Failure or Flexibility?: Apprenticeship Training in Premodern Europe

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In the late nineteenth century, France, the United Kingdom, and many other Western countries faced a "crisis in apprenticeship" that many believed to have been caused by the "greed" of apprentices quitting their contracts to earn wages and by the venality of masters who exploited rather than trained youths. Today, even in Switzerland, Germany, and Australia—countries where apprenticeship remains important—researchers and politicians worry about high levels of premature terminations. Quitting affects 20 to 25 percent of contracts, rising to 40 percent in some industries. Relative outsiders, such as the children of poor families or immigrants, face bleaker prospects than youths with connections, but to many commentators, youths in general face too great a risk that their apprenticeship will end in failure.[1]

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1 Stéphane Lembré, "La "Crise" de l'Apprentissage: De l'Échec à la Loi (Fin XIXe Siècle-Années Vingt)," in Natacha Coquery and Matthieu de Oliveira (eds.), *L'Échec a-t-il des Vertus Économiques?* (Paris, 2015), 309–318 (on France); Donata Bessey and Uschi Backers-Gellner, "Premature Apprenticeship Terminations: An Economic Analysis," Swiss Leading House Economics

Those commenting on the challenges that beset contemporary apprenticeship sometimes draw an explicit comparison between its instability and an early modern "golden age" when apprenticeship was a stronger, if not necessarily more socially inclusive, institution. In their textbook on the economics of apprenticeship, for example, Smits and Stromback summarize a clear picture of pre-industrial apprenticeship, with fixed duration, restrictions on unilateral termination, and strong incentives to enforce those provisions—incentives primarily provided by guilds and the legal system. These ideas have influenced political debates about how to support apprenticeship. In 2010, Michael Hayes, the United Kingdom's Minister for Skills, even called for a rebirth of guilds to help restore the status of apprenticeship. Slightly more than a century earlier, Denman, another member of Parliament, lamented that the "collapse of the gilds" destroyed an "efficient system of technical training" in which the "conditions of employment were ... minutely regulated."[2]

The image of early modern apprenticeship in these discussions is rooted in the scholarly literature. Many economic historians emphasized the sturdiness of early modern apprenticeships. Social historians analyzing how the young were socialized through apprenticeship similarly imagined them as embedded in durable relationships with their masters, maintaining that breakdowns often implied a household crisis. Denman's comments accompanied the first serious academic

of Education Working Paper #2 (2007) (on Germany); Nadia Lamamra and Jonas Masdonati, *Arrêter une Formation Professionnelle, Mots et Maux d'Apprenti.e.s* (Lausanne, 2009) (on Switzerland); Evi Schmid and Barbara E. Stalder, "Dropping Out from Apprenticeship Training as an Opportunity for Change," in Paivi Tynjälä et al. (eds.), *Transitions and Transformations in Learning and Education* (Dordrecht, 2012), 117–130 (on Switzerland); Alice Bednaez, "Understanding the Non-Completion of Apprentices," National Centre for Vocational Education Research Occasional Paper (Adelaide, 2014) (on Australia); Irene Kriesi et al., "Bleiben? Gehen? Neu Beginnen? Häufigkeit, Ursachen und Folgen von Lehrvertragsauflösungen," *Trendbericht 1 des Schweizerischen Observatoriums für die Berufsbildung* (Zollikofen, 2016). For surprisingly similar numbers, patterns, and reasons for France, where apprenticeship is much less common, see Gilles Moreau, *Le Monde Apprenti* (Paris, 2003); Benoît Cart et al., "Contrat d'Apprentissage, les Raisons de la Rupture," *Bref CEREQ*, CCLXXII (2010), 1–4.

2 Wendy Smits and Thorsten Stromback, *The Economics of the Apprenticeship System* (Cheltenham, 2001); John Hayes, "The Craft So Long to Lerne": Skills and Their Place in Modern Britain," report from the Royal Society of Arts, October 26, 2010; Olive Jocelyn Dunlop and Richard Douglas Denman, *English Apprenticeship & Child Labour* (London, 1912), 20–21. Dunlop's own plans did not encompass a restoration of guilds. For similar comments in nineteenth-century France and the Netherlands, see Charles Loquet, *L'Apprentissage à l'Atelier de l'Industrie Privée et à l'École* (Rouen, 1884); Eduard A. von Saher, "Beschouwingen over onze Ambachtsnijverheid," *Orgaan der Nederlandsche Maatschappij ter bevordering van Nijverheid*, II (1891), 93–109.

book about English apprenticeship. However, few studies provided a longitudinal view of early modern apprenticeship that would allow a proper evaluation of how frequently quitting occurred or how likely apprentices were to attain mastership directly. Several of the handful of longitudinal studies that have recently appeared have found surprisingly elevated levels of early termination. Studies identifying the large shortfall between the number of new masters and the number of new apprentices also give us cause to suspect that apprenticeship may not always have been durable, although they usually cannot tell us why youths did not become masters, or when they strayed from the path toward mastership.[3]

This article examines the trajectories that youths followed from the beginning of apprenticeship to mastership in four early modern cities—Lyon, Amsterdam, Leiden, and Shrewsbury—with diverse economic contexts and institutional settings. It focuses on two key stages—the completion of apprenticeship contracts and entry to mastership—taking account of how many youths left apprenticeship early, and (for some) when they left. What traits did those who stayed have in common and to what extent did social capital influence the outcomes of training? Finally, how many, and which, youths eventually achieved full membership in their guild by becoming a master?

These questions about apprenticeship connect to two wider debates in economic and social history. First, they offer us another way to assess the openness of premodern labor markets, as well as the nature of skill formation and labor mobility more specifically. A comparison of locations with different guild systems enables us to evaluate the prominent role that guilds have played so far in

3 The key economic-history studies focusing on apprenticeship, guilds, and work organization include Stephan R. Epstein, "Craft Guilds, Apprenticeship, and Technological Change in Preindustrial Europe," *Journal of Economic History*, LVIII (1998), 684–713; Sheilagh Ogilvie, "Rehabilitating the Guilds: A Reply," *Economic History Review*, LXI (2008), 175–182; Bert De Munck, "From Brotherhood Community to Civil Society? Apprentices between Guild, Household and the Freedom of Contract in Early Modern Antwerp," *Social History*, XXXV (2010), 1–20; Regina Grafe and Oscar Gelderblom, "The Rise and Fall of the Merchant Guilds: Re-thinking the Comparative Study of Commercial Institutions in Premodern Europe," *Journal of Interdisciplinary History*, XL (2010), 477–511. For social history, see Dunlop and Denman, *Apprenticeship*; Paul Griffiths, *Youth and Authority: Formative Experiences in England, 1560–1640* (New York, 1996); Anne Yarbrough, "Apprentices as Adolescents in Sixteenth Century Bristol," *Journal of Social History*, XIII (1979), 67–81; De Munck, *Technologies of Learning: Apprenticeship in Antwerp Guilds from the 15th Century to the End of the Ancien Régime* (Turnhout 2007), 161–169.

narratives of early modern apprenticeship and to determine the ways in which social capital distorted or sustained labor markets. Second, by uncovering the scale of mobility and the factors that influenced it, we can examine the stability of households and firms within what remained a highly patriarchal economic and social system. Although a rich body of work has explored the conflicts and fragmentation that could occur within premodern workshops, quantitative evidence that can help to indicate the frequency of different outcomes—beyond what is likely the small number of conflicts that reached the courts—is extremely scarce. We thus offer novel ways to explore the tension between the idea of a strict paternal socialization that defined the typical household and the idea of a business-like arrangement of trading work for technical knowledge that permitted apprentices to quit if they deemed their training to be inadequate.[4]

APPRENTICESHIP IN SHREWSBURY, LYON, AND THE NETHERLANDS A number of features suggest that early modern apprenticeship was a well-enforced institution. Starting an apprenticeship was costly, especially for migrants. Training was not easily available to all. Local ties could be necessary to find a master, who might demand a fee (premium) for entry. Moreover, guilds or cities tended to limit the number of apprentices per master; to restrict entry by gender, faith, or other criteria; and to extract registration fees. Many apprenticeship contracts included local guarantors; in France, some contracts specified the compensation that had to be paid after an early exit. Quitting could scar a youth's reputation. In fact, terminating a contract could well have been costlier in the early modern period than it is today. Completion entitled youths to access privileged parts of the labor market with higher wages. Many cities and towns restricted the right to

4 For labor markets, see Epstein, "Craft Guilds"; Ogilvie, "Guilds, Efficiency, and Social Capital: Evidence from German Proto-Industry," *Economic History Review*, LVII (2004), 286–333; Jan Luiten van Zanden, "The Skill Premium and the 'Great Divergence,'" *European Review of Economic History*, XIII (2009), 121–153. For conflicts, see, for example, Peter Rushton, "The Matter in Variance: Adolescents and Domestic Conflict in the Pre-Industrial Economy of Northeast England, 1600–1800," *Journal of Social History*, XXV (1991), 89–107; Steven L. Kaplan, *La Fin des Corporations* (Paris, 2001). For opposing views of apprenticeship, see De Munck, "From Brotherhood Community"; Yarbrough, "Apprentices as Adolescents"; Alysa Levene, "'Honesty, Sobriety and Diligence': Master–Apprentice Relations in Eighteenth- and Nineteenth-Century England," *Social History*, XXXIII (2008), 183–200.

operate independently to masters, and the right to work in a skilled occupation to journeymen. Apprenticeship was often a prerequisite to acquire either status (although sometimes masters' sons were exempt). In principle, those youths with the good fortune to find a master had a strong incentive to complete their apprenticeships.[5]

That said, several recent studies presenting quantitative evidence of persistence within apprenticeship show high rates of early exit: In the 1690s, around 40 percent of apprentices in London and Bristol left their masters before their terms finished. Dutch orphan apprentices in the eighteenth century frequently moved between masters and crafts. More than half of the apprentices at the charity *Albergo di Virtù* in late eighteenth-century Turin left early, as did one-quarter to one-third of charity orphans in Lyon during the same period. In eighteenth- and nineteenth-century Vienna, termination rates ranged largely around 30 percent, depending on occupation and gender, reaching 57 percent for locksmiths. Urban courts in London facilitated the cancelation of apprenticeship contracts; mechanisms that we might expect to have tightened contracts actually made them flexible. None of these findings suggest, however, that premature terminations undermined the viability of apprenticeship. Nor did all places experience exits at the same rate. The scattered evidence about exit rates discovered for early modern Germany are generally in the range of 12 percent or less; more than 95 percent of carpenter and cabinet makers' apprentices in mid-nineteenth-century Göttingen completed their terms. Several of the most detailed studies available pertain to locations or groups that appear to be exceptional—large, economically dynamic cities (Bristol, London, and Vienna); orphans and charity recipients; and countries with "weak" guilds (England and the Netherlands).[6]

5 Tim Leunig, Chris Minns, and Wallis, "Networks in the Premodern Economy: The Market for London Apprenticeships, 1600–1749," *Journal of Economic History*, LXXI (2011), 413–443; Ogilvie, "Guilds, Efficiency,"; Maarten Prak et al., "Access to the Trade: Citizens, Craft Guilds and Geographical Mobility in Early Modern Europe," unpub. paper, available at http://beucitizen.eu/wpcontent/uploads/bEUcitizen_WPS1_Prak-et-al.-2014.pdf; Chrystèle Santailler, *Les Contrats d'Apprentissage à Lyon au 18e siècle*, unpub. master's thesis (Université Lyon 2, 1988), 44–45, 70–71. In the archives of the municipal court of the consuls, which was in charge of guild-related conflicts (Lyon Municipal Archives, HH 214–267), guarantors appear as defendants, and some masters ask for damages in cases of termination, in addition to recompense for feeding an apprentice.

6 Minns and Wallis, "Rules and Reality: Quantifying the Practice of Apprenticeship in Early Modern England," *Economic History Review*, XLV (2012), 556–579; Schalk, "From Orphan to

To address these limitations, this article examines exits from apprenticeship in both small towns and large cities, be they economically stagnant or governed by strong guilds. In addition, we follow some of the salient moments in apprentices' contracts and lives to ascertain the effect of social differences on exits.

We explore apprenticeship in nine guilds encompassing four Western European cities. The small English city of Shrewsbury (c.10,000 population in 1700) was distinguished by strong guilds (even in 1835, the restrictions that they imposed on business in the city remained "a serious detriment" according to Parliamentary commissioners) but slow growth. In 1780, the French city of Lyon, which was large and still growing, with a population of c. 150,000, dominated the silk-weaving industry under the tight regulation of the *Grande fabrique* guild. In 1784, the city's 14,000 looms were double the number in the rest of France. Leiden and Amsterdam in the Netherlands both stagnated economically in the eighteenth century, although Amsterdam's size (c. 200,000 population in 1680 and 1795) and commercial strength was sufficient to keep it economically viable. Leiden, however, declined as a textile center during this period, falling from c. 56,000 to c. 31,000 in population between 1700 and 1795. Both cities possessed guilds. We have information about the completion of more than 7,000 apprenticeship contracts in these cities (Table 1). Ideally, evidence about other

Artisan: Apprenticeship Careers and Contract Enforcement in the Netherlands before and after the Guild Abolition," *Economic History Review* (forthcoming); Beatrice Zucca Micheletto, "Outside the Box: Multiple Patterns of Apprenticeship in Old Regime Turin: Actors, Institutions and Social Relations," paper presented at the workshop "Apprenticeship in Early Modern Europe," Utrecht (2016); Annemarie Steidl, "Silk Weaver and Purse Maker Apprentices in Eighteenth- and Nineteenth-Century Vienna," in De Munck, Kaplan, and Hugo Soly (eds.), *Learning on the Shop Floor: Historical Perspectives on Apprenticeship* (New York, 2007), 133–157; Jean-Pierre Gutton, "L'Insertion Sociale des Enfants Recueillis par la Charité de Lyon au XVIIIe Siècle: Un Bilan Provisoire," in Jean-Pierre Bardet et al. (eds.), *Lorsque l'Enfant Grandit: Entre Dépendance et Autonomie* (Paris, 2003), 929–939; Reinhold Reith and Georg Stöger, "Apprentices and Apprenticeship in German Speaking Areas during the Early Modern Period," paper presented at the workshop "Apprenticeship in Early Modern Europe," Utrecht (2016); Uta Ludwig, *Die Soziale Lage und Soziale Organisation des Kleingewerbes in der Ersten Hälfte des 19. Jahrhunderts* (Göttingen, 1982); Wallis, "Labor, Law, and Training in Early Modern London: Apprenticeship and the City's Institutions," *Journal of British Studies*, LI (2012), 791–819; Ulrich Pfister, "Craft Guilds and Proto-Industrialization in Europe, 16th to 18th Centuries," in Epstein et al. (eds.), *Guilds, Economy and Society* (Seville, 1998), 11–24; Andrea Caracauci, "The Price of an Apprentice: Contracts and Trials in the Woollen Industry in Sixteenth Century Italy," *The Mélanges de l'École française de Rome—Italie et Méditerranée modernes et contemporaines*, CXXVIII (2016), available at http://mefrim.revues.org/2476.

Table 1 Overview of Apprenticeship Samples

CITY	GUILD	PERIOD	APPRENTICES
Shrewsbury	Glovers	1688–1695	28
	Mercer	1688–1695	31
	Smiths	1688–1695	41
	Tailors	1688–1695	59
	Weavers	1688–1695	17
Lyon	Grande fabrique	1680s	1,041
		1740s	2,505
		1760s	1,735
Leiden	Surgeons	1683–1729	394
Amsterdam	Pastry bakers	1748–1776	643
	Pig butchers	1787–1811	517
Total			7,011

SOURCES For Shrewsbury: Shropshire Archives MS6001/126; 6001/4263; 6001/5837; 6001/3360; 6001/4583. For Lyon: Municipal Archives, HH 597; HH601; HH602. For the Netherlands: Stadsarchief Amsterdam, Archief Gilden, inv. 591, inv. 1470; Regionaal Archief Leiden, Archief Gilden, inv. 351.

regions and periods, particularly in Germany, Italy, and Spain, would be instructive. Nonetheless, the case studies herein substantially extend the scope of existing research.[7]

The nature of apprenticeship varied across these cities. In Shrewsbury, terms lasted a minimum of seven years, compared to five years for Lyonnaise silk weavers and the Leiden surgeons, three years for Amsterdam pastry bakers, and two years for Leiden's pig butchers. Limits on the number of apprentices that a master

7 "First Report of the Commissioners Appointed to Inquire into the Municipal Corporations in England and Wales," *London: House of Commons Parliamentary Papers*, CXVI (1835), 2016; Maurice Garden, *Lyon et les Lyonnais au XVIIIe Siècle* (Paris, 1970). For the guild's rules, see Justin Godart, *L'Ouvrier en Soie. Monographie du Tisseur Lyonnais, part 1 (La réglementation du travail)* (Lyon, 1899), 100–133. See also Pierre Cayez, *Métiers Jacquard et Hauts Fourneaux* (Lyon, 1978), 45. Alain Cottereau, "The Fate of Collective Manufactures in the Industrial World: The Silk Industries of Lyons and London, 1800–1850," in Charles Sabel and Jonathan Zeitlin (eds.), *World of Possibilities: Mass Production and Flexibility in Western Industrialization* (New York, 1997), 75–153; George J. Sheridan, Jr., "Craft Technique, Association and Guild History: The Silk Weavers of Nineteenth-Century Lyon," in Ian A. Gadd and Wallis (eds.), *Guilds and Association in Europe, 900–1900* (London, 2006). For Amsterdam and Leiden, see Marco H.D. van Leeuwen and James E. Oeppen, "Reconstructing the Demographic Regime of Amsterdam 1681–1920," *Economic and Social History of the Netherlands*, V (1993), 61–102; G. Peter M. Pot, *Arm Leiden: levensstandaard, bedeling en bedeelden, 1750–1854* (Haarlem, 1994); Piet Lourens and Jan Lucassen, "De Oprichting en Ontwikkeling van Ambachtsgilden in Nederland (13de-19de eeuw)," in Catharina Soly and Hugo Lis (eds.), *Werelden van verschil: Ambachtsgilden in de Lage Landen* (Brussels, 1997), 43–77.

could have differed as well. Lyon allowed only one. Crucially, however, these cities required apprentices to finish the minimum term before they could legitimately work as a journeyman or become a master. Evidence about the persistence of apprentices within their contracts is extremely scarce. Unlike admission as a guild master, completion of an apprenticeship is rarely observable. Due to the institutional diversity of Europe's guilds and cities, the records that survive in different settings are not the same. This article employs three distinct types of source and methodology to observe exits from apprenticeship and follow apprentices over time. One or another of these methods is replicable elsewhere.

Evidence about apprenticeship in Shrewsbury dates from the 1690s, when a tax on births, marriages, and deaths led the city to list the members of 2,170 households, including their servants and lodgers. We matched the householders in the tax register (by forename, surname, and occupation) to the masters of a sample of 336 apprentices registered by five guilds (the Glovers, Mercers, Smiths, Tailors, and Weavers) between 1681 and 1699. We successfully identified 66 percent of masters (124 of 188) in the core period from 1688 to 1695 with a high degree of confidence. We noted those apprentices who lived with their masters, construing co-residence as a proxy for the persistence of apprenticeship. The key justification for this proxy is that co-residence was normal in apprenticeship; board and lodging were key responsibilities for nearly all of the masters. As discussed below, temporary absences sometimes occurred, including assignments with other employers, but many, if not most, absences indicate the end of a contractual relationship, though a few of them indicate apprentices who were deceased.[8]

We analyzed three guild registers in Lyon from the late 1680s to the late 1760s that contain information about exits alongside the

8 Another five masters can be matched but with less confidence (largely due to lack of occupational information); five who are potentially matched to more than one household are thus excluded. A master might not be found in the tax listing for multiple reasons: variant spellings, damage to the sources, out-migration, bankruptcy, or death. We can test the assumption of co-residence by tracking apprentices with parents who resided in Shrewsbury. Of the thirty-three youths identified as still in Shrewsbury, two were living with their parents, and thirty-one (94%) were living with their masters. Wallis, "Apprenticeship and Training in Premodern England," *Journal of Economic History*, LXVIII (2008), 832–861; Minns and Wallis, "Rules and Reality."

registration record of 5,281 apprentices. The Grande fabrique obsessively recorded disruptions to contracts—presumably because they risked allowing masters to exceed their quota of apprentices—by scribbling a cramped note in the margin beside the original registration. Apprentice registration was a rigorous procedure: 69 percent of contracts were registered within one week, and 92 percent within one month. The result, however, was not so much a creation of uniformly strong contracts as a formal compilation of when apprentices and masters abandoned their contracts.[9]

The registers note three types of disruption—cancelations, interruptions, and transfers of apprentices to other masters. The guild's officers and clerks were not entirely consistent in their recording. In the 1680s, the register distinguishes between usually consensual cancellations due to apprentices abandoning the trade ("*désistement*") and more formal ones in which a bailiff summoned apprentices who had been absent for at least a month to appear before the consuls in the municipal court. Later records omit the details distinguishing these absences. Records of interruptions and resumptions in contracts, however, are available from the 1740s, revealing the share of apprentices whose contracts were formally canceled. The language that the clerks used to signal such cancelations was telling; they scratched them out ("*rayé par ordre*"). This regimen was essential for masters who wanted to take a new apprentice.[10]

The guild records that we consulted from Leiden and Amsterdam show, to one extent or another, whether an apprentice finished his required minimum term—they are notes that guild officials kept about those apprentices who had received the *leerbrief* ("letter of learning") certification. New journeymen were often required to show *leerbrieven* when assuming a new position, especially in a new city. These notes regarding the leerbrieven are the most direct measure of completion that we possess, giving a positive record of fulfilled apprenticeship rather than a negative record of exits or absences. Unfortunately, however, they are rarely available. In most cases, apprentices' masters wrote private letters about completion (many apprenticeship contracts were also private). Only a tiny minority

9 In theory, masters who did not register a contract within a week would incur a fine. See Godart, *L'Ouvrier en Soie*, 107.

10 *Ibid*., 111–113. Consuls were members of the municipal council. They also acted as judges in guild-related conflicts. Silk merchants held many consular positions.

Table 2 Apprenticeship Cancelations

LOCATION	GUILD	PERIOD	EXITS (%)	N
Shrewsbury	Combined	c.1690	46.2	126
Lyon	Silk Weavers	c.1680	24.3	955
		c.1740	17.5	2,123
		c.1760	13.9	1,526
		Total	17.7	4,604
Leiden	Surgeons	1683–1729	40	394
Amsterdam	Pastry bakers	1748–1776	50	643
	Pig butchers	1787–1811	34–68	517
		Total	42–53	1,554

NOTES For Shrewsbury, we report the share of apprentices present in the final year of their term, but we are unable to discriminate between transfer and cancelation. For Lyon, we report the share of apprentices whose contracts ended by cancelation (the sample is restricted to the registration of new apprentices). For the Netherlands, we report the share of apprentices who did not receive a leerbrief. The pig butchers' guild includes 173 apprentices with no recorded outcome; we report the range between a minimum (apprentices with known outcomes) and maximum (under the assumption that apprentices with no outcome did not receive their leerbrief).

of guilds listed them. Leerbrief registration was found for the Amsterdam pig butchers' guild, the Amsterdam pastry bakers' guild, and the Leiden surgeons' guild. The fees that guilds charged for the leerbrief were not sufficiently large sums to discourage apprentices from obtaining such an important certificate.[11]

TERMINATING CONTRACTS: CANCELATIONS AND TRANSFERS Our sources do not provide identical information about apprentices' exits, but all of them allow us to estimate the varying shares of apprentices who did not complete their terms (Table 2). In Shrewsbury, around 40 percent of apprentices disappeared from their masters' household before the end of the seventh and final year of their contracts. In Lyon, 18 percent of contracts were canceled. Another 1.2 percent of apprentices died. Cancelation was the most common form of termination during the 1680s; 24 percent of apprenticeships ended that way. For this period, the register reveals that, in most cases, apprentices simply quit; 18 percent of apprenticeships were denoted as "désistement." In all three of the Dutch guilds, at least one in

11 Isabella H. van Eeghen, *De Gilden: Theorie en Praktijk* (Bussum, 1965), 20. For surgeons' fees, see Regionaal Archief Leiden, Archief Gilden, inv. 311.

three apprentices left early. Interestingly, in these guilds, which were set within a stagnating economy, early exits became more frequent as the eighteenth century progressed. The opposite trend is evident in Lyon, where exits declined as the industrial center grew.

Permanent exits were not the only reason for apprentices to leave their masters, as witnessed particularly in Lyon, where the guild registers are, to our knowledge, unique in their systematic recording of *temporary* pauses in apprenticeship. These registers indicate that 10 to 15 percent of apprentices interrupted their contracts (Table 3). Around one-third of them in the 1740s and one-quarter of them in the 1760s later restarted them, and another third eventually canceled their contracts (a small number of them had also restarted). The guild records, despite the efforts of officials to be comprehensive, do not reveal what happened to the remaining apprentices who interrupted. They might have restarted without informing the guild or decided to stay away.

Another way in which apprentices left their master was through the transfer of a contract to another master. In Lyon during the 1680s, the initial registration of 27 percent of new apprentices were noted as transfers. By the 1740s and 1760s, the system had begun to enter transfers separately, supplying 12 to 15 percent of entries in the register. This shift coincided with a tightening of regulation: In the 1680s, the transfer of a contract to a new master often forced the master and apprentice involved to register the original contract with the court retrospectively. This procedure

Table 3 Interruptions of Contracts in Lyon

	I	II	III	IV	V	
PERIOD	INTERRUPT	THEN RESTART	THEN CANCEL	CANCEL AFTER RESTART	UNKNOWN	TOTAL
	(%)	(%)	(%)	(%)	(%)	N
1740s	11.4	3.8	3.9	0.5	4.2	2,136
1760s	15.9	3.6	7.49	0.3	5.11	1,533
All	13.2	3.8	5.4	0.4	4.4	
Total	489	138	199	16	168	3,669

NOTES The table reports the percentage of apprentices registered as interrupting their contract, restarting after an interruption, and canceling their contract after interrupting. Column IV reports the share canceling after restarting; these individuals are also counted in column III (Cancel). Column 5 reports the share unknown, that is, V=I−II−(III−IV). The sample is restricted to the registration of new apprentices.

indicates that not every contract was properly registered when drawn up, thus making it difficult to estimate the actual share of transfers. The 1740s and 1760s, however, suggest 15 percent as the minimum estimate for transfers. Transfers were also common in the Netherlands and England. The Dutch transfer rate was 11 percent; Shrewsbury's was 9 percent. Oddly, moving did not affect the likelihood of completion. About 39 percent of those who transferred exited early, whereas 42 percent of those who did not transfer exited early. Comparable rates occurred among apprentices from Leiden and Utrecht in the eighteenth century, London and Bristol in the 1690s, and Vienna in the nineteenth century.[12]

Although the number of cancelations and transfers differs between each of these cities and guilds, early exits from apprenticeship were commonplace in all cases. One-third to one-half of apprentices left their original masters prematurely. Our cases show a range between Lyon, where at least 34 percent of masters lost their apprentice by either cancelation (18 percent), death (1 percent), or transfer (15 percent), and the Netherlands, where 53 to 64 percent departed for the same reasons (42 to 53 percent by exit or death and 11 percent by transfer). Shrewsbury's 46 percent leaving falls in the middle. The share of apprentices who completed (some of them with a different master) spanned from 46 percent to 80 percent: Shrewsbury and the Netherlands were at the low end and Lyon at the high end.

In principle, the differences in apprenticeship exits between the cities could be an artifact of our methods. Our estimate of persistence in Lyon could be too high if the guild's oversight was incomplete, and our estimate of persistence in England and the Netherlands too low if absent Shrewsbury apprentices were still under contract or the recording of the leerbrief was patchy. Alternatively, Lyon's strong guild and thriving silk industry may have motivated youths to stay, as they tend to do in growing trades today. Conversely, the weak Dutch guilds and poor prospects offered less of an incentive to remain in place. Nonetheless, even though the institutional and economic settings of apprenticeship markedly differed between the three cases, apprentices and masters had

12 In Shrewsbury, our finding that 29 of 317 transferred is likely an underestimate due to censoring at the end of term. For data on other cities, see Minns and Wallis, "Rules and Reality"; Schalk, "From Orphan to Artisan"; Annemarie Steidl, "Between Home and Workshop: Regional and Social Mobility of Apprentices in 18th and 19th Centuries Vienna," *Mélanges de l'École française de Rome—Italie et Méditerranée modernes et contemporaines*, CXXVIII (2016), available at https://mefrim.revues.org/2491.

much more flexibility to adjust agreements than the regulations or contracts suggest on the surface. The case of Lyon is particularly interesting in this respect, because its share of exits, which was by no means hidden, led the guild to make transfers *easier* during the eighteenth century.

What caused so many apprentices to exit, whether to change city or trade, abandon training, or find a new master? The sources that we use herein do not provide an answer to this question. Other records, such as court petitions, memoirs, and the memoranda kept by orphanage overseers, however, are more forthcoming regarding reasons for exit, often crafted to convince a specific audience. In Lyon, for example, testimony before the consuls took into account the fact that masters or apprentices were subject to fines for any exit deemed to be illegitimate, just as those pleading in London's Lord Mayors court tailored their accusations to mimic the standard clauses of apprenticeship contracts.[13]

Despite any problems of interpretation, many of the terminations were clearly the consequences of the "delicate intertemporal exchange" involved in (necessarily incomplete) apprenticeship contracts. Apprentices agreed to work for an extended period in exchange for board and training with little certainty about the quality of instruction or treatment at the outset. Sometimes apprentices discovered too late that their masters were violent, miserly, or insufficiently skillful; sometimes they were incapable of learning their trade, found it too harsh, or rejected the service and submission expected of them; and sometimes they discovered or inherited better opportunities elsewhere. Apprentices even ran away to sea.[14]

Masters wrestled with similar problems: They expelled apprentices who stole, lied, disrupted workshops, assaulted mistresses, or wasted time in taverns. If they lacked sufficient work, they often

13 Steven R. Smith, "The London Apprentices as Seventeenth-Century Adolescents," *Past & Present*, 61 (1973), 149–161; Jane Humphries, *Childhood and Child Labour in the British Industrial Revolution* (New York, 2010); Levene, "Honesty, Sobriety, and Diligence"; Schalk, "From Orphan to Artisan"; Wallis, "Labor, Law, and Training."

14 The phrase "delicate intertemporal exchange" is from Kaplan and Gilles Postel-Vinay, "L'Apprentissage: un Destin?" *Le Gnomon*, CXXVI (2000), 23–24. For details about the apprentices' complaints from police or judicial sources, see, for example, Kaplan, "L'Apprentissage au XVIIIe Siècle: le Cas de Paris," *Revue d"Histoire Moderne et Contemporaine*, XL (1993), 436–479; Peter Rushton, "The Matter in Variance," 89–107; Reith and Stöger, "Apprentices and Apprenticeship"; Gutton, "L'Insertion Sociale"; Griffiths, *Youth*; Godart, *L'Ouvrier en Soie*, 111–116; Margaret Pelling, "Apprenticeship, Health and Social Cohesion in Early Modern London," *History Workshop Journal*, XXXVII (1994), 33–56.

went bankrupt or traveled. Suzanne Charezieu's son successfully petitioned Lyon's consuls to allow her son to transfer because his master's workshop had been destroyed. Arguably, mismatches between parties were more likely for apprentices who came from a place or social group that differed from their masters'. The social differentiation of exits thus allows an indirect glimpse into the reasons behind contract terminations—at least those decided by apprentices. But the strong similarities between the causes listed in early modern sources and those found in studies of present-day breakdowns of apprenticeship underline the inevitability of these problems—underpinned by information asymmetry, bounded foresight, and unanticipated misfortune—in training contracts of long duration.[15]

EXITS BY INSIDERS AND OUTSIDERS Apprentices' willingness to exit probably varied because of their respective resources, as it does today. Apprenticeship supplied some of the necessities for economic survival, but young adults also took advantage of family wealth and local connections, which presumably affected the costs (and benefits) of departure. For instance, exiting might have been difficult for youths with strong family ties in the city. Why leave your master if you thereby become disqualified to take over a family business? Moreover, flexibility in the enforcement of contracts did not imply a total absence of social and institutional pressures to honor them. As implied above, apprentices already familiar with a master's trade and city were less likely to make bad matches and quit. In other words, rates of departure should be lower among such youths (needless to say, other complementary explanations for staying and leaving—based on, say, age, wealth, or economic shocks—are also possible).[16]

This logic played out in Shrewsbury and the Netherlands. In Shrewsbury, strong local ties are associated with persistence. Boys

15 Charezieu's case is from the Lyon Municipal Archives, HH 241, February 7, 1749. For contemporary firms, see, for example, Peter Cappelli, "Youth Apprenticeship in Britain: Lessons for the United States," *Industrial Relations*, XXXV (1996), 1–31; Bednarz, "Understanding the Non-Completion of Apprentices"; Jens Mohrenweiser and Uschi Backes-Gellner, "Apprenticeship Training: For Investment or Substitution?" *International Journal of Manpower*, XXXI (2010), 545–562.

16 For the importance today of reputation in obtaining later jobs, and the interest of employers in using training to identify productive employees, see Smits and Stromback, *Economics of the Apprenticeship System*; Herman G. van de Werfhorst, "Skills, Positional Good or Social Closure? The Role of Education Across Structural – Institutional Labour Market Settings," *Journal of Education and Work*, XXIV (2011), 521–548.

bound to their father stayed far more often than those bound to a stranger (83 percent vs. 53 percent, p=0.008). Apprentices whose fathers were freemen of the Shrewsbury guild that they entered (a group that overlaps substantially with boys bound to their fathers) were much more likely to remain engaged than those who were not (76 percent vs. 54 percent, p=0.063). Those whose fathers were burgesses of the city were also more likely to stay than were the rest, although the difference is not significant at standard levels (67 percent vs. 53 percent, p=0.219). Note that the strength of the tie weakens with each step away from the guild. Family ties, not geographical ties, to the institution were more dominant. In fact, boys from outside Shrewsbury were more likely to remain with their master than were local boys who did not have a freeman father (73 percent vs. 50 percent, p=0.064).[17]

The effect of local origin and family connection is also observable in two of the Dutch samples. Among Amsterdam butchers' apprentices, local youths were much more likely to earn their leerbrief than were foreigners (61 percent vs. 45 percent, p=0.006). However, family ties (indicated by a shared surname) were even more important: Foreign apprentices were far more apt to complete their terms if their masters were similarly named (75 percent vs. 36 percent, p=0.000); so were Dutch apprentices (93 percent vs. 47 percent, p=0.000). Among surgeons' apprentices in Leiden, the completion rate for immigrants was 44 percent, for local noncitizens' sons 60 percent, and for masters' sons 82 percent (p=0.000). In both guilds, family ties were the strongest predictor of completion; local connections added reinforcement.[18]

For Lyon, place of origin is the only characteristic available to identify differences between apprentices, but only in the eighteenth century; master's sons could avoid the obligation to serve an apprenticeship (in practice, they often served an informal apprenticeship, as *affermés*). A comparison between the fortunes of apprentices from Lyon and those of apprentices further afield finds no meaningful difference.

17 For simplicity, this article generally reports the results of Pearson's chi-squared tests for independence. The statistics for Shrewsbury herein are based on the 150 apprentices in the sample who were bound from 1688 to 1695 inclusively, whose masters were linked to a householder, and who are clearly found in or missing from that household. For apprentices who transferred before 1695, we examine their new masters' households.

18 Of the 440 Amsterdam butcher apprentices, 287 were of foreign descent. Guild fees allow us to distinguish sons of masters, sons of Leiden citizens, and others.

Migrants were marginally more likely to cancel their contracts than locals (15.3 percent vs. 11.8 percent, p=0.063) in the 1760s, and even less substantially (19.0 percent vs. 17.2 percent, p=0.103) in the 1740s.[19]

Apart from Lyon, relative insiders appear to have had less of an inclination to leave their contracts, probably reflecting their access to better information or their stronger incentives (preventing damage to reputation, loss of family assets, etc.). Such factors likely worked in parallel. Signs of the same rationale are evident in some contemporary accounts by artisans, and in patterns of return migration by apprentices. These conditions could also explain why exits in Lyon were less differentiated by geographical origin, since the concentration of silk weaving in Lyon meant that apprentices who quit would find few opportunities elsewhere.[20]

THE TIMING OF EXITS The nature of apprentices' movements becomes clearer by taking into account when they left their masters. Today, most contract terminations (both transfers and quits) happen during the first year, because the effects of poor working conditions, personal conflicts, or a lack of interest in an occupation can happen quickly. Terminations are more common for youths with unfavorable prospects, lowly positions, and insufficient information—like immigrants or the poor. In the nineteenth century, however, many commentators believed that apprentices tended to exit late in the term—just at the point when a master stood to gain the most from them—because they preferred to work as journeymen for other masters. In short, the timing of departure implies different types of causation and different patterns of agency. Although both masters and apprentices could be responsible for early departures, apprentices were more likely to be the instigators of a late exit. In addition to these "intentional" exits, apprenticeships also ended due to death, illness, or a firm's economic failure.[21]

19 Because apprentices' places of origin were rarely recorded with their transfers during the 1740s and 1760s, we cannot examine the relationship between transfers and local origins.

20 Wallis, "Apprenticeship and Training"; Ilana K. Ben-Amos, "Failure to Become Freemen: Urban Apprentices in Early Modern England," *Social History*, XVI (1991), 155–172"; Marc Klemp et al., "Picking Winners? The Effect of Birth Order and Migration on Parental Human Capital Investments in Pre-Modern England," *European Review of Economic History*, XVII (2013), 210–232.

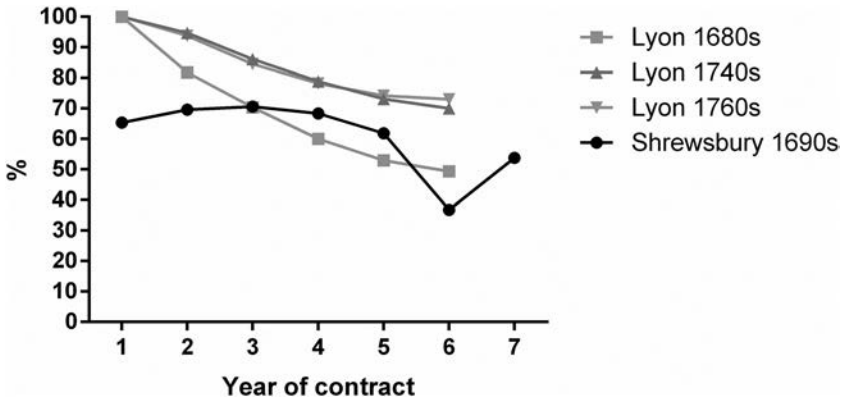
21 Bessey and Backers-Gellner, "Premature Apprenticeship Terminations"; Bednaez, "Understanding the Non-Completion." For a presentation and qualification of the "two-stage model" of apprenticeship, leading to the prediction that apprentices would leave during the last years of the contract, see Wallis, "Apprenticeship and Training."

The records for Lyon and Shrewsbury, but not for the Netherlands, allow us to compute the timing of apprentices' exits. In Shrewsbury's case, we compiled the share of apprentices still present in their master's household by year of contract, and in Lyon's, we counted the months between the cancelation date and the date of the apprenticeship contract. Lyon's method is more precise, since absence does not necessarily imply contract termination, as discussed earlier. Figure 1 groups the presence (Shrewsbury) and cancelation or transfers of contracts during apprentices' terms (Lyon) to indicate when apprentices may have exited from their contracts. In both cases, the cohorts are synthetic, not reports of sequential observations for individuals.

Most of the cancelations in Lyon during the 1740s occurred within the three first years of a contract and within the two first years during the 1760s, but exits continued throughout the term. Neither the start nor the end of contracts shows any clear clustering of departures. This finding implies a mix of motivations among apprentices and masters, from resolving a poor initial match to quitting after having learned enough.

For Shrewsbury, the shape of the line in Figure 1 is similar to that observed in studies of London and Bristol: The evidence shows

Fig. 1 The Share of Apprentices Remaining with Their First Master, Lyon and Shrewsbury



NOTES For Lyon, the figure shows the share of a synthetic cohort of apprentices undergoing transfers and cancelations in each period who remained present. No attempt is made to account for the effect of interruptions. For Shrewsbury, the share present in year *t* represents a cluster of apprentices observed in 1695 at *t* years after starting their contract. Each year thus represents a different group of individual apprentices.

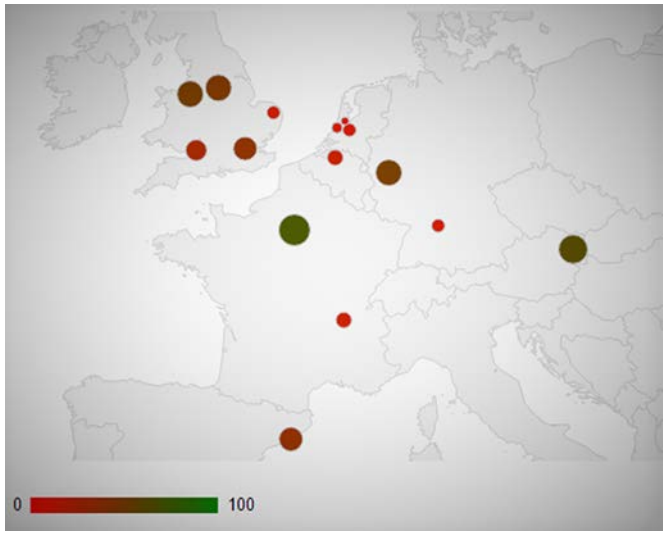
considerable rates of absence among apprentices, and the share of those who remained declines over time. The initial rise in the share of apprentices who were still present complicates interpretation. The peak (71 percent) in the third year of contracts probably reflects apprentices delaying the actual start of their contracts to shorten the long seven-year term. The proportion of apprentices who remained then declines to only 37 percent in the sixth year. The surprising recovery to 54 percent in the final year is not unlike what transpired elsewhere in England, likely reflecting apprentices returning to Shrewsbury in order to show publically that they were finishing their training and pursuing a career there. The drop from peak to trough is large—almost 50 percent. If we take the last year as equivalent to the exit rate excluding temporary absentees, the drop would be around one-quarter. The true figure, however, is likely to fall between these estimates; the snapshot nature of the tax data does not allow us to observe the true "peak" of presence. The slower speed of decline in Shrewsbury than in London and Bristol implies greater persistence. The institutional forces that imposed lengthy fixed terms and rewarded "completion" make it difficult to infer causation from timing with any exactitude in Shrewsbury, but the substantial trough in the second half of the term surely suggests a substantial share of exits by youths who had achieved some skill.[22]

Our results for both locations point to a mix of reasons behind apprentices' decision to leave (or their masters' decision to fire them). Exits were not—so far as we can tell—heavily clustered at the start or end of training.

FROM APPRENTICE TO MASTER Historians have long recognized that the pathway from binding as an apprentice to taking the oath of a master was only one of many possible outcomes for youths entering urban labor markets. The clearest evidence is the substantial gap that usually existed between the number of new apprentices and the number of new masters in each guild (Figure 2). The similarities across Europe are striking. Low ratios of apprentices to masters are commonplace. Even in the craft of surgeons, which had relatively high apprenticeship fees, no more than 15 percent of Dutch apprentices eventually became masters. Of all the guilds in the cities for which figures are available, only the Paris masons'

22 Minns and Wallis, "Rules and Reality."

Fig. 2 Share of Apprentices Becoming Masters in Their Guild of Training



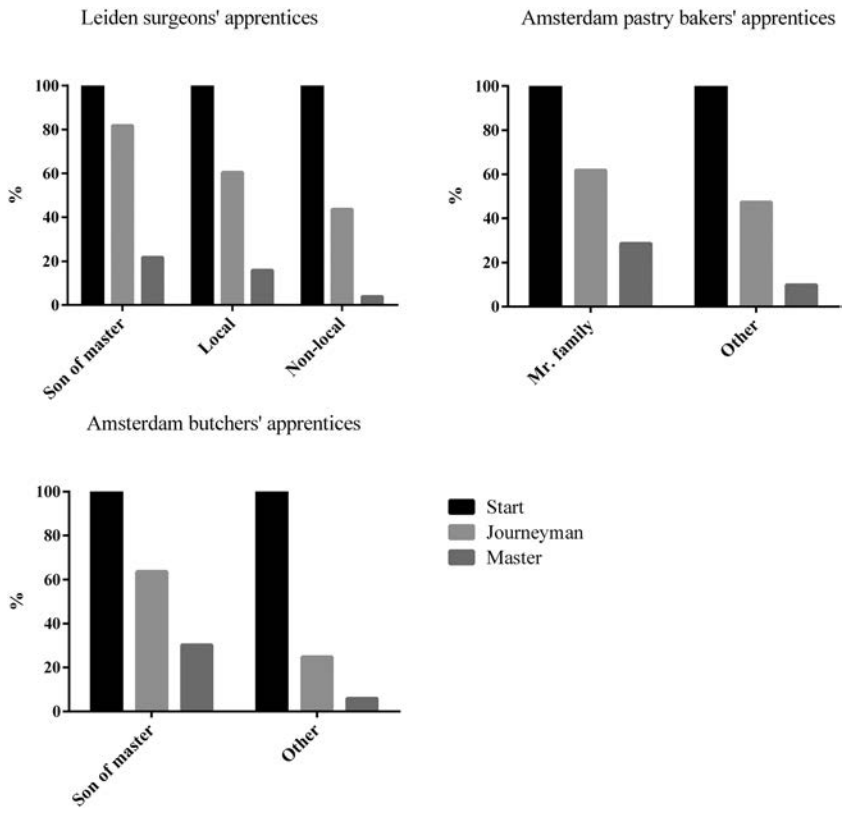
NOTES In cities where figures were available for more than one guild, we have given the average share. The figure for Vienna refers to apprentices completing their contracts.
SOURCES See Appendix.

guild saw more than half of the apprentices became masters. The vast majority of apprentices were never likely to become masters—at least locally.[23]

Guild structures defined three possible local outcomes for apprentices—(1) exiting during apprenticeship, (2) qualifying as journeymen but not acquiring master status in the local guild (remaining as a waged worker or migrating elsewhere), and (3) becoming a master in the local guild. As noted, a considerable number of youths experienced the first outcome. What was the distribution across the other two outcomes? For the three Dutch guilds, lists of masters can be linked to apprentices to examine how dominant each

23 For the choice to remain a journeyman, see James R. Farr, *Artisans in Europe, 1300–1914* (New York, 2000), 37; for studies on journeymen in Antwerp, De Munck, *Technologies of Learning*, 131–135; in Utrecht, Nico Slokker, *Ruggengraat van de Stedelijke Samenleving: De Rol van de Gilden in de Stad Utrecht, 1528–1818* (Utrecht, 2009), 35–39; in Vienna, Josef Ehmer, "Worlds of Mobility: Migration Patterns of Viennese Artisans in the Eighteenth Century," in Geoffrey Crossick (ed.), *The Artisan and the European Town* (Aldershot, 1997), 175–176; in France, Michael Sonenscher, *Work and Wages: Natural Law, Politics, and the Eighteenth-Century French Trades* (New York, 1989), 140–145.

Fig. 3 Careers of Dutch Apprentices within Their Guild of Training



NOTES Journeyman status is equated with apprentices obtaining their leerbrief.

of the first three routes might have been. Figure 3 shows the share of apprentices receiving a leerbrief alongside the share becoming masters for each group of Dutch apprentices. Many apprentices who qualified as journeymen remained as such throughout their career. Between 22 and 43 percent of apprentices qualified as journeymen but never became masters in their local guild.[24]

Local connections sharply improved the chances that a youth would become a master in the Netherlands. In the butchers' and

24 Masters were manually linked to apprenticeship registers. Mismatching is unlikely because all of the guild lists give full names of masters and apprentices, the starting year of the apprenticeship, and sometimes the date of becoming a master. Apprentices without a leerbrief rarely appeared

pastry bakers' guilds, roughly one-half of those apprentices who possessed ties to local masters and who became journeymen later became masters themselves, compared to only one-quarter of those apprentices without local ties who became journeymen. The contrast was even starker among Leiden surgeons' apprentices: 27 percent of apprentices with local ties who became journeymen later became masters, but only 9 percent of journeymen without such ties made the final step (p=0.001) (journeymen surgeons with ties appear to have attained a lower rate of mastership because a relatively large share of masters' sons obtained their leerbrief without an intervening stage). Given that possessing ties affected the chance of completing an apprenticeship, the cumulative effect that connections had on the chance of corporate success for these youths was dramatic. Just 4 to 10 percent of nonlocal youths who started apprenticeships in these three guilds later became masters, compared to 20 to 30 percent of youths with kin ties.

There were several ways to obtain mastership in Lyon. The main routes were apprenticeship (36 percent), being a master's son (38 percent), and marriage to a master's daughter or widow (36 percent); some people qualified under more than one heading. Another 3 percent (mostly foreigners) entered after working as journeymen without ever serving as apprentices in Lyon. Few of the apprentices with canceled contracts later emerged as masters (of the 138 apprentices who became masters, just 5 had canceled contracts). The time that it took for youths to become masters varied widely; our calendar of mastership entries does not cover a long enough period to capture all of the apprentices in our sample.

Nonetheless, we can estimate the share of apprentices in Lyon who became masters. Between 1769 and 1773 inclusively, 281 of 777 new masters qualified by virtue of apprenticeship and another 116 former apprentices qualified for other reasons—an average of 79 per year. Between 1763 and 1765, the latest years in which the apprentices who became masters had started training, 1,126 new apprenticeships were registered—an average of 375 per year. If these rates are broadly representative, around 21 percent (79/375) of youths who

as masters—three of them (all transfers) in Leiden and none in the Amsterdam butchers. Ten apprentices without a known leerbrief appear as masters in the Amsterdam pastry bakers' guild; the other 77 apprentices who became masters had one. Since five of those without leerbrief were related to masters, their leerbrieven might have gone unrecorded. In that case, the results would be biased only downward, since we already find a higher propensity to complete among apprentices related to masters.

started as apprentices later became masters. Given that at least 18 percent of apprentices canceled their contracts, as many as 61 percent of those who started apprenticeships in silk weaving spent their lives as journeymen, in Lyon or elsewhere, and a minimum of 26 percent (21/(18+61)) of those who qualified as journeymen became masters.

Did connections matter for mastership in Lyon as they did in the Netherlands? We cannot directly calculate the odds of mastership for the sons of masters in Lyon, but they must have been much higher than those for migrant apprentices. If the odds were the same, 26 percent of masters' sons would have become masters. Yet, given that sons in fact supplied 38 percent of new masters, the fertility among masters would need to have been enormously high to make it possible. If, for the sake of simplicity, we assume the flow of masters to have been stable, every master would have produced 1.5 adult male children (38 × (100/26)). Since the number of masters was growing, however, the fertility rate would have been even higher. At any rate, although our estimates for Lyon are rougher than they are for the Netherlands, the results are similar: A minority of journeymen achieved mastership, which was much more likely to be attained by those with strong local connections.

The long-term outcomes of apprentices are also difficult to estimate for Shrewsbury, thanks to patchy guild records and the unusual English practice of requiring both masters and journeymen to become guild freemen, no formal distinction existing between them within the guild. Overall, 34 percent of apprentices later became freemen in the three guilds for which we can link apprentices to mastership entries; the rates varied between 24 percent in the weavers' and 45 percent in the tailors' guild. In light of our earlier estimate that around 54 percent of apprentices finished their contracts, about 18 percent of Shrewsbury's apprentices either remained as journeymen in the city without becoming freemen (although technically against guild rules, this status was not uncommon even among those individuals who were later to become freemen) or migrated elsewhere in proportions not unlike those in the Dutch guilds, though much lower than those in Lyon.[25]

25 Freedom rates are calculated for a sample of 211 apprentices in three guilds (tailors, mercers, and weavers) for which consistent records of freedom (mastership) entries survive for c. 1680 to 1700. See Shropshire Archives, MS 6001/5837, 4262, 3360. Two-thirds became freemen within two years of the end of their contract, but entries occurred as many as eighteen years after the end of servitude.

The bias toward insiders that affected persistence within apprenticeship in Shrewsbury is also evident within mastership. Youths who trained with their fathers were more likely to become masters in the mercers' and weavers' guilds than were others (63 percent vs. 42 percent in the mercers (p=0.057); 67 percent vs. 29 percent in the weavers). Youths from Shrewsbury were also more likely to become masters (39 percent vs. 31 percent). These results, however, are tentative; only the results regarding sons and fathers meet standard levels of statistical significance. Moreover, among tailors' apprentices, fewer kin became masters. Among those apprentices in the final four years of their contracts at the point in 1695 when we can observe presence or absence (by taking the last four years, we avoid those apprentices who have not yet arrived), the ones who remained with their master had a decent chance of becoming freemen. Even though mastership remained a minority outcome, the odds were far better for those living with their master than they were for youths who were missing (44 percent vs. 7 percent, p=0.095).

Shrewsbury offers us another useful, if crude, indicator of success—the share of apprentices who later became burgesses (citizens) in the city. The burgesses were a small, wealthy group who formed an urban elite; their rights were primarily political rather than economic. Apprenticeship was *not* a criterion for becoming a burgess (as it was for guild membership). Only 16 percent of apprentices became burgesses. Among this group, those apprentices living with their masters were more than twice as likely to become burgesses than were those who were absent (21 percent vs. 9 percent, p=0.091). Absence seriously reduced the chance of success regarding this particular (local) measure. Note that apprenticeship contracts do not fall into a simple division between successful (present) and failed (absent) apprentices. Absence could also be the result of apprentices finding a better match, pursuing an alternative career in Shrewsbury, working elsewhere, or delaying their work with a master.[26]

Mastership was the exception, not the rule, for youths who began an apprenticeship *as well as* for those who finished one successfully. But it was a status that those with strong ties to the guild, particularly the sons of existing masters, were more likely to attain.

26 Guild membership was also more extensive than citizenship. Only 40% (19 of 47) of Shrewsbury guild members placing sons as apprentices were burgesses. We exclude apprentices made burgesses while still children under their father's name from the calculation in this paragraph.

Insiders experienced a smoother passage both as apprentices and journeymen—much as they do today. The possible reasons are twofold: Guilds might actively hinder the entry of journeymen who were not insiders, and sons might be at an advantage because they possessed prior knowledge and better local resources. Certain guilds undeniably fixed the rules to create advantages. Masters' sons in Lyon did not have to serve an apprenticeship; nor did some masters' sons in Shrewsbury. Masters' sons in the Netherlands paid lower registration fees.

After the start of apprenticeship, however, outsiders do not appear to have been treated differently from insiders or systematically discouraged. In the Shrewsbury guilds and most of the Dutch guilds, outsiders paid the same mastership fee as members' sons. No surviving report indicates that Shrewsbury or the Dutch guilds rejected any apprentice who applied for membership. Although such official silences might conceivably mask all kinds of exclusionary activities, these guilds had little to gain from conspiring against qualified outsiders, and much to lose if any surreptitious moves to exclude qualified entrants led to a legal challenge. The better prospects that insiders enjoyed at the initial stage of drawing up an apprenticeship contract and at the final one of achieving mastership appears to have been the extent of the bias in their favor.

Premodern cities set out a normative institutional framework for work that appears on the surface to define a highly segmented labor market. Commentators have often taken these norms as reflecting quotidian realities. Yet, as this study, along with other recent studies, shows, the practice of apprenticeship in Europe was by no means rigid. Youths and journeymen came and went, from place to place, from master to master, and probably from occupation to occupation. Exit rates among apprentices were substantial, greater for outsiders than for insiders. Those apprentices who qualified as journeymen had only a slim chance to become masters, conditioned by the same factor, local connections, that affected apprentices' persistence. The evidence suggests that the distribution of "success" in apprenticeship and mastership reflects differences in opportunities, resources, and risks. Leaving an apprenticeship was not without cost, but the penalties—damage to reputation, uncertainty, and the risk of a lawsuit—were more likely to be outweighed by the benefits for youths who lacked close ties to the city and the craft that they were abandoning. Balancing this optimistic interpretation, masters

apparently felt a greater freedom to eject the children of outsiders than those with local ties. Both apprentices and masters were responsible for the attrition of contracts that we observe in the cities studied herein.[27]

Instability was an integral part of early modern apprenticeship and skilled labor markets. In the context of the high departure rates observed in these cities, many new apprentices must have been well aware that they were unlikely to attain the status of journeymen, let alone masters. Masters must also have been aware of the strong possibility that their apprentices would not finish their contracts for one reason or another. None of the guilds attempted to enforce the completion of apprenticeship contracts, whether to uphold the training regime or to support exploitive masters. Instead, they co-existed comfortably with this situation. The most bureaucratic guilds, such as those of Lyon and London, even established systems to process exits. Although mastership has few exact modern parallels, the chances of finishing an apprenticeship, and the inequalities in opportunity between insiders and outsiders, during the early modern era strongly echo many studies of apprenticeship in the early twenty-first century.[28]

We can understand the flexibility in early modern apprenticeship—exits initiated by both masters and apprentices—by looking at the two aspects of another modern commonplace—the substantial dropout rates in today's universities. Dropping out can signal either institutional deficiencies or a student's decision to pursue other courses or careers. As in apprenticeship, not all such exits are failures. Nor are they distributed randomly across social groups. Restricting dropouts could lead to poorer outcomes for some individuals. In particular, penalties for exit could deter potential entrants or lock individuals

27 Schalk, "From Orphan to Artisan"; Minns and Wallis, "Rules and Reality." Despite their slim chances to become masters, outsiders had good reasons to seek apprenticeship—among them, to determine their odds of success and their level of talent through training (not unlike a modern "tournament"-style labor market); to qualify at least for apprenticeship, which paid better than unskilled labor; and to obtain food and lodging in a big city (or a town larger than their village of origin) for a few years, possibly enabling prospects for migration elsewhere later.

28 Epstein, "Craft Guilds"; Ogilvie, "Guilds, Efficiency"; Karel Davids, "Apprenticeship and Guild Control in The Netherlands, c.1450–1800," in De Munck, Kaplan, and Soly (eds.), *Learning on the Shop Floor*, 65–84; Bernard Elbaum and Nirvikar Singh, "The Economic Rationale of Apprenticeship Training: Some Lessons from British and U.S. Experience," *Industrial Relations*, XXXIV (1995), 593–622; Wallis, "Labor, Law, and Training"; Kaplan, "L'Apprentissage à Paris," 444; Sonenscher, *Work and Wages*, 130–173.

into bad choices. A similar logic holds for premodern cities, especially where guilds had to attract migrant labor from outside their communities if they were to sustain their workforces.[29]

Indeed, the strength of apprenticeship as an institution that survived throughout the centuries derived not from the rigidity of the guild system but from its flexibility in allowing youths to use it in diverse ways. We cannot measure these costs and benefits in the past directly, but the long survival of these local regimes and the connection drawn in recent work between flexible training systems and economic growth in the past suggest that the wider moral to be drawn is that, for apprenticeship, "failure" had its own value.[30]

29 See, for example, Stephen L. DesJardins et al., "The Effects of Interrupted Enrollment on Graduation from College: Racial, Income, and Ability Differences," *Economics of Education Review*, XXV (2006), 575–590. For attracting or discouraging skilled workers, see Johan Dambruyne, *Corporatieve Middengroepen: Aspiraties, Relaties en Transformaties in de 16de-eeuwse Gentse Ambachtswereld* (Ghent, 2002); B. Panhuysen, *Maatwerk: Kleermakers, Naaisters, Oudkleerkopers en de Gilden (1500–1800)* (Amsterdam, 2000).

30 For work prospects outside of the guilds, see, for example, Kaplan, *La Fin des Corporations*; De Munck, "One Counter and your Own Account: Redefining Illicit Labour in Early Modern Antwerp," *Urban History*, XXXVII (2010), 26–44; for the fact that economic actors, contrary to the dominant Weberian position, do not always favor inflexible contracts with predictable outcomes, Lisa Bernstein, "Merchant Law in a Merchant Court: Rethinking the Code's Search for Immanent Business Norms," *University of Pennsylvania Law Review*, CXLIV (1996), 1765–1822; for flexible training and economic growth, Morgan Kelly and Cormac Ó Gráda, "Ready for Revolution? The English Economy before 1800," UCD Centre for Economic Research Working Paper Series WP14/18 (2014), available at http://hdl.handle.net/10197/6131. Schmid and Stalder, "Dropping Out," offer a parallel argument for Switzerland today.

APPENDIX: SHARE OF APPRENTICES BECOMING MASTERS WITHIN THEIR GUILD OF TRAINING

CITY	GUILD	PERCENT	PERIOD
Amsterdam	Pig butchers	11	1787–1811
Antwerp	Cabinet makers	11	1691–1760
Antwerp	Carpenters	14	1701–1790
Antwerp	Shoemakers	17	1766–1793
Antwerp	Gold- and silversmiths	21	1577–1763
Antwerp	Tinsmiths and plumbers	30	1711–1790
Antwerp	Tanners	33	1678–1785
Barcelona	Book sellers	28	1760–1788
Barcelona	Silk weavers	50	1782–1834
Bristol	All	32	1560–1680
Chester	Leather crafts	50	1558–1625
Leiden	Surgeons	15	1683–1729
London	Masons, carpenters, stationers, cordwainers, drapers	41	1633–1660
Lyon	Silk weavers	21	1769–1771
Madrid	Passementiers, carpenters, tailors	11	1720–1780
Norwich	All	17	1510–1700
Paris	Masons	70	18th c.
Rhine Region	Coopers and blacksmiths	51	1529–1615
Sheffield	Cutlers	47	1624–1814
Utrecht	Surgeons	9	1740–1799
Utrecht	Coopers	22	1588–1662
Vienna	Locksmiths	43	1785–1803
Vienna	Leather workers	61	1709–1854
Vienna	Pearl embroiderers	68	1665–1865
Vienna	Book binders	80	1750–1804
Württemberg	Worsted weaving	10	1616–1626
Württemberg	Worsted weaving	26	1750–1760

NOTE The figure for Vienna refers to apprentices completing their contracts.

SOURCES Ilana K. Ben-Amos, "Failure to Become Freemen: Urban Apprentices in Early Modern England," *Social History*, XVI (1991), 157; Bert De Munck, *Technologies of Learning: Apprenticeship in Antwerp Guilds from the 15th Century to the End of the Ancien Régime* (Turnhout 2007), 161–167; 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," Utrecht (2016), 16; Sheilagh Ogilvie, *State Corporatism and Proto-Industry: The Württemberg Black Forest, 1580–1797* (New York, 1997), 149; Schalk, "Apprenticeships and Craft Guilds in the Netherlands, 1600–1900," CGEH Working Paper Series, 80 (2016), 18–19; Àngels Solà Parera, "Craft Apprenticeship in Barcelona, 1760–1850," paper presented at the workshop "Apprenticeship in Early Modern Europe," Utrecht (2016), 10–12; Michael Sonenscher, *Work and Wages: Natural Law, Politics, and the Eighteenth-Century French Trades* (New York, 1989), 109–110; Wallis, "Apprenticeship and Training in Premodern England," *Journal of Economic History*, LXVIII (2008), 839; *idem*, "Research Memo Lyon Apprentice—Master Linkage"; Kurt Wesoly, *Lehrlinge und Handwerksgesellen am Mittelrhein: Ihre Soziale Lage und Ihre Organisation vom 14. bis ins 17. Jahrhundert* (Frankfurt am Main, 1985), 90; Annemarie Steidl, *Auf nach Wien! die Mobilität des Mitteleuropäischen Handwerks im 18. und 19. Jahrhundert am Beispiel der Haupt- und Residenzstadt* (Vienna, 2003), 253.