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Access to the Trade: Monopoly and Mobility in European Craft Guilds in the Seventeenth and Eighteenth Centuries

Abstract

One of the standard objections against guilds in the premodern world has been their exclusiveness. Guilds have been portrayed as providing unfair advantages to the children of established masters and locals, over immigrants and other outsiders. Privileged access to certain professions and industries is seen as a source of inequality and a disincentive for technological progress. In this paper, we examine this assumption by studying the composition of guild masters and apprentices from a large sample of European towns and cities from 1600 to 1800, focusing on the share who were children of masters or locals. These data offer an indirect measurement of the strength of guild barriers and, by implication, of their monopolies. We find very wide variation between guilds in practice, but most guild masters and apprentices were immigrants or unrelated locals: openness was much more common than closure, especially in larger centers. Our understanding of guild “monopolies” and exclusivity is in need of serious revision.

It is generally assumed that restricted access to urban manufacturing and trade constrained the premodern economy. Restricted access was part of a wider set of regulations that imposed political constraints on economic development (“feudalism”). Urban citizenship regimes generally limited some, or even all, economic roles to male full citizens, or burgesses, freemen, *bourgeois*, *burgers*, *Bürger*, and so on. Within most cities, access to specific economic roles was further constrained by guilds. Guilds were approved and supported by local governments. In some cities, moreover, guilds dominated the local government, creating an obvious potential for self-interested rent-seeking. This combination of urban citizenship and guilds—both restricted almost always to men—has

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been portrayed by many economic historians as a great villain in restricting access to markets and thus harming consumers and hampering progress.¹ The guilds' abolition, and the emergence of national citizenship in the nineteenth century, is, in turn, one of the conventional explanations for industrialization and modern economic growth.²

A standard element of the guild system was that the members were granted, as a privilege of their membership, the exclusive right to produce and sell a specific product or range of products. This privilege is usually called the guild "monopoly." While monopoly is commonly understood in terms of the output market, the successful exercise of market power also requires restrictions on the entrance of new producers. As Gary Richardson has pointed out, what historians of guilds have in mind when they discuss issues of monopoly is something akin to Adam Smith's definition in *The Wealth of Nations* (1776): "laws which restrain, in particular employments, the competition to a smaller number than might otherwise go into them."³ Questions have been raised, however, about the effectiveness of the monopoly: could guilds really monitor and enforce, especially in large urban centers, their "monopoly"? Or were they undercut by interlopers and illicit producers, on the one hand, and by supplies of goods from other localities, some without guilds, on the other?⁴

The objective of monopoly is to drive up prices above the level achieved by open competition, to the advantage of the monopolist. In the case of early-modern European guilds, it is difficult to demonstrate whether this was happening. Therefore, many historians have instead looked at the supply side. As Smith's definition implies, if guilds managed to limit their membership, in terms of numbers, of geographical backgrounds, and of descent, this would more or less automatically have implied rents, for all members, for locals, or for the masters' offspring. The extent to which guilds were "open" or "closed," therefore, had implications not only for the size of rents that accrued to guild members but also for how these opportunities were distributed. As Sheilagh Ogilvie states the position: "To establish their monopolies and monopsonies, guilds excluded entrants."⁵ In earlier work, she found strong evidence that "guilds seek to restrict entry so as to limit competition."⁶ Guild membership, it has also been claimed, was dominated by sons of established masters or by people who had been born locally. Individuals without a family relationship to the membership, and especially immigrants, found it much more difficult to access incorporated trades.⁷

In this article, we evaluate the strength of guild "monopolies" by exploring the composition of guild membership in a large sample of towns from across western Europe. Our data covers over a hundred thousand masters from twenty-seven towns, and 450,000 apprentices from twenty-one towns, ranging from Bristol to Vienna and from Gdansk (Danzig) to Madrid. We focus on craft and service guilds rather than merchant guilds because of the somewhat distinct institutional histories of the latter. Our focus is on how often those we might term "outsiders" based on kinship or origin became guild members. This, we argue, offers one way to evaluate the significance of the economic constraints that guilds created. The array of formal rules established by guilds to define and control who could gain entry have been used by historians to highlight the scale of barriers faced by people without a previous connection to the urban trades. By implication, they have also been taken as indicating the rewards membership brought to insiders.⁸ Logically, if guilds did indeed generate valuable economic

rents to insiders, their preservation depended on the guilds preventing an influx of new members that would dissipate these rents. Moreover, we would expect those who were already within the guild to try to limit entrants to a small pool of kin, friends, and neighbors: to keep rents within the family, in the same way as they would property.

Assuming that successful monopolists will seek to favor their own sons when selecting the next generation of beneficiaries, we use evidence on the proportion of outsiders in guild admissions and memberships as an indicator of the effectiveness of barriers to entry. There are, obviously, more dimensions to the “monopoly” issue than access. Some German crafts, such as those in Frankfurt and Augsburg, for example, had annual quotas on the number of new masters, and the same happened in Paris.⁹ Still, if access to the “monopoly” was open to large numbers of “outsiders,” then it would seem that guilds were less exclusive than is often implied, at least for men (keeping in mind that even guilds open to outsiders generally excluded the female half of the population). The net effect of their presence on the skilled male labor market may not have been as onerous, let alone as disastrous, as many historians claim.¹⁰ We therefore want to find an answer to this straightforward question: to what extent were guilds in premodern Europe closed to outsiders?

Any answer to this question will need to account for variation along several dimensions. Guilds were too numerous and varied in nature and existed in too wide an array of political and economic contexts to possess a single unitary character. We therefore focus on how guilds differed across Europe. Four theses have been proposed by historians to explain variations in guild openness. The first highlights regional variation. A broad consensus that English guilds dwindled in the eighteenth century¹¹ has expanded to the claim that while guilds in England and the Dutch Republic became more open, those of the German lands and possibly other regions remained exclusive.¹²

A second thesis concerns guilds’ political influence: where guilds had a stake in local governance, they were able to erect barriers for newcomers.¹³ A powerful example of this relationship comes from sixteenth-century Ghent. Before 1540, and again between 1579 and 1584, the guilds of Ghent had a strong voice in local government. Between 1541 and 1578, and again after 1584, the Habsburg government excluded guilds from local government and forced guilds to become more accessible to outsiders. The Ghent evidence suggests that, when guilds were able to fully control access, they might exclude outsiders from their ranks.¹⁴ An equally compelling example from the seventeenth and eighteenth centuries was uncovered by Ogilvie’s investigation of the Wildberg weaving district in Württemberg.¹⁵

A third thesis, which can be seen as a variation on the first, can be inferred from the literature on state formation. As states became more powerful, we might expect them to have exerted greater control over guilds and, if they valued guilds’ activities, to have supported their attempts to remain exclusive. Following this logic, guilds in the eighteenth century might have been generally more closed to outsiders than they had been in the seventeenth century.¹⁶ Alternatively, some have argued that states were promoting greater equality and, therefore, attempting to reduce the impact of “special interests” like guilds.¹⁷ For example, Clare Crowston has shown that the French state’s efforts to increase economic production and employment under Louis XIV led to the

creation of all-female and mixed-sex guilds in a small number of trades, thus increasing access for women, the ultimate guild outsiders.¹⁸

The fourth thesis looks at the size of communities. In his famous *German Home Towns*, from 1971, Mack Walker connected the German guilds' strict admission rules to the tightness of the face-to-face communities in which they operated. His "home towns" were typically communities of fewer than ten thousand inhabitants.¹⁹ From a demographic perspective, Maurice Garden has made the same point: large and growing towns were in greater need of immigrants to sustain their population.²⁰ If this is correct, we should expect more openness in larger towns.

We proceed as follows. In the next section, we discuss the methodological challenges involved in measuring openness in labor markets and describe our measures of family and geographical connectedness. In the second section, we present evidence on the openness of guilds to new masters without a connection by kinship. In the third section, we evaluate guilds' willingness to accept migrants as masters. In the fourth section, we look at how important kinship and local origins were to obtaining a place as an apprentice. The fifth section evaluates how well our data fit with the four main theses on guild openness. We then consider whether or not our findings indicate a change from an earlier era of guild practice in the sixteenth century or before and whether a more direct comparison of guild openness and urban immigration rates produces different conclusions. We conclude that on all of our measures, most of Europe's guilds were more open to outsiders than blanket assertions about their exclusive behavior imply; guild "monopolies" were often only weakly supported by a narrowly bounded membership.

Methodology

In order to evaluate the openness of guilds and the validity of these four theses, we need a valid measure of closure. In this article, "outsiders" are defined in two distinct ways: those who were not the direct descendants of guild members and those originating from outside the town where the guild was based. These definitions have the merit of being categories used by meaningful actors in the early modern period, widely included in existing secondary studies, and conceptually relevant. Immediate kinship was prioritized—and rewarded—in many guilds, while defining local origin narrowly gives us the greatest likelihood that candidates for membership were known to existing members and so might hope to receive preferential treatment. A richer definition of kinship that takes into account ties created through the female line or more distant relationships, would obviously be preferable, but too little evidence of this kind has been uncovered to make this a feasible approach for a comparative study. And of course, these are not the only meaningful categories; other boundaries—such as gender, nationality, or religion—mattered too.²¹

Recent scholarship on the history of Europe's guilds has produced a body of information about these aspects of their membership that is, almost by definition, local. Our objective is to compare these data, which imposes some limitations on our approach. First, the availability of data means that we concentrate on the seventeenth and eighteenth centuries. Material for the sixteenth century or earlier is included and discussed but is too thin to allow firm comparative

conclusions. Second, much of our data relates to England and the Low Countries, where some of the most active guild research has been concentrated. We have endeavored to include just enough evidence for France, Germany and Central Europe, and for Italy and Spain to claim that the picture presented here can provide insights into Europe as a whole, rather than for a small—and possibly atypical—part of it. To overcome the dominance of the number of observations from London or Paris, we have ignored the size of towns and used unweighted observations in our analyses. The results from tiny Wildberg therefore count for as much as those from enormous London because we assume that Wildberg is potentially representative of a whole class of small European towns.

Another methodological challenge for establishing the impact of restrictions on entering the economic arena is establishing a benchmark for openness. Critics of the guilds often seem to implicitly posit a completely open labor market. Labor economists, however, question whether this scenario ever exists outside the textbook, with current thinking emphasizing the importance of frictions in the labor market that generate rents to almost all jobs.²² Formal and informal barriers create “segments” that privilege some groups of workers over others. Segmented labor markets have also been identified in the pre-industrial period.²³ The implication is that in the absence of guilds there would likely have been other obstacles producing similar effects. For example, we can assume the presence of a strong gendered division of labor, regardless of the existence of guilds.

Clear evidence of segmentation in historical labor markets without guilds can be found in the period after the decline of the guilds. Some occupations displayed strong intergenerational continuities, even without institutional barriers to entry of the kind that guilds provided. In industrial Lancashire, over 60 percent of textile workers had followed their fathers into the trade, while in nineteenth-century London and Barcelona, around half of those entering artisanal trades were following in their fathers’ footsteps.²⁴ In Canada today, around 40 percent of young men work for the same employer for which their father also worked, and 6–9 percent have the same employer in adulthood.²⁵ This percentage is likely to be higher among the self-employed, who frequently turn over businesses to the next generation.²⁶ In other words, the segmentation of the labor market that is produced by factors other than guilds in industrial societies raises questions about how we can empirically identify the distinctive role of guilds in the promotion or inhibition of flexible labor markets in pre-industrial societies.

In this article, we do not solve this problem but propose that to some extent it can be circumvented by assuming that large numbers of entrants previously unrelated to the trade constitute a situation of “openness,” while small numbers of “new” entrants point in the direction of high barriers to entry. This approach is, at the least, a fair test of the claims made in the current literature about openness. Our main aim is to map patterns of *relative* openness that may allow us to assess the causes and height of barriers to entry and their likely significance. In order to offer some insight into absolute levels of openness, we also compare our results for the percentage of local immigrants among guild members with comparable percentages for urban populations as a whole. This approach offers a stronger test of geographical openness, but it is only possible for a few locations because of the lack of historical data on migration.

Our data capture access to guilds at two different points. First, we look directly at new entrants through the study of membership registers. Second, we gauge the characteristics of the membership through apprenticeship. Craft guilds usually required their members to spend several years learning their craft.²⁷ Not all apprentices would become masters, but this was a stage that gave individuals the potential to become a master and, therefore, one which helps to flesh out our grasp of guild openness.

The measures that we use to evaluate openness vary because the nature of guild barriers and guild records varied in cities across Europe. In places where citizenship was a prerequisite for joining a guild, access to urban economic activities might be limited by citizenship barriers.²⁸ Elsewhere, membership in a guild was the first hurdle that newcomers had to overcome before becoming a citizen. In those towns, citizenship was, in other words, a secondary effect of guild membership.²⁹ These various institutional structures affect the sources that were created. Sometimes guilds kept registers of the place of origin of their members and apprentices or whether their parents were a member of the guild. Others charged different entrance fees for sons of masters or locals and listed them in their accounts. Rarely do we have both place of origin and family descent for the same guild. For more detail, we refer readers to the data appendix.

By aggregating across towns and regions, we necessarily treat guilds as if they were internally homogeneous, but this was not so. The members of the Painters Guild in Haarlem, for example, had a debate during the 1630s and 1640s about the desirability of public auctions, raffles, and lotteries, which, according to the guild officials, were “extremely damaging to, and disrespectful of, the artist and the art of painting.” Yet guild members were themselves heavily involved in these illicit practices, and one of the offenders was a former dean, Frans de Grebber, who argued that these outlets stimulated the demand for paintings and could especially benefit young little-known masters.³⁰ Access might likewise be a source of internal contestation. The Haarlem Tailors complained in 1707 that their trade was in trouble due to “the great number of seamstresses”—seamstresses who were also members of the guild. In Zutphen, in the eastern part of the Dutch Republic, male guild members introduced a rule that the number of seamstresses should be limited to five.³¹ The data presented in this article were the result of such internal struggles.

One final, critical point needs to be underlined about our approach. Our definition of “insiders” and “outsiders” takes for granted that the great majority of guilds were restricted to men. The exclusion of women was a virtually universal aspect of guild practices across Europe and thus is not a meaningful measure of relative openness at this scale. This was at least partly the effect of deliberate gender bars. Especially in the late fifteenth and sixteenth centuries, as a result of both the reinforcement of changes in the labor market and patriarchy during the Reformation, some guilds included explicit clauses to this effect in their regulations.³² In many more places, the exclusion of women was simply the result of a shared bias among the membership and wider society. This is not to say that variation in women’s access to guilds—as widows, daughters, and second-class or independent members—was not substantial. Europe was even home to a few mixed-sex and all-female guilds, in which masters’ and mistresses’ daughters enjoyed the same privileges as sons.³³ Further research is necessary to illuminate patterns of female access and their implications for gender norms, the

composition of the labor market, family structures, and other issues. The overall contribution of guild policies—explicit or implicit—is difficult to measure because the distribution across the workforce would not have been equal even if there had been no obstacles and because guild policies were embedded in broader social patterns.³⁴

Family Membership in Guilds

During the second half of the eighteenth century, the membership of the Butchers' Guild of 's-Hertogenbosch consisted entirely of people whose fathers, or fathers-in-law, had been or still were members of the same guild. Remarkably, new members were admitted as toddlers—that is, before they could possibly have completed an apprenticeship or otherwise demonstrated their skills. The reason behind this unusual state of affairs was the fixed number of places, in the forms of stalls, in the town's meat hall, and the private ownership of those stalls.³⁵ This allowed the guild to impose cartel conditions on the meat supply. However, precisely because the licensed butchers were in this position, the local authorities opened up the market to external suppliers in 1770, after the commander of the local garrison had complained that his soldiers were over-charged for their meat. Several new butchers then settled in 's-Hertogenbosch, among them eight Jews, and started to sell meat outside the meat hall. In 1773, the guild filed a bitter complaint, claiming that these outsiders were able to charge lower prices because they sold poor-quality product. The guild's privileges were restored—on the condition that its members would restrain prices.³⁶

The state of affairs in the 's-Hertogenbosch Butchers' Guild conforms with one popular image of the guilds: membership was routinely transferred from father to son. Inheritable membership was the most exclusive mechanism that privileged established masters and their immediate offspring over outsiders, however defined. Many guilds actively shaped their rules to favor the children of members: for non-sons it was between 1.3 and 2.7 times more expensive to join the Antwerp Coopers' Guild, depending on the fluctuating tariffs.³⁷ Among Dutch Tailors' Guilds, the gap tended to be on the lower end of the Antwerp spectrum, but almost all of them favored family members (and to a lesser extent locals) by charging them lower entrance fees.³⁸ The question is to what extent such preferential treatment for people with family ties to the guild actually shaped the composition of the membership. Or to phrase this in a different way: were the Butchers of 's-Hertogenbosch typical among guilds of the period?

Two striking pieces of evidence that support the thesis that guilds offered preferential treatment to close relatives come from Northern and Central Europe. The first are the Butchers we already discussed, who happened to live in the Dutch Republic, a region that is often portrayed as “liberal” with “weak” guilds. An almost equally extreme example is found in the town of Wildberg in southern Germany, where over 90 percent of the weavers were following in their fathers' footsteps. Wildberg, located in the Swabian Black Forest, had a population of 1,500–2,000. Its economy was dominated by the textiles sector, which was embedded in a larger regional proto-industry, dominated by a merchant guild that controlled both production and exports.³⁹ Together with

Durlach and Hildesheim, Wildberg is one of the three smallest towns in our dataset.

Elsewhere, however, the shares of new masters who were sons or daughters of guild members were much more modest (figures 1a and 1b). The cities and towns with the next highest shares of new masters with kinship ties were Rouen (57 percent), 's-Hertogenbosch (40 percent), and Hildesheim (35 percent). In most places, shares were well below this level.

In England, masters' children only rarely supplied more than 20 percent of new masters. For cities in both France and the Low Countries, we found an unweighted average of 26 and 27 percent in each area. Our evidence for both Spain and the Italian peninsula is thinner—with the latter only represented in our sample by the Turin Tailors' Guild—but in both the share of masters' children among new masters was also mostly low, although the Valencian silk guild had a kin share of 66 percent in the second half of the eighteenth century. Germany is the only country in which the average is above a third, with 44 percent of new masters across the guilds in our sample possessing a kinship tie. This figure is pulled up by Wildberg's particularly high rates of insider recruitment, but, as figure 1a shows, Germany did have a number of other guilds that drew heavily from members' kin. Even excluding Wildberg, the average kin share is 36 percent across the other eight German guilds in our sample.

Although the spread of guilds, cities, and countries in our sample does change over time, figure 1b shows that the kinship averages in the four half-century periods we discuss fell within a narrow range, between 21 and 30 percent.⁴⁰ In short, despite changes in the composition of our sample—notably the inclusion of more observations from Germany in the eighteenth century—the majority of guilds continued to be dominated by entrants from *outside* their existing members' immediate families. These figures only relate to the children of guild members. That is the category that the guilds focused on, suggesting that it had the greatest relevance for contemporaries. A wider definition of kinship would surely expand the share of relations entering guilds. However, data from London about family connections other than direct descent suggests that these push up the share of new members who had a family connection with the guild by relatively small amounts.⁴¹

Masters' children following their father into the same guild offer the most obvious indication of insider preference and guild openness, particularly in a patriarchal society such as early modern Europe. However, another kind of family connection also existed that offered a channel into a guild. In some cities and guilds, a man who married a master's daughter or widow would gain admittance to a guild by virtue of their wife's position. Data from eighteenth-century Hildesheim suggest that sons-in-law and widows' second husbands could amount to a substantial number of new masters. In the four Hildesheim guilds for which evidence exists, sons-in-law made up 29 percent of new masters, and another 32 percent had married the daughter or widow of a master.⁴² Taken together with the 35 percent of masters who were sons, this level of entry by marriage meant that entrants with a direct or affinal kin tie to existing masters surely constituted the majority of new guild members in this community; masters' daughters could form a large share of the next generation of masters' wives.

It is not clear that we should generalize from Hildesheim, however. Marriage to a master's daughter or widow did not always bring guild privileges:

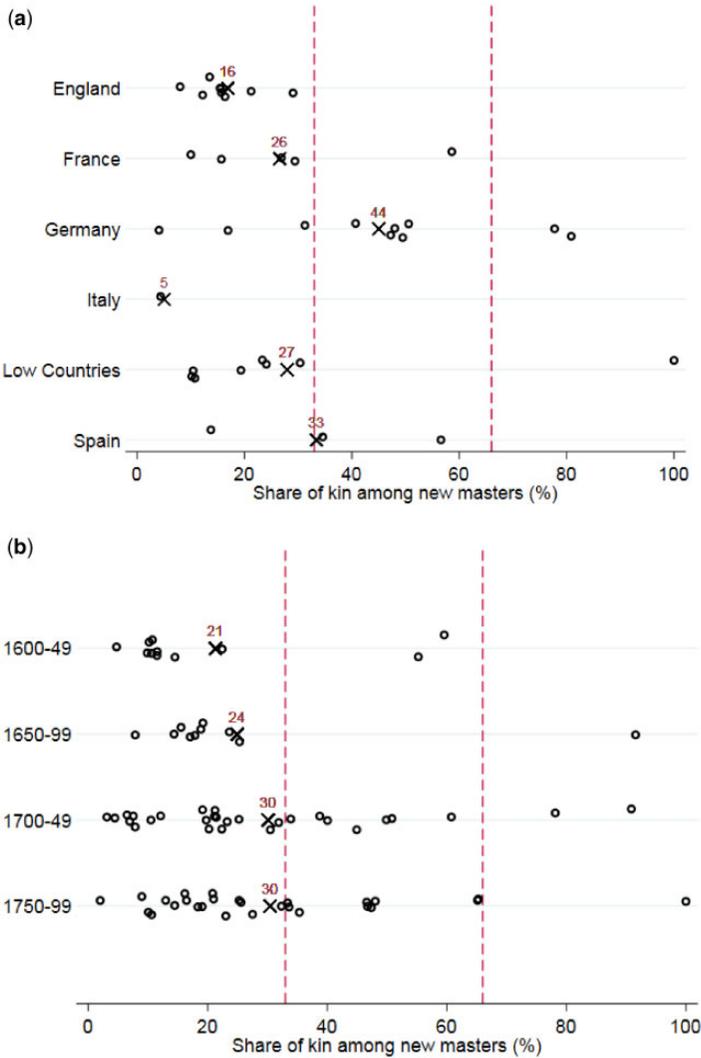


Figure 1. Share of kin among new masters in European guilds

1a: Kinship rates by country

1b: Kinship rates by period

Note: figure 1a reports the unweighted mean share of new masters who have a recorded kin tie to an existing guild member for each guild across all periods in our sample; each guild is thus represented by a single observation. Figure 1b reports the mean share for individual guilds in each period. Both figures show each guild as a single point, with the mean value for the country/period indicated by an X with the percentage share above. Vertical grid lines are inserted at 33 percent and 66 percent to provide an aid to comparison. Source: see appendix 1.

this right existed in many centers in the German lands and France but was rare in England and the Southern and Northern Netherlands. Even where it did exist, if we assume that the number of masters' daughters roughly equaled the number of masters' sons and that all marriages were motivated by entering the father's guild, then the evidence in [figure 1](#) suggests that the total share of new masters with a kinship tie would still only be around half of new entrants in most cities and guilds that we observe. These cases highlight the ambiguity of "outsider" and "insider" distinctions. They also point to the ways that women contributed informally to the formation of guilds, even where they were formally excluded.

Finally, we need to ask if masters who entered guilds via inheritance formed a privileged cohort. Perhaps this group had an importance and access to authority that exceeded their numerical share. On the one hand, there are reasons to expect that sons of masters were more likely to complete their apprenticeship.⁴³ On the other, an investigation of the board members of eighteenth-century tailors' guilds in the Dutch Republic does not give any indication that sons of masters were more likely to be elected than others. In Amsterdam, many deans were first-generation immigrants. Although positions of authority provided social status, guilds in the small town of Elburg had to introduce a rule that nobody could refuse to accept the position of dean, if elected by the membership, suggesting it was as much a burden as an honor to be selected for such an influential post.⁴⁴

The evidence indicates that only in exceptional circumstances were guilds dominated by dynasties of masters who passed on their businesses from one generation to the next. The normal situation was that a minority, sometimes quite a small minority, of masters had entered the guild as the direct successor of their father (or mother). Endogamy among guild members was unusual.⁴⁵ Financial and other barriers were no doubt designed to advantage the relatives of established masters, but, generally, they did not prevent high levels of non-kin membership.

Migrants in Guilds

In January 1757, the journeyman stonemason Franz Strickner filed a petition with the council of Vienna, asking to be confirmed in his mastership. Strickner, who originated from the small border town of Eggenburg to the northwest of Vienna, had taken over the workshop of the Viennese master Matthias Winkler, on the condition that he would look after Winkler's widow and marry his granddaughter. All looked set for a successful career, but the guild refused to examine his masterpiece and, therefore, prevented his admission to the guild. According to the guild's counterpetition, the granddaughter was long dead, and the widow was rich enough to take care of herself. Instead of the outsider Strickner, the guild had a strong preference for the "citizen and master's son" Carl Schunko, whose father had already tried to persuade Winkler's widow to allow Carl to take over the workshop.⁴⁶

The records do not tell us who was ultimately victorious in this conflict about mastership, but the story highlights how contentious access to the guilds could become. It also illustrates a common suspicion about guilds: that they had an innate tendency to prevent people from other places from joining their ranks, preferring to draw their membership from among the locals. Although the guild

pointed to the widow's wealth and the granddaughter's death as justification, it is hard to avoid the conclusion that it perceived female kin-rights as less legitimate than those of men. We have no way of knowing the strength of guild officials' preferences, but we can identify the results of any actions they took by again looking at the distribution of insiders and outsiders, this time comparing the shares of locals and migrants among new masters. We report the share of new masters who were locals, by period, in [figure 2](#).

The range of values for the share of locals among new masters is much wider than on the kinship measure. Many more guilds are positioned in the middle of the range, and far fewer are hovering close to zero than in [figure 1](#). Of course, guilds that recruited only a handful of locals might be thought of as excessively open, implying either a particularly unappealing occupation or possibly their capture by a specific group of migrants. In general, the great majority of guilds (85 percent) drew less than two-thirds of their membership from the local population, and in well over half (61 percent), locals represented less than 50 percent of new masters.

Most of our evidence on the geographical origins of masters comes from England, especially London, and from German Europe. When guilds are presented by country, as in [figure 2a](#), we observe a pattern that is the opposite of what much of the literature might lead one to expect, with guilds in the Low Countries recruiting a high share of masters from locals (58 percent), followed by English guilds (45 percent), and finally German guilds (38 percent); our two city observations from Spain (Madrid at 28 percent and Valencia at 93 percent) are so far apart that they defy placement on this spectrum.⁴⁷ There is no sign on this measure that German guilds were systematically more closed than those in England or the Netherlands, although the sample size for the latter is modest. This is a striking contrast to what we saw in our earlier discussion of the share of new masters with kin ties, where German guilds looked more closed than those elsewhere. Behind this contrast is the substantial increase in the size of our German guild sample: we have information about the share of locals among new masters for thirty-three German guilds, compared to the nine discussed earlier. It seems likely that this migration-based measure thus better reflects the breadth of guild practices across Germany. At the very least, we can be sure that a great deal of heterogeneity existed within countries and regions, particularly in the extensive German lands, as well as between guilds within the same city.

[Figure 2b](#) reports the share of locals by half century. Shifting composition aside, it suggests that guilds may have been drifting toward recruiting more new masters locally as time passed. The trend is not very strong, however.⁴⁸ When we look at patterns of recruitment within guilds over time, we see further indications of this: in London, where we have the strongest sequential series of evidence, the share of new masters who came from the city more than doubled from 28 to 59 percent between the first half of the seventeenth century and the second half of the eighteenth century. Gloucester, similarly, saw the share of locals almost double from 44 to 78 percent between 1600–49 and 1700–49. This trend was not universal, though. Over the same two hundred years, in Madrid the share of locals remained essentially stable, at around 30 percent, while in Bristol the share only rose gently from 42 to 49 percent from 1650–99 to 1750–99.

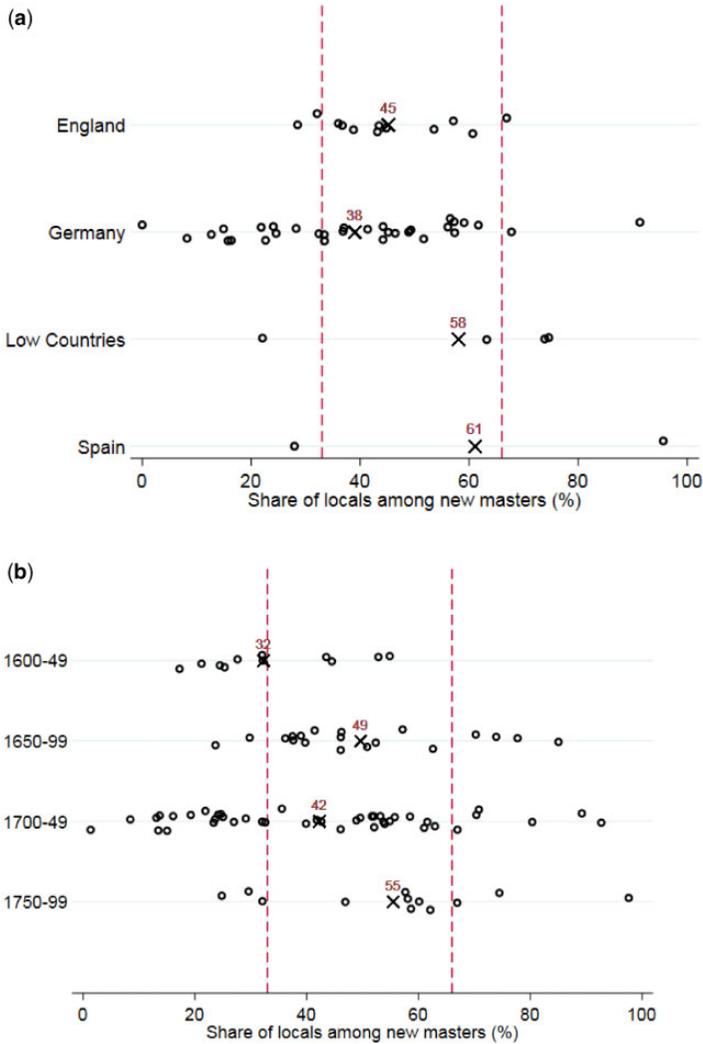


Figure 2. Share of locals among new masters in European guilds

2a: Local shares by country

2b: Local shares by period

Note: [figure 2a](#) reports the unweighted mean share of new masters who were local to a town or city for each guild across all periods in our sample; each guild is thus represented by a single observation. [figure 2b](#) reports the mean for individual guilds by period. Both figures show each guild as a single point, with the mean value for each country/period indicated by an X with the percentage share above. Vertical grid lines are inserted at 33 percent and 66 percent to provide an aid to comparison. Source: see appendix 1.

In general, most guilds included a substantial share of migrants among their membership. Few European guilds were completely dominated by locals. On this measure, although insiders were more numerous than kin, most guilds still had a majority of outsiders in their membership.

Access to Apprenticeship

Thomas Gent was born in Ireland, probably in 1693. He started an apprenticeship as a printer in Dublin but ran away to England in 1710. The published version of his autobiography starts with a seasick Gent on the ship that took him across the Irish Sea. Finding no printing press in Chester, his first port of call, he traveled on to London, where he continued to learn his trade. In 1713, Gent completed the seven years of training that were required of every master artisan under English law. At the end of his time, his master Midwinter offered Gent hospitality and protection: “I do not prefer my interest to your good; and though you came [as] an almost stranger to me, God forbid that I should send you as such abroad.” He helped secure Gent some odd jobs and finally a place as a journeyman-printer in York. Subsequently, Gent returned to London and his former master and, in 1717, entered the Stationers’ Company, the guild of London booksellers.⁴⁹

Once again, the question is: was Gent’s experience of finding an apprenticeship in a distant city typical? The volume of available evidence for apprentices is smaller than for masters, as record survival is more limited. Moreover, in many places outside of England, masters’ sons did not need to be formally registered as apprentices if they were being trained at home. In those guilds, apprentices were by definition outsiders on one of our measures (where we can observe masters’ children, the effect on the statistics is limited; the great majority of locals were still not the close relatives of guild members). Nonetheless, we possess sufficient evidence from a range of guilds to illustrate some general patterns.

In [figure 3](#), we report the average shares of locals and kin among apprentices by country and half century. The figure points to a marked contrast between our two measures of openness that echoes the differences seen in the sample of masters. On the one hand, guilds were highly varied in the share of locals that they recruited as apprentices. On the other, the share of masters’ close kin found among apprentices was relatively similar—and much lower.

The sample size beneath the country averages is not large, as [figure 3a](#) shows, but even so there is at least some suggestion that guilds in the Low Countries were often less open by this measure than those in other parts of Europe, while guilds in England, France, and Spain look more similar to each other.⁵⁰ If we look instead at city-level averages, we gain a greater sense of the scale and factors that lay behind these differences. Our sample includes guilds from sixteen cities. In eleven of these, less than half of apprentices were locals: Liverpool, booming in the early eighteenth century, had the lowest share with just 12 percent, followed by the expanding Spanish capital, Madrid (27 percent), France’s manufacturing powerhouse Lyon (28 percent), and—somewhat unexpectedly—the provincial English town of Lincoln (35 percent). Most of the cities where local youths dominated apprenticeships were experiencing periods of economic decline in the seventeenth or eighteenth centuries: Antwerp (81 percent), Leiden (70 percent), and Amsterdam (67 percent). Only Paris (72

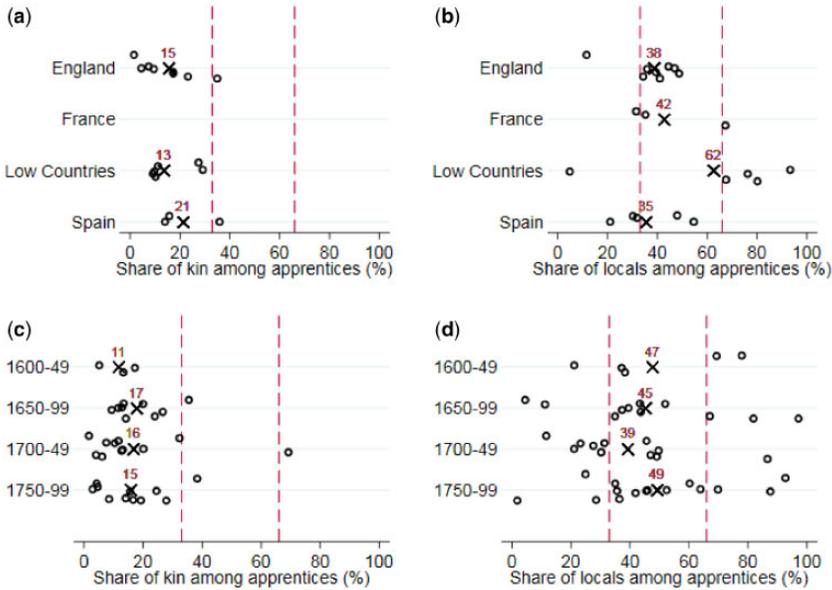


Figure 3. Share of locals and kin among apprentices in European guilds

Note: figures 3a and 3b report the unweighted mean share of apprentices who were kin to a master or local to a town or city for each guild across all periods in our sample. figures 3c and 3d report the mean for individual guilds by period; each guild can appear once in any period. Both figures show each guild as a single point, with the mean value for each region/period indicated by an X with the percentage share above. Vertical grid lines are inserted at 33 percent and 66 percent to provide an aid to comparison. Source: see appendix 1.

percent) and Bristol (53 percent) combined growth and high shares of locals among apprentices. Kin shares suggest a similar conclusion, with sons and daughters particularly rare in thriving London (4 percent) and exploding Liverpool (2 percent) compared to the small town of Boston (36 percent).

Compared to the shares of locals among new masters, there is much less of a sense of increasing closure in the apprentice data. Across the seventeenth and eighteenth centuries, the overall average of locals among apprentices in the guilds in our sample was broadly stable, though with significant variations, with an average of just below half of apprentices coming from within the town or city where they trained. And, as the distribution in 3c suggests, there was consistently a wide range among guilds.

Access to apprenticeship was relatively open to outsiders in most European guilds. It is instructive to compare the overall share of locals among apprentices with that among new masters, even though the samples cover slightly different cities and guilds. The share of locals was similar in both: the average share of locals among new masters was 44 percent, just one percentage point from the 45 percent share of locals among apprentices. Highly closed guilds were uncommon on both measures: just a fifth of guilds recruited less than a third of their new apprentices or masters from outside their locality. In fact, 65 percent of guilds in our sample recruited over half of their apprentices from elsewhere, and

62 percent drew over half of their new masters from other places. Europe's guilds tended to be as "open" to apprentices from outside as they were to new masters.

Explanations for Guild Openness

To what extent does the pattern of guild openness that we observe here support the four theses that exist to explain when and why guilds raised barriers to entry: divergent regional traditions; the power of guilds over local government; the size of the community; and change over time?

First, we have to reject the view that guilds in England and the Dutch Republic were somehow more open because of regional specifics in political economy and institutions. As figures 1–3 have consistently shown, we can observe guilds in Spain and Italy that are as open as any in the Netherlands or England. London's guilds very much resemble those in Berlin and Vienna; only Paris looks more closed. Wildberg was, it seems, quite different from many of the other towns and cities we can observe for the German world, which were often closer in character to those found elsewhere in Europe. Remarkably, it is the Low Countries that turn out to have had the most consistent tendency to recruit masters and apprentices locally, whereas France, Italy, and Spain together had the most open guilds on this measure. Few of these differences, however, were statistically meaningful, in part because of the wide variations between guilds within regions and cities. Statistical tests of the equality of the mean share of locals among masters between England and the three comparison regions of Germany, the Low Countries, and Latin Europe (the combination of France, Italy, and Spain) fail to reject the hypothesis that the share of locals was equal at the 5 percent level of significance.⁵¹ Only for kin shares, where the exceptional nature of Wildberg plays an important role, do we find a significant difference between Germany and England. If we calculate the country-level averages for openness to migrant apprentices, the Low Countries again have the highest share of locals (63 percent). Conversely, there is little to distinguish France (43 percent), England (39 percent), and Spain (35 percent).⁵²

The argument that the local political "regime" might have affected the ability of guilds to close their ranks is in one way difficult to evaluate: only a minority of the towns in our dataset actually had governments in which guilds held much power.⁵³ Most guilds were politically weak, in formal terms at least. If we compare levels of openness between towns where guilds did and did not have some formal power, we find that locals made up 41 percent of new masters in towns where guilds had power, compared to 39 percent where they did not; the split if we look at kinship is 39 percent where guilds had power against 25 percent where guilds did not. The difference in guild openness between the two types of community is not statistically significant at conventional levels on either measure.⁵⁴ In fact, there is no consistency among towns that share a political regime. The politically influential guilds of London were flooded with migrant youths, while the guilds of Amsterdam, which were not officially involved in politics, had far fewer. Guild political influence did not automatically translate into closed apprenticeships or closed masterships, though it could of course do so in particular contexts.

We also tried to map our results against the related phenomenon of guild autonomy. David Stasavage claims that "autonomous" towns in the long run

suffer from the tendency of their guilds to become increasingly closed and thus stifle the local economy.⁵⁵ Unfortunately, all our towns, apart from Amsterdam, are in his nonautonomous group, and even the classification of Amsterdam could be questioned. If Stasavage is correct, then this may explain why we find most guilds to be relatively open. That said, we do see a lot of variation in openness among these “non-autonomous” towns, suggesting that autonomy may offer only a partial explanation for guilds’ behavior.

If local power and regional cultures and institutional differences cannot explain guild openness, is town size a good predictor? It is by no means perfect, but figures 4a and 4b, which trace the relationship between our two openness measures for masters relative to urban population, suggest that it does a better job than the other theories. There is a clear drift from closed to open as we move from smaller to larger towns when we plot openness to masters against population; and simple bivariate regressions of the share of local or kin masters against the log of city population yield statistically significant negative coefficients.⁵⁶ Not all guilds fit the pattern; we still find some relatively closed guilds in the largest cities, but, otherwise, the match is good for this group. In a way, this should not come as a surprise because large towns required large numbers of immigrants to maintain their size or grow further.⁵⁷ We have too few cities in the apprentice sample to identify a meaningful relationship between openness and population. However, the apprentice sample does point to a direct link between openness and the economic cycle: unsurprisingly, it was Europe’s fastest-growing centers that attracted larger shares of outside youths among their apprentices.

As a large number of Europe’s guilds were active in medium- and small-sized towns, this result suggests that the pessimists have a strong argument: if the association of openness and size holds, it is possible that the majority of guilds were relatively closed to outsiders. However, because small town guilds had small memberships, it is also possible that most masters were members of more open guilds. In the Netherlands in 1795, almost 30 percent of the population lived in cities of ten thousand and over and only 12 percent more in cities below the ten thousand mark. In England and Wales (1801), the percentages were 20 and 11, respectively. Large centers with more open guilds thus reflect the experience of the most substantial part of the population in these two countries. In Prussia (1801), only 8 percent lived in large towns but 14 percent in small towns; in the German territories on the left bank of the Rhine (1806), the percentages were 7 and 10.⁵⁸ This suggests that the “small town” numbers in table 4 better capture the German situation, whilst the “large town” numbers are more representative for the Low Countries and England.

Do our results only apply for the two centuries for which we have been able to uncover evidence? The waxing and waning of guilds has long been debated, and one obvious objection to deriving any broad conclusion about the nature of Europe’s guilds from their behavior in the seventeenth and eighteenth centuries is that these periods came at the twilight of this economic institution. Perhaps guilds in their medieval heyday were much more closed.

Historians’ ideas about when guilds were strongest have been complicated in recent years by evidence that the number of guild foundations was increasing into the early modern period in the Netherlands, France, and Italy.⁵⁹ Even in countries such as England—once the paradigmatic case of guild decline—some

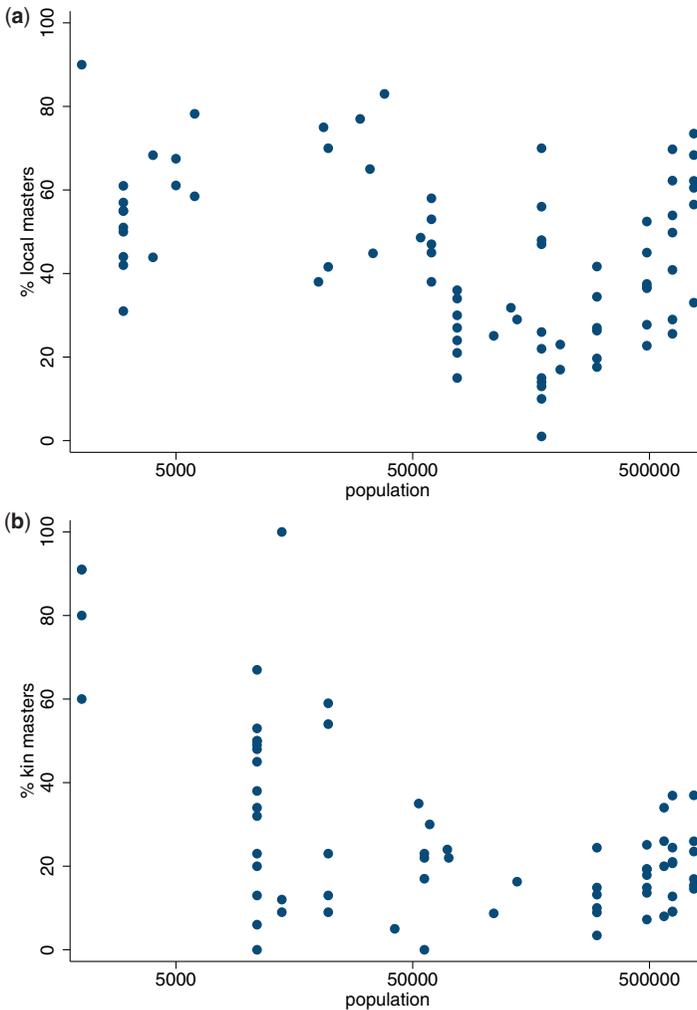


Figure 4. Guild openness related to town size in Europe
 4a: Local master shares against city population (log scale)
 4b: Kin master shares against city population

Note: [Figure 4](#) reports the unweighted average share of guild openness as reported in [figures 1](#) and [2](#) (shares of locals) across all periods in our sample; each guild is thus represented by a single observation. Source: see appendix 1.

guilds remained active into the late eighteenth century.⁶⁰ Still, guilds were, arguably, losing power as time went on because the growth of markets and states decreased the need and scope for such producers' organizations. One might expect greater openness to be the result. Yet, if anything, our data suggest that guilds were becoming somewhat less open over time ([figure 1](#)). Between the early seventeenth and later eighteenth centuries, the share of guilds in which

masters' own children provided over a third of new masters rose from 18 percent to 37 percent, while the share in which locals supplied over a third of new masters rose from 45 to 75 percent—although it is more accurate to talk of a fluctuation here, thanks to the inclusion of a new pool of German guilds. At the same time, as we discussed earlier, we see a declining openness in a number of guilds for which we have long-run evidence. Notably, this is a strong pattern in most London guilds, which were supposed to have become enfeebled in the period.

There is too little data from the fifteenth and sixteenth century to create a clear comparison. What exists does not suggest a sharp break in practices between late medieval and early modern guilds. In the five quarter-centuries between 1375 and 1500, the percentage of masters' sons registered by the Coopers' guild in Bruges fluctuated between 11 and 31. The weighted average came to 22 percent, similar to later guilds.⁶¹ In the fifteenth century, like the seventeenth, only a small number of apprentices in the London's Tailors and Skinners' guilds were master's sons, while 19 percent of a sample of apprentices from 1350–1409 were from London, almost exactly matching the share in 1600–1650.⁶² In sixteenth-century Ghent, however, the percentages were much higher, especially when the guilds were in power.⁶³ Marriage contracts from sixteenth-century Aix-en-Provence suggest generally relatively open guilds: none of the twenty-seven tailors entering marriage contracts was the son of a tailor. The carders, tanners, and shoemakers were similar, though one of eighteen tanners had followed his father. The weavers, on the other hand, tended to follow their fathers' occupation. Interestingly, occupational closure was reflected in their marriages: weavers frequently married weavers' daughters or women connected to the weaving community. This happened rarely in the more open guilds. For example, only three out of thirty-six shoemakers married a daughter or sister of another shoemaker.⁶⁴ These examples are comparable to those we observed for the seventeenth and eighteenth centuries and do not suggest a clear trend toward or away from greater openness.

Migration Benchmarks

Our discussion of guilds has concentrated on their relative position within a range of peers. For a few places we can go somewhat further and compare the openness of guilds to that of the town or city in general by considering the percentage of migrants in the total population. There are clearly endogeneity issues here: if guilds dominated the local economy, they may have influenced migration into the town as a whole.

Evidence about towns in Holland is least likely to suffer from this problem: most welcomed foreigners as a policy, especially during the seventeenth century, and had substantial unincorporated sectors.⁶⁵ On this basis, we could judge the Rotterdam goldsmiths (77 percent local), the Delft painters (70 percent local), or the Haarlem dyers (83 percent local) to be closed guilds, displaying substantially higher percentages of locals than each city's population (45, 40, and 52 percent respectively). The Amsterdam tailors, on the other hand, had fewer locals in their ranks (23 percent) than we would expect on the basis of their 47 percent share of the town's population. Other data about the Amsterdam population in the seventeenth century, which includes masters as well as journeymen, demonstrates huge variations in the share of locals versus immigrants. If

we look only at incorporated trades, we find the bakers were dominated by (German) immigrants, whereas the shipwrights were two-thirds locals.⁶⁶ Similarly, in Madrid, where immigrants supplied between 53 and 70 percent of the population between the mid-seventeenth and mid-eighteenth century, two-thirds of the city's guilds' memberships also came from outside the city.⁶⁷

In England, female migration rates offer a similar benchmark for openness. In early seventeenth-century London, 23 percent of women were locals compared to an average of 28 percent of new masters in the city's guilds; in the second half of the century, the shares of locals in each group had risen to 31 percent and 37 percent, respectively.⁶⁸ In short, masters appear more local than the population as a whole. Note, however, that these are unweighted averages based on multiple guilds. Larger guilds such as the Clothworkers (18 percent local) were markedly more open than smaller ones such as the Apothecaries (26 percent) and Stationers (34 percent). If we weigh the average to account for the size of different guilds, an average of 23 percent of masters were locals early on, rising to 34 percent later, little different to the city's women in each period.

Despite major variations among different guilds and among different cities, this brief exercise suggests that the share of foreigners in most guilds was similar to the overall share of foreigners in the towns where they were located.

Conclusions

How exclusive were guilds? Measured by the share of migrants among masters and apprentices, guilds varied greatly, but in most, the majority of new members were from outside the town or city. Few guilds were completely dominated by locals: only one in five guilds drew two-thirds or more of new masters from their locality. Similarly, new masters drawn from the immediate families of existing members were a small minority in most European guilds. In 40 percent of guilds, fewer than one in five new members were the sons, or occasionally daughters, of a guild member. Only one in seven of the guilds investigated here recruited half or more of their new members from their own children. Given that artisan parents could potentially transfer a workshop and equipment to their children, it is especially striking that this was not the typical way to become a master.

Our results suggest that blanket references to guild exclusiveness are misleading in many cases. The breadth of the distribution that we see in our results should serve as a caution against assuming that guilds shared universal characteristics of any kind. That said, amid wide variations in levels of closure, the majority were, if anything, tending towards relative openness. No doubt all kinds of obstacles stood in the way of joining guilds, but often those obstacles proved surmountable for large numbers of male "outsiders." In many places, guild "monopolies" were accessible to such a wide range of people that the word loses its explanatory value. Much of their potential for rent creation would have been dissipated over an expansive pool of new masters, as entry restrictions often proved low enough that entrants without insider ties provided a large proportion of the next generation. In such cases, in which a substantial percentage of masters was recruited from beyond the guild and its immediate community, talented and determined outsiders could and did access these sectors of urban economies

in large numbers. Aside from those guilds that imposed strict quotas, the burden they imposed on consumers and producers should have been modest.

Of the four theses that have been used to explain guild exclusiveness, we found support for only one. The size of towns was a reasonable predictor of guild openness. Relatively open guilds were found in larger communities, whereas small communities tended to have more closed guilds. The caveat is that both of our smallest towns were located in Germany. Both commonplaces about regional differences across Europe and between political regimes proved to be a poor predictor of guild openness, and where indications were found of a decline in openness, the trend was not very strong. A fuller explanation of variations in guilds' openness will therefore likely need to draw on other factors, such as the organization of their trade, mercantile dominance, capital intensity, or specific institutional shocks such as disease, fire, and war.

Why were Europe's guilds generally more open than the stylized facts in the literature indicated? Set against the potential economic rents that masters might accrue from closure were a number of good reasons for guilds and urban authorities in premodern societies to be wary of excluding outsiders. Amongst these, two stand out in particular. One is that urban communities found it very difficult to reproduce themselves demographically. To maintain the size of the local population and to fuel growth, an influx of immigrants was simply necessary. There is an interesting parallel here with modern welfare states that are struggling to support the needs of aging populations.⁶⁹ The second is that all these communities, but especially the larger ones, found it difficult to consistently police the boundaries of their communities. Exclusion also threatened to be counterproductive. Exclusionary policies might stimulate "illicit" entrepreneurs to set up business outside the control of the guild, for example in the suburbs or the adjacent countryside.⁷⁰ The authorities were equally ambivalent: they wanted strong guilds to help them impose political and social control, but they also feared the guilds as potential platforms for revolutionary activities.⁷¹

An instructive parallel is offered by immigration policies in the twentieth century. Nation states have the capacity to use citizenship to bar prospective migrants from entering their labor markets. The policies that states follow in practice have varied significantly, but the net effect has been to provide very substantial rents to the citizens of the developed world, if measured by unskilled wage differentials.⁷² This was reflected in much of the debate surrounding the introduction of restrictive immigration policies in the United States prior to 1917; attention was focused squarely on the potential effects of international population inflows on the high wages received by American workers.⁷³ This offers a modern benchmark for the capacity of institutions to reward insiders. Moreover, it suggests that modern labor market distortions have been far larger than those that existed under the guild regime in the early modern world.

Endnotes

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Capdeferro Pla (Barcelona), Raoul De Kerf (Antwerp), and Marcel Hoogenboom (Utrecht) and has been presented at conferences in Vienna (2014), Durham (2015), and Kyoto (2015). We want to thank the audiences and especially Kenneth Pomeranz (University of Chicago) for comments. Address correspondence to Maarten Prak, Department of History and Art History, Utrecht University, Drift 6, 3512 BS Utrecht, The Netherlands. Email: m.prak@uu.nl.

1. Peter Kriedte, *Peasants, Landlords and Merchant Capitalists: Europe and the World Economy, 1500–1800* (Leamington Spa, UK, 1983), 9; Carlo Cipolla, *Before the Industrial Revolution: European Society and Economy, 1000–1700*, 2nd ed. (New York, 1980), 256; Joel Mokyr, *The Lever of Riches: Technological Creativity and Economic Progress* (Oxford, 1990), 77, 258–60, 267, 298; David S. Landes, *Revolution in Time: Clocks and the Making of the Modern World* (Cambridge, MA, 1983), 219; David S. Landes, *The Wealth and Poverty of Nations: Why Some Are So Rich and Some So Poor* (London, 1998), 174, 223, 239, 242–45; Peter Musgrave, *The Early Modern European Economy* (London, 1999), 71, 73, 89; Joel Mokyr, *The Gifts of Athena: Historical Origins of the Knowledge Economy* (Princeton, NJ, 2002), 31, 259–60; Sheilagh Ogilvie, *Institutions and European Trade: Merchant Guilds, 1000–1800* (Cambridge, 2011), ch. 3; Sheilagh Ogilvie, *The European Guilds: An Economic Analysis* (Princeton, NJ, 2019), ch. 3; David Stasavage, “Was Weber Right? The Role of Urban Autonomy in Europe’s Rise,” *American Political Science Review*, 108 (2014): 337–40.

2. Daron Acemoglu and James Robinson, *Why Nations Fail: The Origins of Power Prosperity and Poverty* (London, 2012), 294; Michael P. Fitzsimmons, *From Artisan to Worker: Guilds, the French State, and the Organization of Labor, 1776–1821* (Cambridge, 2010), ch. 4; Jeffrey Frieden and Ronald Rogowski, “Modern Capitalism: Enthusiasts, Opponents, and Reformers,” in *The Cambridge History of Capitalism*, vol. II: *The Spread of Capitalism: From 1848 to the Present*, ed. Larry Neal and Jeffrey G. Williamson (Cambridge, 2014), 386, 390–91; Peter Clark, *European Cities and Towns 400–2000* (Oxford, 2009), 258–59.

3. Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, ed. by R. H. Campbell, A. S. Skinner, and W. B. Todd, Glasgow edition, vol. I (Oxford, 1976), vii, 28, 79; Gary Richardson, “A Tale of Two Theories: Monopolies and Craft Guilds in Medieval England and Modern Imagination,” *Journal of the History of Economic Thought* 23, no. 2 (2001): 217–42; see also Michael Sonenscher, *Work and Wages: Natural Law, Politics and the Eighteenth-Century French Trades* (Cambridge, 1989), 107.

4. Steven L. Kaplan, “Les corporations, les ‘faux ouvriers’ et le faubourg Saint-Antoine au XVIIIe siècle,” *Annales ESC* 43 (1988): 353–78; S. R. Epstein, “Craft Guilds, Apprenticeship, and Technological Change in Pre-industrial Europe,” *Journal of Economic History* 58 (1998): 686; James R. Farr, *Artisans in Europe, 1300–1914* (Cambridge, 2000), 82.

5. Sheilagh Ogilvie, “The Economics of Guilds,” *Journal of Economic Perspectives* 28, no. 4 (2014): 174; Mokyr, *Gifts of Athena*, 260; Ogilvie, *Institutions and European Trade*, 51–62.

6. Sheilagh Ogilvie, *State Corporatism and Proto-industry: The Württemberg Black Forest, 1580–1797* (Cambridge, 1997), 463; Ogilvie, *European Guilds*, ch. 3 provides many more examples.

7. Discussion in Tim Leunig, Chris Minns and Patrick Wallis, “Networks in the Pre-modern Economy: The Market for London Apprenticeships, 1600–1749,” *Journal of Economic History* 71, no. 2 (2011): 415–16.

8. Ogilvie, “The Economics of Guilds,” 176.

9. Gerald L. Soliday, *A Community in Conflict: Frankfurt Society in the Seventeenth and Early Eighteenth Century* (Hanover, NH, 1974), 151 n. 41; Kathy Stuart, *Defiled Trades and Social Outcasts: Honour and Ritual Pollution in Early Modern Germany* (Cambridge, 2000), 193; Clare Crowston, *Fabricating Women: The Seamstresses of Old Regime France* (Durham, NC, 2001), 333; Arnd Kluge, *Die Zünfte* (Stuttgart, Germany, 2007), 230–33; Harald Deceulaer and Bibi Panhuysen, “Dressed to Work: A Gendered Comparison of the Tailoring Trades in the Northern and Southern Netherlands, 16th to 18th centuries,” in *Craft Guilds in the Early Modern Low Countries: Work, Power and Representation*, eds. Maarten Prak et al. (Aldershot, UK, 2006), 145.

10. Not all researchers on guilds share this position. For a survey of more positive evaluations, see: S. R. Epstein and Maarten Prak, eds., *Guilds, Innovation and the European Economy, 1400–1800* (Cambridge, 2008).

11. John Forbes, “Search, Immigration and the Goldsmiths’ Company: A Study in the Decline of its Powers,” in *Guilds, Society and Economy in London 1450–1800*, eds. Ian Anders Gadd and Patrick Wallis (London, 2002), 115–25; Michael Berlin, “Guilds in Decline? London Livery Companies and the Rise of a Liberal Economy, 1600–1800,” in Epstein and Prak, *Guilds, Innovation and the European Economy*, 316–42 argues that this was not generally true in London.

12. Ogilvie, *State Corporatism*, 436–37, 449; Paul M. Hohenberg and Lynn Hollen Lees, *The Making of Urban Europe 1000–1950* (Cambridge MA, 1985), 128; for Britain alone: David Landes, *The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from 1750 to the Present* (Cambridge, 1969), 62; Mokyr, *Gifts of Athena*, 260, 269.

13. Landes, *Revolution in Time*, 211; Stasavage, “Was Weber Right?,” 341–42.

14. Johan Dambruynne, “Guilds, Social Mobility and Status in Sixteenth-Century Ghent,” *International Review of Social History* 43, no. 1 (1998): 51.

15. Ogilvie, *State Corporatism*.

16. Jan de Vries, *The Economy of Europe in an Age of Crisis, 1600–1750* (Cambridge, 1976), 238; Ogilvie, *State Corporatism*, 475.

17. S. R. Epstein, *Freedom and Growth: The Rise of States and Markets in Europe, 1300–1750* (London, 2000), 36–37, 110, 146; Clark, *European Cities*, 214; Stasavage, “Was Weber Right?,” 353.

18. Crowston, *Fabricating Women*, 190–94.

19. Mack P. Walker, *German Home Towns: Community, State, and General Estate 1648–1871* (Ithaca, NY, 1971), 27, 30; but see also Steven Hochstadt, “Migration in Preindustrial Germany,” *Central European History* 16, no. 3 (1983): 195–224 for the opposite view.

20. Maurice Garden, “The Urban Trades: Social Analysis and Representation,” in *Work in France: Representations, Meaning, Organizations, and Practice*, eds. Steven L. Kaplan and Cynthia J. Koepp (Ithaca, NY, 1986), 293.

21. Several of the authors have explored these in Patrick Wallis et al., “Barriers to Citizenship and Trade in Early Modern Europe” (BEUCITIZEN Working Paper, 2015), https://beucitizen.eu/wp-content/uploads/Deliverable3.2_final-1.pdf.

22. Alan Manning, *Monopsony in Motion: Imperfect Competition in Labour Markets* (Princeton, NJ, 2003), 3; P. Doeringer and M. Piore, *Internal Labor Markets and Manpower Analysis* (Lexington, MA, 1971); P. R. Thompson, *The Nature of Work: An Introduction to Debates of Labor Process* (London, 1983).

23. Jan de Vries, "The Labour Market," in *The Dutch Economy in the Golden Age: Nine Essays*, eds. Karel Davids and Leo Noordegraaf (Amsterdam, 1993), 55–78; Crowston, *Fabricating Women*, 86–94.

24. S. J. Chapman and W. Abbott, "The Tendency of Children to Follow their Father's Trades," *Journal of the Royal Statistical Society* 76 (1913): 66–67; Geoffrey Crossick, *An Artisan Elite in Victorian England: Kentish London, 1840–1880* (London, 1978), tables 6.4 and 6.5; Juan José Romero Marín, *La construcción de la cultura del oficio durante la industrialización. Barcelona, 1814–1860* (Barcelona, 2005), 283; Richard Zijdemán, "Like My Father before Me: Intergenerational Occupational Status Transfer during Industrialization (Zeeland, 1811–1915)," *Continuity and Change* 24 (2009): 476.

25. Mark S. Granovetter, *Getting a Job: A Study of Contacts and Careers* (Cambridge MA, 1974), 5; James D. Montgomery, "Social Networks and Labor Market Outcomes: Towards an Economic Analysis," *American Economic Review* 81 (1991): 1408–18; Miles Corak and Patrizio Piraino, "The Intergenerational Transmission of Employers," *Journal of Labor Economics* 29, no. 1 (2011): 37–68.

26. See, for the modern era, Thomas Dunn and Douglas Holtz-Eakin, "Financial Capital, Human Capital, and the Transition to Self-Employment: Evidence from Intergenerational Links," *Journal of Labor Economics* 18, no. 2 (2000): 289 (table 2).

27. Maarten Prak and Patrick Wallis, eds., *Apprenticeship in Early Modern Europe* (Cambridge, 2019).

28. Piet Lourens and Jan Lucassen, "'Zunftlandschaften' in den Niederlanden und im benachbarten Deutschland," in *Zunftlandschaften in Deutschland und den Niederlanden im Vergleich* Schriften der Historischen Kommission für Westfalen, vol. 17, ed. Wilfried Reininghaus (Münster, Germany, 2000), 11–43.

29. Patrick Wallis, "Apprenticeship and Training in Premodern England," *Journal of Economic History* 68, no. 3 (2008): 834.

30. Hessel Miedema, *De archiefbescheiden van het St. Lukasgilde te Haarlem 1497–1798*, 2 vols (Alphen aan den Rijn, Netherlands, 1980), 89 (quote), 280–88; Neil de Marchi and Hans Van Miegroet, "Art, Value, and Market Practices in the Netherlands in the Seventeenth Century," *The Art Bulletin* 76, no. 3 (1994): 458–60; also Christopher Friedrichs, "Capitalism, Mobility and Class Formation in the Early Modern German City," *Past and Present* 69 (1975): 24–49; Robert Duplessis and Martha Howell, "Reconsidering the Early Modern Urban Economy: The Cases of Leiden and Lille," *Past and Present* 94 (1982): 49–84; Hugo Soly, "The Political Economy of European Craft Guilds: Power Relations and Economic Strategies of Merchants and Master Artisans in the Medieval and Early Modern Textile Industries," in *The Return of the Guilds*, eds. Jan Lucassen, Tine De Moor, and Jan Luiten van Zanden, supplement 16 of *International Review of Social History* (Cambridge, 2008) 45–71.

31. Bibi Panhuysen, *Maatwerk: Kleermakers, naaisters, oudkleerkopers en de gilden (1500–1800)* (Amsterdam, 2000), 216 (quote), 225; Deceulaer and Panhuysen, "Dressed to Work"; Crowston, *Fabricating Women*, ch. 5.

32. From a more substantial literature, see Merry E. Wiesner-Hanks, "Guilds, Male Bonding and Women's Work in Early Modern Germany," *Gender and History* 1 (1989): 125–37; Kluge, *Zünfte*, 132–40; and Clare Haru Crowston, "Women, Gender and Guilds in Early Modern Europe: An Overview of Recent Research," in *The Return of the Guilds*, eds. Lucassen, De Moor, and Van Zanden, 19–44.

33. The complex relationship between guild control and gender discrimination is particularly well studied for clothes making: Crowston, *Fabricating Women*, ch. 4, p. 402; Deceulaer and Panhuysen, "Dressed to Work," esp. 139 (tab. 5.1).

34. Elise van Nederveen Meerkerk, *De draad in eigen handen: Vrouwen en loonarbeid in de Nederlandse textielnijverheid, 1581–1810* (Amsterdam, 2007), 162–63.

35. In Paris, nearly half of all masters were sons of butchers: Sidney Watts, *Meat Matters: Butchers, Politics, and Market Culture in Eighteenth-Century Paris* (Rochester, NY, 2006), 108; for Antwerp: Marc Jacobs, “De ambachten in Brabant en Mechelen (12de eeuw-1795),” in *De gewestelijke en lokale overheidsinstellingen in Brabant en Mechelen tot 1795*, vol. 2, ed. R. Van Uytven et al. (Brussels, 2000), 576.

36. Erfgoed 's-Hertogenbosch, Municipal Archive of the City 1262–1810, 394: April 28, 1773, fol. 174r–177r and 395: March 16, 1774, fol. 101r–105v; also Maarten Prak, *Republikeinse veelheid, democratische enkelvoud: Sociale verandering in het Revolutietijdvak: 's-Hertogenbosch 1770–1820* (Nijmegen, Netherlands, 1999), 95–96, 100.

37. Bart Willems, “Loon naar werken? Sociale mobiliteit in het Antwerpse kuipersambacht (1585–1793),” *Bijdragen tot de Geschiedenis* 82 (1999): 42.

38. Panhuysen, *Maatwerk*, 297–99.

39. Ogilvie, *State Corporatism*, 3, 106–111, and *passim*.

40. T-tests of the equality of the mean share of kin in each period yield no significant difference between 1650–99 and the other three periods. The test results are as follows: 1650–99 and 1600–49: $t = -0.44$, $N = 19$; 1650–99 and 1700–49: $t = -0.39$, $N = 34$; 1650–99 and 1750–99: $t = -0.40$, $N = 34$.

41. Leunig, Minns, and Wallis, “Networks,” 423–25.

42. Calculated from Karl H. Kaufhold, *Das Handwerk der Stadt Hildesheim im 18. Jahrhundert* Göttinger Beiträge zur Wirtschafts- und Sozialgeschichte vol. 5 (Göttingen, Germany, 1980), 254 (table 3b).

43. Chris Minns and Patrick Wallis, “Rules and Reality: Quantifying the Practice of Apprenticeship in Early Modern England,” *Economic History Review* 65, no. 2 (2012): 573.

44. Panhuysen, *Maatwerk*, 52–60.

45. Michael Mitterauer, “Zur familienbetrieblichen Struktur im zünftischen Handwerk,” in *Wirtschafts- und sozialhistorische Beiträge: Festschrift für Alfred Hoffmann zum 75. Geburtstag*, ed. H. Knittler (Munich, Germany, 1979), 190–219; Simona Cerutti, *La ville et les métiers: Naissance d'un langage corporatif (Turin, XVIIe–XVIIIe siècle)* (Paris, 1990), 167; Farr, *Artisans in Europe*, 245–46; Kluge, *Die Zünfte*, 244; Leunig, Minns, and Wallis, “Networks,” 425.

46. Thomas Buchner, *Möglichkeiten von Zunft: Wiener und Amsterdamer Zünfte im Vergleich (17. und 18. Jahrhundert)*, Forschungen und Beiträge zur Wiener Stadtgeschichte, vol. 43 (Vienna, 2004), 121–22.

47. The averages reported are calculated from the average share of locals among masters by guild for the full period; where guilds are observed for more than one period, we use an unweighted average of the share of locals in all periods.

48. Tests of the equality of the mean share of locals in each period show that only 1600–49 was significantly different from the other three periods. The test results are as follows: 1650–99 and 1600–49: $t = -2.35$, $N = 28$; 1650–99 and 1700–49: $t = -1.69$, $N = 59$; 1650–99 and 1750–99: $t = 0.65$, $N = 29$.

49. Thomas Gent, *The Life of Mr. Thomas Gent, Printer of York* (London, 1832), 11–12 (quote), 66–67; see also Ian Anders Gadd, “The Stationers’ Company in England before 1710,” in *Research Handbook on the History of Copyright Law* Research Handbooks in

Intellectual Property, eds. I. Alexander and H. T. Gómez-Arostegui (Cheltenham, UK, 2016), 81–95.

50. Statistical interpretations are difficult due to small sample sizes, but t-tests of the equality of means of the local master shares between England, the Low Countries, and Latin Europe (France, Italy, and Spain combined) show that only differences in the first pair are close to statistical significance. The results of these tests are as follows: England against the Low Countries: $t = -1.93$, $N=16$; England against Latin Europe: $t = -0.87$, $N=40$.

T-tests of the equality of means of the kin master shares between England, the Low Countries, and Latin Europe (France and Spain combined) show no significant differences between groups. The results of these tests are as follows: England against the Low Countries: $t = -0.23$, $N=17$; England against Latin Europe: $t = -1.85$, $N=40$.

51. The values of the test statistics for equality of the share of local masters are as follows: England against Germany, $t = 1.67$, $N=68$; England against the Low Countries, $t = -1.31$, $N=43$; England against Latin Europe, $t = 0.21$, $N=39$.

52. The number of cities in the sample is small: England 8; France 2; Low Countries 4; and Spain 2.

53. Towns where guilds had government power are: Antwerp, Brussels, Ghent, Hildesheim, and London.

54. Locals: student's t-test, $N=34$, $t = -0.28$; Kin, $N=30$, $t = 1.45$. This calculation is based on each guild contributing a single average figure for local or kin across all periods on our data.

55. Stasavage, "Was Weber Right?," 353; we thank the author for making his data available to us.

56. A regression of kin master share against the log of population yields the following coefficients (t-statistics in parentheses): local = 101.5 (7.52)—6.54 * $\ln(\text{population})$ (-5.53), $N=69$, R-square = 0.31. The result of a regression of local master share against the log of population is: local = 84.4 (6.38)—3.56 * $\ln(\text{population})$ (-3.08), $N=80$, R-square = 0.11. Further details are available on request.

57. For England, see Jeffrey G. Williamson, *Coping with City Growth during the British Industrial Revolution* (Cambridge, 1990), 26.

58. Jan de Vries, *European Urbanization 1500–1800* (London, 1984), 59.

59. Bert De Munck, Piet Lourens and Jan Lucassen, "The Establishment and Distribution of Craft Guilds in the Low Countries, 1000–1800," in Prak et al., eds., *Craft Guilds in the Early Modern Low Countries*, 37 (tab. 2.1); Luca Mocarelli, "Guilds Reappraised: Italy in the Early Modern Period," in Lucassen, De Moor and Van Zanden, eds., *The Return of the Guilds*, 164 fig. 1.

60. Berlin, "Guilds in Decline?"

61. Peter Stabel, "Social Mobility and Apprenticeship in late Medieval Flanders," in *Learning on the Shop Floor: Historical Perspectives on Apprenticeship*, ed. Bert De Munck, Steven L. Kaplan, and Hugo Soly (Oxford, 2007), 170.

62. Stephanie Hovland, "Apprenticeship in Later Medieval London (c. 1300–c.1530)" (PhD diss., University of London, 2006), 58; 62 n. 68.

63. Dambryne, "Guilds," 51.

64. Claire Dolan, "The Artisans of Aix-en-Provence in the Sixteenth Century: A Micro-analysis of Social Relationships," in *Cities and Social Change in Early Modern France*, ed. Philip Benedict (London, 1989), 181–85.
65. Jan Lucassen, "Holland, een open gewest: immigratie en bevolkingsontwikkeling," in *Geschiedenis van Holland*, vol. ii: 1572–1795, eds. Timo de Nijs and Eelco Beukers (Hilversum, Netherlands, 2002), 207–10.
66. Erika Kuijpers, *Migrantenstad: Immigratie en sociale verhoudingen in 17e-eeuws Amsterdam* (Hilversum, Netherlands, 2005), ch. 6 and p. 406.
67. María F. Carbajo Isla, *La población de Madrid desde finales del siglo XVI hasta mediados del XIX* (Madrid, 1987), 118–25; we owe this reference to José Nieto.
68. Eleanor Hubbard, *City Women: Money, Sex and the Social Order in Early Modern London* (Oxford, 2014), 20.
69. Peter Lindert, *Growing Public: Social Spending and Economic Growth Since the Eighteenth Century* vol 1: *The Story* (Cambridge, 2004), 205–7.
70. Kaplan, "Les corporations."
71. Susan Reynolds, *Kingdoms and Communities in Western Europe 900–1300* (Oxford, 1997, 2nd. ed.), 68, 75; Soly, "Political Economy."
72. Bob Hamilton and John Whalley, "Efficiency and Distributional Implications of Global Restrictions on Labour Mobility: Calculations and Policy Implications," *Journal of Development Economics* 14, no. 1 (1984): 61–75, estimate that abolishing all restriction on international labor migration would increase world GDP per capita in the 1980s by approximately 150 percent.
73. Francis A. Walker, "Restriction of Immigration," *Atlantic Monthly*, June 1896, 822–29.

Data Appendix

The appendix lists for each town for which we have data:

- Name of guild
- Years of observation: where the dates cover more than one half century we have counted them in both half centuries; when the data relate to less than one half century but straddle two half centuries they have been allotted to the half century with which there is the biggest overlap
- Local: percentage of masters/apprentices from the town itself
- Kin: percentage of masters/apprentices whose parents were members of the same guild

Masters & Freemen

City	Guild	Period	Local (%)	Kin (%)	N
<i>England</i> Bristol* ¹	All	1650-99	42		7,639
		1700-49	45		11,249
		1750-99	49		9,902
Gloucester* ²	All	1600-49	44		64

Continued

City	Guild	Period	Local (%)	Kin (%)	N
Lincoln* ³	All	1650-99	61		491
		1700-49	78		726
		1650-99	68		750
		1700-49	67		813
London ⁴	Apothecaries	1750-99	58		806
		1617-49	26	3	177
		1650-99	36	7	823
		1700-49	41	9	237
	Bowyers	1700-49	29	13	40
		1750-99	33	15	20
		1650-99	23	19	1,983
		1700-49	26	9	2,178
	Clockmakers	1750-99	73	15	2,006
		1600-49	18	9	2,085
		1650-99	28	14	2,372
		1700-49	50	21	1,743
	Clothworkers	1750-99	61	24	1,198
		1600-49	27	13	1,057
		1650-99	38	15	1,501
		1600-49	42	24	183
	Goldsmiths	1650-99	52	25	387
		1700-49	70	37	189
		1750-99	57	37	8
		1600-49	20	10	4,998
Mercers	1650-99	37	18	3,868	
	1700-49	54	24	1,673	
	1750-99	62	26	179	
	1600-49	34	15	1,357	
Merchant Taylors	1650-99	45	19	889	
	1700-49	62	21	94	
	1750-99	68	17	398	
	1600-49	20	10	4,998	
Stationers	1650-99	37	18	3,868	
	1700-49	54	24	1,673	
	1750-99	62	26	179	
	1600-49	34	15	1,357	
France Dijon ⁵	All	1693-1730		23	1,822
		1731-60		13	2,397
		1761-90		9	3,661
		1766-75		26	13,426
Paris ⁶	All	1735-50		20	186
		1742-76		34	346
		1735-76		8	5,509
		1600-99		54	6,840
Rouen ⁷	All	1700-99		59	8,488
		1600-99		54	6,840
German Europe Berlin* ⁸	All	1709-50	27		489
			36		303
			21		480
			30		89
			34		689
			24		913
			15		2,499
			15		2,499

Continued

City	Guild	Period	Local (%)	Kin (%)	N
Gdansk/Danzig* ⁹	Bakers	1640-1709	53		416
	Butchers		47		181
	Construction		38		203
	Coopers		58		235
	Textiles		45		2,257
Durlach ¹⁰	Bakers	1700-99	55		131
	Butchers		57		103
	Carpenters		55		38
	Coopers		50		114
	Joiners		42		38
	Linenweavers		51		57
	Masons		31		49
	Shoemakers		61		130
	Tailors		44		105
	Hildesheim ¹¹		Barbers	1700-49	
1750-99				0	23
Basketmakers		1700-49		32	13
		1750-99		67	12
Blacksmiths		1700-49		50	24
		1750-99		48	23
Bookbinders		1750-99		50	18
Smiths (other)		1700-49		34	80
		1750-99		49	80
Tailors		1700-49		6	68
		1750-99		23	99
Tinsmiths		1700-49		38	13
		1750-99		20	10
Wheelwrights		1700-49		53	15
		1750-99		45	11
Vienna ¹²	Bakers	1742	26		102
	Bookbinders		56		18
	Brewers		1		70
	Butchers		47		32
	Cabinetmakers		14		140
	Coopers		22		67
	Goldsmiths		48		116
	Shoemakers		15		555
	Sword-cutlers		70		36
	Tailors		13		640
	Weavers		10		31
	Wildberg ¹³	All trades	1666-1760	>90	>80
Worsted weavers		1598-1647		60	247
		1666-99		91	131
		1700-60		91	228
<i>Italy</i>					
Turin ¹⁴	Tailors	1705		5	288
<i>Low Countries</i>					
Amsterdam ¹⁵	Tailors	1730-1769	17		1,345
		1770-1798	23		1,129

Continued

City	Guild	Period	Local (%)	Kin (%)	N
Antwerp ¹⁶	Coopers	1671-1700		24	177
		1701-50		30	204
		1751-93		35	89
	Shoemakers	1766-90		17	127
		Tailors	1714-79		22
Brussels ¹⁷	Tailors	1694-1786		22	828
Delft ¹⁸	Painters	1613	38		32
		1613-49	70		92
		1650-1679	75		40
Ghent ¹⁹	Woodworkers	1616-30		23	137
		1631-67		0	206
Haarlem ²⁰	Dyers	1663	83		36
		1714	65		60
Rotterdam ²¹	Goldsmiths	1665	77		34
's-Hertogenbosch ²²	Butchers	1749-75		100	120
	Coopers			9	65
	Goldsmiths			12	17
<i>Spain</i>					
Barcelona ²³	Bookbinders	1794-1835		33	95
Madrid** ²⁴	Various	1643-49	32		569
		1700-49	25	9	2,187
		1750-99	29	16	3,233
Valencia ²⁵	Silk	1756-1805	91	44	2077

*refers to the use of citizenship registers; in other cases we rely on guild sources.

**recalculated without the "unknowns."

Apprentices

City	Guild	Period	Local (%)	Kin (%)	N
<i>England</i>					
Boston ²⁶	all	1650-99		15	259
		1700-49		64	411
		1750-99		29	1,069
Bristol ²⁷	all	1650-99	45	17	2,227
		1700-49	53	10	5,290
		1750-99	62	6	10,157
Gloucester ²⁸	all	1600-49	36	11	1,789
		1650-99	47	15	2,266
		1700-49	55	18	1,576
Leicester ²⁹	all	1600-49	42	22	131
		1650-99	39	9	43
		1700-49	41	7	199
Lincoln ³⁰	all	1750-99	44	23	197
		1650-99	40	23	603
		1700-49	29	8	823
		1750-99	36	8	748

Continued

City	Guild	Period	Local (%)	Kin (%)	N	
Liverpool ³¹	all	1700-49	12	2	701	
London ³²	Various	1600-49	18	2	101,914	
		1650-99	32	4	145,180	
		1700-49	51	8	106,307	
		1750-99	62	1	59,545	
Shrewsbury ³³	all	1650-99	39	28	331	
France Lyon ³⁴	silk	1710-39	29			
		1740-69	32			
		1770-90	29			
		1746-47	26		405	
Paris ³⁵	all	1761	72		815	
Low Countries Amsterdam ³⁶ Antwerp ³⁷	surgeons	1597-1659	67		1,057	
		1691-1760		3	412	
	cabinetmakers	1701-90		8	975	
		1671-1700		34	635	
	coopers	1701-1750		30	479	
		1751-1793		17	186	
	silversmiths	1600-50	75		32	
		1650-1700	78		123	
		1700-50	83		58	
		1750-1800	90		31	
	tinsmiths	1711-50			25	150
		1751-90			19	105
	Haarlem ³⁸	coopers	1649-68	3		61
			1736-97	91	6	790
Leiden ³⁹	surgeons	1683-1729	70	15	391	
Spain Barcelona ⁴⁰	fanmakers builders silk-reeling veil weaving booksellers	1762-92	26	13	146	
		1786-1820		35	56	
		1760-1762	48		29	
		1825-1849	50		1,482	
		1760-1788	26	15	39	
Madrid ⁴¹	various	1607-99	7		215	
		1700-49	28		131	
		1750-99	47		289	

Data Appendix Endnotes

1. Bristol & Avon Family History Society, *Bristol Burgess Books, 1557-1995, Index & Transcripts* (Bristol, 2004).
2. A.F.J. Jurica and P. Ripley, eds., *A Calendar of the Registers of the Freemen of the City of Gloucester, 1641-1838*, Gloucestershire Record Series, 4 (Gloucester, 1991).
3. Lincolnshire Family History Society, "Lincoln City Apprentices & Freemen" (unpublished typescript).
4. Apothecaries: Guildhall Library, "Society of Apothecaries," Freedom Register, MS 8206/1; Bowyers, Clothmakers, Goldsmiths, Mercers: Centre for Metropolitan History, Records of London Livery Companies Online. URL <http://www.londonroll.org/>. We used

the underlying dataset supplied by Mark Merry and Matthew Davies; Clockmakers: Clockmakers Company, *Freemen of the Worshipful Company of Clockmakers, 1631-1884* (George Daniels, Isle of Man: 1984); Merchant Taylors: Docklands Ancestors, *Merchant Taylors' Membership Index, 1530-1928* ([JCD Rom] London, 2008); Stationers: Michael Turner, *London Book Trades Database*. URL <http://lbt.bodleian.ox.ac.uk/>. We used the underlying dataset shared by Michael Turner.

5. E.J. Shephard Jr., "Social and Geographic Mobility of the Eighteenth-Century Guild Artisan: An Analysis of Guild Receptions in Dijon, 1700-90," in Kaplan and Koepp, eds., *Work in France*, 123.

6. Registers of guild entries maintained by the royal procurator at the Châtelet of Paris, Archives Nationales, Paris Y 9330, Y 9331, and Y 9332; Locksmiths: Sonenscher, *Work and Wages*, 107; Seamstresses: Crowston, *Fabricating Women*, 329.

7. Jean-Pierre Bardet, *Rouen aux XVIIe et XVIIIe siècles: les mutations d'un espace social* (Paris, 1983), 237.

8. Compiled and adapted from E. Kaeber, ed., *Die Bürgerbücher und die Bürgerprotokollbücher Berlins von 1701-50* (Berlin, 1934), esp. tables 9-11.

9. Compiled from Henning Penners-Ellward, *Die Bürgerschaft nach Herkunft und Beruf 1547-1709*, PhD-dissertation Marburg an der Lahn, 1954, tables 4 and 5.

10. Compiled from Otto Konrad Roller, ed., *Die Einwohnerschaft der Stadt Durlach im 18. Jahrhundert in ihren wirtschaftlichen und kulturgeschichtlichen Verhältnissen dargestellt aus ihren Stammtafeln* (Karlsruhe, 1907).

11. Kaufhold, *Handwerk der Stadt Hildesheim*, 253-54

12. Josef Ehmer, "Worlds of Mobility: Migration Patterns of Viennese Artisans in the Eighteenth Century," in Crossick, ed., *The Artisan and the European Town*, 180, 182.

13. Ogilvie, *State Corporatism*, 132, 171-72; Worsted weavers: Ogilvie, "Guilds, efficiency", 309.

14. Cerutti, *La ville et les métiers*, 163, 167.

15. Panhuysen, *Maatwerk*, 300.

16. Coopers: Willems, "Loon naar werken?", 46; Shoemakers: Bert De Munck, *Technologies of Learning: Apprenticeship in Antwerp from the 15th Century to the End of the Ancien Régime* (Turnhout, 2007): 164; Tailors: Harald Deceulaer, *Pluriforme patronen en een verschillende snit: sociaal-economische, institutionele en culturele transformaties in de kledingsector in Antwerpen, Brussel en Gent, 1585-1800* (Amsterdam, 2001) : 330.

17. Deceulaer, *Pluriforme patronen*, 330.

18. John Michael Montias, *Artists and Artisans in Delft: A Socio-economic Study of the Seventeenth Century* (Princeton, 1982): 140.

19. Johan Dambruyne, "De Gentse bouwvakambachten in sociaal-economisch perspectief (1540-1795)," in C. Lis and H. Soly (eds.), *Werken volgens de regels: Ambachten in Brabant en Vlaanderen, 1500-1800* (Brussels, 1994): 72.

20. Janneke Tump, *Ambachtelijk geschoold: Haarlemse en Rotterdamse ambachtslieden en de circulatie van technische kennis, ca. 1400-1720*, PhD-thesis Vrije Universiteit Amsterdam 2012: 131.

21. Tump, *Ambachtelijk geschoold*, 133.

22. Erfgoed 's-Hertogenbosch, Bossche Ambachtsgilden 152 (butchers), 251 (Coopers), 314 (Goldsmiths).
23. Àngels Solà Parera, Craft Apprenticeship in Barcelona, 1760-1850, paper presented at the workshop "Apprenticeship in early modern Europe: one institution or many?" (3-4 July 2016, Utrecht).
24. José Antolín Nieto Sánchez and Juan Carlos Zofío Llorente, "The return of the guilds: a view from early modern Madrid," *Journal of Social History* 50 (2016): 260.
25. Calculated from R. Franch Benavent, D. Muñoz Navarro, & L. Rosado Calatayud, "La reproducción de los maestros y la transformación de las condiciones sociales de los miembros del Colegio del Arte Mayor de la Seda de Valencia en el siglo XVIII," *Revista de Historia Industrial*, 65 (2016): 18 (table 1).
26. Lincolnshire Family History Society, "Boston City Apprentices & Freemen" (unpublished typescript).
27. Bristol & Avon Family History Society, *Transcript and Indexes of the Bristol Apprenticeship Books Volumes 1(o) to 1(z) 1724-2009* (Bristol, 2012).
28. J. Barlow, ed., *A Calendar of the Registers of Apprentices of the City of Gloucester*, Bristol and Gloucester Archaeological Society, 2001 (v. 14), 1595 -1700 & v. 20 (1700-1834).
29. H. Hartropp, *Register of the freemen of Leicester including the apprentices sworn before successive mayors*, 2 vols. (Leicester, 1927-33).
30. Lincolnshire Family History Society, "Lincoln City Apprentices & Freemen" (unpublished typescript).
31. M. Power, F. Lewis, D. Ascott (1998). *Liverpool Community, 1649-1750*. [data collection]. UK Data Service. SN: 3882, <http://doi.org/10.5255/UKDA-SN-3882-1>.
32. C. Webb, London Livery Company Apprenticeship Registers (London: Society of Genealogists 1994-2005); Wallis, *London Apprentices: Society of Apothecaries, 1617-1669* (London: Society of Genealogists, 2000); *Records of London Livery Companies Online*. URL <http://www.londonroll.org/>.
33. Shropshire Archives MS6001/126; 6001/4263; 6001/5837; 6001/3360; 6001/4583.
34. Maurice Garden, *Lyon et les Lyonnais au XVIIIe siècle* (Paris, 1970): 57, 63.
35. Archives nationales Y 9330, Y 9331, and Y 9332.
36. Stadsarchief Amsterdam, Archief Gilden en het Brouwerscollege 366, inv. 254.
37. Cabinetmakers, Carpenters and Tinsmiths: De Munck, *Technologies of learning*, 165-67; Coopers: Willems, "Loon naar werken?"; 35; Silversmiths: Raoul De Kerf, *De circulatie van technische kennis in het vroegmoderne Antwerpse ambachtswezen, 1500 – 1800* (casus kuipers en edelsmeden), PhD-thesis Universiteit Antwerpen 2014: 98.
38. Coopers: Tump, *Ambachtelijk geschoold*, 128; Shoemakers: Feline van den Boogerd, *Welkom bij het gilde: De openheid van ambachtsgilden in Haarlem in de 17^e en 18^e eeuw*, unpublished BA-thesis in History, Utrecht University, January 2017, tab. 1.
39. Regionaal Archief, Archief der Gilden 0509, inv. 351.
40. Belén Moreno Claverías, "El aprendiz de gremio"; Àngels Solà Parera, *Craft apprenticeship in Barcelona, 1760-1850*.
41. Victoria López Barahona and José Antolín Nieto Sánchez, *Artisan Apprenticeship in Early Modern Madrid (1561-1800)*, paper presented at the workshop "Apprenticeship in early modern Europe: one institution or many?" (3-4 July 2016, Utrecht), tab. 6.