

# Feudal Bargain in Central Europe: The Rise, Spread and Fall of Craft Guilds

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## Abstract

Craft guilds were a response to problems associated with raising royal revenues and securing basic public services in Central Europe during the medieval and early modern periods. The theory consistent with historical evidence predicts that the rise, spread and fall of guilds was a result of mutually beneficial bargaining between local craftsmen and their feudal rulers. Guilds enabled craftsmen to utilize the benefits of collusion by offering their capacities to sovereign authorities in exchange for exclusive market privileges.

**Keywords:** Craft guilds; Industrial organization; Collusion; Privileges; Formal institutions

**JEL classification:** D23; D43; H71; N83; N93; P48

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# 1 Introduction

History indicates that private institutions supplemented public functions when the state's supportive institutions were weak and not yet fully developed (Greif 2006). A growing body of literature suggests that occupational guilds played a crucial role in these functions. Guilds were a particularly important source of taxes, loans and other revenues (Lindberg 2009; Ogilvie 2011, 2014, 2019; Dessí and Piccolo 2016) as well as public services such as administration, market supervision, trade reputation and even provision of public goods (Gustafsson 1987; Hickson and Thompson 1991; Stabel 2004; Richardson 2005; Prak 2006b, 2006a; Caracausi 2017). Such a system could only work if its obligations and rewards were balanced. In exchange for their services, occupational cooperatives bargained with rulers over specific market privileges. Yet little is known about what made this bargaining between early professionals and rulers successful. Why did this relationship lead to the development of occupational guilds in late medieval times? And why were the guilds then abandoned in the course of the 18<sup>th</sup> and 19<sup>th</sup> centuries?

This article addresses these questions. Recent research has advanced the idea that feudal bargaining was the driving force in the development of these guilds (Greif et al. 1994; Ogilvie 2004, 2011, 2014, 2019; De Moor 2008; Lindberg 2009, 2010; Mokyr 2012; Gelderblom 2013; Dessí and Piccolo 2016).<sup>1</sup> I introduce an evidence based model to test this hypothesis in the context of feudal Central Europe, in particular the towns of Prague. The Kingdom of Bohemia provides an especially good case study because the political fragmentation and constant power struggles preserved feudal structures in the region until the 19<sup>th</sup> century and made local

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<sup>1</sup>In contrast, Richardson and McBride (2009) consider religious beliefs and Desmet and Parente (2014) consider the ability to resist new technologies as the reason for their rise and decline.

rulers more dependent on negotiations with various interest groups (Volckart 2000). Bohemian authorities regularly offered commercial privileges in return for extra services. One such privilege was the *cechovní přímus*, which enabled groups of craftsmen to exclude outsiders from market activities and subsequently increase their members' standards of living. So, they became legalized cartels. But that privilege was not for free. In exchange, the authorities demanded payments and extra duties to enable them to meet the exigencies of war and to govern the territory. The result was an institution that combined local producers' interests and those of their rulers: the craft guild.

If this deal between governments and local producers was mutually beneficial, why did the guilds ever die out? The reason for their breakdown varies with historical context. In Central Europe, the guilds' decline is associated with political reforms of the 18<sup>th</sup> and 19<sup>th</sup> centuries. During this time, the emergence of the modern state gave rise to new institutional arrangements facilitating bureaucracy and general taxation, which rendered guilds and their functions dispensable (Hickson and Thompson 1991).<sup>2</sup>

My theory provides an additional explanation for the abolition of craft guilds in the Hapsburg Empire. I argue that the government did not abrogate rent-seeking guilds because there existed alternative means of tax-collection and civil service provision, but rather the particularity of the guilds' restrictive practices became a greater burden for the rulers in the process of market development. My theoretical analysis shows that guilds needed to exclude potential competitors from the market in order to secure high enough collusive profits to pay for their government privileges,

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<sup>2</sup>Johnson and Koyama (2017) shows that such substitution of old structures with modern state institutions was common across the continent.

and that as the industries expanded and the number of producers with them, so the guilds' restrictions must have increased in order for them to maintain their profits. This in turn increased the opportunity costs for rulers, as fewer professionals could work and hence contribute to royal revenues. With increasing costs, the authorities passed laws prohibiting guilds in order to remove market restrictions and raise the number of practicing professionals.

Why would craft guilds restrict more producers with industrial expansion and thus give the rulers reason to abolish them? Because the guilds' success depended on collective action, or as Ogilvie (2004, 2005) put it, on social capital, which guaranteed collusive profits within their professions. It is a well demonstrated economic reality that larger groups find it more difficult to maintain cooperation (Olson 1965). Unfortunately for guilds, the whole point of obtaining royal privileges was to control their member numbers: to exclude competitors and non-cooperating members, and so the number of excluded individuals would naturally have increased as their industry grew.

This framework also explains the rise of craft guilds to begin with. While interactions among craftsmen are only sporadic, it is difficult for them to establish any form of cooperation. Occupational cartels could therefore only be established after craftsmen had settled down in a particular city and become neighbors; even though extensive trade in Prague can be dated back to the Early Middle Ages, craft guilds only emerged there in the 14<sup>th</sup> century, once producers had permanently settled in the city. In my model, the ability of such a group of producers to raise collusive profits depends upon their expectation of future engagement in collusion.<sup>3</sup>

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<sup>3</sup>This approach is similar to Richardson and McBride (2009), who consider death as a determinant of guilds' ability to sustain market cooperation.

This article complements the work of Dessí and Piccolo (2016), who investigate the role of merchant guilds in strengthening rulers' fiscal capacities in Western Europe. However, merchants were not the only force involved in trading: local craftsmen had at least an equally important role. Merchants engaged in wholesale and long-distance trade, but general consumption was satisfied through local craft producers, who represented the majority of the working population. Analyzing the development of their organizations and the governments' role in it, as I proceed to do now, can therefore lead to better insights into the formation of modern states.

In addition to contributing to research on the development of guilds, this paper also closely relates to two other literatures. The first explores the historical institutions that emerged in response to rulers' needs to raise extra revenues (for an overview, see Dincecco 2015). For example, Bates and Donald Lien (1985) and North and Weingast (1989) point out how creating representative assemblies made taxation possible to cover government expenses including war expanses. Congleton and Lee (2009) suggest that competition for government privileges could be a vital source of revenues when traditional methods of tax collection were not available. Johnson and Koyama (2014) make the case for rulers providing tax-collecting duties to a small group of financiers in order to increase the state's fiscal capacity in periods of transition from feudal to modern states. Dincecco (2009, 2010) and Dincecco and Katz (2016) stress the importance of fiscal centralization and limited government in the transition to modern states. My analysis in this article contributes to this literature by exploring how granting privileges to subgroups of local producers helped rulers to raise revenues and govern markets before the political reforms leading to modern states took place.

The second related strand of literature investigates the importance of the state's institutional capacity more generally. In this line of research, Acemoglu (2005), and Besley and Persson (2009, 2010, 2011) explore governments' incentives to invest in legal and fiscal capacity and the challenges they faced in doing so. My research contributes to this literature by providing an example of a context-specific solution to these problems prior to the rise of the strong state: the craft guild.

## **2 A Brief History of Guild Bargaining in Prague**

The evolution of craft guilds in pre-modern Prague was a result of bargaining between two forces: feudal and commercial. In guilds, rulers' interests as the sovereign owners of markets met with the interests of producers as agents involved in trade. The evidence I present will provide a starting point for constructing a theoretical framework, and its implications will then be presented.

### **2.1 Prosperity, Regulations and Taxation**

During the medieval and early modern period, the kingdom of Bohemia had periodically been at the focus of power struggles. This required substantial administrative and financial resources. The Bohemian rulers used a political system based on royal cities, which were an inalienable part of the royal estate, to address these needs. A king owned royal towns, which entitled him to fines, tolls and taxes (*berně*) from the towns' citizens (Puškarev 1938, p. 137). The key to this system was a bargain between the sovereign authorities and the citizens (including local producers and traders), which saw the authorities exchange various kinds of legal privileges for

finance and support.<sup>4</sup>

Of these royal cities, the towns of Prague were the most important and most profitable. Here, local craftsmen paid a variety of tolls, sales taxes, workshop rents, goods-specific taxes (e.g. on beer and wine) and wealth taxes to the authorities (Tomek 1871, pp. 348-368). They also regularly negotiated with the rulers or delegated agents such as a royal reeve (*rychtář*) and city councilors (*konšelé*) over specific privileges and duties.<sup>5</sup> Traditionally, the accession of a new king was accompanied by multiple requests from Prague craftsmen for renewals and extensions of their privileges. Senior masters appeared before the king asking him to approve “all recognitions, liberties, donations, pious customs and rights”, which were granted them before (PCA, CR, s. Řezníci 1a, inv. 1, ff. 24v-25r). But before approving any request, the authorities would consider the guilds’ services and loyalty. The privileges granted by the Bohemian king Ladislaus Jagiellon to the New Town Furriers in 1486 are a typical example, beginning: “we [the king] acknowledge your loyal services, which you have provided, are providing and will not stop providing, and therefore we grant you greater privileges so that you can and shall do better in serving us,” (PCA, CK, s. Kožešníci 23b, inv. 11, f. 6r). What followed was the approval and extension of the guilds’ rights, including exclusive market privileges (PCA, CK, s. Kožešníci 23b, inv. 11, f. 6r-8r). When Emperor Ferdinand III renewed butchers’ privileges, he acknowledged their service in defense of the city in 1648 when the masters and all their domestics “did not hesitate to stand against the enemy by the tower” (PCA, CR, s. Řezníci 4, inv. 4, f. 11r).

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<sup>4</sup>Over the centuries, Prague was involved in multiple conflicts, including the Battle of Prague in 1310, the Hussite Wars in 1419-1434, the rebellion against the Habsburg Monarchy in 1547, the invasion of Prague by the Passau Army in 1611, the Thirty Years War and the Siege of Prague by the Prussians during the Seven Years’ War.

<sup>5</sup>The reeve was installed by the king, while councilors and the burgomaster (also a councilor) were selected by the community before being approved by the king (Tomek 1871, pp. 280-288).

The historical records show that the extra duties guilds took on in exchange for these privileges were extensive. From the very beginning, guilds contributed to their towns' military activities. Military service was common to all citizens to a certain extent, but some roles were reserved for guildsmen, especially those requiring organizational capacities. Masters patrolled inside the city or guarded the city gates and towers. In times of danger, craftsmen had to report to given checkpoints in full armor and took part in defending their city (Brátková 2000). Certain crafts had specific duties. For example, in exchange for royal protection, the Prague bow-makers and crossbow-makers permanently guarded the city's towers and walls (Winter 1890a, p. 250) while the New Town's painters and shield-makers had to pay for 9 men-at-arms (Chytil 1906, pp. 16-17).

Another obligation was the provision of fire services. City charters assigned each guild the responsibility for acquiring its own fire equipment, such as leather buckets marked with the guild's sign, hooks, and later even water pumps. Some guilds were given specific duties: beer haulers and carriers were to bring horses, while slaters, carpenters, stone-masons and bricklayers were to take their axes. Meanwhile, certain wood-processing craftsmen, such as cabinet makers, were required to follow and supervise specific working standards in order to prevent fire (Winter 1892, pp. 246-247; Brátková 2000).

Guildsmen also played a special role during parades, processions and royal celebrations. Each guild took up position according its importance; guild members dressed up in uniforms, and their representatives waved standards bearing their guild's mark (PCA, SR, s. 993, pp. 257-258). This was an opportunity for the craftsmen to publicly display their worth to the city and to maintain their social



status. This is seen, for example, from the fact that the Sawyers, Plankers and Wood-sharpeners of the New Town obliged their members to represent the town whenever necessary for the honor of their craft and “the adornment and beautification of the city” (Tomek 1895, p. 473).

Most importantly, guilds raised revenues from multiple fees, tolls and taxes, which in turn lined the pockets of the local and central authorities. A common source of such revenues was a mandatory payment for citizenship. In order to receive a mastership in a local guild, a journeyman had to obtain the town right (*městské právo*), for which they had to pay a considerable fee. For example a furrier’s candidate in 1418 had to “gain the town right from the current lords and give them thirty four groschen according to old tradition” (PCA, CK, s. Kožešníci 7, inv. 9, f. 2v). This was a considerable sum, since a journeyman’s salary was typically about 3-4 groschen a week (Winter 1906, p. 737). Furthermore, guilds generally paid for the acquisition and renewal of their privileges (e.g. Hücke 1939, pp. 13-17), and certain professions paid rents from their shops. According to the royal degree of 1354, New Town butchers had to pay 56 groschen to a local abbey for each of their shops (PCA, CR, s. Řezníci 16, inv. 18, ff. 20v-22r). Other professions had a duty to inspect foreigners who came to trade in the Kingdom and to charge royal customs. Examples include the Furriers of the New Town, who expressed this duty in their ordinances of 1486 as: “*litkupník* of ours, from the New Town of Prague, who will be elected by us and confirmed by the *Ungelt*’s officers, has full freedom and right to go to the *Ungelt* and to inspect, to open and to examine goods, so that the *ungelt* [duty] is paid. Because it often happens that other merchants do not declare goods they sell, and as a result, damage is done to his Grace” (PCA, CK, s. Kožešníci 23b,

inv. 11, ff. 4v-5r). Any undeclared goods found were to be confiscated on behalf of the king. Other goods seized at markets or in workshops were usually forfeited to the guilds, but in certain cases belonged to the crown or to the city. For instance, meat seized by senior butchers was ordered to be sent to “the hospital or given away to the poor” (PCA, CR, s. Řezníci 16, inv. 18, f. 74r). The Cobblers of the Lesser Town gave half of the seized goods from chafferers and Jewish peddlers to the poor (PCA, CS, s. Ševci 10, inv. 4, article 10). Furthermore, a proportion of all fines belonged to the authorities. The Old Town Furriers and New Town Drapers were expected to cede two thirds of the money they collected to the local authorities, while the Prague hatters divided each 60 Meissen groschen such that 30 groschen were given to the burgomaster and city councilors, 10 groschen to the reeve and the remaining 20 to the guild (PCA, CK, s. Kožešníci 7, inv. 9, ff. 6r-10r; Tomek 1895).

## 2.2 Privileges and Craftsmen

Craftsmen would hardly have been willing to provide their resources and labor without receiving any benefits in return. The relationship between the authorities and the craftsmen had to strike a balance between obligations and benefits in order to work successfully. In particular, guilds aimed to secure stable standards of living for their members by laying down conditions for generating economic rents and equalizing production opportunities among their members.

The *cechovní přímus* was the most important of the royal privileges, and enabled local craft guilds to achieve these goals. It required craftsmen, both local and foreign, to obtain guild membership before engaging in any sort of economic activity within the geographical area of the city (Winter 1906, p. 51; Fröhlichová-Karlová 1938).<sup>6</sup>

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<sup>6</sup>There were exceptions to this rule for seasonal fairs, and depending on the guild’s position,

This privilege had two effects. First, the *cechovní přímus* made membership in local craft guilds compulsory. Any artisan who wished to practice his profession in Prague had to become a master craftsman in one of the local guilds, otherwise restrictions were placed on his work and trade. Second, the *cechovní přímus* included the legal right, even obligation, to take action against anyone who did not respect this rule. The guilds' power was then regulated by the town's mile right, which enabled guildsmen to prosecute intruders for interfering in their activities in the city and its neighborhood.

Craft guilds wrote these procedures into their formal rules, guaranteeing the guild members a certain degree of market power. The rules defined the boundaries of guild membership, distinguishing between the economic rights of members and non-members. A typical example comes from the New Town Furriers' ordinances, which state that:

if any master of our craft, or anyone else who has not been granted the right of our guild and who wishes to practice our craft, is found to practice or intend to practice our craft, his goods belonging to our craft, whether finished or not yet finished, will be seized by our guild-masters (PCA, CK, s. Kožešníci 23b, inv. 11, f. 4r).

Similarly, two guilds of Prague hatters mandated in 1489 that “no one will bring the hatter's craft into these towns apart from local hatters except for the *jarmark* [seasonal fair]” (Tomek 1895, p. 488, 490). The exact form of this rule varied from cooperative to cooperative, but the notion remains the same: anyone other than the masters and their subordinates in the local guild would be punished for practicing and trading their craft within the local area.<sup>7</sup>

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trading agreements, and the applicant's religion or social rank, among other things.

<sup>7</sup>For other examples, see PCA, CK, s. Kožešníci 7, inv. 9, ff. 7r-8r; PCA, CK, s. Kožešníci 23b, inv. 11, ff. 1r; PCA, CS, s. Ševci 2, inv. 3, article 15; PCA, CS, s. Ševci 10, inv. 4, article 10; PCA, SR, s. 3502, pp. 23-26; and Tomek (1895).

The economic rents stemming from the guild's exclusive rights were guaranteed by a strict policy of member selection. With the exception of some masters' relatives, any aspiring member generally had to qualify as an honest person, become a citizen of the city, show their master-pieces, provide a birth certificate, serve under a local master and pay an entrance fee. A typical example comes from the ordinances adopted in 1478 by the Goldsmiths of the New Town:

anyone who wants to settle down as a master in this town, ... shall serve as a journeyman among the masters in this town in the area where they live, and for three years shall behave honestly , ... and, further, he shall show three masterpieces of the craft: making a seal, making a shield, helm and chalice, and setting a gemstone (Tomek 1895, p. 481).

That these rules were indeed followed is evident from the records of the Old Town Painters (1490-1582) and the Old Town Furriers (1598-1648), in which requests for membership are frequently listed with notes about completing masterpieces, providing certificates, paying fees and presenting recommendations (PCA, CK, s. Kožesníci 8b, inv. 12; Chytil 1906, pp. 202-310).

The royal and city recognitions did not only guarantee market power to the local guildsmen. They allowed locals to effectively establish criteria for production and trade within the city and to legally punish noncomplying producers. But they also had a negative impact.

The downside of the government privileges was the restrictions they imposed on a great part of labor force. Many non-privileged craftsmen were confined to working for local guilds if they wanted to earn at least a modest living, legally. As might be expected, this system "deepened class differences among members of the same profession" (Mendl 1947, p. 40).

The restrictions on entry into the professions led to regular conflicts between

local guilds and non-privileged craftsmen. Journeymen complained about their inferior positions within the guilds, and this situation often escalated into strikes. Records refer to the first strike in Prague in 1399; many others followed over the centuries. Striking workers demanded better working conditions, admission to master-ship, higher wages and greater freedom to practice their profession (Winter 1890b). However, the authorities rarely satisfied such demands and instead penalized the striking craftsmen. In 1598, the Holy Roman Emperor Rudolf II mandated the Prague councilors and burgomaster to punish and bring to his attention any craft laborers who attempted to rise against their masters. There were also regular conflicts with independent professionals (e.g. *štukverníci* and *huntýři*), foreign traders and Jewish craftsmen, who often traded handicrafts against the guilds' privileges (Mendl 1947, pp. 40-43).

As a result, the guild system came with certain costs for the rulers. Non-privileged craftsmen were neither obliged to contribute to government revenues nor they were obliged to provide specific services, as the guild members were. To compensate for this loss, the ruler and city representatives occasionally granted trading allowances to professionals outside guilds in exchange for their financial support. For example, during the Thirty Years War when royal finances were strained, Bohemian rulers temporarily provided local Jews with access to all weekly markets and seasonal fairs in exchange for their yearly tax contributions (Jakobovits 1936).

### 3 Model

This section develops a game-theoretical model of bargaining in pre-modern Central Europe that combines producers' interests with the interests of the rulers. The

model provides only a simplified view of the choices agents in the pre-modern polity faced. However, the simplification enables us to tackle the problems that both craftsmen and their kings faced, and leads to testable implications regarding the rise, persistence and fall of guilds.

### 3.1 Individuals and their actions

Consider an urban economy of perfect and complete information inhabited by a ruler and  $N \geq 2$  identical craftsmen of one profession. All players are risk-neutral and live during periods labeled  $t = 0, 1, 2, \dots, \infty$ .

Of  $N$  craftsmen,  $M \leq N$  masters trade at the market and make a profit.<sup>8</sup> These masters interact in a repeated game of collusion and competition (for a similar approach, see Frezal 2006; Chen and Rey 2013). In the initial period,  $t = 0$ , they play the following stage game. At the beginning of the stage game, each master chooses one of two actions: collude or compete. If the masters compete, each competitor earns  $\pi^c$ . Whereas if all the masters decide to collude, they form a cartel and each gets  $\pi^m$ , which is more than in competition. But if a single master decides to compete while the others collude, he does not face competition and takes all the collusive premiums  $\pi^m M$  for himself. This makes deviation from collusion profitable. If anyone competes, then the colluding masters receive the lowest profit 0. To summarize, for a master:  $\pi^m M > \pi^m > \pi^c > 0$ . Hence, competition represents the Nash Equilibrium of the stage game. At the end of the stage game, the ruler taxes every market participant by a constant share  $\tau \in (0, 1)$  of their realized profit  $\pi$  in the form of either money or duties.

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<sup>8</sup>Note that  $N$  represents the (natural) size of the industry, whereas  $M$  represents the actual number of traders in the industry.

This stage game is repeated from one period to the next with probability  $q \in (0, 1)$ . Once the masters meet on the market they have the chance to meet again. Here,  $q$  represents the masters' expectations about their future interactions. If  $q$  is low, the masters do not expect to interact often in the future, whereas if  $q$  is large, they expect to interact frequently over time. A master's goal is to maximize his overall payoffs from the entire game, taking into account future interactions.

The specification of the game captures the key historical evidence that early industries were far from perfectly competitive. Here, market interactions are represented by Cournot oligopoly competition: producers compete through the quantity produced. This assumption is likely to be consistent with the character of preindustrial markets since the number of producers was limited, changes in production capacities were constrained, and goods were produced simultaneously and sold afterwards at periodical markets.

The ruler oversees the market. His authority gives him the power to provide a subgroup of craftsmen with privileges. He chooses one of the following: to grant privileges to a guild or not to grant privileges.<sup>9</sup> If he grants his privileges, the guild  $G \leq N$  has the right to exclude non-colluding craftsmen from trade. So, there are  $M = G \leq N$  trading masters and  $N - G$  excluded craftsmen. If he does not grant his privileges, the market participants are not regulated and all craftsmen are allowed to trade,  $M = N$ . The ruler's objective is to increase his revenues, and if indifferent he prefers an industry without guilds. This is a reasonable assumption about pre-modern rulers, who did not optimize a revenue function but rather chose a more profitable tax system.

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<sup>9</sup>The rulers' ability to grant the exclusive privileges to or remove them from traders and producers is consistent with the historical practices in Prague (Mendl 1947, pp. 23-54).

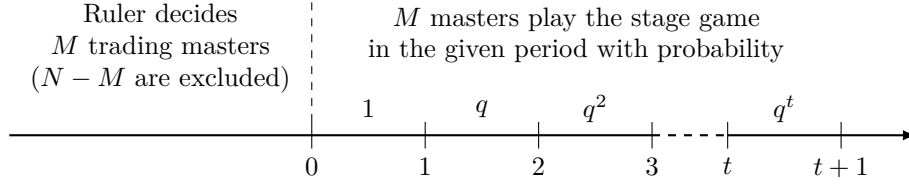


Figure 1: Timing of actions

The timing of the actions proceeds as follows (Figure 1). Before trading takes place, the ruler decides whether to grant exclusive rights. If he grants privileges to the guild, the non-privileged craftsmen are excluded from trading forever. After this, the masters play the oligopoly game as described above. I will hereafter analyze the subgame perfect equilibria resulting from the players' pure strategies.

### 3.2 Equilibrium Decisions

Collusion within the industry can be achieved by conditioning the masters' current actions upon the previous course of the game. The masters' capacities to enforce collusion and hence achieve a greater profit differ based on the ruler's choice.

First, suppose that privileges are not granted. There is a simple trigger strategy available to masters that maximizes the scope of collusion: each master plays collusion as long as the others do, but reverts to competition forever as soon as any other master deviates from collusion.<sup>10</sup> Therefore, collusion among  $M = N$  craftsmen is sustainable if

$$\frac{(1 - \tau)\pi^m}{(1 - q)} \geq (1 - \tau)\pi^m M + \frac{q(1 - \tau)\pi^c}{1 - q}, \quad (1)$$

where the left side of the inequality represents the discounted profit from collusion whereas the right side shows the discounted profit from deviation. Rearranging

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<sup>10</sup>Notice that competition represents a subgame perfect equilibrium and the minimax. Therefore, the threat of playing 'to compete' forever maximizes the punishment for deviants and hence the scope for collusion in the absence of any regulation by the ruler.



Inequality (1), we obtain the condition for collusion in the unprivileged industry:

$$M \leq N^* = \frac{\pi^m - q\pi^c}{\pi^m - q\pi^m} , \quad (2)$$

where  $N^*$  is the critical size of the non-guild cartel.

Inequality (2) states that craftsmen in the unregulated industry can sustain collusion by playing the trigger strategy if the number of market participants is sufficiently low. Above this number, the craftsmen will compete. Notice that its critical value largely depends on the probability of future interaction  $q$ . The more often craftsmen trade, the more likely they are to sustain their cartel.

Second, suppose that the ruler grants his recognitions to the guild. This broadens the masters' options for enforcing collusion. Now, the guild excludes competing craftsmen: anyone can trade as long as he colludes but once he competes he will be excluded from the market forever.<sup>11</sup> Privileged masters will be able to sustain collusion if

$$\frac{(1 - \tau)\pi^m}{(1 - q)} \geq (1 - \tau)\pi^m M . \quad (3)$$

The left side represents the discounted profit from collusion. The right side shows the discounted profit from deviation, which is less than before because in this case the deviant loses the access to the market. Inequality (3) can be expressed as the condition in the privileged industry:

$$M \leq G^* = \frac{\pi^m}{\pi^m(1 - q)} , \quad (4)$$

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<sup>11</sup>This strategy is consistent with historical practices. Guilds did not only exclude their competitors from local trade, but also their own members who did not comply with their rules (e.g. PCA, CK, s. Kožešníci 8b, inv. 12, f. 2v, 33v).

where  $G^*$  is the critical size of the guild cartel.

Inequality (4) reveals the maximum size of the guild for sustaining collusion by excluding competing craftsmen. In industries with  $N \leq G^*$ , no one is excluded, while in industries with  $N > G^*$ ,  $N - G^*$  competitors are excluded from the market in order to maintain collusion. As before, the critical value depends on the probability of future interactions  $q$ . The more often guild members interact, the greater the chance that the guild of given size sustains collusion.

Inspecting Inequalities 2 and 4 shows that the scope for collusion is greater if the ruler recognizes the guild, because  $G^* > N^*$ . Masters with royal privileges are better at maintaining collusion than those without because they are able to impose more severe penalties on those who deviate, by excluding them from the industry.

Whether the ruler decides to grant privileges to the guild or not depends on the total number of tax-paying producers and their ability to collude. In an economy where  $N \leq N^*$ , the masters will collude regardless of the ruler's decision. In relatively small industries, competition is not an option. Here, the ruler earns  $\tau\pi^m G/(1 - q)$  if he grants privileges or  $\tau\pi^m N/(1 - q)$  if he does not. Since  $G \leq N$ , granting privileges is never profitable. The equilibrium in the game with  $N \leq N^*$  is therefore that  $N$  craftsmen collude and the ruler does not grant privileges.

However, in an economy where  $N > N^*$ , the masters will collude only if the guild of  $G \leq G^*$  is recognized. But the ruler grants such recognitions only if it pays back. That is up to the size  $G = G^*$  for which

$$\frac{\tau\pi^m G^*}{(1 - q)} \geq \frac{\tau\pi^c N}{(1 - q)} . \quad (5)$$

By rearranging Inequality (5) and plugging in  $G^*$  from Inequality (4) we obtain the

following condition for ruler recognition:

$$N \leq N^{**} = \frac{\pi^m}{\pi^c(1-q)}, \quad (6)$$

where  $N^{**}$  is the maximal size of the industry to which the ruler grants privileges.

Inequality (6) reveals the simple mechanism behind feudal bargaining. The ruler has to be compensated for the loss of taxes and services from the excluded craftsmen. Once  $N > G^*$ , the ruler loses  $\tau(N - G^*) > 0$  by recognizing a guild that excludes  $N - G^*$  potential competitors in order to maintain collusive profits. For the ruler, the guild leads to larger revenues only up to  $N^{**}$ , when  $N^{**} - G^*$  are excluded. Here, the number of excluded craftsmen essentially depends on the guild members' ability to sustain collusion, which in turn depends on the frequency of their interactions.

Since  $N^* < N^{**}$ , a population size  $N$  exists that satisfies  $N^* < N \leq N^{**}$ . For this population, the ruler always prefers collusion over competition. Thus the revenue maximizing strategy is to recognize the guild  $G \leq G^*$ . Hence, the equilibrium in the game with  $N^* < N \leq N^{**}$  is that  $N - G \geq 0$  craftsmen are excluded from trading and the ruler grants his privileges to the guild of  $G \leq G^*$  colluding masters.

On the other hand, if  $N > N^{**}$ , the ruler's preferred strategy is not to grant privileges. Since  $N^{**} > N^*$ , the masters are not able to sustain collusion without privileges, and thus they compete. The equilibrium in the game with  $N > N^{**}$  is that  $N$  masters compete and the ruler does not grant privileges.

The model reveals the critical importance of the industry's size,  $N$ , and the probability of future interactions,  $q$ , for the bargaining between local producers and their rulers. Figure (2) provides a summary of the model. The curve  $N^*$  and the area above it shows the combination of parameters for which collusion

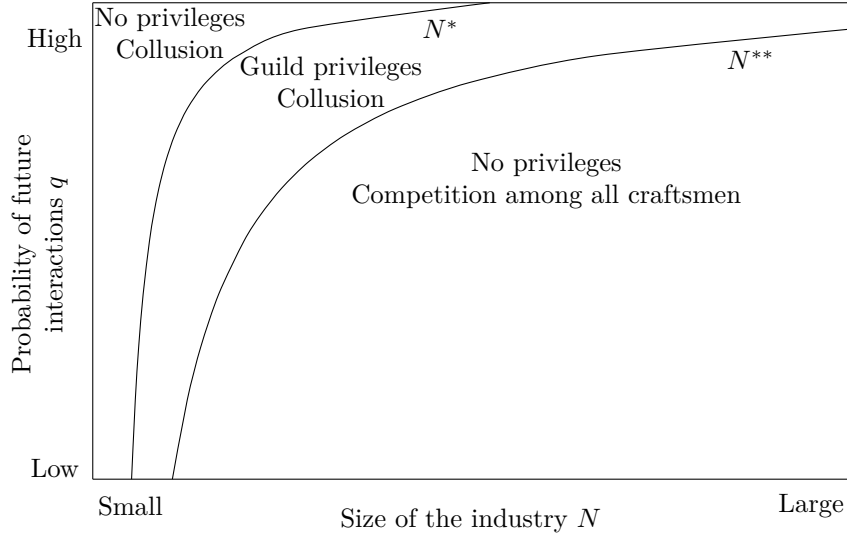


Figure 2: Equilibria for the size of industry and probability of interactions

exists in an unprivileged industry. This result is intuitive: when a few producers interact on a daily basis, collusion can be sustained without exclusive rights, for instance through informal cooperatives. Beneath  $N^*$  collusion becomes possible only if the guild is granted royal privileges. Here, privileges provide the enforcement mechanism necessary for fostering collusion. Yet the privileges will only be granted if a collusive outcome is profitable to the ruler. That is the case in the space from  $N^*$  to  $N^{**}$ , inclusive. Beneath  $N^{**}$ , collusion is no longer advantageous for the ruler and competition on the market prevails. This corresponds to industries whose craftsmen do not often meet, or where guilds restrict too many producers, or a combination these two.

Which equilibrium prevails depends on the historical context. For the guild equilibrium to occur two conditions are essential. First, guild members need to secure sufficient collusive profits to pay rulers for their privileges. This depends on the regularity of interactions among the guild members and their ability to exclude potential competitors and non-complying colleagues. Second, their payments to the ruler have to compensate him for the loss of potential tax payers that the excluded

competitors represent.

## 4 Predictions and Evidence

My theory generates several empirical predictions that can explain the rise and fall of craft guilds, and historical evidence from Prague supports these.

### 4.1 Guilds Are Not Recognized when Trade Is Irregular

The theory predicts competition on unregulated markets when craftsmen do not expect to trade on the local markets in future. If  $q$  is close to zero, local producers are unable to sustain collusion and hence are unable raise high enough profits to compensate rulers for granting them privileges. We should therefore expect not to see any collusive organizations or market privileges during the early trade period, in which buyers and sellers were not permanent residents of Prague and had little or no ties to other traders of the same profession. The surviving records on early market activity in the region support this prediction.

The history of trade in Prague dates back to the Early Middle Ages. From its early days, the settlement under Prague Castle was known as an important trading center. By the 10<sup>th</sup> century, producers and merchants from all over Europe were coming to Prague's markets and fairs to buy and sell goods of various kinds. The settlement was "one of the largest centers of international trade", which was "an important link in the trade between East and West" (Hensel 1969, p. 56).<sup>12</sup>

When Judeo-Arab merchant Ibrahim ibn Jacob traveled to Central Europe in the late 10<sup>th</sup> century, he described Prague as a town built of "stone and lime", where trade flourished. His records describe Prague as a center for long distance trade,

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<sup>12</sup>For the role of Prague in early trade, see also Brutzkus (1943) and Janáček (1955, pp. 11-15).

and mention a variety of merchants including Jews, Russians, Slavs, Turks, and Muslims, who traded at the local markets. These foreign merchants came in with a variety of goods and coins and left with slaves, tin and various kinds of wool. Jacob also records that Prague craftsmen manufactured saddles, horse bridles and heavy shields, which were used in the region (Hrbek 1951).

Most of these early traders and producers, however, were not permanent residents in the area. This comes from the nature of early trade, built on long-distance exchanges. During this time, “the traders at the markets did not meet potential consumers but traders met traders and together supplied the redistribution mechanisms” (Klápště 2012, p. 350). Prague was indeed an important meeting point. Many merchants and artisans came in temporarily, traded their goods, and left the settlement again. Local inhabitants’ part in this trade was negligible (Janáček 1983, pp. 19-20). It would have been very difficult for this mixture of merchants and producers from all over Europe, who did not interact frequently, to establish any cooperation in the local industries. Thus we do not find any records of organizations of local craftsmen in Prague prior to the 13<sup>th</sup> century.

As my theory predicts, when interactions were not frequent the ruler’s policy regarding trade was not to limit market participants. Quite the contrary; the local dukes tried to attract as many merchants and artisans as possible in order to increase their revenues from tolls and market fees. They did so in two ways:

First, they provided a level of protection to traders coming to Prague that no one else in Bohemia could provide: the trading route was guarded by a castle on each bank of the river (Prague castle and *Vyšehrad*). Furthermore, in the 12<sup>th</sup> century, the fortified court known as the *Ungelt* was set up near the actual marketplace.

Goods could be safely stored in this court, and merchants could rest peacefully under the ruler's protection (Klápště 2012, pp. 387-390).

Second, they established permanent markets to attract more buyers and sellers. There were probably three marketplaces, each with a different nature and different trading days: one for foreign exchanges, one for local consumption and one for wood trade. In addition to these markets, the rulers held periodic fairs at which everyone was invited to trade (Winter 1906, pp. 26-29).

## **4.2 Guilds Emerge as Markets Develop**

Once craftsmen began to settle down in a given city, and thus the probability of their future interactions increased, the emergence of collusive organizations became possible. When  $N$  is relatively low, the increase in  $q$  enables producers to enforce collusive agreements and hence maintain collusive rents from which the ruler can be compensated for granting them privileges. My theory therefore suggests that as market development led to the establishment of local professions, so it led, too, to the formation of guilds.

This prediction corresponds to the period of the 13<sup>th</sup> and 14<sup>th</sup> centuries, during which the settlement around the area of Prague castle was transformed into a city. Trading opportunities expanded as the internal market grew. Specialized trading places, such as a poultry and fish market, a cattle and horse market, a fruit market, a wood market and a coal market emerged. Trade became a matter of local consumption, and specialized producers moved into the city to satisfy the local demand. In the 14<sup>th</sup> century, the majority of the city's population were craftsmen. Their prevalence was such that certain streets became associated with certain professions, as producers of the same trade tended to occupy the same area (Mendl

1947, pp. 18-25).

The fact that the majority of producers were now permanently resident in the city and that their workshops were close to one another in this period allowed for frequent interaction among these producers, both at the market and in their everyday lives. Being in such close proximity with one another enabled the masters to cooperate in their market activities, and regulate their trade together. As a result, occupational cooperatives controlling the markets emerged.<sup>13</sup>

The first local cooperatives of craftsmen in Prague probably formed in the late 13<sup>th</sup> century. During the reign of the Bohemian king Ottokar II, Prague's butchers and goldsmiths may possibly have received certain privileges for their crafts (Winter 1904). The existence of organized crafts in the late 13<sup>th</sup> century is also suggested by records of the welcoming ceremony for king Wenceslaus II of Bohemia in 1283, during which the "city's population awaited the king according to their profession" (Tomek 1855, pp. 202-203).

From the 14<sup>th</sup> century there is extensive evidence of the presence of organized crafts in Prague. However, restrictive guilds did not emerge immediately. Early cooperatives were voluntary fraternities, which were dedicated to a variety of saints and patrons. Among them were cooperatives of belt-makers, goldsmiths, painters and shield-makers or *institores iuniores* (Winter 1906, p. 184; Pátková 2000, p. 50). These were organizations of local producers, but they did not hold exclusive privileges to the local markets. Their goal was to help their members meet their spiritual needs. They prayed regularly, paid for funerals, called processions, cel-

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<sup>13</sup>Furthermore, historical evidence shows that regular interaction, especially presence during weekly meetings in pubs and at general assemblies, was a required part of guild membership (e.g. PCA, CKR, s. Krejčí 4, inv. 4). For general practices during meetings, see Emler (1870) and Melichar (1902, pp. 29-32, 93-96).



ebredated feasts and held magnificent ceremonies (Pátková 2000, pp. 50-69). These fraternities provided their members with loans or basic forms of insurance, and their regular meetings were a convenient place to discuss topics relevant to their business (Winter 1906, pp. 63-65). For example, the brotherhood of goldsmiths, which was established in 1324 for “the honor and glory of our Lord, the Virgin Mary and all the saints”, organized masses on Ember days, required members to participate in funerals and offertories, oversaw the quality of products and tried to restrict foreign competition (Menčík 1891). The extent to which these fraternities were successful in monopolizing the markets is unclear. However, as my model predicts, with the further urbanization of the region these cooperatives declined and were gradually incorporated into or replaced by a new form of economically oriented cooperative with exclusive privileges: craft guilds.

The rise of guilds coincided with the commercial expansion and gradual urbanization of the region. The oldest documented ordinances date from 1318 and grant the Tailors of the Old Town certain rights, though not control over the market: that was granted later, in 1341 (Mendl 1927). Similarly, the Painters of the Old Town had a voluntary fraternity in 1348, but did not have market privileges at that time; these were probably recognized by the city councilors only after some decades (Pátková 2000, p. 50). Guild development took off more rapidly after the Hussite Wars, when government representatives were more than willing to grant privileges to attract producers, because the recent wars and plagues had reduced trade and impoverished the city (e.g. Tomek 1895, p. 467, 457, 460, 472-473). During the 15<sup>th</sup> and 16<sup>th</sup> centuries, craft guilds became the basic units of economic and social organization for most of the city’s industries. This was a time when industries were expanding and many

Table 1: The number of craft guilds and occupations in the towns of Prague during the 16<sup>th</sup> and 17<sup>th</sup> centuries

Period	<u>Old Town</u>		<u>New Town</u>		<u>Lesser Town</u>		<u>Total</u>	
	guilds	occup.	guilds	occup.	guilds	occup.	guilds	occup.
1500-1539	30 <sup>a</sup>	-	33	34	-	-	over 63	-
1540-1579	39	44	35	40	26	32	100	-
1580-1619	46	52	39	49	26	31	111	65

<sup>a</sup> Refers to an approximate estimate, see Winter (1906, p. 580-581).

Notes: Available numbers correspond to years 1571 and 1599 in the Old Town; 1528, 1549 and 1600 in the New Town; 1577 and 1619 in the Lesser Town.

Sources: PCA, SR, s. 1420, ff. 183r-184v; PCA, SR, s. 1481, ff. 43r-44r; Winter (1906, pp. 580-581; 1909, p. 727).

professions established an exclusive guild, including comb-makers, wheel-makers, barbers, drivers, tavernkeepers, locksmiths, carpenters, coppersmiths and stocking knitters. During this period, the guilds definitively replaced voluntary cooperatives. Furthermore, the structures of local guilds spread well beyond their regional boundaries. Prague's guilds became models for rural organizations, providing them with ordinances and guidance in matters related to their crafts (Winter 1925, pp. 28-36).

The records show that as the internal market expanded, measured by a population increase from about 30,000 in the 15<sup>th</sup> century to 60,000 over the course of the 16<sup>th</sup> century, the numbers of local guilds increased as well. Estimates of the increase in numbers of Prague guilds during their heyday is shown in Table 1. These estimates support the theoretical prediction that craft guilds arise as the market expands. Over time, more and more guilds emerged in the towns of Prague and at their peak around the beginning of the 17<sup>th</sup> century there were more than one hundred guilds, representing more than 65 different occupations. After the 16<sup>th</sup> century, the number of guilds in Prague stabilized. However, as markets continued to develop in the course of time, the craft guilds became more restrictive.

### 4.3 Guilds Fall with Late Market Development

According to my theory, in order to maintain their collusive profits, guilds restrict  $N - G^*$  market participants as the size of industry  $N$  increases above  $G^*$ . The greater  $N$  the more producers are excluded, which in turn decreases the ruler's willingness to support the guild system. Therefore, further market expansion after the 17<sup>th</sup> century should have led to the abolition of guilds. The evidence of the Hapsburgs' policies in relation to guilds supports this prediction.

Guilds' positive effects began to be questioned in the later part of the 17<sup>th</sup> century. During the period of proto-industrialization, craft guilds became an obstacle to further economic development. The main problem with them was their exclusive power over local markets, which meant that a substantial part of the population was denied the opportunity to practice their crafts. Guilds not only prolonged journey-manship but also prevented entire groups, such as Jews, bastards and women, from engaging in the guild professions. The government reacted to these restrictions by passing new laws. An imperial decree liberalizing entry to guilds and restricting their power was promulgated in 1672 across the Holy Roman Empire. It prohibited guilds from discriminating against new members based on their religion or origin (Mendl 1947, p. 50; Whaley 2012, p. 58). Furthermore, with the growth of mercantilism, the government in Vienna was considering a complex economic reform.

The new course of policy was to place restrictions on, or even prohibit guilds. Before bringing in this policy, the government organized a survey in the royal cities between 1698 and 1700, in which it asked for comments about the guilds' status. Even though the Count of Vrtba advised in 1699 that guilds across the country should be abolished, his point of view was rare among the nobility. Despite the

many downsides of the urban economy being controlled by craft guilds, it seems that the guilds' public functions were more important for city representatives than market efficiency. In particular, Prague's council and burgomaster defended the guilds' presence, as they disciplined journeymen, kept them in line and educated them in religious manners, took care of their members, guaranteed their masters' income, provided the city with revenues and increased the city's fame (Mendl 1947, pp. 48-50; Urfus 1960).

This approach began to change through the 18<sup>th</sup> century. At that time, Prague's industries had recently recovered from a loss of producers during the Thirty Years War, and had expanded to beyond their pre-war sizes. New industries such as clock-makers, wig makers and musicians had received royal privileges, while the older industries were attempting to limit the rise of factories (Mendl 1947, p. 55). At the same time, alternative means of performing the services provided by the guilds became available as the feudal system transformed into a modern bureaucracy in the 18<sup>th</sup> and 19<sup>th</sup> centuries (Hledíková and Janák 1989, pp. 161-202). With these changes, the guilds' benefits were outweighed by the costs of their restrictions.

As a result, a series of laws that reformed the guilds, in particular a law on the Imperial Guild Ordinance of 1731, was passed. Their goal was to restrict the guilds' powers to limit access to their professions. Corresponding to my theory, the new legislation aimed to suppress the guilds' economically harmful practices by removing their privileges and promoting competition. In particular, it relaxed the limits on the numbers of subordinates each master could have, allowed women to enter certain guilds, and liberalized entry to the industries (Whaley 2012, pp. 506-507).

The dissolution of the guilds continued as the markets developed. In 1754, the

*cechovní přímus* was forbidden for all new industries and some old industries, such as glass, paper, book-printing, textile and metal, were deregulated. This process was completed with the Commercial Law of 1859, which abolished guilds entirely within the Habsburg monarchy. With this law guilds were officially dissolved, and their members lost their exclusive rights and the power to control their local markets (Mendl 1947, pp. 54-66).

## 5 Conclusion

The aim of this paper was to explain the rise, spread and fall of craft guilds in Central Europe. By embedding the relationship between rulers and local craftsmen in a model, I have argued that craft guilds emerged because they were able to generate high enough collusive profits from which they financed taxes and services that compensated the rulers for the costs associated with their exclusive practices. The model's predictions showed how guilds developed and died out, and this was presented with reference to historical records of the rise and fall of guilds in Prague. Once craftsmen settled down in the city and started to interact regularly, they fostered the cooperation necessary to raise large enough collusive profits to pay for exclusive privileges. Rulers provided such privileges because guilds offered a means to tax the city's economic activities, and to raise extra revenues to cover the costs of the city's governance. However, as the market expanded, the rulers eventually abolished these privileged groups of producers because their exclusive practices restricted a large portion of the population from trade and hence reduced the number of potential taxpayers.

Studying the mutually beneficial relationships between governments and their

citizens can substantially improve our knowledge about the origins and evolution of public institutions. This is not limited to historical periods: including both private and public dimensions in the study of modern institutions can help us shed light on current problems.

## Appendix

Primary sources are from the Prague City Archives located at Archivní 6, 149 00 Praha 4, Czech Republic. The abbreviations by which these sources are referred to are as follows: PCA (the Prague City Archives), CK (fond Cech kožešníků), CR (fond Cech řezníků), CS (fond Cech ševců), SR (fond Sbírka rukopisů), s. (signatura), inv. (inventární číslo).

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