

Failure and flexibility: exits from apprenticeship training in pre-modern Europe

Ruben Schalk (UU), Patrick Wallis (LSE), Clare Crowston (University of Illinois), and Claire Lemerrier (Sciences Po)¹

*** Please do not quote or cite without permission ***

Abstract

Access to skilled work in pre-modern Europe was often restricted to those individuals who met specific criteria: one of the most important was having completed an apprenticeship. Nevertheless, recent studies have suggested that many of those who started apprenticeships did not finish them. This paper examines how often individuals who had begun the process of qualification for skilled work failed to complete it. We provide new evidence on the completion of over 7,000 contracts across several cities in three countries. Even though apprenticeship regulation varied, in all cases a substantial minority of youths entering apprenticeship contracts failed to complete them. We consider the nature, frequency and causation of these failures. At least some exits reflect the balance of opportunities that youths faced. By allowing premature exits, cities and guilds sustained labour markets by lowering the risks of entering long training contracts. Mobility was a pragmatic response to labour market tensions.

¹ This research was funded in part by the European Union as part of the “All Rights Reserved? Barriers towards European CITIZENship project” (Grant 320294).

Introduction

In pre-modern Europe apprenticeship linked human capital formation with access to skilled occupations. In most cities and towns, the licensed workforce was split into three levels: apprentices who had entered contracts to exchange their labour for the chance to accumulate skills; journeymen who were skilled workers working for wages; and masters who had the right to operate independently (even if some did not do so).² The status of journeymen and master were usually reserved to those who had completed an apprenticeship. There are exceptions: sometimes masters' sons had special rights; women's work often depended on the status of their spouse or father; and most rules could be circumvented for those with enough money. But in the sickly demographic climate of Europe's urban centres, where mortality often exceeded fertility, a great many workers necessarily came from elsewhere and brought little but their potential with them. For this important group, enrolling in an apprenticeship was a key step towards a future career as a skilled worker. It was not a step that was taken lightly, either. Training was not easily available to all. Local ties could be needed to find a master, who might demand a fee (premium) for entry.³ Guilds or cities often restricted the availability of places by limiting the number of apprentices per master, defining entry requirements based on gender, faith, or other criteria, and extracting registration fees.⁴

In principle, it would seem clear that those youths with the good fortune to find a master had a strong incentive to complete their apprenticeships. They and their families had invested time and money in their training. Completion entitled them to access privileged parts of the labour markets with higher wages. Quitting might damage their reputation. Some have argued that guilds may have further stimulated completion by ensuring apprentices and masters fulfilled their obligations.⁵ The very popularity of apprenticeship, visible in the thousands of youths who started contracts, would seem to point to high levels of completion: its continued viability is often thought to depend on enforcement in order that masters can recoup their investment in

² Masters did at times engage in subcontracting; B. De Munck, 'One counter and your own account: redefining illicit labour in early modern Antwerp', *Urban History* 37 (2010): 26-44.

³ T. Leunig, C. Minns, and P. Wallis, 'Networks in the Premodern Economy: The Market for London Apprenticeships, 1600-1749', *Journal of Economic History* 71 (2011), 423-425.

⁴ S. Ogilvie, 'Guilds, efficiency, and social capital: evidence from German proto-industry', *The Economic History Review* 57 (2004): 286-333; M. Prak, C. Crowston, C. Kissane, C. Minns, and P. Wallis, 'Access to the trade: citizens, craft guilds and geographical mobility in early modern Europe', Unpublished paper available at http://beucitizen.eu/wp-content/uploads/bEUCitizen_WPS1_Prak-et-al.-2014.pdf.

⁵ S.R. Epstein, 'Craft guilds, apprenticeship, and technological change in preindustrial Europe', *The Journal of Economic History* 58 (1998): 684-713; C. W Brooks, 'Apprenticeship, Social Mobility and the Middling Sort, 1550-1800', in J. Barry and C. W. Brooks, eds., *The Middling Sort of People: Culture, Society and Politics in England, 1550-1800* (Basingstoke, 1994), 52-83.

training, while its putative advantages as a safe haven for the socialization of the young surely depend on the durability of the master-apprentice relationship.⁶

Life does not always follow the obviously logical course, however. As we show in this paper, a substantial minority of apprentices did *not* complete their contracts. Instead many moved to new masters or cancelled their contracts entirely. We show that the levels and timing of exit appear to be broadly similar in apprenticeship in several towns and cities across three European countries. Those who left were not all ‘failures’. Instead, at least some seem to have been influenced by the balance of opportunities they faced. The frequency with which youths left apprenticeship contracts implies that historians’ and economists’ emphasis on the completion of apprenticeship needs to be qualified. We argue that allowing substantial rates of exit may have increased the appeal of premodern apprenticeship to both masters and apprentices by allowing them to revise their commitments in the face of future events: allowing contracts to end reduced the risks involved in undertaking apprenticeship.

These questions about the operation of apprenticeship touch on two wider debates in economic and social history. First, they allow us to assess the openness of pre-modern labour markets and the nature of skill formation and labour mobility more closely.⁷ In particular, we are able to examine what impact guilds had on apprenticeship and subsequent success. Second, by uncovering the scale of mobility and the factors that influenced movement, we are able to examine the stability of households and firms within what remained a highly patriarchal economic and social system. While a rich body of work has explored the conflicts and fragmentation that could occur within premodern workshops, quantitative evidence that allows us to consider the frequency of different outcomes is extremely scarce. Were households characterized by paternal socialisation aimed at compliance and subordination, or was it more a business-like agreement where apprentices paid for technical knowledge – with apprentices leaving if training was underprovided?⁸

⁶ Epstein, ‘Craft guilds’, 690-691.

⁷ Epstein, ‘Craft guilds’; Ogilvie, ‘Guilds, efficiency’. Cf. J.L. van Zanden, ‘The skill premium and the “Great Divergence”’, *European Review of Economic History* 13 (2009): 121-153.

⁸ B. De Munck, ‘From brotherhood community to civil society? Apprentices between guild, household and the freedom of contract in early modern Antwerp’, *Social History* 35 (2010): 1-20; A. Yarbrough, ‘Apprentices as adolescents in sixteenth century Bristol’, *Journal of Social History* 13 (1979): 67-81; A. Levene, “‘Honesty, sobriety and diligence’: master–apprentice relations in eighteenth- and nineteenth-century England”, *Social History* 33 (2008): 183-200.

Our discussion develops from several recent studies that have uncovered quantitative evidence about persistence within apprenticeship. Minns and Wallis demonstrated that a large share of apprentices in London and Bristol left their master during the term.⁹ Schalk found that the apprenticeship of Dutch orphans was also characterised by youths moving between masters and crafts frequently.¹⁰ Both studies suggest that apprenticeship could flourish in the absence of contract enforcement. Moreover, Wallis has also shown that urban institutions in London facilitated the cancellation of apprenticeship contracts on a large scale.¹¹ It is unclear whether we can generalize from these studies, however. First, the locations and social groups they study are unrepresentative. London and Bristol were two of the largest and most economically dynamic cities in Europe. Possibly, patterns of apprenticeship were simply different there. Much else was. Similarly, orphans may not represent the population of apprentices. Second, both England and the Netherlands are frequently considered to have ‘weak’ guilds. Possibly, the lack of contract enforcement reflected this institutional weakness. Third, in London and Bristol completion of an apprenticeship was linked to a package of political and economic rights: citizenship and guild membership were tied together. The effect of this on completion is ambiguous. Additional rights may be an attraction, but they also brought potentially onerous obligations (office holding and the like). Given that citizenship and guild membership were separated in many parts of Europe, it could be that this also affected completion rates. The potential impact of institutional variations on our ability to make generalizations about labour markets across Europe has recently been highlighted in a number of studies.¹² Here we address these limits by examining exits from apprenticeship in locations that were variously, economically stagnant, governed by strong guilds, and treated citizenship and guild membership separately.

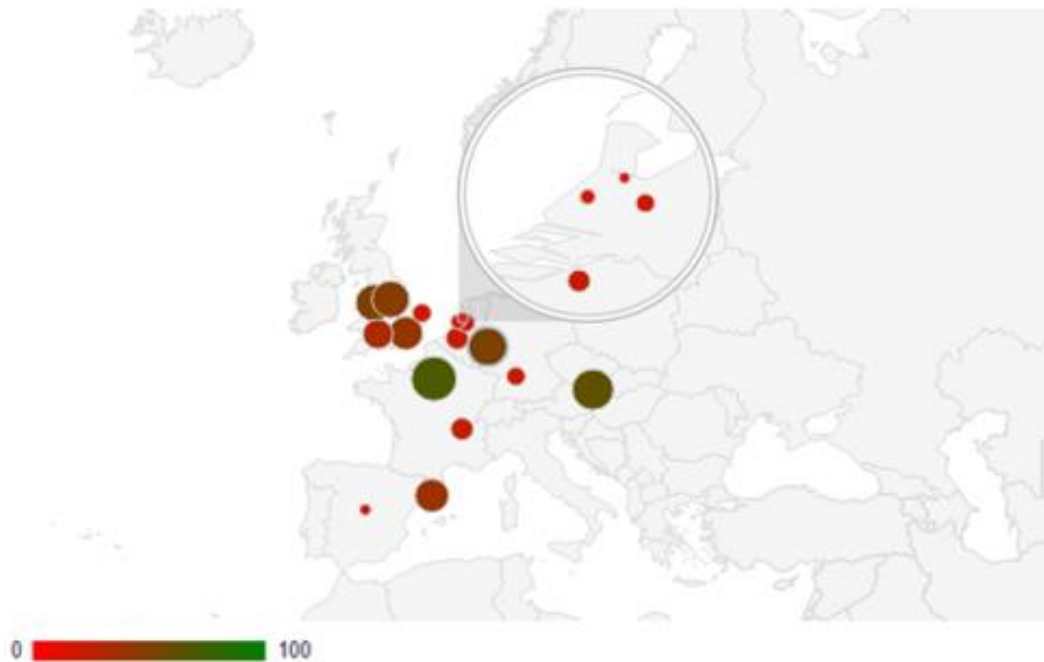
⁹ C. Minns and P. Wallis, ‘Rules and reality: quantifying the practice of apprenticeship in early modern England’, *The Economic History Review* 65 (2012): 556-579.

¹⁰ R. Schalk, ‘From orphan to artisan: apprenticeship careers and contract enforcement in The Netherlands before and after the guild abolition’, *The Economic History Review* (forthcoming).

¹¹ P. Wallis, ‘Labor, law, and training in early modern London: Apprenticeship and the City’s institutions’, *The Journal of British Studies* 51 (2012): 791-819.

¹² Prak et al., ‘Access to the trade’; U. Pfister, ‘Craft Guilds, the Theory of the Firm, and Early Modern Proto-Industry’, in S. R. Epstein and M. Prak, eds., *Guilds, Innovation and the European Economy, 1400-1800* (Cambridge, 2008), 25-51; A. Caracuci, ‘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* 128 (2016) (URL: <http://mefrim.revues.org/2476>).

Figure 1. Share of apprentices becoming master in their guild of training.



Sources: see Appendix.

Notes: The figure for Vienna refers to apprentices completing their contracts.

There are some strong hints that the experiences of London, Bristol and Dutch orphans were not too far from those seen elsewhere in Europe. Historians have long recognised 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 labour markets. A number of studies have uncovered examples of apprentices departing early from their masters in qualitative sources, such as memoirs and legal papers – and reveal a surfeit of motives for departure, from the physical and emotional violence that masters could deal out to their apprentices, to the simple wish to go to sea, or the death of an elder brother.¹³ Perhaps the clearest signal of this is the substantial gap that usually existed between the numbers of new apprentices and the numbers of new masters in each guild (Figure 1). The similarities across Europe are striking. Low ratios of apprentices to masters are commonplace. Even in the craft of surgeons, with relatively high apprenticeship fees, no more than fifteen per cent of Dutch apprentices eventually became master. Of all the cities for which figures are available, it was only in the Paris masons' guild that more than half of apprentices became masters. In all other cases, most apprentices were never likely to become a master – at least locally.

¹³ J. Lane, *Apprenticeship in England, 1600-1914* (London, 1996); P. Griffiths, *Youth and Authority. Formative Experiences in England, 1560-1640* (Oxford, 1996).

Interpreting the low probability that apprentices became masters is difficult. It is easy to think of a number of reasons for why apprentices did not advance to mastership. Some surely sickened or died. Perhaps some chose to remain as journeymen throughout their career, maybe migrating to other cities.¹⁴ Possibly they were given no choice: an oligarchic guild could have used its regulations to prevent them becoming masters, restricting mastership to locals or sons of masters.¹⁵ Debate continues on the extent to which guilds excluded outsiders and barred access to the trade, not least because it has proved difficult to discern general patterns.¹⁶ Nonetheless, journeywork may not be a sufficient explanation: the limited available evidence on the numbers of journeymen employed by masters indicates that few hired many journeymen. Most masters seem to have worked with less than two journeymen. At that level, the pool of journeymen in a city is probably too small to absorb the numbers of former apprentices that its guilds produced.¹⁷ Which brings us to the other obvious reason: that apprentices had dropped out before finishing their terms of service.

Apprenticeship in Shrewsbury, Lyon, and The Netherlands

Evidence on the persistence of apprentices within their contracts is extremely scarce. The move from apprentice to journeymen is rarely observable. In general, guilds were preoccupied with registering new apprentices, because they used these records to identify who qualified for mastership, and new masters, who formed their membership. The intermediate period of journeywork was of far less interest to them. Few guilds registered which apprentices

¹⁴ J.R. Farr, *Artisans in Europe, 1300-1914* (Cambridge, 2000), 37.

¹⁵ Prak et al., 'Access to the trade'; C.R. Friedrichs, 'Artisans and urban politics in seventeenth-century Germany', in G. Crossick, ed., *The artisan and the European town, 1500-1900* (Aldershot, 1994), 42; Farr, *Artisans in Europe*, 162-164, 202-220; F. Trivellato, 'Guilds, technology, and economic change in early modern Venice', in *Guilds, Innovation and the European Economy, 1400-1800*, eds. S.R. Epstein and M. Prak, eds. (Cambridge, 2008), 212-214; B. De Munck, and K. Davids, 'Beyond exclusivism. Entrance fees for guilds in the early modern Low Countries, c.1450-1800', in: K. Davids and B. De Munck, eds., *Innovation and creativity in Late Medieval and Early Modern European cities* (Ashgate, 2014), 189-224; B. Panhuysen, 'De Amsterdamse en Haarlemse kleermakersgilden en hun concurrenten. De in- en uitsluiting van mededingers op de lokale afzetmarkt in de 17de en 18de eeuw', in C. Lis and H. Soly, eds., *Werelden van verschil: ambachtsgilden in de Lage Landen* (Brussels, 1997), 127-150; J. Dambruyne, *Corporatieve middengroepen: aspiraties, relaties en transformaties in de 16de-eeuwse Gentse ambachtswereld* (Ghent, 2002).

¹⁶ B. De Munck, *Technologies of learning: apprenticeship in Antwerp guilds from the 15th century to the end of the ancien régime* (Turnhout 2007), 161-169; S. Ogilvie, 'Rehabilitating the guilds: a reply', *Economic History Review* 61 (2008): 175-82; Idem, 'Can we rehabilitate the guilds? A sceptical re-appraisal', *Cambridge Working Papers in Economics* 0745 (2007); Idem, "'Whatever is, is right?'" Economic institutions in pre-industrial Europe', *Economic History Review* 60 (2007): 649-84; S.R. Epstein, 'Craft guilds in the pre-modern economy: a discussion', *The Economic History Review* 61 (2008): 155-174.

¹⁷ Antwerp: De Munck *Technologies of learning*, 131-135; Utrecht: N. Slokker, *Ruggengraat van de stedelijke samenleving: De rol van de gilden in de stad Utrecht, 1528-1818* (Utrecht, 2009), 35-39; Vienna: Ehmer, 'Worlds of mobility', 175-176; France: M. Sonenscher, *Work and wages: natural law, politics, and the eighteenth-century French trades* (Cambridge, 1989), 140-145.

completed their term of service and qualified as journeymen. Instead, completion was usually attested by the master orally or in a private document.¹⁸ And because journeymen were quite mobile, guilds rarely instituted or maintained costly registration systems for arrivals.¹⁹

In this paper, we explore apprenticeship in four cities across three countries, Shrewsbury in England, Lyon in France, and Leiden and Amsterdam in the Netherlands, between the late seventeenth and late eighteenth centuries. Collectively, we have information on the completion of more than 7,000 apprenticeship contracts (Table 1). Given that previous research has only provided evidence on three other cities, we are more than doubling the total volume of investigated sites.

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
	Grande fabrique	1740s	2,505
	Grande fabrique	1760s	1,735
Leiden	Surgeons	1683-1729	394
Amsterdam	Pastry bakers	1748-1776	643
	Pig butchers	1787-1811	517
Total			7,011

Sources: Shrewsbury: [Shrewsbury Archives](#), REFERENCE. Lyon: [HH 597](#), [HH601](#), [HH602](#). Netherlands: Stadsarchief Amsterdam (SAA), Archief Gilden, inv. 591, inv. 1470; Regionaal Archief Leiden (RAL), Archief Gilden, inv. 351.

Shrewsbury, a small city of perhaps 10,000 inhabitants in the west of England, was a modestly sized religious and political centre that firmly in the third tier of English towns. It experienced a very different economic and political trajectory to London and Bristol, and by 1800 had grown to just 15,000 people, lagging well behind the rapid expansion of England's dynamic

¹⁸ I. H. van Eeghen, *De gilden: theorie en praktijk* (Bussum, 1974), 20.

¹⁹ Cf. M. Sonenscher, 'Journeymen's migration and workshop organization in eighteenth-century France', in S.L. Kaplan and C.J. Koeppe, eds., *Work in France. Representation, meaning, organization, and practice* (Ithaca and London, 1986), 77-78.

urban centres. In 1695, Shrewsbury was perhaps 40 per cent of the size of Bristol and just two per cent of the size of London.

Shrewsbury's guilds were unusually long-lasting. According to a Parliamentary Commission, even in 1835 when most English guilds were long gone, the city's guilds 'claim and exercise a right to compel all persons not being free of them, on setting up trade in the borough, to compound for the freedom by payment of a fine'.²⁰ Indeed, they concluded that the guilds were a 'serious detriment to the trade of the town'. The surviving records of the guilds suggest an active engagement in monitoring membership in the 1690s. Moreover, in Shrewsbury, burgesses acquired the freedom through descent (as son of a sworn freeman) and by purchase or gift from the city.²¹ Apprenticeship was *not* a criteria for becoming a burgess. Completing a seven-year apprenticeship was, however, still the dominant method for obtaining guild membership.²²

Lyon was a large and expanding city, growing from around 100,000 inhabitants in 1700 to around 150,000 in the late 1780s.²³ By the 1700s, Lyon was the dominant city in what had become one of France's most valuable industries. In 1784, the city contained some 14,000 looms - twice the number that were in the rest of the country – and focused on rich, luxurious, figured fabrics.²⁴ At that point, around 38,000 people were engaged in silk weaving in Lyon, forming around 40 per cent of its skilled labour force.²⁵ Production was organised largely by merchants putting out raw materials to weavers operating in their homes, who received a piece rate. Over the eighteenth century, silk remained an attractive sector, and workers were more literate, and more likely to be of local origin, than in other sectors.²⁶

Lyon's industry was intensely regulated. Most of the workforce in the city was organised into one of 72 guilds.²⁷ The king had established a silk weaving guild, the *Grande fabrique*, in 1536.

²⁰ Commissioners, Report, p. 2016.

²¹ Commissioners, Report on Municipal Corporations, p. 2014. After a law suit in the King's Bench in 1774, entry was extended to include two other routes: birth in the city and apprenticeship in the city.

²² Guild membership was also more extensive than citizenship: only 40 per cent (19 of 47) Shrewsbury guild members placing sons as apprentices were burgesses. **ANNUAL RATES?**

²³ M. Garden, *Lyon et les Lyonnais au XVIIIe siècle* (Paris, 1970), 19.

²⁴ P. Cayez, *Métiers Jacquard et hauts fourneaux* (Lyon, 1978), 45. Cited in G.J. Sheridan Jr., 'Craft technique, association and guild history: the silk weavers of nineteenth-century Lyon', in I. A. Gadd and P. Wallis, eds. *Guilds and Association in Europe, 900-1900* (London, 2006), 149.

²⁵ Garden, *Lyon et les Lyonnais*, 179, 209.

²⁶ Garden, *Lyon et les Lyonnais*, 171, 239.

²⁷ Garden, *Lyon et les Lyonnais*, 178.

Weavers were distinguished into a clear hierarchy of apprentices, journeymen and masters. Rules for attaining each status were precisely defined.²⁸ Apprentices had to serve for five years, and pay a fee to the guild. Masters could only take one apprentice at a time. Apprentices had to live with their master, and could not marry. Unusually, to become a journeyman, apprentices were tested by the guild on their skills and had to provide a certification from their master attesting to their service. The sons of masters (and the sons-in-law) were not required to serve an apprenticeship and instead qualified for mastership by inheritance, but in practice they often went through an informal apprenticeship (labelled as *affermés*).

Finally, we examine apprenticeship in three guilds in the Dutch cities of Amsterdam and Leiden during the late seventeenth and eighteenth century. By the late seventeenth century the period of unprecedented growth of the Dutch economy had ended and was followed by a century of stagnation. In Amsterdam, the commercial centre of the Dutch Republic, the population stagnated between the 1680s (219,000) and 1795 (214,000).²⁹ Leiden had been a major textile producer since the late sixteenth century, but here too decline had set in by the eighteenth century. The drop in textile production caused by putting-out in the countryside, foreign competition, and tariffs had increased unemployment and demand for welfare. The population of Leiden declined from 56,250 in 1700 to 30,995 in 1795.³⁰ In contrast to the textile industry, production in the craft sector was mainly geared towards local and regional markets.

Dutch guilds rarely had any political power and are better characterized as socio-economic associations for fellow craftsmen. This was no different in Leiden and Amsterdam, where many or even most crafts were organized in guilds. Around the middle of the seventeenth century both cities counted around 52 craft guilds.³¹ The low number of guilds per capita in Amsterdam was compensated by their membership, which was relatively high. In both Amsterdam and Leiden citizenship was not tied to apprenticeship completion. Citizenship was required when journeymen wanted to become masters, and could then be bought by immigrants at a set fee, or by marrying a citizen's daughter. Apprenticeship terms were set by most guilds, and could

²⁸ The guild's rules are set out in J. Godart, *L'ouvrier en soie. Monographie du tisseur lyonnais, part 1 (La réglementation du travail)* (Lyon and Paris, 1899), 100-133. We concentrate on rules active in the period under consideration here.

²⁹ M.H.D van Leeuwen and J.D. Oeppen, 'Reconstructing the demographic regime of Amsterdam 1681-1920', *Economic and Social History of The Netherlands* 5 (1993): 87.

³⁰ G.P.M Pot, *Arm Leiden: levensstandaard, bedeling en bedeeden, 1750-1854* (Haarlem, 1994), 58.

³¹ P. Lourens and J. Lucassen, 'De oprichting en ontwikkeling van ambachtsgilden in Nederland (13de-19de eeuw)', in Lis and Soly, *Werelden van verschil*, 69.

vary anywhere between two to five years depending on the guild.³² Albeit rarely registered, apprentices needed to fulfil these terms before being allowed to work as journeymen.

These three cases allow us to address several of the limitations of the existing studies of apprenticeship exits. They allow us to examine apprenticeship in locations with strong guilds (Lyon, Shrewsbury); stagnant economies (Amsterdam, Leiden, Shrewsbury), and where guild membership and citizenship were distinct (Amsterdam, Leiden, Lyon, Shrewsbury). Ideally, of course, we would wish to extend the study with more evidence on apprenticeship in other regions, particularly Germany, Italy and Spain, and earlier periods. Nonetheless, our case studies substantially extend the scope of existing research.

How to observe exits from apprenticeship

One unfortunate consequence of the institutional diversity of Europe's guilds and cities is that different types of record survive from different settings. Here, we are obliged to employ three different types of source and methodology to observe apprenticeship in our three case studies.

Evidence on the persistence and outcomes of apprenticeship in Shrewsbury dates from the 1690s, when the imposition of a tax on births, marriages and deaths led to the production of an extensive household listing covering the city.³³ This document lists the members of 2,170 households in the city, naming the household head, along with any spouse, children, servants and lodgers. We extracted a sample of 336 apprentices from five guilds, the Glovers, Mercers, Smiths, Tailors and Weavers, between 1681 and 1699, and matched masters to the householders in the tax register using their forename, surname and occupation. The linkage identified 63 per cent of masters to householders in our entire dataset (126 of 199) and 66 per cent (124 of 188) in the core period of 1688-1695 with a high degree of confidence.³⁴ We then identified which apprentices remained in service to their master, taking co-residence as a proxy for the persistence of apprenticeship. The validity of this proxy has been discussed in earlier

³² R. de Jager, 'Meester, leerjongen, leertijd. Een analyse van zeventiende-eeuwse Noord-Nederlandse leerlingcontracten van kunstschilders, goud- en zilversmeden', *Oud-Holland* 104 (1990): 69-110; Slokker, *Ruggengraat*, 58.

³³ Shrewsbury Archives, REFERENCE.

³⁴ Another five masters can be matched, but with less confidence (largely due to lack of occupational information); five are potentially matched to more than one household (and are thus excluded). There are multiple reasons why a master might not be found in the tax listing: variant spellings; damage to the sources; out-migration, bankruptcy or death.

work using similar sources.³⁵ The key justification is that co-residence was still the norm in apprenticeship, with the provision of board and lodging forming a key element in the master's commitment to the apprentice.³⁶ Absence of an apprentice could, as we will discuss, imply a temporary separation, including assignment to another employer. However, it seems that many, perhaps most, absences indicate the end of a contractual relationship, with the apprentice either exiting the occupation or transferring to another master.

For Lyon, our sources are quite different. We are able to analyse a substantial body of evidence - three registers recording 5,281 apprentices kept by the *Grande fabrique* between the late 1680s and the late 1760s - that contain information on exits in the same place as the record of registration. Unusually, the guild made obsessive efforts to record events that disrupted contracts, presumably because these events undermined the length of the apprenticeship term (and so affected its value as a qualifying period for achieving the status of journeyman or master), or risked allowing a master to exceed their quota of apprentices. They did this by scribbling a note in cramped handwriting into the margins of the original contract registration. The guild kept parallel series of registers of journeymen, masters and 'orders' made by the guild consuls, often cross-referenced with each other. The system of registration appears to have been rigorously maintained. More than 92 per cent of apprenticeship contracts were registered within one month of being made; 69 per cent were registered within a week.³⁷ Together, they reveal an elaborate bureaucratic campaign to monitor and discipline the community of silk weavers. Yet the effect on apprenticeship was not to strengthen contracts, but to provide a formal mechanism that allowed apprentices and masters to record having abandoned them.

The Lyon registers contain information about three types of apprenticeship event: cancellations of a contract, interruptions, and transfers of apprentices to other masters. The guild's officers and clerks were not entirely consistent over this long period. In the 1680s, we often have information on when an apprentice began to work as a journeyman. Where apprenticeships ended prematurely, the annotations distinguish between those where the apprentice abandoned the trade ('*desistement*') and those which were made by the order of the consuls. These details

³⁵ Wallis, 'Apprenticeship and training'; Minns and Wallis, 'Rules and reality'.

³⁶ We can test this assumption by tracking apprentices with parents resident in Shrewsbury. Of 33 youths identified as still in Shrewsbury: two were living with their parents; 31 (94 per cent) were living with their master.

³⁷ In theory, masters were fined if they did not register a contract within a week: Godart, *L'ouvrier en soie*, 107.

are missing later. From the 1740s, however, we also have records of the interruptions and resumptions of contracts. For some apprentices, at least, we can see in minute detail the twists and turns that affected them as they moved through their apprenticeship. Noel Chevrier was three times interrupted (*'3 fois interrompu'*).³⁸ Pierre Guyots was transferred to a new master in May 1749, December 1750 and October 1751.³⁹ For the entire period, we are able to observe the share of apprentices whose contract was marked as having been formally cancelled. The language the clerks used for this was telling: the contract was scratched out (*'rayé par ordre'*).

In the Dutch cases, our evidence on the persistence of apprenticeship comes from guild records of whether an apprentice had finished his required term. This is the most direct measure of completion that we possess, in that it is a positive record of completion rather than a negative record of exit or absence of the kind we have for Lyon and Shrewsbury. However, it is rarely available. The records we use are notes made by the guild's officials that recorded whether an apprentice had received his *leerbrieff* ('letter of learning'). These letters were given to apprentices upon completion of the minimum apprenticeship term set by the guild. Apprentices were often required to show their *leerbrieff* when taking up a position as a journeyman, especially when they migrated to another city after their apprenticeship.

Although many Dutch guilds had by-laws requiring that workers produce a *leerbrieff* as proof of completion when registering as journeyman, in most cases these letters were issued privately by the master, just as many apprenticeship contracts were privately conducted.⁴⁰ As a result only a tiny minority of guilds actually listed them. *Leerbrieff* registration was found for the Amsterdam pig butchers' guild, the Amsterdam pastry bakers' guild, and the Leiden surgeons' guild. The terms these apprentices served varied. Leiden surgeon apprentices had to serve five years, of which at least two consecutively under one master. Apprenticeship fees were waived for sons of masters. Local apprentices had to pay 1.50 and apprentices from outside Leiden three guilders. All had to pay six guilders to obtain their *leerbrieff*.⁴¹ At the Amsterdam pig butchers' and pastry bakers' guilds *leerbrieven* were issued after two and three years respectively, although it is possible that these apprentices stayed longer. Their fees are unknown. In total, the Dutch sample covers 1,554 apprentices across the three guilds.

³⁸ HH601, #959.

³⁹ HH601, #1853.

⁴⁰ Van Eeghen, *De gilden*, 20.

⁴¹ RAL, Archief Gilden, inv. 311.

Exits from apprenticeship

Our sources do not provide identical information on the nature of exits. Nevertheless, all do allow us to estimate the share of apprentices who did not complete their terms (Table 2). In Shrewsbury around forty per cent of apprentices disappeared from their masters' household at some point between the start and the end of their apprenticeship contract (the seventh year). Exit rates were lower in Lyon, possibly because our measure depends on the quality of surveillance by the *Grande fabrique*. But even here the guild registered the cancellation of substantial numbers of apprenticeship contracts. On average, eighteen per cent of contracts were cancelled formally. Another 1.2 per cent ended because the apprentice had died. The rate of cancellation was markedly higher in the late seventeenth century, when 24 per cent of contracts were cancelled. For this period, the register is a little more detailed, and indicates that this was mostly because the apprentice had abandoned their place – 17.8 per cent were noted as *desistement*.

The share of Dutch apprentices who did not receive their certificate for having completed their minimum apprenticeship terms are also summarised in Table 2. Early exits were common here as well, perhaps even more so. In all three Dutch guilds at least one in three apprentices quit early. The pig butchers guild was not entirely consistent in recording exits, leaving us a group of 173 apprentices for whom we do not know the outcome. If we make the not unreasonable assumption that this group did not receive their *leerbrieff*, then 68 per cent of apprentices in this trade exited early. Apprenticeships at the surgeons' guild were arguably more exclusive since they required more skills and because they were overseen by a college of doctors with a university degree.⁴² Nevertheless, here too a substantial share of apprentices never finished their terms. It is interesting to note that these guilds – set within a stagnating economy - appear to show an increasing frequency of early exits over the course of the eighteenth century. This is the opposite of the trend in Lyon, where exits declined as the industrial centre grew.

⁴² RAL, Archief Gilden, inv. 311.

Table 2. Apprenticeship cancellation.

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

Notes: For Shrewsbury we report the share present in the final year of their term; For Lyon, we report the share of apprentices whose contracts ended by cancellation (the sample is restricted to new apprentice registrations). For the Netherlands, we report the share of apprentices who did not receive a *leerbrief*.

¹For Shrewsbury, we are unable to discriminate between transfer and cancellation.

Permanent exits were not the only reason apprentices might leave their masters. Some of the data allows to flesh this out in more detail, especially in the case of Lyon. The Lyon registers are to our knowledge unique in systematically recording *temporary* pauses in apprenticeship. They indicate that - apart from final exits - ten to fifteen per cent of apprentices would take a temporary break from their contract (Table 3). Of that group, only around a third in the 1740s and a quarter in the 1760s would be recorded as having later restarted their contracts. Another third later cancelled their contracts (of whom a small number had restarted first). We simply have no record of what happened to the final third or so of apprentices who had interrupted their contracts. Perhaps they restarted with no formal record being made. Perhaps they quietly disappeared into other trades.

Table 3. Interruptions of contracts in Lyon.

Period	I Interrupt	II Then restart	III Then cancel	IV Cancel after restart	V 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

Note: the table reports the percentage of apprentices registered as interrupting contract, restarting after an interruption, and cancelling contract after interrupting. Column IV reports the share cancelling after restarting and these individuals are also counted in column III (Cancel). Column 5 reports the share unknown, i.e. $V=I-II-(III-IV)$. Sample restricted to new apprentice registrations.

The third way in which apprenticeship contracts might change was through a transfer to another master. In Lyon, the way in which transfers were recorded shifted between the 1680s and 1740s. In the 1680s, 27 per cent of new apprentices had a transfer recorded in the margin of their initial registration entry. In the 1740s and 1760s, less than half a per cent of new apprentices had a transfer noted on the record of their first contract, but the share of transfers that were entered as separate registrations grew to twelve to fifteen per cent of all entries. This change appears to reflect a tightening in regulation. In the 1680s, it seems that the transfer was often leading to the initial contract being registered for the first time. At this point, many turnovers were dated within days of the apprentice's initial contract being registered: 47 per cent of turnover registrations (when the turnover was associated with an initial contract) occurred within six days of the initial contract registration. For the same group, the gap between the date of an apprentice's contract and its registration was much longer – the median gap was 51 days. By the 1740s, the median gap from the date of the initial contract to registration among apprentices who were later turned over had fallen to just four days. This approach to registration makes it difficult to estimate the share of turnovers exactly. For the 1680s, in particular, it would seem that registration of new apprentices was patchier than later making the population of apprentices at risk uncertain. The rates we observe in the 1740s and 1760s suggest that fifteen per cent would be a minimum estimate, however.

Transfers to other masters were also common in the Netherlands and England. The share of Dutch apprentices who transferred to a new master was eleven per cent; almost exactly the share observed in Lyon in the eighteenth century and London and Bristol in the late seventeenth

century.⁴³ These shares are also similar to those of regular apprentices from Leiden and Utrecht in the eighteenth century.⁴⁴ Interestingly, for those apprentices who did transfer, their move does not appear to have affected early exits. Grouped together, about 39 per cent of moving apprentices exited early compared to 42 per cent of apprentices not moving masters. The Shrewsbury guild registers also offer some information on transfers (also known as turnovers). Here again the findings are quite similar: nine per cent of apprentices who started their apprenticeship in our sample period later recorded a transfer.⁴⁵

Although the number of cancellations and transfers differs between each of these cities and guilds, early exits from apprenticeship were commonplace in all cases. If we take the perspective of the original master who the apprentice joined at the start of their contract, then one third to one half of apprentices would leave: our cases give us a range between Lyon, where at least 34 per cent of masters would lose their apprentice either by cancellation, death or transfer (18 + 1 + 15 per cent), and the Netherlands, where 53-64 per cent would depart (42 + 11 to 53 + 11 per cent). Shrewsbury falls in between with 46 per cent leaving. Looking from the apprentices' side, completion, often with a new master, ranged between 46 and 80 per cent: Shrewsbury and the Netherlands were at the low end and Lyon at the high.

We could speculate about these differences. Lyon's strong guild or the appeal of its thriving silk industry may both have motivated youths to stay; weak Dutch guilds and poor prospects offered less of an incentive. Alternatively, we may be overestimating persistence in Lyon if guild registration of exits was incomplete, or underestimating persistence in England and the Netherlands if absent Shrewsbury apprentices were still in contract or the recording of *leerbrief* was patchy. The main point is clear though. Even though the institutional setting of apprenticeship markedly differed, all three cases imply that contracts were neither strictly observed by the participants nor enforced by external agencies.

The timing of exits from apprenticeship

We can better appreciate the nature of apprentices' movements if we look at when they left their masters. For Lyon and Shrewsbury, but not for The Netherlands, we are able to compute

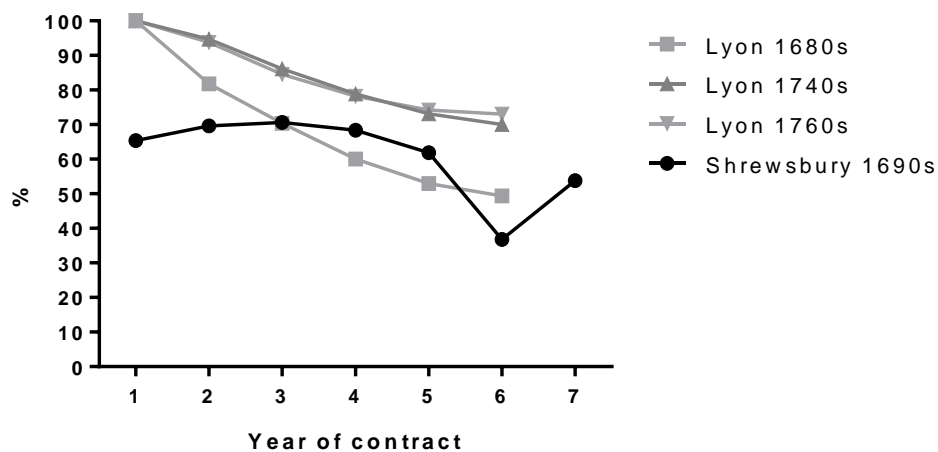
⁴³ Minns and Wallis, 'Rules and reality', 569.

⁴⁴ Schalk, 'From orphan to artisan'.

⁴⁵ 29 of 317. This is likely an underestimate due to censoring at the end of term, where apprentices terms were longer than our sample window. The effect seems small, however. If we restrict our data to apprentices bound before 1690, then 8 per cent (N = 136) were transferred.

the timing of apprentices' exits. For Shrewsbury this is measured by the share of apprentices still present at their master by year of contract; for Lyon this is measured by counting the months between the cancellation date (which was noted in the margins) and the date of the apprenticeship contract. The latter is a more precise measure of cancellation, since absence from the masters' household does not necessarily imply termination of the contract. Apprentices could also be missing because of a temporary departure, death, a linkage error, or accidental omission in the tax record. Reassuringly, aside from death, these reasons would lead to a constant lower average likelihood of observation, not a change in the rates of presence over time.

Figure 2. The share of apprentices remaining with their first master, Lyon & Shrewsbury.



Notes: For Lyon the figure shows the share surviving of a synthetic cohort of apprentices experiencing the rate of transfer and cancellation observed in each period. 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.

Figure 2 groups the presence (Shrewsbury) and cancellation 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, rather than reports of sequential observations for individuals. For Shrewsbury the share of apprentices present is 65 per cent in the first twelve months after the contract started, rising to a peak of 71 per cent in the third year of their contract; this increase probably reflects the late arrival of apprentices who ante-dated their contracts to shorten the long minimum seven-year term. The share present then declines, with only 37 per cent present in the sixth year and 54 per cent present in the seventh and final year, when we would most expect apprentices who are going to finish to be visible. The drop from peak to trough is large – almost 50 per cent. If we take the last year as roughly equivalent to the loss rate after the recovery of temporary absentees, then the drop from the peak would be

around a quarter; this is likely to be an underestimate, however, as the census-like nature of the tax data does not allow us to observe the true ‘peak’ of presence. The outline is similar to that observed in studies of London and Bristol: there is evidence of considerable rates of absence among apprentices; and the share who are present declines over time.⁴⁶ The speed of decline is somewhat slower than in those larger cities, implying somewhat greater persistence, but the overall trend is comparable.

In Lyon the share of apprentices who had left their master grew steadily over the term, with only about 60 per cent of apprentices present in their final year in the 1680s. Both types of early exit (turnover and cancellation) became less common as time passed. In the 1680s, over 50 per cent of apprentices would transfer or cancel if we take the records at face value. By the 1760s, this had fallen sharply to 24 per cent (although another seven per cent temporarily interrupted). The rest finished and qualified as journeymen, so far as we can tell. It should be recalled that this estimate excludes any exits that did not come to the notice of the guild.

Apprenticeship appears to have been becoming more stable within the Lyon silk industry. Such a development would fit well with later observations of apprenticeship in dense industrial districts in the late nineteenth century and early twentieth century, when completion rates among apprentices were high.⁴⁷ Indeed, they may imply that many of the factors that modern economists point to in explaining why apprenticeships persist – the importance of reputation in obtaining later jobs, the interest employers have in using training to identify productive employees – were increasingly at play in the Lyon silk industry as it continued to grow and intensify over the eighteenth century.⁴⁸ Across both locations, however, the chance of departure grew over time: exits were not – so far as we can tell – heavily clustered at the start or end of training.

Explaining exits from apprenticeship

What caused so many apprentices to exit or change their contracts? Regrettably, none of the sources tell us exactly why these apprentices quit, but we are able to explore some of the

⁴⁶ Minns and Wallis, ‘Rules and reality’.

⁴⁷ B. Elbaum, ‘Why apprenticeship persisted in Britain but not in the United States’, *Journal of Economic Growth* 49 (1989): 340; H. Gospel, ‘The survival of apprenticeship training: a British, American, Australian comparison’, *British Journal of Industrial Relations* 32 (1994): 505-522.

⁴⁸ W. Smits and T. Stromback, *The economics of the apprenticeship system* (Cheltenham, 2001); H.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* 24 (2011): 521-548.

characteristics of the apprentices to see how their backgrounds and ties affected the probability that they would reach completion.

Intuitively, we would expect that the willingness to exit would vary between apprentices. Apprenticeship supplied some of the necessities for economic survival. Yet for help on the road to prosperity, young adults also took advantage of family wealth and connections. Wealthier apprentices had a greater ability to absorb any penalty from early departure. But if their resources were local, they could also give an added motive to stick with their contract. For those whose ties to the city were weaker, exiting might have been easier to contemplate.

If we look at which apprentices left, this logic played out in Shrewsbury and The Netherlands.⁴⁹ In Shrewsbury strong local ties are associated with persistence. Boys bound to their father stayed far more often than those bound to strangers (83 vs. 53 per cent). Apprentices whose fathers were freemen of the Shrewsbury guild they entered (a group that overlaps substantially with those bound to their fathers) were much more likely to be present than those who were not (76 vs. 54 per cent). Those whose fathers were burgesses of the city were also more likely to be present than the rest (67 vs. 53 per cent). Note that the strength of the tie weakens with each step away from the guild. It is kin ties to the institution that dominate here, not geography. In fact, boys from outside Shrewsbury were more likely to remain with their master than local boys who did not have a freeman father (73 vs. 50 per cent). Unlike London and Bristol, the occupation of apprentice's fathers does not leap out as an explanation, but this may reflect the small numbers of parents for which we have information.⁵⁰

The effect of origin and kin ties can also be examined for two of the Dutch samples. Ties to masters mattered here most, followed by local origin. For surgeon and butcher apprentices we can test whether geographical origin affected how likely they were to exit their contract early. Among Amsterdam butchers' apprentices, local youths were much more likely to earn their *leerbrief* than foreigners (75 vs. 63 per cent).⁵¹ However, kin ties (indicated by a shared surname) were more important than geography: completion was much more common for foreign apprentices bound to a similarly-named master than to an unrelated master (66 vs. 23

⁴⁹ The Shrewsbury statistics for this paragraph are based on the 150 apprentices in the sample who were bound 1688-95 inclusive, whose master was linked to a householder, and for whom we are clear if they are found or are missing from the household. If the apprentice was turned over before 1695, we examine their new master's household.

⁵⁰ We know parental occupation for only 48 apprentices of the 150 discussed here.

⁵¹ 287 of 440 Amsterdam butcher apprentices were of foreign descent.

per cent); among native Dutch apprentices, kin ties also strongly favoured completion (70 vs. 29 per cent). Geography and kinship also mattered for apprentices to Leiden surgeons.⁵² Completion was uncommon among immigrants (44 per cent completed), non-citizens were more likely to stay (60 per cent), while master's sons were even more persistent (82 per cent). As in the butchers, kin ties were the strongest predictor of completion, with local connections adding a further reinforcement.

For Lyon, the place of origin of apprentices is the only characteristic that can be used to identify differences clearly, and then only in the eighteenth century, as master's sons did not need to contract apprenticeship. When we compare the fortunes of apprentices from the city of Lyon with those drawn from further afield, we find no major differences in the likelihood that they interrupted or cancelled their contracts.⁵³ Migrants were marginally more likely to cancel their contracts than locals, but the difference was small (15.3 vs. 11.8 per cent) in the 1760s, and trivial (19.0 vs. 17.2 per cent) in the 1740s. There is no sign of the sharper impact that geography had in England. Perhaps local ties mattered here too, but there is no way to tell without more evidence on the fortunes of masters' sons.

It is easy to envisage a rationale that could explain the pattern of departures we see in Shrewsbury and The Netherlands. Apprentices with strong ties to their masters probably entered into the contract with a fuller understanding of their master and the trade, they faced greater disincentives against leaving early, and they could look forward to building on their connections and family resources to find work as a journeyman or to set up their own shop in the future. Conversely, non-local apprentices may have found it easier to exit the trade once they found they had picked-up enough skills, perhaps to use these in a setting where guild monitoring was absent, such as the countryside. Without a record of apprentices' own intentions, we cannot easily test this interpretation, but it does fit with at least some contemporary accounts by artisans, and with records of return migration by apprentices.⁵⁴ It could also explain why exits in Lyon were lower, since a specific skill as silk weaving brought quitting apprentices little opportunities outside the industry.

⁵² Guild fees allow us to distinguish sons of masters, sons of Leiden citizens, and others.

⁵³ The place of origin of the apprentice is rarely recorded when a transfer is being registered in the 1740s and 1760s, so we cannot examine the relationship between transfer and local origins.

⁵⁴ Wallis, 'Apprenticeship and Training'; M. Klemp, C. Minns, P. Wallis, and J.L. Weisdorf, 'Picking winners? The effect of birth order and migration on parental human capital investments in pre-modern England', *European Review of Economic History* 17 (2013): 210-232; I.K Ben-Amos, 'Failure to become freemen: urban apprentices in early modern England', *Social History* 16 (1991): 155-172.

From apprentice to master

We began this paper with the well-known fact that few apprentices later became guild masters. We are now in a position to look at the relative significance of at least some of the different outcomes that apprenticeship might lead to, albeit that our vision is still limited to the probability of spending one's life within the local institutional framework. To what extent were the low shares of apprentices who became masters caused by high exit rates of apprentices or by low career mobility from journeymen to master? Guild structures defined three possible local outcomes for apprentices. The first was exiting during the apprenticeship. The second route was qualifying as journeymen, but not achieving mastership in the local guild. The third option was to become a master in the local guild. A fourth possibility – migration as a journeyman – cannot be observed locally and eludes us here.

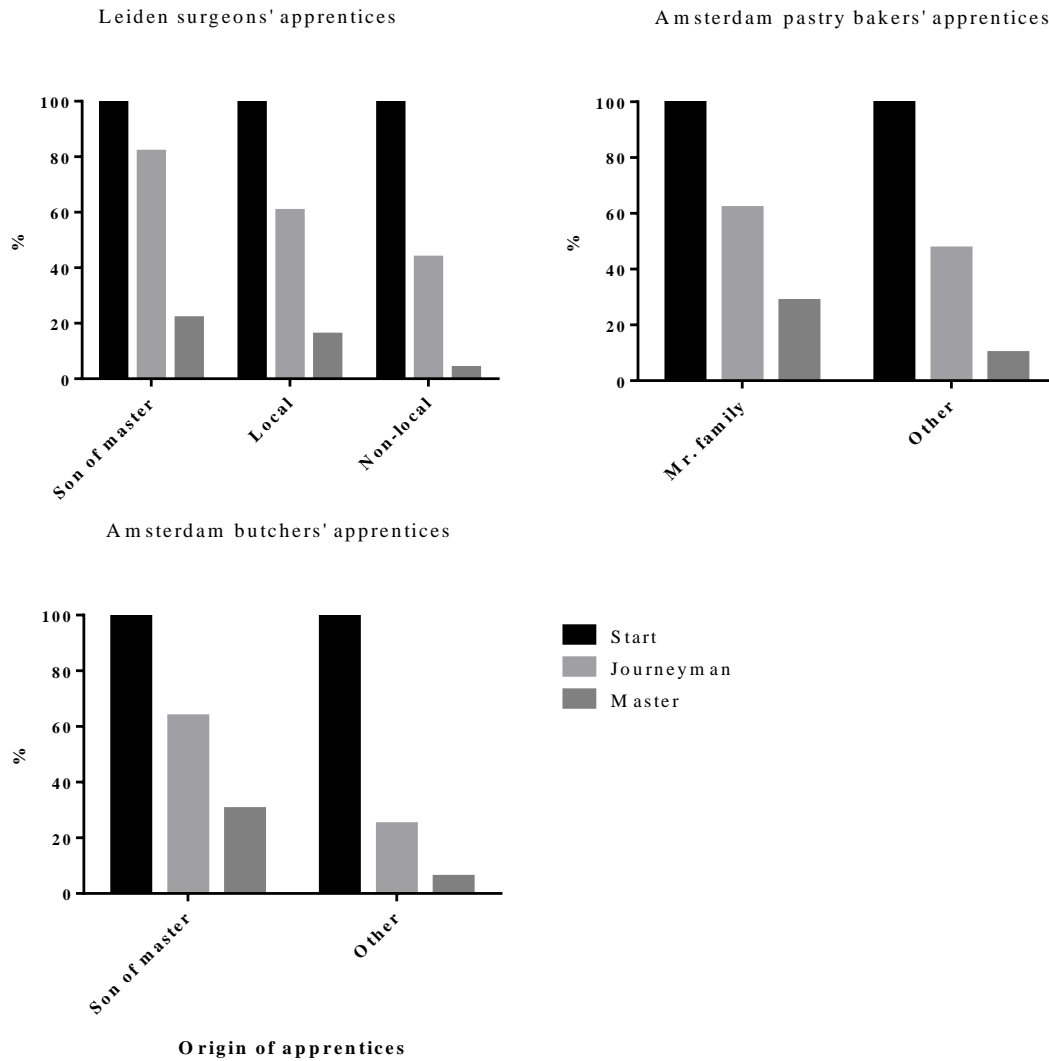
For the three Dutch guilds, lists of masters can be linked to apprentices to examine how dominant each of the first three routes might have been.⁵⁵ Figure 3 shows the share of apprentices receiving their *leerbrief*, as discussed above, alongside the share becoming master, for each group of Dutch apprentices. It is clear that a lot of apprentices who qualified as journeymen would remain so throughout their career. Across the three guilds between 22 and 43 per cent of apprentices qualified as journeymen but never became masters in their local guild.

However, in the Netherlands the likelihood of becoming a master varied greatly between youths with local connections and those without them. In the butchers and pastry bakers guilds, about half of apprentices with ties to local masters who became journeymen would later become masters. The share was lower for the Leiden surgeons (27 per cent) because here a large share of sons of masters obtained their *leerbrief*. Among apprentices without local ties who became journeymen, few would become masters. Both at the butchers' and the pastry bakers' guilds only a quarter of such outsiders who qualified as journeymen would join the guild as a master. Predictably, the Leiden surgeons' guild was even more closed: mastership

⁵⁵ Masters were manually linked to apprenticeship registers. Mismatching is unlikely because for all guilds the lists give full names of masters and apprentices, the year of starting the apprenticeship, and at times the date of becoming master. Apprentices without a *leerbrief* rarely appeared as masters: three (all transfers) in Leiden and none in the Amsterdam butchers. In the Amsterdam pastry bakers' ten apprentices without a known *leerbrief* do appear as masters; the other 77 apprentices who became masters did have one. Five of those without *leerbrief* were related to masters, so it is conceivable that their *leerbrieven* were more likely to be under recorded. In that case the results would only be biased downwards, since we already find a higher propensity to complete among apprentices related to masters.

was achieved by just nine per cent of those without ties who became journeymen. Given that possessing ties already affected the chance of completing an apprenticeship, the effect on the chance of corporate success for these youths was dramatic. Only four to ten per cent of non-local youths who started apprenticeships in these three guilds later became masters, compared to 20 to 30 per cent of youths with kin ties.

Figure 3. Careers of Dutch apprentices within their guild of training.



Notes: Journeyman status is equated with apprentices obtaining a *leerbrief*.

In Lyon mastership was obtainable on several criteria, which makes it more complicated to trace the route from apprentice to master. The main grounds for mastership were apprenticeship (36 per cent), being a master's son (38 per cent), and marriage to a master's daughter or widow (36 per cent); while some qualified under more than one heading. Another three per cent (mostly foreigners) entered after a period working as a journeyman. In Lyon, 5 of 138

apprentices who we know later became masters had cancelled their contracts, suggesting that few who cancelled later returned. The time it took for youths to become masters varied widely. At present, we only have a sample of the register of masters in Lyon covering five years (1769-1773), which renders a meaningful direct linkage with our sample of apprentices impossible.

Nonetheless, we can at least estimate the share of apprentices in Lyon who became masters. Between 1769 and 1773, 281 of 777 new masters entered via apprenticeship, an average of 56 per year. Another 39 former apprentices qualified via another route. Between 1763 and 1765, the latest years in which these masters had started their training, 1,126 new apprenticeships were registered, or an average of 375 per year. If these figures are broadly representative of this period, then around 25 per cent of youths who started as apprentices later became masters. Given our earlier finding that at least eighteen per cent of apprentices cancelled their contracts, this implies that up to 62 per cent of those who started apprenticeships in silk weaving spent their lives as journeymen – or migrated after completing their training. While we cannot calculate odds for the sons of masters, the numbers imply that the chance that a silk-weaver's son became a master in turn must have been substantially higher than the chance that a migrant apprentice attained mastership.⁵⁶

For Shrewsbury, the long term outcomes of apprentices are also difficult to estimate, due to patchy guild records. Overall, 34 per cent of apprentices later became freemen in the three guilds for which we can link apprentices to mastership entries, with rates varying between 24 per cent in the Weavers' and 45 per cent in the Tailors' guild.⁵⁷ Put alongside our earlier estimate of approximately 54 per cent for apprentice persistence, this implies that about eighteen per cent remained as journeymen in the city or migrated elsewhere, a similar share to the Dutch guilds, but much lower than in Lyon.

The same social biases that affected persistence within apprenticeship in Shrewsbury played out in mastership too. Youths who trained with their father were much more likely to become

⁵⁶ For it to be true that only one in four sons became masters (the rate we observe among apprentices) at the same time as sons provided 40 per cent of new masters, then existing masters would surely have to have been achieving unfeasibly high reproductive rates, even if all their sons entered their trade.

⁵⁷ Freedom rates are calculated for a sample of 211 apprentices in three guilds c. 1680-1700 for which consistent records of freedom (mastership) entries survive for at least 26 years after youths started their apprenticeship: Shropshire Archives, MS 6001/5837, 4262, 3360.

masters themselves in the Mercers and Weavers' guilds.⁵⁸ Oddly, among tailors apprentices, kin were less likely to become masters. Youths from Shrewsbury were also more likely to become masters (39 vs. 31 per cent). The sample size of apprentices observable during 1695 is small and its interpretation complicated as some absences were because apprentices had not yet arrived, rather than having quit, but as we would expect apprentices who are found with their master were more likely to later become masters themselves.⁵⁹

Shrewsbury offers us one other useful, if crude, indicator of success: the share of apprentices who later became burgesses in the city. The burgesses were a small, wealthy group, whose rights were primarily political rather than economic. Entry was a general indicator of wealth and success, as well as a reflection of strong local networks. Only a minority - sixteen per cent - of those who registered apprenticeships can be traced in the register of burgesses. Among this group, those apprentices found with their masters were more than twice as likely to become burgesses than those who were absent (21 vs. 9 per cent). Absence seriously reduced the chance of succeeding on this (local) measure. We simply cannot tell whether this was through the channel of migration, death or reputation. Note, though, that absence did not always prevent apprentices succeeding: the fluidity of apprenticeship contracts that we observe here is not a simple division between successful (present) and failed (absent) apprentices. Absence could also come about as apprentices took the chance to find a better match, pursued an alternative career, or seize an opportunity, or delayed starting work with their master.

Mastership was the exception not the rule for all youths who began an apprenticeship. But it was more likely to be achieved by those with strong ties to the guild, particularly the sons of existing masters. We can explain this outcome in two ways: guilds might treat the sons of their membership favourably; or sons might be at an advantage because they possessed local resources and assets. There is evidence that some guilds did favour their own. Among those we discuss here, Lyon did not expect masters' sons to serve an apprenticeship, for example,

⁵⁸ Mastership rates for sons/others: Mercers: 63 vs. 42 per cent (n=75); Weavers: 67 vs. 29 per cent (n = 40); Tailors: 14 vs. 27 per cent (n = 97).

⁵⁹ In the Weavers Guild 17 per cent of apprentices found with their masters were later freed vs. 12 per cent of those absent (n= 6, 8), in the Mercers the rates were 47 vs. 20 per cent (n = 19, 5). In the tailors the rates were reversed, 17 vs. 36 per cent (n = 30, 14), likely due to the large share of absences among apprentices in years 1-3 who had not yet arrived (10 of 14 apprentices in the 'absent group' were at this point in their terms). This time effect is clear across the sample: 30 per cent of apprentices present who were in years 4 to 7 of their contract later became masters vs. 13 per cent of those absent at this stage (n=44). Conversely, only 25 per cent of those present in their first three years later became masters compared to 42 per cent of those who were not (yet?) present in their first three years (n=38).

while in Shrewsbury, some masters' sons also seem to have entered without a formal apprenticeship. Where insiders and outsiders entered apprenticeship, however, there is no sign that outsiders were treated differently or discouraged. In Shrewsbury's guilds as in most Dutch guilds, they paid the same fee to become a master as sons did. No mastership tests are recorded in the records of Shrewsbury's guilds discussed here, and no report survives of any applicants for membership being rejected. Unless they controlled a declining industry, urban guilds depended on a flow of new blood to survive, and given that circumstance already favoured the chances of their own offspring they could have seen little reason to systematically deter incomers.

Conclusion

In this paper we explored the rates of failure to qualify for apprenticeship and trades in pre-modern Europe. Our results are broadly consistent across all three case studies, and suggest three main conclusions. First, a substantial share of apprentices did not finish their training contracts and qualify as journeymen. This was a failure that came at a significant economic cost for the individual, if they wished to pursue the same occupation. The price of failure depended on the degree to which guilds and other authorities enforced the barrier to non-qualified journeymen, but it is unlikely to have been trivial in any of these contexts.⁶⁰ For those youths who sought a future in a different line of work, an early exit was instead a liberation from a useless bondage. Second, when we are able to identify which apprentices depart and which stay, there seems to be evidence of both economic rationality and insider preferences: local ties increase the chances of completion, direct guild ties lift them even further. Lastly, none of the guilds we explored appear to have attempted to enforce apprenticeship contracts, whether with an eye to more efficient training or to support exploitative masters. This argues against both the positive and pernicious hypotheses of guilds influence on training.⁶¹ Nor, for that matter, do high rates of exit sit comfortably with the idea that apprentices were merely time-serving in order to obtain occupational credentials.

⁶⁰ Cf. De Munck, 'One counter and your own account'; Sonenscher, *Work and wages*, ch. 5.

⁶¹ Epstein, 'Craft guilds, apprenticeship, and technological change'; Ogilvie, 'Guilds, efficiency'; C.A. Davids, 'Apprenticeship and guild control in The Netherlands, c.1450-1800', in B. De Munck, S.L. Kaplan and H. Soly, eds., *Learning on the shop floor: historical perspectives on apprenticeship* (New York, 2007), 65-84; B. Elbaum and N. Singh. 'The economic rationale of apprenticeship training: some lessons from British and U.S. experience', *Industrial Relations* 34 (1995): 593-622.

Pre-modern cities set out a normative institutional framework for work that appears on the surface to define a highly segmented labour market. Yet the practice of apprenticeship was flexible not rigid. Youths came and went. Failure rates were high. Their decisions were shaped by the opportunities they encountered and the resources they possessed, as well as the risks they faced.⁶² In the context of the high departure rates we observe here, it seems reasonable to assume that many apprentices must have entered training with the expectation that they were not likely to attain guild membership or even the status of journeymen. Masters in turn must have recognized this risk instead of trying to enforce compliance. Guilds and cities coexisted comfortably with this. The most bureaucratic, such as Lyon, monitored mobility and set up systems to process exits. Whenever contract breach was an issue it was probably cities, through courts, who mediated the process of breakups, and not guilds.⁶³ Nevertheless, in Shrewsbury and The Netherlands most simply ignored it.

One modern parallel can be found in today's universities, where drop-out rates are often substantial, yet institutions offer no strong deterrent to entry. The comparison highlights the two sides of this flexibility: on the one hand, dropping out can signal poor-quality provision; on the other hand, dropping out allows students to escape from bad matches to courses and careers. Lowering drop-out rates could, as a consequence, lead to poorer outcomes for some individuals. Increasing rigidity and inflexibility could have deterred potential entrants or locked individuals into bad choices. This could matter particularly in a context where localized labour markets pushed guilds and cities into the position of seeking to attract labour to meet demand, rather than simply participating in larger regional or national pools.⁶⁴ We cannot measure these costs and benefits directly in the past, but two aspects of this system – the long survival of these local regimes, and the connection being drawn in recent work between flexible training systems and economic growth in the past – suggest that the wider moral to be drawn would be that 'failure' has its own value.⁶⁵

⁶² Schalk, 'From orphan to artisan'; Minns and Wallis, 'Rules and reality'.

⁶³ Wallis, 'Labor, law, and training'.

⁶⁴ Cf. Dambruyne, *Corporatieve middengroepen*; B. Panhuysen, *Maatwerk: kleermakers, naaisters, oudkleerkopers en de gilden (1500-1800)* (Amsterdam, 2000).

⁶⁵ M. Kelly and C. Ó Gráda, 'Ready for Revolution? The English Economy before 1800', *UCD Centre for Economic Research Working Paper Series* WP14/18 (2014) (URL: <http://hdl.handle.net/10197/6131>).

Appendix

Share of apprentices becoming master within their guild of training.

City	Guild	per cent	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

Notes: Estimates in italics. The figure for Vienna refers to apprentices completing their contracts

Sources: Ben-Amos, 'Failure', 157; De Munck, *Technologies*, 161-167; Lopez and Nieto, 'Apprenticeship in Madrid', 16; Ogilvie, *State corporatism*, 149; Schalk, 'Apprenticeships and craft guilds', 19; Sola, 'Craft apprenticeship', 10-12; Sonenscher, *Work and wages*, 109-110; Wallis, 'Apprenticeship and training', 839; Wallis, 'Research memo Lyon apprentice-master linkage'; Wesoly, *Lehrlinge und Handwerksgelesen*, 90; Steidl, *Auf nach Wien!*, 253.