.00754</td>
</tr>
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Notes. Robust standard errors are reported in parentheses. Coefficient is statistically different from zero at the ***1 %, **5 % and *10 % level. In all columns average marginal effects (AME) are reported. The unit of observation is a city. Each regression includes a constant not reported as well as a set of control variables including a dummy variables reporting whether a city was an imperial city, a residence of a secular ruler or of a bishop or archbishop as well as dummy variables showing whether there were participative election procedures or institutionalized burgher representation in a city.