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**Apprenticeship, Training and Guilds in Preindustrial Europe**

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This is a revised version.

**Abstract:**

The relationship between apprenticeship and acquiring craft skills in the context of preindustrial work has recently attracted new interest. In this paper, I re-examine the structure of premodern apprenticeship. I propose a new account of how the costs of training were distributed over the term of the contract in such a way that neither master nor apprentice risked significant loss from breach of contract. This reinterpretation fits with evidence of high levels of apprentice quits and other characteristics of premodern apprenticeship, as well as with what is known about the acquisition of tacit knowledge in modern and preindustrial societies. Finally, various reasons for guilds becoming involved in the control of apprenticeship are discussed, and it is suggested that guilds acted primarily in order to limit apprentice numbers and reduce competition to members.

In this paper I re-examine the economics of premodern apprenticeship. The organisation, purpose and efficiency of apprenticeship has recently become the subject of some discussion. I argue that the standard account of how the costs of the training received during apprenticeship were paid for by apprentices' subsequent labour are inconsistent with our knowledge of how apprenticeship operated. In particular, it is incompatible with apprentices high rates of early departure from masters, and our understanding of how skills are acquired. I therefore suggest an alternative model for how apprenticeship could operate as a sustainable system in these circumstances. This is based on a longer distribution of less intensive training, that runs alongside rather than precedes apprentices engagement in valuable labour services. I argue that this allows a closer matching between the master's costs of training and the apprentice's repayment of these costs. In the final section, I sketch out the consequences this has for our understanding of the effect of guilds on apprenticeship. This discussion of apprenticeship and guilds is largely focused on England in the sixteenth to mid-eighteenth century, with some reference to other parts of Europe, although the argument about the economics of apprenticeship is, I believe, generally applicable for preindustrial Europe.<sup>1</sup> One finding that should be emphasised at the outset is the significant divergence that appears to have existed between premodern and modern apprenticeship structures. The standard account of the economics of apprenticeship appears to fit the evidence for nineteenth and twentieth-century training. This suggests that shifts in employment structures, most likely the growth of large firms with its attendant shifts in expectations among skilled workers about their likely contract duration, allowed employers to move to a more efficient training schedule.

## 1.

Apprenticeship was a system of training in which young men worked with established craftsmen and merchants in order to learn a trade. Apprenticeships were normally formal arrangements in which apprentice and master entered into a contract, or

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<sup>1</sup> After the mid-eighteenth century, English apprenticeship changed noticeably: Snell, 'Apprenticeship system', 313-321. I am also not considering the closely related, but distinct institution of pauper apprenticeship here. Pauper apprenticeship appears to have often occurred earlier and with much less emphasis on acquiring a skill: Sharpe, 'Poor Children'

indenture. This generally specified that the apprentice was to serve and obey his master, and behave well – not gambling, drinking, marrying and so on. In exchange, his master undertook to teach him his trade and provide him with keep and lodging, normally as part of his household.<sup>2</sup> In towns, these contracts were often registered, or 'enrolled', by the guild and/or urban authorities.<sup>3</sup> At the time of binding, apprentices' families often paid a fee, known as the 'premium', to the master.<sup>4</sup> It was also common for apprentices' family or friends to enter bonds for their behaviour and honesty.<sup>5</sup> In the first years of service, apprentices' board and clothing might even be subsidised by their parents.<sup>6</sup> Apprentices rarely received wages, although some were given payments on completing their terms or had their freedom fees paid by their masters.<sup>7</sup> Wages might even be seen as illegal: in 1744 the Chamberlain of London declared that 'a master by his oath could not give his apprentice wages'.<sup>8</sup> The length of apprenticeships varied, although in England a term of seven years was set as a legal minimum in 1563 and became the norm across the country.<sup>9</sup> When the terms of indentures were broken, guild, civic and other legal bodies could intervene to resolve disputes. Some impression of the significance of apprenticeship can be gained from the numbers involved. Rappaport has estimated that roughly 10% of London's population in 1550 (7,250 of 70,000) were apprentices, and two-thirds of all adult men in London had served apprenticeships.<sup>10</sup>

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<sup>2</sup> Transcripts of indentures are given in: Dunlop, *English Apprenticeship*, pp.351-3.

<sup>3</sup> Dunlop, *English Apprenticeship*, pp. 162-3

<sup>4</sup> There is limited information on premiums before they became subject to tax in 1709. Dunlop argued that they only became normal in the seventeenth century, citing a rule of the Newcastle Adventurers from 1555 forbidding them (*English Apprenticeship*, p. 53, 200-212); Brooks suggests they were common throughout the period from 1550 to 1800 ('Apprenticeship', pp. 53, 60, 66-69).

<sup>5</sup> In England, bonds appear to have been for the apprentices' 'truth', and were forfeit in cases of embezzlement and the like. See: Brooks, 'Apprenticeship', note 63 on p74. They were not forfeit for non-completion. In late 18c Canada, by contrast, contracts included returning apprentices who ran away: Hamilton, 'Decline', 653.

<sup>6</sup> Ben-Amos estimates this as worth £6 to £7 in early 17c Bristol: *Apprenticeship*, p. 111. Boulton has figures for London in the 1620s: *Neighbourhood*, pp. 120-37; Earle discusses late 17c living costs: *Middle Class*, ch. 10. Epstein, *Wage Labor*, p. 85.

<sup>7</sup> Payoffs are well recorded for Southampton: Willis & Merson, *Southampton Apprenticeship*; Bristol in particular: Bristol apps volumes [full ref]. Stephanie Hovland has found that such pay-offs were often equivalent to the sum required to obtain the freedom of a town.

<sup>8</sup> Welch, *Pewterers*, ii, 191. See also: Dunlop, *English Apprenticeship*, pp. 178-9.

<sup>9</sup> This legal minimum meant that English apprenticeships were longer than in most other countries. Average term in Montreal, 1791-1842: 5.08 years (Hamilton, 2000: 631). For earlier longer terms: Dunlop, *English Apprenticeship*, p. 47 (15c London Ironmongers and goldsmiths both set 10 years minimum). For the tendency of terms to be 7 years: Dunlop, *English Apprenticeship*, p. 166-7.

<sup>10</sup> Rappaport, *Worlds*, pp. 232, 294. See Schwartz, 'London apprentices' on the range of estimates and their problems.

Preindustrial apprenticeship has generally been regarded as a bad thing by economists and historians since Adam Smith's critique in *The Wealth of Nations*. Smith saw apprenticeship as an imposition intended to restrain competition to the advantage of master craftsmen by limiting the number of apprentices and extending their terms beyond the time necessary to acquire a skill.<sup>11</sup> His hostility to apprenticeship was based on a range of moral and practical objections that have convinced most subsequent commentators that the system was, indeed, oppressive for apprentices who were exploited by monopsonistic employers. Swanson, for example, suggests apprenticeship was 'no more than a way of acquiring virtually free labour'.<sup>12</sup> However, this orthodoxy has not convinced all historians. In an impressive essay that discusses the effects of guilds on training and technological change in preindustrial Europe, S. R. Epstein has proposed that the primary reason for the existence of guilds was to regulate apprenticeship contracts between masters and apprentices in order to reduce the negative externalities of technical training.<sup>13</sup> Guilds and apprenticeship were, he argues, the 'best available solution' to the problem of how to transmit expertise.

At the centre of this difference of opinion on the efficiency of apprenticeship is what might be termed the 'standard account' of the economics of apprenticeship, which is shared by all modern commentators. In this formulation, masters recoup the costs of training *retrospectively* by having the skilled apprentice work at below-market wages for a sufficient period to equal the expense of their training: the opportunity costs of the time each spent on instruction not work, the direct costs of materials and space used in training, and the apprentices' board, keep, and any benefits they received.<sup>14</sup> A version of this analysis was given graphical form in the 1930s (figure 1), a time when *contemporary* apprenticeship did seem to take this form.<sup>15</sup> As this shows, the value of

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<sup>11</sup> Smith, *Wealth of Nations*, pp. 222-7.

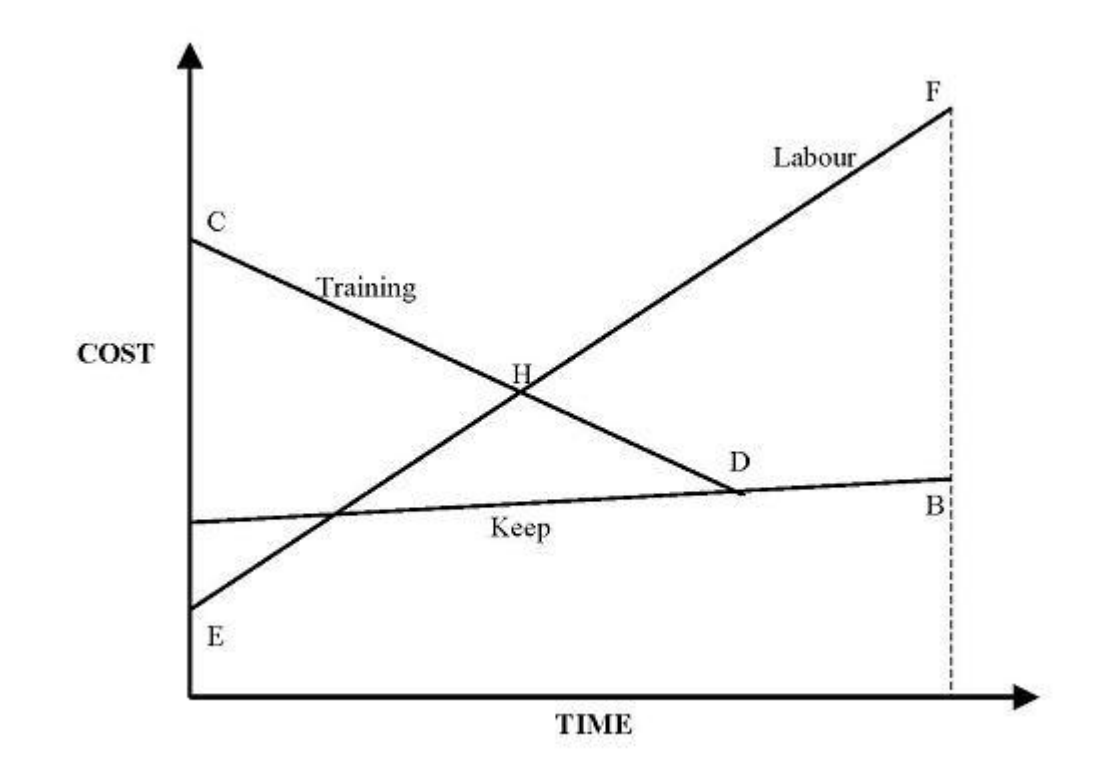
<sup>12</sup> Swanson: *Medieval Artisans*, p. 115. See also: Earle, *Making of the English Middle Class*, p. 85. Sheilagh Ogilvie has recently restated the case that apprenticeship was unnecessary and oppressive: Ogilvie, 'Guilds, Efficiency, and Social Capital', pp. 286-333.

<sup>13</sup> Epstein, 'Craft Guilds, Apprenticeship, and Technological Change'. Much the same argument is developed in: Epstein, 'Power, Resistance and Authorities', pp. 46-63; *idem*, 'Apprenticeship' in Mokyr, *Oxford Encyclopedia of Economic History*.

<sup>14</sup> Rappaport, 'Reconsidering', p. 260; Hamilton, 'Decline', pp. 642-3. On wages and benefits paid to apprentices (including releasing them from service a year early), see Epstein, *Wage Labor*, pp. 75-6, 110. Wages were more common in the 14c, it seems: Nicholas, 'Child and Adolescent Labor', pp. 1122-3.

<sup>15</sup> Elbaum, 'Apprenticeship', p. 343-4.

the apprentice increases with training until at point H he becomes an asset.<sup>16</sup> As R. B. McKerrow, the author of the diagram noted, his 'initial value is the area FHDB minus the area CHE. (This ignores risk of death, &c.)'. However, it is precisely the 'death &c' that must be addressed.



**FIGURE 1. Standard account of apprenticeship<sup>17</sup>**

The 'death &c' which McKerrow glossed over presents a fundamental problem for the standard account of apprenticeship. Premodern apprenticeship not only coexisted with a significant risk of death and disability, it also survived against a background of

<sup>16</sup> There is some disparity between such formal representations and the assumptions implicit in much of the literature over whether or not training is provided *throughout* the term, or not, and thus whether the apprentice ever spends time in service once fully skilled. An alternative formal description, based on similar assumptions about the distribution of costs and training, but with a constant wage, is given in Hamilton, 'Enforcement', pp. 572-3. This model of apprenticeship training may well approximate better to practice in the nineteenth and twentieth century: Elbaum & Singh, 'Economic Rationale', p. 597, 598.

<sup>17</sup> Adapted from: W.W. Greg & E. Boswell, eds., *Records of the Court of the Stationers' Company 1576 to 1602 — from Register B* (London: The Bibliographical Society, 1930), p. xliii, n.1. I am grateful to Ian Gadd for drawing my attention to this figure and providing a copy of it.

high levels of early departure by apprentices. Indentures were seemingly not enforced in such a way as to stop apprentices leaving their masters before the end of their terms; similarly incentives for completion – payoffs at the end of terms, for example – were not enough to keep most at work.<sup>18</sup>

Studies of a variety of guilds and towns across England and some parts of Europe have repeatedly found the same picture of frequent non-completion. Large numbers of apprentices failed to finish their terms, at least in so far as this can be measured by their failure to take up the opportunity to become freemen of the town or city where they had trained (table 1). With rates of completion as low as 40% in many English cities in the sixteenth and seventeenth century, interrupted apprenticeship was the norm not the exception; apprenticeship was hardly the 'direct route to mastership', Farr envisages.<sup>19</sup> The contrast with completion rates of over 90% in England in the 1920s is dramatic.<sup>20</sup>

**TABLE 1: Apprenticeship completion rates in England**

Location	Guild	% Completing Apprenticeship
London, 1490-1599 <sup>1</sup>	Broad Sample	41
London, 1633-1660 <sup>2</sup>	Masons	52
	Carpenters	40
	Stationers	47
	Cordwainers	28
	Drapers	38
London, mid 15c <sup>4</sup>	Merchant Taylors	35
	Goldsmiths	44
	Mercers	51

<sup>18</sup> Indentures may, however, still have a positive purpose in defining the terms of work and hence the conditions under which a contract could be ended. Similarly, payoffs may have been useful in retaining apprentices who were near completion, even if they were ineffective earlier.

<sup>19</sup> Farr, *Artisans*, p. 34.

<sup>20</sup> Elbaum, 'Apprenticeship', p. 340.

Bristol, c.1500-c.1650 <sup>3</sup>	All	24-35
Bristol, late 17c <sup>3</sup>	All	c.50
Norwich, late 16c <sup>6</sup>	All	44
Norwich, 1510-1700 <sup>8</sup>	All	17
Chester, 1558-1625 <sup>7</sup>	All	c.50
Sheffield, 1624-1814 <sup>9</sup>	Cutlers	47

**Sources:** <sup>1</sup> A sample of 44,000 London apprentices bound in 15 different companies from 1490-1599: Rappaport, *Worlds*, pp. 311-12. <sup>2</sup> Smith, S. R. "The Social and Geographical Origins of the London Apprentices, 1630-60." *Guildhall Miscellany* 4 (1973), pp.196-8. <sup>3</sup> Ben-Amos, I. K. "Failure to Become Freeman: Urban Apprentices in Early Modern England." *Social History* 16 (1991): 155-72. See: A. Yarborough, 1979 (c. 2/3). For part of 17c London, Boulton suggests that only 41% complete apprenticeships: Boulton, J. P. *Neighbourhood and Society: A London Suburb in the Seventeenth Century*. Cambridge: Cambridge University Press, 1987, p. 104. <sup>4</sup> Merchant Tailors for 1425-45, 1453-58: Davies, 'Tailors', p. 194; Goldsmiths for 1444-1500: Hovland, Stephanie R. "Apprentices in the Records of the Goldsmiths' Company of London, 1444-1500." *Medieval Prosopography* 22 22, no. 1 (2001): 89-114; Mercers for 1391-1464: Imray, 'Les Bonnes Gentes'. <sup>6</sup> Pound 1988. <sup>7</sup> Woodward, 1971. <sup>8</sup> Patten, Patterns of Migration, *J Hist Geog*, 1976, p. 122. <sup>9</sup> Unwin, 'Apprenticeships', p. 197.

These data are far from perfect. Figures for completion rates are gathered from apprentices who entered the freedom of their guild or town. Others may have finished the term of service, but never entered the freedom. Becoming a freeman normally involved various costs – payments to guilds and city fees – which while not always large, could serve as a disincentive.<sup>21</sup> Some guilds, for example, demanded that new freemen pay for a dinner for senior guild members or give a gift, often a silver spoon. However, it does not seem that those who did not take the freedom were poorer than those who did, as we would expect if cost was the key factor.<sup>22</sup> Moreover, in some cities it was normal for masters to pay fees on behalf of apprentices, or else for the freedom to be automatically available to anyone who finished their term, as in

<sup>21</sup> Costs are discussed in Ben-Amos, 'Failure', 159; Dunlop, *English Apprenticeship*, pp.46-47, 168-171.

<sup>22</sup> Ben-Amos, 'Failure', 159-61.

Bristol.<sup>23</sup> There is evidence that, in some situations, artisans waited until they wished to establish an independent workshop before they bothered to take the freedom, and delays between the end of an apprentices term and taking the freedom were common.<sup>24</sup> That said, given the benefits that the freedom brought – the right of settlement and the right to work at a trade in the town or city – it seems likely that many of these non-finishing apprentices had left well before the end of their term.<sup>25</sup>

We have limited amounts of more precise information about when apprentices' left their masters. The only published evidence on the timing of departure comes from Bristol, where Ben Amos found that most apprentices for whom a time of departure was recorded left in the first two years (59 of 99). This sample is likely to be distorted, however. Departure dates were recorded for only 5% of Bristol apprentices, whereas roughly 60% of them failed to become freemen.<sup>26</sup> For London carpenters' apprentices between 1540 and 1590, the guild's book of apprenticeship enrolments records their fate, but not the point at which it occurred: only 39.7 % were freed. Of the rest, 14.6% died. This level of mortality fits with modern estimates, according to which mortality can explain the fate of roughly 10% of apprentices.<sup>27</sup> Only 1.1% wed, and thus voided their indenture, but this is also representative of wider patterns. Unfortunately, the remaining 44.6% were simply described as 'Gone'.<sup>28</sup>

For London apprentices in the 1690s it is possible to get a better sense of the point in their term at which apprentices left. Figure 2 and table 2 show the percentage of apprentices still resident in their original masters' household, broken down by the time elapsed since their apprenticeship began, for a sample of 117 masters in several London guilds. The steady decline over time in the percentage of apprentices who are still in service with their original master is clear.

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<sup>23</sup> Hovland, pers.commn. Masters paying fees for freedom is specified in indentures enrolled in: REFS (Bristol, Southampton...).

<sup>24</sup> Time lags for Cutlers: Unwin, 1995: 200. Bristol? London? Unwin argues that in Sheffield most stayed but remained non-free, based on the apprenticeship of cutlers' sons, and the lack of alternative opportunities (as cutlers required good quality steel): Unwin, 'Apprenticeships', 201.

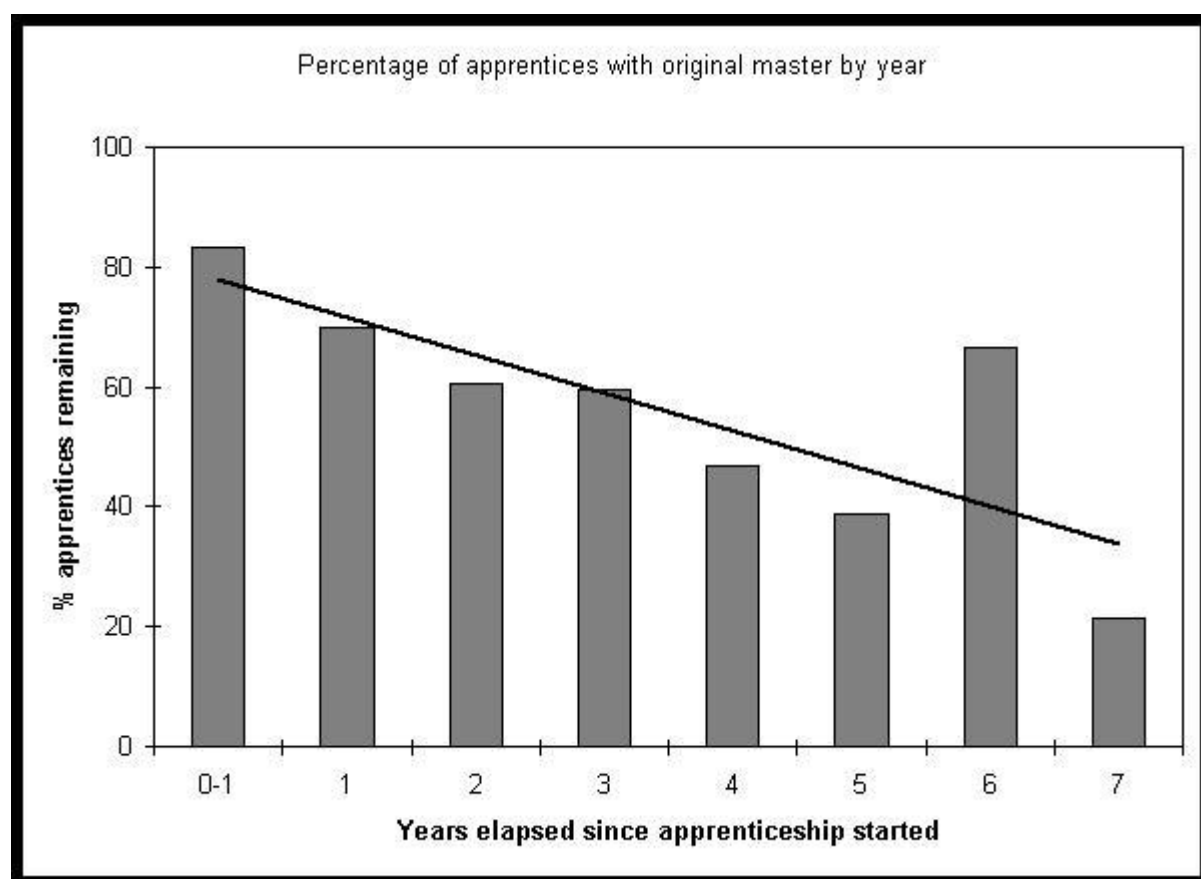
<sup>25</sup> Rules seeking to prevent non-freemen working in English towns were widespread: Dunlop, *English Apprenticeship*, pp. 78-82; Ogilvie, *State Corporatism*, pp. 148-9, 157-8.

<sup>26</sup> Ben-Amos, 'Failure', p. 167

<sup>27</sup> Estimates of 10% include Rappaport, *Worlds*, p. 313; Ben Amos, 'Failure', p. 155. Schwarz, 'London apprentices'. On sickness: Pelling, 'Apprenticeship'; Pelling, *Common Lot*.

<sup>28</sup> Rappaport, *Worlds*, p. 313.



**Figure 2: Percentage of apprentices with original master by year****Table 2: Percentage of apprentices with original master by year**

Years of term elapsed	Number of apprentices	Number resident with master	% resident with master
0-1	18	15	83.33333
1	30	21	70
2	33	20	60.60606
3	37	22	59.45946
4	15	7	46.66667
5	18	7	38.88889
6	18	12	66.66667
7	14	3	21.42857
<b>TOTAL</b>	183	107	58.46995

Source: See Appendix

The rate of departure apparent in figure 2 is, it should be noted, likely to be a moderate overestimate. Some apprentices may have been temporarily absent when the tax assessment it is based upon was taken: apprentices could leave their master's household for short periods without ending their term (normally fourteen days

although sometimes much longer). Others might be working on their master's behalf elsewhere (although this was most common for merchants, seamen, and surgeons, not guilds for which apprentice data was available on this occasion). Apprentices could also be 'turned over' to other masters during their term, moving rather than quitting. This was only occasionally recorded in guild apprenticeship registers.

We can, however, get some sense of the scale of turning over from the same dataset. In addition to the 164 apprentices who could be identified in the guild apprenticeship registers as being bound to the householder, a number of other apprentices were found when the Marriage Assessments were examined. Eighteen apprentices who had been originally bound to other masters were identified among those living with the masters in the sample, presumably having been formally or informally turned over.<sup>29</sup> As table 3 shows, these apprentices were as likely to be in their first year of service as their sixth; turning over could occur at any stage in the term. We might safely expect that an equivalent number of apprentices in the sample who were missing had in fact been turned over rather than quit, suggesting that roughly 10% of those missing had left their masters in this way.

**Table 3: Years of service of turned over apprentices resident with new masters**

years elapsed	N	%
1	3	16.66667
2	3	16.66667
3	4	22.22222
4	3	16.66667
5	1	5.55556
6	4	22.22222
7	0	0
<b>total</b>	<b>18</b>	<b>100</b>

Inevitably, not all apprentices are captured by this exercise. The status and role of male servants is an obvious gray area. In addition, there were also another ten people described as 'apprentices' by the tax assessors who could not be identified in the records as being bound in that company. These may have been apprentices who were present 'on liking'; the trial period of between a month and a year that was common before formally contracting an apprenticeship. More definite evidence of this practice

<sup>29</sup> The assessors often classed apprentices and servants together as 'servants'. All servants were therefore checked against the apprenticeship lists to see if they had been bound to another master.

is apparent in the five apprentices who were present in their masters household before they were officially bound, one nearly four years in advance of his enrolment.

The scale and timing of departure apparent in the 1695 sample suggest that apprentices quit steadily *throughout* their term. Apprentices were not remaining with their master but simply not taking the freedom. Nor is there an obvious cusp, which we might expect if they were leaving after a definable training period had passed. The percentage who remained with their original master until the end of their term fits with the pattern apparent from freedom registers, suggesting these are a reasonably good indicator of whether an apprentice finished their term.

What explains these early departures is hard to establish.<sup>30</sup> Some apprentices slipped into vagrancy or a marginal existence.<sup>31</sup> Yet others departed when their masters' businesses could no longer support them. A number left after a breakdown in relations with their masters. City courts frequently heard cases in which apprentices sought to be released from their indentures because of problems with their master; their petitions cited a limited range of failings by masters, generally excessive correction or abuse, not giving training, and failing to supply necessaries, such as food or clothing. Conversely, masters complained about apprentices' refusing to return to their service, being drunkards, attacking them or their family, or embezzling money from the shop. Such formal, and relatively costly, attempts to end apprenticeships are rare. Legal intervention was not required to end an apprenticeship: 'the agreement of the master and apprentice, and under his master's hand' was sufficient, as Dalton pointed out in a guide for Justices of the Peace.<sup>32</sup> Court cases thus emerged when apprentice or master was unwilling to end the term, and a number clearly relate to attempts to recover a portion of the premium paid on binding. That said, it is likely that the grievances participants described were not unusual.

Nonetheless, leaving their masters was probably a positive decision for many apprentices. Opportunities elsewhere, inheritances, marriage: all could draw an

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<sup>30</sup> I am intending in the future to carry out a full analysis of an expanded sample to see what light this can shed on this question.

<sup>31</sup> Archer, *Pursuit*, p. 15; Beier, A. L. "Social Problems in Elizabethan London." *Journal of Interdisciplinary History* 9, no. 2 (1978): 215.

<sup>32</sup> Dalton, *The Countrey Justice* (1618), 59-60. Quoted in Ben-Amos, 'Failure', p. 167.

apprentice onto a different path. In larger cities, in particular, it seems likely that many apprentices always intended to curtail their term after acquiring skills. As centres of skill, training in a large city offered a good basis on which to establish a business elsewhere. The apprentice could then move to another area where they might have connections who could help them establish a business, or perhaps simply face a less competitive market.<sup>33</sup> It is suggestive in this regard that where a craft could not legally be practiced elsewhere, as was the case for printing in England, which was restricted to London, and Oxford and Cambridge Universities, apprentices were significantly more likely to become freemen, with 60% taking the freedom, compared to an average of 45% for London apprentices at that time.<sup>34</sup> Laws in England to prevent people practising most other trades without serving an apprenticeship were enforced patchily, particularly outside corporate towns with strong guilds, and might be circumvented through inherited rights or purchase.<sup>35</sup>

The implications of this high level of early departure for the standard account of how training costs and labour services are distributed across the term of apprenticeship are obvious. If an apprentice did not finish their term, then they did not pay off the costs of their training retrospectively; there was no transfer mechanism so that the loss suffered by one master might be offset by benefits provided by those apprentices who do finish their terms, nor do masters in general take enough apprentices over their own careers that they could offset the losses from one against gains from another. In short, if apprenticeship worked as the standard account suggests, premodern master artisans were making a loss on most of their apprentices. The outcome should, surely, have been a breakdown in the system of training. Yet still apprenticeship persisted.

## 2.

How did apprenticeship operate in such a way that it survived? How do masters and apprentices deal with the reality of opportunistic early departure? In deciding about

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<sup>33</sup> The possible reasons and timing of apprentice departure are discussed in: Ben-Amos, 'Failure', 161-166; Thrupp, 'Gilds', p. 268; Rappaport, *Worlds*, pp. 314-5; Lamour, 1967, 479 (Paris).

<sup>34</sup> Gadd, 'Corporate Identity', p. 72

<sup>35</sup> Davies, *Enforcement* remains the only serious analysis of the enforcement of apprenticeship laws. Even in Middlesex, including the margins of London, prosecutions of artisans for working without apprenticeships were few in number (about twenty-four a year) in the later seventeenth century: Shoemaker, *Prosecution and Punishment*, pp. 131-2.

investments in training, the central issue faced by an employee and employer is how to distribute the costs involved so that they match the respective benefits each receives; the key factors influencing the decision are the nature of the training, whether general, specific, or transferable, and the closely related question of the competitiveness of the labour market.<sup>36</sup> The first step in constructing an alternative analysis of apprenticeship must therefore be to identify the relative costs and benefits involved, for which we need some understanding of the nature of skills and the organisation of employment and production.

In the standard model, it was assumed that training was general, and that it was therefore paid for by the apprentice since they will capture the returns through their later earnings, as suggested by standard human capital theory.<sup>37</sup> This assumption about the generality of craft skills seems plausible. Production in most crafts was highly fragmented into small workshops producing similar goods, giving a wide range of possible employers, in addition to which many artisans would later establish independent businesses.<sup>38</sup> In addition, labour was mobile, and there was little likelihood that those apprentices would continue in long-term employment with the same master except in a handful of larger enterprises, such as the Venetian Arsenal. Apprentices therefore had good reason to invest in their training, as they would later be able to use their skills independently or in employment with one of a large number of employers.

For master craftsmen, by contrast, there was little, if any, individual incentive to invest in training apprentices, despite their collective need for skilled employees. The primary motivation of masters in taking apprentices is often identified as their demand

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<sup>36</sup> Standard human capital theory distinguishes between general skills (of equal value to a number of firms in a competitive labour market) and specific skills (of value to one firm only). The concept of transferable skills captures training that may be of use to a small number of firms, but is not entirely general. Within an imperfect labour market, Stevens shows that transferable skills will result in externalities that lead to underinvestment in training by firms. However, her analysis also shows that this effect declines when skills are transferable to a large number of other firms; at this point transferable skills approximate closely to general skills. Stevens: 'Theoretical model'; idem, 'Transferable training'.

<sup>37</sup> Epstein has recently suggested that craft skills are transferable (of some value to at least one other employer, but not many) rather than general, and thus some of the costs of training will be born by the employer in the expectation of capturing some of the returns. This seems to me unhelpful, in that it understates the generality of the skills that apprentices acquired and their willingness to pay for their training themselves. Epstein, 'Craft', p. 690. See also: Stevens, 'Theoretical Model'.

<sup>38</sup> Cf. Epstein, who suggests that craft industry was organised into oligopsonistic firms: p. 690, n. 25

for labour. However, a workshop's demand for skilled employees could likely be met from the pool of travelling journeymen, just as their need for unskilled labour could be answered by the employment of servants or labourers. One possibility is that demand for apprentices may have only been sustained because guild restrictions on the labour market stopped masters freely using journeymen or servants. With small firms the norm and little job security, employers could monitor the productivity of workers on-the-job making it unlikely that the benefits of private information about productivity gathered during training would justify the costs of training during apprenticeship.<sup>39</sup> Indeed, we know that a significant proportion of master craftsmen in some occupations did not take apprentices, indicating that they were not integral to economic survival.<sup>40</sup>

In addition, masters had a number of other reasons to avoid taking on apprentices. Productive units, and hence the resources to spend on training, tended to be small. Masters remained responsible for the upkeep of apprentices even when they faced a downturn in business or if the apprentices fell ill. Given the ambition of many apprentices to establish their own independent workshops, artisans were more likely to be training future rivals than employees, yet few could impose an obligation on their apprentices not to work in the same place, as one Genoese blacksmith and farrier did in the thirteenth century.<sup>41</sup> Moreover, they were also revealing their client, credit and supplier networks, information that unscrupulous former apprentices might use to poach customers in the future. Indeed, the range of risks that went along with taking apprentices mean that masters may have demanded additional incentives beyond the cost of the training they were giving if they were to bother with them at all. The widely varying size of premiums paid by apprentices entering the same trade or craft, and the differences between crafts are not likely to be explained by the different costs of the training received. Rather it seems that access to the best masters

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<sup>39</sup> Cf. the scenario discussed in Acemoglu & Pischke, 'Why do firms train?'. To some extent, the importance of the informational monopsony they propose is a moot point given premodern rates of non-completion: as they note, in their formulation, high quit rates among apprentices will produce low levels of investment by firms in general training, approximating to Becker's model.

<sup>40</sup> DATA on this. Pelling, *Common Lot*, pp. XXX; Wallis, 'Apothecaries', pp. XXX. OTHERS.

<sup>41</sup> Epstein, *Wage Labor*, p. 108.

was subject to competitive bidding by apprentices and their families, implying an excess of demand for training.<sup>42</sup>

To be fair, some advantages did accrue to masters who trained apprentices. Some apprentices did work as trusted journeymen. Former apprentices might remain part of their masters' social and economic networks, providing credit and other forms of support. Informal networks of this kind are increasingly identified as important parts of preindustrial economies.<sup>43</sup> Ex-apprentices and their masters sometimes formed partnerships or informal quasi-firms together, benefiting from collaborating in production or sale. Former apprentices could also feature in the lifecycle strategies of masters, taking over a business when they became old or infirm. Having a cadre of former apprentices also helped provide political advantages, giving a supportive constituency in a guild to a master seeking advancement. In Bristol, apprenticeship ties were one of the links between members of the cohesive Common Council that governed the city.<sup>44</sup> However, the extent to which these potential long-term advantages might justify an investment in training are unclear, particularly as a limited proportion of apprentices remained in the same area.

### 3.

If the benefits from apprenticeship did largely accrue to apprentices not masters, then apprentices should in theory be paying for this in some way. If this was the case, how did masters recover the costs of the training they supplied? As already suggested, the standard account of retrospective repayment seems incompatible with our evidence of frequent early departure. The problem, then, is to identify an alternative schedule of training and repayment that can fit with low expectations of completion.

What, then, does an alternative model of apprenticeship that could thrive amidst high levels of contractual default look like? I want to suggest that premodern apprenticeship had four characteristics: (1) Apprentices provided useful labour

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<sup>42</sup> Ben-Amos, *Adolescence*, pp. 87-9. Further evidence of this is Rappaport's observation that those apprenticed to liverymen (the more successful guild members) were from a higher status, and hence presumably wealthier background than those apprenticed to freemen: Rappaport, *Worlds*, p. 311

<sup>43</sup> Kaplan; Sonenscher; Sacks, *Widening*, p. 117.

<sup>44</sup> Sacks, *Widening Gate*, pp. 167-8.

services throughout their term, rather than repaying their masters' investment just in their later years of service. (2) Training was only likely to begin after the apprentice had provided payments through labour and/or cash – the premium - that would offset the potential costs and risk to the master. (3) Training was cheap for the master, so it could be covered by less-skilled apprentices' work. (4) Any explicit instruction was likely to be delivered in fragments, and most learning would be through observation, imitation and practice by the apprentice while they were engaged in useful labour. Thus apprentices' learning could even be useful rather than costly to the master.

Premodern apprenticeship was not a two-stage process of training followed by repayment through service. Training was distributed over the apprentice's term, and as a result the master was never at risk of significant loss in the case of default. Rather than being a net cost in the first part of their term, then a net benefit for the rest, apprentices' value to their masters' businesses fluctuated, depending on the level of training they might be receiving at any point in time and the value of their labour, but always, we might presume, remaining positive.<sup>45</sup> This alternative account of the distribution of benefits and costs across the term of an apprenticeship is less vulnerable to opportunism, and is much closer to our evidence about the experiences of premodern apprentices and our understanding of how tacit skills are acquired.

This alternative interpretation rejects three of the key assumptions about the timing and allocation of costs and benefits in the standard model. These are: (1) Apprentices are in need of training before their labour is valuable. (2) Training is concentrated in the initial period of apprenticeship. (3) Training costs are high relative to the value of new apprentices' labour, and that they are therefore born, at least initially, by masters. Each of these assumptions is suspect; in showing why, the basis of the alternative account just presented should become clear.

First, it is clear that regarding apprentices as callow youths, of little worth to a business until instructed, is misguided for most of our period.<sup>46</sup> Where we can identify the ages at which apprentices between the fourteenth and seventeenth centuries were

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<sup>45</sup> The problems of a two-stage training and work model in a competitive market are discussed in Acemoglu & Pischke, 'Beyond Becker', 118-119.

<sup>46</sup> It may, of course, be more applicable for pauper apprentices in eighteenth century England, when those bound were often young children who may have had little experience of work.



bound, we generally discover that they were in their mid to late teens or early twenties, with the average age rising over time.<sup>47</sup> Most apprentices would therefore have been engaged in productive work in the household or their parent's workshop, farm or shop for a number of years prior to entering service elsewhere; some may have been servants or apprentices elsewhere before. It is therefore likely that they would already possess basic, perhaps even relatively advanced, skills of use to their new master.<sup>48</sup> The most extreme example of this would probably be those who came from families that were involved in the trade they were being apprenticed into, but few would have been without experience of some variety of work. Their neophyte status should not be confused with their ability.<sup>49</sup>

The second and third assumptions of the standard model, those about the early concentration of training and its high costs, are best addressed together. Underlying discussions of apprenticeship are differing views of the expense and difficulty of training in preindustrial crafts and trades. Epstein, for example, maintains that craft skills were complex and hard to learn. He criticises Adam Smith's assumption that training was quick and simple – a view that Farr and many others share.<sup>50</sup> I want to suggest that both views are partially correct. Roughly put, *training was quick and easy for masters, but learning was hard and long for apprentices.*

The grounds for this claim can be seen if we consider the process of learning craft skills. This is, as many people have noted, essentially an effort to acquire a blend of tacit and propositional knowledge, with the emphasis on the former. Acquiring tacit knowledge is normally achieved through modelling, observation and practice.

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<sup>47</sup> In late 16c London, the average age was 17.7 years: Rappaport, *Worlds within Worlds*, pp. XXX. In the fourteenth century, new apprentices were on average 14 years; by 1400 they were 15 or 16 years old: Hanawalt, *Growing Up*, p. 113. The Sheffield Cutlers were exceptional in fixing a minimum age of twelve, in 1728: Hay, *Fiery Blades*, p. 140. In French cities, NZ Davis suggests an age of 12 in the 16c, and later in the 17c, becoming a journeyman in mid to late teens, but Nicholas suggests 14 or older was normal: Davis, 'The Reasons of Misrule', 41-75. (based on Geremek, *La Salariat*, 1968, pp. 31, 54; Hauser, *Les ouvriers du temps passes* (1927), p. 22; Mousnier, *Paris au XVIIe siecle* (1962), p. 235), Nicholas, 'Child and Adolescent', p. 1108. Age of binding was to some extent determined by the existence of city rules preventing freedom before the age of twenty four. The rise in age might be related to the cost of premiums, and changes in education before binding.

<sup>48</sup> Ben-Amos, *Adolescence and Youth*, pp. 39-48; Ben-Amos, 'Failure to Become Freemen'; Pelling, *Common Lot*, pp. 110-111. Many were also literate: Rappaport, *Worlds*, pp. 298-99.

<sup>49</sup> Smith, 'London Apprentices'.

<sup>50</sup> The relative ease of training in some crafts has also been emphasised by: Farr; Ogilvie.

Didactic instruction is insufficient and probably ineffective.<sup>51</sup> Learning manual skills in particular involves the repetition of actions and immersion in practice – imitation and experience rather than analysis. Of course, the time this process takes varies between crafts, but the speed of learning should not be exaggerated, particularly as apprentices also needed to learn many commercial skills in negotiation, management, and service if they were to become more than a workman. The persistence of annual cycles in many trades, would have further drawn out the learning process.

Within this kind of learning the master provides little time-consuming *direct* instruction. Instead they act as models to be imitated. The burden of acquiring a skill was on the apprentice practising their new art. To an extent, Smith recognised this in admitting the importance of 'much practice and experience' in learning a skill, although his optimism about the possibility of learning basic rules quickly, perhaps even from printed accounts, seems misplaced.<sup>52</sup> Some element of instruction was, it seems, expected by apprentices, who did complain about masters who failed to provide training. But what they meant by this is unclear and should probably not be taken as implying intensive instruction. This account of how skills are acquired has a further obvious implication for apprenticeship: the distinction often drawn between periods of learning and periods of production becomes hard to maintain. There are few points at which apprentices were not learning, even if they were not conscious of it themselves.<sup>53</sup>

Identifying such a process in the past is innately difficult. Few accounts of apprenticeship survive, tacit learning is by definition non-verbal, and it was sufficiently universal as to attract little comment. Those accounts we have – mostly from the eighteenth and nineteenth centuries – do seem to fit this pattern of

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<sup>51</sup> Polanyi, *Personal Knowledge*, p. 49.

<sup>52</sup> Smith, *Wealth*, pp. 226-7.

<sup>53</sup> Apprentices also sought to use alternative forms of training, sometimes independently from their masters, such as schooling, attending lectures, reading advice books or almanacs, or spending time with other masters. On schooling: Ben-Amos, *Adolescence*, p. 112. Lectures on chemistry at the Jardin du Roi were attended by Parisian apothecaries' apprentices in the seventeenth century; the related books produced by professors were widely translated and circulated: Brock, W. H. *The Fontana History of Chemistry*. London: Fontana, 1992, p. 46; on almanacs: Curth, Louise Hill. "The Medical Content of English Almanacs, 1640-1700." PhD, University of London, 2001, pp. 72-3. For an example of an apprentice surgeon spending four months with an apothecary learning how to make medicines: Poynter, F. N. L., ed. *The Journal of James Younge (1647-1721) Plymouth Surgeon*. London, 1963, p. 52.

apprentices gradually acquiring skills in their trade, often beginning with a period of menial labour. Using diaries, court records and other sources, Peter Earle and Joan Lane have each revealed apprentices experiencing years of shop openings, deliveries, making drinks, and cleaning, followed by assisting skilled workers – shoemakers apprentices 'closing' boots for example, or ribbon weavers apprentices helping to change patterns – and only then finally moving on to some more responsible tasks.<sup>54</sup> This array of menial as well as craft-specific tasks that apprentices would have extended the time it took them to learn skills, but increased their immediate value to their master. Throughout their term, apprentices were combining useful work with learning, and only gradually moving up a hierarchy of labour, from unskilled to skilled.

It is at least suggestive that this analysis fits with the work of modern anthropologists on apprentice-type learning in traditionally organised crafts today. In particular, they have generally found that training receives very little attention from master craftsmen. Knowledge gained by apprentices might even be seen as 'stolen'. When learning pottery in Japan, one apprentice found herself spending hours cleaning the workshop and preparing clay, literally 'earning the right to observe and learn by doing the menial scutwork of the master and the workplace'; direct tuition was almost non-existent, instead she was allowed to observe, practice on a very small scale, and only attempt more complex techniques after a long time in the workshop.<sup>55</sup> Similarly, among apprentice minaret builders in Yemen 'much of learning process involves little or no verbal communication, the apprentice must rely on his/her eyes, ears, and sense of touch to incorporate their Master's skill into the reproduction of bodily representations of knowledge'.<sup>56</sup> Instruction is implicit. Questions are rarely posed, and reprimands rather than correction form the majority of feedback to apprentices.

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<sup>54</sup> For a good brief summary of descriptions from the 18c and 19c: Lane, pp. 76-79. Earle discusses material from the Mayors Court Interrogatories on apprentices' learning experiences in the 17c.

<sup>55</sup> Singleton, John, 'Introduction', in Singleton, John, ed. *Learning in Likely Places: Varieties of Apprenticeship in Japan*. Cambridge: Cambridge University Press, 1998, p. 14. The description has striking parallels with apprenticeship in Roman Egypt, where one potter's apprentices were not to try and make pots until they had watched the process for a long time; in the meantime, they were to work as servants in the shop: Westermann, 'Apprentice contracts', p. 306.

<sup>56</sup> Marchand, Trevor H. J. *Minaret Building and Apprenticeship in Yemen*. Richmond, Surrey: Curzon Press, 2001, p. 138.

In the alternative account of apprenticeship set out above, neither apprentice nor master was likely to lose out substantially should training end or apprentice depart prematurely. The risks for masters are limited to the risks of theft, misbehaviour or later competition that are inherent in any employee. The risks for apprentices were higher, particularly when substantial premiums were paid before any training was received. It seems likely that large premiums were accompanied by a quickening of the training schedule, both in that they provided an advance that could replace some or all of the period spent in purely menial work by the new apprentice, and to reduce the threat of default by the master. Interestingly, this seems implicit in Defoe's explanation for the increase in premiums in the early eighteenth century: that premiums exempted apprentices 'from such and such menial offices, which were wont to be required of younger apprentices'.<sup>57</sup>

Clearly, however, this slow training schedule comes at a cost to masters. By putting little effort into apprentices' training and obliging them to do useful but not instructive tasks, such as deliveries, cleaning, watching shops and the like, the time in which apprentices are most skilful and are thus most productive is reduced. This loss of productivity was the price of the systematic failure to prevent opportunistic departure (although it would be to some extent offset by the supply of very cheap labour for unskilled or semi-skilled tasks). One consequence of this was that when masters *could* enforce apprenticeship contracts then they should in theory advance the training schedule. This seems to have occurred in nineteenth century Britain, in parallel with the shift to employment by large firms who could collectively police completion of terms through their hiring policies.<sup>58</sup>

This analysis deals, obviously, only with the basic costs of apprenticeship. It is important to emphasize that apprenticeship served a social as well as a training function. It was a period of socialization, of transition from youth to adulthood, and often from country or small town to city. Often, apprentice terms were in practice or

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<sup>57</sup> Complete English Tradesman (1738), p. 148 – from Dunlop & Denman, p. 209.

<sup>58</sup> On nineteenth and twentieth century apprenticeship: Elbaum, 'Apprenticeship', p. 342, REFS. Given premodern non-completion, 'custom' may be a less powerful explanation for the survival of apprenticeship in England than has been suggested, cf: Elbaum, 'Apprenticeship', pp. 340-342. The reverse seems to occur in 19c Canada, where a decline in the enforceability of contracts accompanied a steepening of the pay curve such that it matched apprentice productivity more closely: Hamilton, 'Decline', pp. 652-3; Hamilton, 'Enforcement'.

theory determined by the age of majority, rather than the training needs of the individual.<sup>59</sup> Kaplan and Farr have emphasised that apprentice regulation served to reinforce the status and authority of masters, while formal apprenticeships underlined the importance of skill as the central aspect of the artisan's identity.<sup>60</sup> Thus, apprenticeships in London characteristically lasted until the apprentice was twenty-four and could claim the freedom of the city.<sup>61</sup> Similarly, a concern with controlling potentially disorderly youths seems also to have encouraged state sanction for long terms.<sup>62</sup> These factors will cloud any attempt to calculate training values and labour costs.

#### 4.

What of the guilds? I have suggested that premodern apprenticeship operated in such a way as to survive high levels of opportunistic early departure among apprentices. Together with the evidence of low rates of completion discussed earlier, this suggests that guilds did not primarily exist in order to monitor apprenticeship contracts. This finding is reinforced by the fact that apprenticeship exists where guilds do not, both in preindustrial Europe and in other times and places.<sup>63</sup> As Thrupp, noted: 'medieval artisan apprenticeship was a product not of gild monopoly, but of the family workshop'.<sup>64</sup> Of course, guilds did *attempt* to enforce apprenticeship contracts. In particular, they attempted to limit departed apprentices' opportunity for alternative employment within the town where they had been trained, through rules against poaching apprentices. These measures were, however, limited to the area over which

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<sup>59</sup> This does of course also present a further problem for the traditional analysis of term lengths, in which duration is determined by training costs.

<sup>60</sup> Farr, *Artisans*, pp. 25-9, 33-4. Farr, James R. "Cultural Analysis and Early Modern Artisans." In *The Artisan and the European Town, 1500-1900*, edited by G. Crossick, 56-74. Aldershot: Scolar Press, 1997, p. 64. Kaplan. Farr's idea of guilds 'hand-picking' apprentices as future masters rather overstates the interest of artisans in the advantages of future rivals.

<sup>61</sup> Similar provisions are found in Canada: Hamilton, 'Enforcement', p. 561. In 13c Bologna, tailors apprentices served for five years if less than ten years old, and three years if more than ten: Epstein, *Wage Labor*, p. 83.

<sup>62</sup> On apprenticeship and socialisation: Brooks, 'Apprenticeship', 74-8; Yarborough, 'Apprentices as Adolescents'; Snell, 'Apprenticeship system', 303-6

<sup>63</sup> Nicholas, 'Child and Adolescent Labour', p. 1107; Clark, Elaine. "Medieval Labor Law and English Local Custom." *The American journal of legal history* xxvii (1983), p. 1108; Epstein, *Wage Labor*, p. 78. Howell, 'guild effect'. Apprenticeship without guilds was also widespread in colonial North America: Hamilton, Gillian. "The Decline of Apprenticeship in North America: Evidence from Montreal." *Journal of Economic History* 60, no. 3 (2000): 627-64.

<sup>64</sup> Thrupp, 'The guilds', p. 264.

a guild had authority. It is hard to avoid the conclusion that guilds are not necessary for apprenticeship: co-existence does not imply dependence in this case.

However, this raises two questions. If apprenticeship can survive without the intervention of guilds, why did they seek to become involved? And, second, what effect did they have on its operation? It is, of course, very hard to find evidence for the impact of guilds on apprenticeship or their motives. However, it seems likely that guilds involvement in arbitration and in the regulation of the terms of service would have distorted the operation of apprenticeship in favour of masters. We may therefore conclude, albeit tentatively, that guilds' intentions in this area were oriented toward rent seeking, as some historians have suggested.

As Smith recognised, guilds' collective concerns with apprentices largely centred on restricting their numbers.<sup>65</sup> Restrictions on the numbers of apprentices a master could take were a feature of nearly all guild statutes.<sup>66</sup> This could serve two closely related functions. The first was limiting the workforce available to each master.<sup>67</sup> The second was longer term: fewer apprentices meant fewer masters in the future, and thus less competition. Many worried that an increase in apprentices would eventually critically reduce the volume of work available.<sup>68</sup> For this reason, the English Statute of Artificers set restrictions on who could become apprentices so that an increasing number of craftsmen did not 'eate oute and consume another'.<sup>69</sup> One consequence of

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<sup>65</sup> See also: Thrupp, 'Gilds', p. 264. A few guilds did not restrict apprentice numbers, including the Tailors in the 15c: Davies, M. P. "The Tailors of London and Their Guild, C.1300-1500." D.Phil., Oxford University, 1994, p. 187.

<sup>66</sup> Dunlop, *English Apprenticeship*, pp. 45-46, 89; Geremek, *Salariat*, p. 30; Nicholas, 'Child and Adolescent Labour', pp. 1108-9, 1114-5; Ogilvie, *State Corporatism*, 140-143. For Bristol, Ben-Amos, 'Failure', 168. For Oxford Cordwainers (limits of 1, 2 or 3 acc to status in 1597, *VCH Oxon*, IV, 315. For Sheffield Cutlers: Unwin, 'Apprenticeship', p. 202. Access to additional apprentices was a carefully guarded privilege: Archer, *Pursuit of Stability*, pp. 127-8; Ashton. *City and the Court, 1603-1643*, p. 57; Nicholas, 'Child and Adolescent Labour', p. 1114. Limits to apprentice numbers were introduced or stiffened in many London companies in the later 16c: Rappaport, *Worlds*, p.109.

<sup>67</sup> This obviously also depended on some control over the employment of journeymen, servants and other sources of labour.

<sup>68</sup> Archer, 'The Civic Community, 1540-1700' in *Camb Urban History*, PP. XXX; Farr, *Hands of Honor*, p. 8. Lis, Catherine, and Hugo Soly. "'an Irresistible Phalanx": Journeymen Associations in Western Europe, 1300-1800." *International Review of Social History* 39, no. Supplement 2 (1994): 11-52, p. 28. Rappaport documents pressure from journeymen in London in the 1570s to limit apprentice numbers because of a lack of work: Rappaport, *Worlds*, 104-10.

<sup>69</sup> 'Memorandum on the statute of artificers, 1573', in Tawney, R. H., and Eileen Power, eds. *Tudor Economic Documents*. 3 vols, 1924. I, 355, 358-9. Swanson suggests that in fifteenth century York, guild masters and city officials similarly agreed on limiting labour numbers: Swanson, Heather. *Medieval Artisans: An Urban Class in Late Medieval England*. Oxford: Blackwells, 1989, p. 114.

guild efforts to limit apprentice numbers was the incentive this gave masters to default and take additional apprentices in secret.<sup>70</sup> Such illegal apprentices were a major anxiety for many guild members, and often became a focus of guilds' regulatory activities.

Guilds had an impact on the operation of apprenticeship which went beyond policing numbers. First, guilds generally reserved the right to arbitrate disputes between masters and apprentices, which probably produced a persistent structural inequality in guild arbitration in favour of masters, although demonstrating this would be difficult. Second, they imposed minimum terms on apprentices, arbitrarily extending apprentices' term of service. Despite the varying needs of different crafts or different apprentices, terms seldom varied substantially between crafts with similar political clout in a region; variation across regions was, by contrast, more pronounced and underlines the rent-seeking aspect.<sup>71</sup> In these situations, those apprentices who did serve full terms spent the later years giving their labour at below market rates without compensatory training. Without these regulations, it seems likely that negotiation of terms to match the age and prior skills of apprentices would have produced a more equitable system. In early nineteenth century Paris, for example, Sonenscher found that 'the length of an apprenticeship could vary from six months to six years in exactly the same trade'.<sup>72</sup> Similarly, as guilds weakened in England in the later eighteenth century, terms declined from an average of six or seven years to four years across a large range of trades.<sup>73</sup> It is likely that through these activities guilds gave an advantage to individual masters which went some way to compensating them for the limitations on their freedom to take apprentices as they liked.

The attractions of this system to masters are obvious, but this account does raise the question of why apprentices accepted these disadvantages rather than seeking training elsewhere. The answer to this is two-fold: first, because guilds existed in most of the major towns there were few alternative centres of production where high-quality skills

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<sup>70</sup> Secret apprentices are, it is worth noting, a further reason to doubt Epstein's view of guilds role in apprenticeship. If guilds were a positive regulatory force, then apprentices and masters had an incentive to register agreements with them.

<sup>71</sup> Ogilvie, *State Corporatism*, p. 140; Nicholas, 'Child and Adolescent Labor', pp. 1120-21.

<sup>72</sup> Sonenscher, Michael. *The Hatters of Eighteenth-Century France*. Berkeley: University of California Press, 1987, p. 35.

<sup>73</sup> Snell, *Annals*, p. 235.

could be learned; second, the full burden of the additional years of apprenticeship was only born by those who sought to work legitimately in the area controlled by the guild, others could and did avoid these costs by departing early.

This analysis also explains two other aspects of apprenticeship that are often confusing. First, it makes it clear why apprenticeship was a concern of all masters, and thus the guild. All masters are affected by decisions about the limitation of labour concentrations in a craft. However, apprentice taking was not ubiquitous or smoothly distributed in guilds. It was concentrated among particular craftsmen, while a number of other craftsmen never took apprentices.<sup>74</sup> Second, it suggests that guild involvement in apprenticeship might diminish or change in nature in several situations: where their ability to impose limits on apprentice numbers breaks down; if the scale of trade is no longer seen as fundamentally constrained; or if membership of guild becomes so diverse in trade that members are more worried about external than internal competitors. This may suggest one reason for the relationship between the decline of guilds and apprenticeship.<sup>75</sup>

## Conclusion

This essay has sought to further the discussion Epstein opened by pointing out that 'the economics of preindustrial apprenticeship has been virtually ignored' since Adam Smith. It proposes a revised model of apprenticeship in which training costs are distributed differently to traditional approaches, apprenticeship is interpreted as training in general skills, and there is a market for training in craft skills. I have suggested that the delivery of training is kept in balance with payments in labour or money from the apprentices, so that high rates of early departure did not impose heavy penalties on masters. The effect of the guilds on this was to extend terms and restrict numbers of apprentices. This produced rents for masters and limited competition.

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<sup>74</sup> On numbers of apprentices taken by masters: REFS. For distribution of apprentices in Turin tailors (shows most have few): Cerutti, 'Group Strategies', 114-5.

<sup>75</sup> Smaller more homogenous guilds experienced smaller falls in apprentice numbers than larger guilds in early eighteenth century London: Kahl, W. F. *The Development of the London Livery Companies: An Historical Essay and a Select Bibliography*. Cambridge MA.: Harvard Graduate School of Business Administration, 1960, pp. 28-9.



This approach offers an alternative to both Epstein's optimism about apprenticeship as a necessary and useful means of transmitting skills and Smith's suspicion of it as an oppressive practice. If apprenticeship was as wasteful for the apprentice as Smith thought it is hard to see it surviving. Equally, it is hard to reconcile very low completion rates and extensive non-guild apprenticeship with a view that guild apprenticeship was an effective system to prevent opportunism. The very high demand for apprenticeship apparent in the willingness of apprentices and their sponsors to pay high premiums and enter lengthy contracts suggests that preindustrial apprenticeship was viewed positively. Yet the very high rates of non-completion suggest that it was undertaken as a more flexible period than the formalities of contracts would suggest. Our analysis of the economics of apprenticeship must take these facts into account.

Preindustrial apprenticeship of this kind did not seem to survive the economic transitions of the eighteenth and nineteenth centuries. One factor in this is the extension of systems of parish pauper apprenticeship, which placed apprentices in a far more dependent and obviously exploited position. But informally structured apprenticeship, without employers concerning themselves greatly in training, will also tend to fail in larger organisations, where the scale of operation is greater, specialization is more extensive, and the distance of master and apprentice extends. This is apparent in some of the ways apprenticeship developed in the later nineteenth century.<sup>76</sup> Apprenticeship in large firms took on quite different characteristics.<sup>77</sup> These later changes in the context, form and structure of apprenticeship are perhaps also the explanation of why preindustrial apprenticeship has – with the exception of a few contrary voices - received such a bad press.

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<sup>76</sup> Aldrich, Richard. "The Apprentice in History." In *Apprenticeship: Towards a New Paradigm of Learning*, edited by Patrick Ainley and Helen Rainbird, 14-24. London: Kogan Page, 1998, pp.20-21. See also SNELL.

<sup>77</sup> Elbaum, B., and N. Singh. "The Economic Rationale of Apprenticeship Training: Some Lessons from British and U.S. Experience." *Industrial Relations* 34, no. 4 (1995): 593-622.

## Appendix: London Apprentice Survival Data

**Methodology:** In the middle of 1695 the names of London householders and those living in their homes were recorded by the assessors of a tax on burials, births and marriages: 6 & 7 Wm. & M., c. 6 (the details of the tax are discussed in Glass, *London Inhabitants*). Occupations were only occasionally listed, but it is possible to link the 1695 assessment list with the 1692 Poll Tax assessment records, which record the names of household heads and their occupations, as both are organised by parish. The linked names were then checked with the signatories of the Association Oath of 1695, who were identified by company, to ensure that the masters in the sample were members of a company for which apprentice lists were available. The names in the combined sample were then be run against published lists of London apprentices and their masters, which are available for a number of companies. This allows us to identify which apprentices *should* be present in a household in 1695. Finally, the original 1695 Assessment listings have been checked manually to identify which apprentices actually are in residence. The dataset only covers parishes within the walls. In addition to the masters identified by linking the Poll Tax and Marriage Assessments another fourteen masters were identified by working through three parish Marriage Assessment listings where occupations were identified by the assessors.

Masters in the sample came from a large number of trades. An initial trial run had been carried out with the Apothecaries guild records; a larger number of links were possible as variants in spelling were identified by eye. The largest number of masters and apprentices came from the following companies:

Company	N Masters	N Apprentices	% present
apothecary	40	59	65.51724
vintner	9	39	48.71795
carman	8	8	62.5
fishmonger	7	9	22.22222
innholder	5	3	33.33333
pewterer	5	5	60
turner	5	5	40

The remaining 38 masters were from the following guilds: Blacksmiths, Brewers, Farriers, Needlemakers, Pinmakers, Spectaclemakers, Cooks, Feltmakers, Founders,

Masons, Pattenmaker, Tinsplateworkers, Glassmakers, Ironmongers, Plumbers,  
Curriers, Poulterers,

**Sources:** Glass, *London Inhabitants* (online edition: British History Online, IHR); J. Alexander, '1692 Poll Tax database', Centre for Metropolitan History; Webb, *London Apprentices* (online edition: British Origins); Webb, *Association Oath* (Sussex Record Society); 1695 Marriage Assessment, London Metropolitan Archive.