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**Leaving Home and Entering Service:
The Age of Apprenticeship in
Early Modern London**

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Abstract

Leaving home and entering service was a key transition in early modern England. This paper presents evidence on the age of apprenticeship in London. Using a new sample of 22,156 apprentices bound between 1575 and 1810, we find that apprentices became younger (from 17.4 to 14.7 years) and more homogenous, irrespective of background. We examine the effect of region of origin, parental occupation, company entered, and paternal mortality on age of entry. The fall in apprentices' age has significant implications for our understanding of labour supply, training structures, the experience of apprenticeship, and the family economy in this period.

The move from the family into independent employment was one of the key transitions in the lives of youths in early modern England. Usually it involved both geographical and economic change: whether entering agricultural work or a craft or trade, youths generally left home and lodged in their employers' households or nearby at the same time as they entered their employment.¹ Although it was common for children to engage in some level of productive labour from a young age within and

* We would particularly like to thank Philip Clarkson for his work programming the linkage scripts. We would also like to thank Tim Leunig, Peter Howlett and Philip Epstein for comments on an earlier version of this paper, and Tony Wrigley for the use of his PST codes.

¹ Peter Laslett, *The world we have lost* (London, 1965), 14-15; Richard Wall, 'The age at leaving home', *Journal of Family History* **3** (1978), 181-2; E. A. Wrigley, 'Reflections on the history of the family', *Daedalus* **106** (1977), 72; K. D. M. Snell, *Annals of the Labouring Poor: Social Change and Agrarian England, 1660-1900* (Cambridge, 1985), 320-1.

outside the household, becoming a farm servant or apprentice marked a profound break in a youth's legal, economic and social position in early modern England. Thereafter, they were subject to the authority of their employer, were normally no longer dependent on their family for food and lodging, and they were on the path to acquiring the skills and income that would allow themselves to establish an independent household of their own when the time came.²

The age at which youths made this transition has a significant impact on how we interpret the function of service, the economic roles of youths in early modern England, and the acquisition of human capital. For example, did the birth-family or an external master supply youths with the majority of their education and socialisation? How important was the labour of children to their birth families? Would apprentices have worked for long before beginning their training? What skills might they possess or lack on entrance? Were they even fully-grown or not? Our answers are unlikely to be stable over this period. There is increasing evidence that the English economy in the early modern period had a distinctive trajectory – marked by relatively high wages and substantial economic growth - that contributed significantly to subsequent industrialisation. Changes in the age at which youths left home have implications for lifecycle work-time, consumption, and wealth accumulation, and have the potential to profoundly change the age-skill profile of the labour force.³

² Peter Laslett, *Family life and illicit love in earlier generations* (Cambridge, 1977), 13, 35, 43-6; John Hajnal, 'Two kinds of preindustrial household formation system', *Population and development review* 8 (1982), 470-6; Tine De Moor and Jan Luiten Van Zanden, 'Girl power: the European marriage pattern and labour markets in the North Sea region in the late medieval and early modern period', *The Economic History Review* (forthcoming 2009); Snell, *Annals*, 320-1. For some apprentices, premiums paid by their parents that covered some of their living costs softened the sharpness of this separation.

³ Robert C. Allen, *The British industrial revolution in global perspective* (Cambridge, 2009), 16-22; Jan Luiten Van Zanden, *The long road to the industrial revolution* (Leiden, 2009), 3-5; Jan De Vries, *The industrious revolution* (Cambridge, 2008), 6-9, 71-2; Gregory Clark, *A farewell to* (Princeton, 2007), 239-242.

Finally, age has a particular relevance for historical interpretations of apprenticeship. Arguments about the social, economic and cultural position of apprentices have often implicitly turned on their age. Were apprentices children – perhaps vulnerable, exploited and isolated?⁴ Or were apprentices adolescents, whether rebellious and independent cultural and political agitators or thoughtful agents in their own economic destiny?⁵

Despite the importance of the move into service, there is surprisingly little information on the age at which youths entered independent work in early modern England. Richard Wall's discussions of the age of leaving home established the agenda, but it is difficult to generalise from Wall's findings because of the limited number of population listings available, and population listings only give a rough indication of to the age at which departure occurred.⁶ Beyond this, Anne Kussmaul used Settlement Examinations to show that entry into farm service occurred normally at thirteen or fourteen years old.⁷ Finally, there

⁴ Olive Dunlop and Richard Denman, *English apprenticeship and child labour* (London, 1912), 15-18; Graham Mayhew, 'Life-cycle service and the family unit in early modern Rye', *Continuity and Change* **6** (1991), 201-26; D. Nicholas, 'Child and adolescent labour in the late medieval city', *English Historical Review* **110** (1995), 1106, 1109-10.

⁵ See for example: S. R. Smith, 'The London apprentices as seventeenth-century adolescents', *Past and Present* **61** (1973), 149-61; Ilana Krausman Ben-Amos, *Adolescence and youth in early modern England* (New Haven, 1994), 85; Paul Griffiths, *Youth and authority: formative experiences in England, 1560-1640* (Oxford, 1996), 113-75.

⁶ Wall, 'Age of leaving home'; idem, 'leaving home and the process of household formation in pre-industrial England', *Continuity and Change* **2** (1987), 77-101; idem, 'Leaving home and living alone: an historical perspective', *Population Studies* **43** (1989), 369-89. For more recent populations: David Galenson, 'Economic determinants of the age at leaving home', *Social Science History* **11** (1987), 355-378; Timothy Guinnane, 'Age at leaving home in rural Ireland, 1901-1911', *The Journal of Economic History* **52** (1992), 651-67; Richard Steckel, 'The age at leaving home in the United States, 1850-1860', *Social Science History* **20** (1996), 507-532.

⁷ Ann Kussmaul, *Servants in husbandry in early modern England* (Cambridge, 1981), 70-2.

are a few substantial studies of the age of apprenticeship, notably by Rappaport and Snell, which are discussed further below.⁸

In this paper, we present new evidence on the age at which apprenticeship began in early modern London, using a sample of 22,156 apprentices bound in the city into 79 different Livery companies. London was England's largest city and its most important single site of training. Exactly what proportion of London's population consisted of apprentices has been a subject of debate, but that estimates of the proportion of adult males who were apprentices ranging between 10 percent and 40 percent confirm the importance of apprenticeship to the city.⁹ By the late seventeenth century, around 6.5 percent of all English teenage males would travel to London to enter apprenticeships.¹⁰ Corporate apprenticeship – that part of service regulated the London's city companies - declined in volume over the later eighteenth century. But private apprenticeship as an institution of training and a way to manage the problem of pauper youths retained its significance.¹¹

Across Europe, for many youths who sought futures in a craft or trade, the entry into an apprenticeship marked their transition from the family group into the wider labour market. The legal and social history of apprenticeship has been closely examined by successive generations of

⁸ Steven Rappaport, *Worlds within worlds: structures of life in sixteenth-century London* (Cambridge, 1989); Snell, *Annals*.

⁹ L. Schwarz, 'London apprentices in the seventeenth century: some problems', *Local Population Studies* **38** (1987), 18-22; C. Minns and P. Wallis, 'Apprenticeship and skill in eighteenth century England', Paper presented at the World Economic History Congress (Utrecht, 2009), available on <http://www.wehc2009.org/programme.asp?day=5&time=10>.

¹⁰ P. Wallis and C. Minns, *Rules and reality: quantifying the practice of apprenticeship in early modern Europe*, LSE Economic History Working Paper, 118 (London, 2009).

¹¹ K. D. M. Snell, 'The apprenticeship system in British history', *History of Education* **25** (1996), 303-22; Jane Humphries, 'At what cost was preeminence purchased? child labour and the first industrial revolution', in, Peter Scholliers and Leonard D. Schwarz eds., *Experiencing wages: social and cultural aspects of wage forms in Europe since 1500* (New York, 2003) 251-268.

historians.¹² Information about the age at which apprentices began their terms of service, however, is surprisingly rare. It is clear that the age at which apprenticeship began varied widely across Europe, suggesting that its purpose also varied. A few examples illustrate the wide range of ages.¹³ In French cities, apprenticeship began at age twelve in the sixteenth century, and rose over the seventeenth century, with youths becoming journeymen in their mid to late teens; by the eighteenth century, Parisian apprentices were bound at an average age of 15.2 years.¹⁴ In seventeenth and eighteenth century Antwerp, apprentices were 15.6 years old when they began.¹⁵ Around 1800, Hamburg carpenters' apprentices were 18 or 19 years old when they entered apprenticeships.¹⁶ By contrast, in eighteenth century Vienna, three quarters of silk weavers' apprentices were between 13 and 15 when they started, while in Florence the Ospedale degli Innocenti put children into apprenticeship and service at 6 or 7 years old.¹⁷

In London, apprenticeship regulations in the city should have affected the age at which service began. City ordinances prevented

¹² The most recent survey is: Bert De Munck and Hugo Soly, "'Learning on the shop floor" in historical perspective', in B. De Munck, S. L. Kaplan and H. Soly eds., *Learning on the shop floor* (New York, 2007), 3-34. The effectiveness of apprenticeship regulations is discussed in: Patrick Wallis, 'Apprenticeship and training in premodern England', *The Journal of Economic History* **68** (2008), 832-61

¹³ Useful overviews include; Steven A. Epstein, *Wage labor and guilds in medieval Europe* (Chapel Hill, 1991), 104-5; Marjatta Rahikainen, *Centuries of child labour: European experiences from the seventeenth to the twentieth century* (Aldershot, 2004), 5-6.

¹⁴ N. Z. Davis, 'The reasons of misrule: youth groups and charivaris in sixteenth century France', *Past and Present*, **50** (1971), 41-75; Steven L. Kaplan, 'L'apprentissage au XVIIIe siècle: le cas de Paris', *Revue d'histoire moderne et contemporaine* **40** (1993), 452.

¹⁵ Bert De Munck, *Technologies of learning: apprenticeship in Antwerp guilds from the 15th century to the end of the ancien regime* (Turnhout, 2007), 178.

¹⁶ De Munck, *Technologies of Learning*, 177.

¹⁷ Annemarie Steidl, 'Silk weaver and purse maker apprentices in eighteenth- and nineteenth-century Vienna', in Bert De Munck, Steven L. Kaplan and Hugo Soly eds., *Learning on the shop floor* (New York, 2007), 142; Rahikainen, *Centuries*, 6.

apprentices taking the freedom of the city before the age of twenty four.¹⁸ Only freemen, or citizens of the city, could establish independent businesses, take apprentices, and join the city's companies. Combined with a minimum term of seven years, this meant that where citizenship was an objective, youths had few incentives to begin before they were seventeen.¹⁹ However, the existing evidence we have on the age of apprenticeship in London suggests wide variations over time. The age of apprenticeship seems to have increased between the fourteenth and seventeenth centuries. Hanawalt suggests that in the early fourteenth-century, most apprentices began aged fourteen years, but that they were at least sixteen and normally eighteen years in the fifteenth century.²⁰ More detailed data is scarce. Evidence gathered by Steve Rappaport for 1,317 apprentices in the Carpenters' Company from 1572 to 1594 suggests the average age of apprenticeship was 19.5 years. The variation in ages he observed was limited: 57 percent were aged eighteen to twenty, but only 7 percent were younger than seventeen, and only 4 percent were older than twenty-four years.²¹ As Rappaport notes, Carpenters' apprentices may have been older than the norm: Vivien Brodsky-Elliott's analysis of marriage allegations from 1598-1619 which found an average age of 18.9 years for 232 men apprenticed in forty companies.²²

By the eighteenth century, Lane argues that most youths entered apprenticeship at around 14 years across England, while Snell's exploration of provincial apprenticeship found that the mean age of entry among those later examined under Settlement regulations rose from 14.0

¹⁸ Rappaport, *Worlds within worlds*, 323-25. See also: Dunlop and Denman, *English apprenticeship*, 134-5, 258-9; William Le Hardy ed., *Calendar to the court minute books of the Grocers Company, 1556-1692*, (Typescript, c.1930), ii, 326

¹⁹ 5 Eliz I, c.4, para.326.

²⁰ Barbara A. Hanawalt, *Growing up in medieval London* (New York, 1993), 113

²¹ Rappaport, *Worlds within worlds*, 295-96.

²² Cited in Rappaport, *Worlds within Worlds*, 296-97

to 14.7 years between 1700-60 and 1835-60.²³ Apprentices who did not receive aid from their parish appear to have been older than pauper apprentices.²⁴ It should of course be noted that entering service outside the family did not necessarily mark the beginning of work. Humphries and Horrell's work on the age at which children started work within the family in the early nineteenth century suggest this could occur around the age of 10, while by 1851 Census data suggests that 46 percent of 13 year old and 68 percent of 14 year old children were in employment.²⁵

1. Sources and Method

The volume and richness of information in London's company records has long been recognised. Similarly, England's detailed parish registers contain almost unequalled information on the basic demographic experiences of its population. Here we use internal evidence to link a new and extensive sample of London's corporate apprentice registers to baptism records contained in the International Genealogical Index.

Our initial sample of apprentice indentures contains the records of 185,032 individuals bound in the city into 79 companies between 1575 and 1810.²⁶ It includes the main information included in the company records when their indenture was recorded: their name, their father's

²³ Joan Lane, *Apprenticeship in England, 1600-1914* (London, 1996), 17; Snell, *Annals*, 236, 323-31. See also: John Rule, *Experience of labour in eighteenth-century industry* (London, 1981), 97-8; Hugh Cunningham, 'The employment and unemployment of children in England c.1680-1851', *Past & Present*, **126** (1990), 125.

²⁴ Snell, *Annals*, 3-4.

²⁵ Sara Horrell and Jane Humphries, '"The exploitation of little children": child labor and the family economy in the industrial revolution', *Explorations in Economic History* **32** (1995), 485-516; Hugh Cunningham, 'How many children were 'unemployed' in eighteenth- and nineteenth-century England?: Reply', *Past & Present*, **187** (2005), 213. See also: Humphries, 'Child Labour', 254-9; Katrina Honeyman, *Child workers in England, 1780-1820* (Aldershot, 2007), 45-47.

²⁶ Cliff Webb, *London Apprentice Series*, 48 vols. (London, 1998-2009). Stationers Company apprentices in Michael Turner, *The London Book Trades – A biographical resource* (2007), available at: <http://sas-space.sas.ac.uk/dspace/handle/10065/224>.

name, the place and county where their father lives, his occupation, whether their father is alive or dead, their master's name, and the date on which the indenture was recorded (enrolled) by the company.²⁷

It is difficult to evaluate the accuracy of the answers given by potential apprentices and their sponsors, and they may well have sought to represent themselves in a positive light. However, there was no obvious reason for systematic misrepresentation by either apprentice or company. The main problem with apprenticeship registers is the ambiguity and fluidity of the terms they use, rather than their accuracy, particularly when apprentices described themselves as the sons of gentlemen or yeomen.²⁸

The composition of companies in our sample shifts as surviving company archives begin and end at different points. For 14 important companies which have not yet been fully digitised the sample contains only apprentices from two counties, Surrey and Bedfordshire.²⁹ This sub-sample makes up 12 percent of the total sample. Although not representative of all entrants to these companies, the home counties were major suppliers of apprentices in this period, so the sub-samples offer a reasonable representation of a large segment of apprentices in these companies at the very least.³⁰

In total, the sample we use here contains around half of all apprentices indentured in the city in the later seventeenth and eighteenth

²⁷ In nearly all cases, the information recorded was for the deceased father not the mother.

²⁸ Christopher Brooks, 'Apprenticeship, social mobility and the middling sort, 1550-1800', in J. Barry and C. W. Brooks eds., *The middling sort of people* (Basingstoke, 1994), 61-62; Richard Grassby, *The business community of seventeenth-century England* (Cambridge, 1995), 144-54.

²⁹ The companies with restricted samples are: the Bakers, Barbers, Bricklayer, Carpenter, Clockmakers, Clothworkers, Coopers, Goldsmiths, Haberdashers, Joiners, Leathersellers, Mercer, Merchant Taylors, and Weavers.

³⁰ John Wareing, 'Changes in the Geographical Distribution of the Recruitment of Apprentices to the London Companies, 1486-1750', *Journal of Historical Geography*, 6 (1980), 241-249.

centuries.³¹ The survival of company records from the sixteenth and early seventeenth centuries is much more sporadic and our sample contains a smaller proportion, although in the absence of reliable overall totals for apprentices in the city in this period it is impossible to estimate the proportion.

Using automated queries, we matched this sample of apprentices with the parish records of youths' baptisms contained in the International Genealogical Index (IGI).³² The IGI is not without problems. The information was largely entered by volunteers, not all of whom possessed a satisfactory level of skill in reading, interpreting and entering historical sources.³³ Because parish records survive for varying periods, the areas included change over time, adding a further confounding factor. Nonetheless, in the absence of an alternative, the IGI remains the preferred choice. Given the large sample size under consideration, the IGI is sufficiently accurate for our purposes. We do not expect any errors in the IGI to bias our findings in one direction or another: there is no reason to believe the linkage procedure we use identifies a sample of matched apprentices that are particularly young or old.

The linkage between the apprenticeship sample and the baptismal information in the IGI used several parameters. We accepted positive matches where the forename and surname of the apprentice and his father matched those of a child and his parent in a baptismal record from the same parish or town that the apprentice came from.³⁴ There is an inevitable risk of errors in any attempt at linkage. To reduce this, we excluded all cases where there was an obvious ambiguity, including

³¹ Minns and Wallis, 'Apprenticeship and skill'.

³² <http://www.familysearch.org/>.

³³ See: Lee L. Bean, Geraldine Mineau, Katherine A. Lynch and J. Dennis Willigan, 'The Genealogical Society of Utah as a Data Resource for Historical Demography', *Population Index*, **46** (1980), 6-19; G. D. Dilts 'International Genealogical Index, 1992 Edition', *Genealogists magazine*, **24** (1993), 294-297.

³⁴ The IGI uses a proprietary algorithm akin to Soundex to address variant spellings in names and the quality of our matches relies on this.

cases where there were multiple individuals listed in the baptismal registers from a location who could have been the apprentice in question, and where two apprentices with the same name and a same-named father came from the same location in an overlapping period. For the small communities which contained most of England's population in this period and supplied the majority of apprentices to the city, place name sets a relatively tight boundary on linkage error. For larger cities, and London in particular, linking on place names is weaker. For the metropolitan area, we limited our linkage to cases where apprentices indicated their parish of origin or an area of the city (eg: Spitalfields or Holborn) that could be linked with a small number of parishes. However, even then the size and complexity of some parishes, particularly those just outside the old walls of the city, raise the probability of linkage errors.

The quality of linkage may also be affected by the reuse of names between generations. Thus, with a search that is not restricted by date, we can link apprentices to individuals who would have been of an advanced age when entering service.³⁵ The implication is that we may confuse parents with their children. That these links *might* be actual apprenticeships is confirmed by qualitative sources reporting indentures made with adults, although the actual meaning of such contracts was likely to have been quite different to those of the majority of youths who engaged in apprenticeships.³⁶ However, because we cannot sift the wheat from the chaff, our analysis excludes apprentices thought to be over 30 years old. For the same reason, we excluded those under 10 years of age. This reduces the risk of including false linkages and lowers the impact of outliers on our findings. We do know from other sources that some children aged 10 and under were bound as apprentices – William Clowes was bound as a compositor at the age of ten in 1779, for example

³⁵ These cases are not a major problem and occur infrequently (less than 2 percent of links), but they do distort means substantially if retained.

³⁶ Rappaport, *Worlds within worlds*, 295.

- but the numbers of apprentices we identify being bound at 10 or 11 are sufficiently small to suggest that the benefits of excluding potentially flawed links outweigh the costs.³⁷

The final sample of apprentices for whom we have identified dates of baptism contains 22,156 individuals. The sample follows the distribution of apprentices between the different companies in our original dataset closely. Because of the linkage difficulties just outlined, it is a less accurate mirror of the geographical distribution of apprentices. In particular, London apprentices are under-represented (6 percent of those with ages compared to 24 percent of the full sample) particularly, and Surrey and Bedfordshire, for which we have additional samples, are strikingly over-represented.

Our calculation of the age at which apprentices were bound was based on the date of baptism and date of binding. This introduces further difficulties into our analysis. Most importantly, baptism is not birth – the event that actually concerns us here – and the time between birth and baptism was variable in the seventeenth and eighteenth century. English Church regulations required baptism by no later than the Sunday or Holy Day after the birth of a child, extended to the second Sunday in 1662. However, studies of baptismal practices have shown that in practice baptism could be delayed for a significant time after birth. The likelihood of delay increased over the seventeenth and eighteenth centuries with the breakdown of the church courts and the rise of non-conformity. Schofield and Berry found that the time by which 75 percent of infants had been baptised rose from 14 days after birth in the median parish between 1650 and 1700 to 38 days in 1771-89 and 64 days in 1791-1812.³⁸ The problem may in fact have been worse in the seventeenth century than they

³⁷ Rahikainen, *Centuries*, 33; Snell, *Annals*, 328-332; Rule, *Experience*, 98.

³⁸ B. M. Berry and R. S. Schofield, 'Age at baptism in pre-industrial England', *Population Studies* **25** (1971), 458.

suggested.³⁹ Similarly, while apprentice indentures offer a greater precision about the timing of the formal contract, binding often followed an indefinite period of 'trial', which might vary from a few weeks to several months. In the late seventeenth century, we have found elsewhere that apprentices often appear to have joined their master permanently some time after their term of service had commenced. This delay is hard to quantify, but may be as long as a year in some cases.⁴⁰ These sources of error need to be considered when reading the findings we present here. We do not know which records contain either type of error, or exactly how frequent either type of error may be. Errors of a few months in either direction, however, are unlikely to invalidate the important trends and results highlighted below.

2. How Old Were Apprentices When Bound?

The ages of apprentices bound in London between 1580 and 1809 is presented in table 1. The mean age of apprenticeship in the city during these two centuries was 16.9 years; the median was 16.2 years. There was, however, a decline over the period of more than two years. At the end of the sixteenth century, apprentices were on average verging on eighteen years old when bound. By the start of the nineteenth century, they were around fifteen and a half. The median age of apprenticeship fell even further, from 17.4 in the 1590s to 14.7 in the 1800s. This decline of two and a half years occurred relatively smoothly. As the 11-year rolling average shown in figure 1 shows, there were a few fluctuations, particularly around the plague of 1665, and some periods of stagnation. However, the trend remained stable throughout. By the end of the

³⁹ A. Poole, 'Baptismal delay: some implications from the parish registers of Cranbrook and surrounding parishes in the Kentish Weald', *Local Population Studies*, **65** (2000), 9-28.

⁴⁰ Minns and Wallis, 'Rule and Reality'.

eighteenth century, London's apprentices were markedly younger than they had been two centuries earlier.

This decline in age was accompanied by a narrowing in the range of ages at which service in London began, particularly at the upper end of the age range. Figure 2 plots the proportion of apprentices bound by year of age for the four half-centuries between 1600 and 1800. As it shows, the distribution of ages became narrower and steeper with every period, with a particularly sharp change from the first to the second half of the eighteenth century. This was not an effect of the outliers. The proportion of apprentices who were very young or very old remained constant: in both 1600-49 and 1749-99, 4 percent of apprentices were aged 10 to 12 and 4 percent were over 24. The real change was in the proportion of apprentices who were in their late teens and early twenties when bound. Whereas the 25th percentile fell by 1.4 years over the seventeenth and eighteenth centuries, the 75th percentile dropped by 3.1 years, from 19.2 years old in 1590s to 16.1 in the 1790s. Over the same period, the inter-quartile range narrowed from 3.7 years to 2.2 years.

Our figures show that the different estimates of the age of apprenticeship found in the literature are in fact a reflection of a real and substantial change in the practice of service from the sixteenth to the nineteenth century. While we can reconcile Rappaport and Elliot's accounts of 18 or 19 year old apprentices in the sixteenth century with the much younger norm of around 14 discussed in work on the late eighteenth and nineteenth centuries, our figures do differ markedly from earlier estimates. Compared to Rappaport's data on the Carpenters' Company, our wider sample of apprentices were a year and a half younger; only 22 percent of those bound in 1600-49 were aged 18 to 20 in contrast to 57 percent of Carpenters' apprentices. As the data on Carpenters' dates from 1572-1594, some of this difference may be due to the ongoing downward trend. Nonetheless, it seems that the best

evidence we have had to date on sixteenth century apprentices was for an exceptionally old group, perhaps because of the physical demands of their work.⁴¹

For the eighteenth century, the difference between our data and Snell's findings is also striking. The apprentices he studied were bound at a younger age than in London, with a mean age of 14.0 years in 1700-60, 14.1 in 1761-80 and 14.3 in 1781-1815. Surprisingly, where Snell observes a small rise in the mean age of apprentices over the eighteenth century, we see a decline.⁴² Snell's evidence is for a rather different cohort of apprentices: he used settlement examinations carried out to examine if individuals might have a claim to poor relief in a parish, which presumably gives his data a bias towards the lower end of the social scale, and his evidence is largely drawn from rural parishes.⁴³ It is therefore possible that apprentices bound in the provinces, and perhaps from poorer backgrounds, were younger than those migrating to London. Understanding these differences requires further research.

London's apprentices were drawn from the entirety of England and Wales, with a few from even further afield. It is reasonable to expect that the distance an apprentice had to travel from his place of origin to London would have affected his age at the start of service, if only because older youths would have a greater ability to take care of themselves on the lengthy period of travel and in the city once their service had begun. By contrast, apprentices from in or around the capital could also have ongoing contact and support from their family and friends; they might also

⁴¹ On age and strength: Reinhold Reith, 'Apprentices in the German and Austrian crafts in early modern times: apprentices as wage earners?', in Bert De Munck, Steven L. Kaplan and Hugo Soly eds., *Learning on the shop floor*, (New York, 2007), 190.

⁴² Snell, *Annals*, 325-6.

⁴³ Snell's sample size is also smaller: only 74 between 1700 and 1760 and 331 over the three periods discussed here, and ages were reported to a different degree of accuracy (or at least of bias), with exams recording age to the half year: *Annals*, 323, 326.

have a greater exposure to and understanding of London's economic opportunities, facilitating an earlier match into a trade.

When we look at the way geography affected the age of apprenticeship we do find that distance did strongly affect age. Figure 3 shows the mean age of apprentices from six geographical regions.⁴⁴ Those from furthest afield in the counties of Northern England were the oldest among their cohort. Apprentices from London and Middlesex were much younger: the difference between the two groups was almost two years in the first half of the seventeenth century, and still almost a year in the second half of the eighteenth century. There are indications of convergence between the regions over time, possibly due to improvements in transport. The age difference between London born and provincial recruits shrinks from an average of 0.6 years in 1650-1699 to 0.1 years in 1750-99. As the figure also shows, the distribution of ages by region was largely consistent across the time period and all regions followed broadly similar trends. The ages of London's apprentices fell irrespective of their origin; apprentices did not get younger only because they became more local.

London's apprentices came from widely different social and occupational backgrounds. The sons of gentlemen would have had a quite different position in the domestic economy of their family to those of labourers and small craftsmen, and one would reasonably expect this to affect the age at which they left home. Establishing the balance of the costs and benefits of retaining children within the family economy is, however, notoriously hard to establish. Much depends on the structure of

⁴⁴ For the sake of comparison, the regions used here are those utilised by Smith and Wareing: S. R. Smith, 'The Social and Geographical Origins of the London Apprentices, 1630-60', *Guildhall Miscellany* 4 (1973), 195-206; Wareing, 'Geographical Distribution', 241-9. We exclude counties with fewer than 50 apprentices, which limits the sample to England (counties excluded: Cornwall, Rutland, Huntingdonshire, Angus, Fife, Glamorganshire, Selkirkshire, Midlothian, Montgomeryshire, Radnorshire, Denbighshire and Flintshire).

the local economy. Where children could provide a useful domestic or external income, we might expect them to leave later than elsewhere. But it is less obvious when and where this would apply in practice, particularly given the countervailing effect of the additional periods of formal education wealthier families might provide, and the possibility that where poor apprentices had to save in advance of apprenticeship, this might have taken them longer in areas of lower earnings. By the early nineteenth century, poverty appears to have driven children into work at an earlier age.⁴⁵ But was this case for the social cohort who entered apprenticeship?

Figure 4 isolates the seven largest specific occupational groupings in our sample (including 7,479 apprentices) and covers a wide range of social and occupational groups. As figure 4 shows, the age at which youths became apprentices did vary by family background, and these differences remained substantial throughout the period. Although there is some reordering of the ranking over time, overall, there is a tendency for the children of poorer families to be apprenticed at an older age than those from more prosperous backgrounds. This may reflect the relative importance of physical strength in the occupations they were being selected into, which we do not observe directly here. However, it also suggests the possibility that poor families were retaining children for longer in order to benefit from their labour income. A possible implication of the decline in age of apprenticeship is that the relative value of these children's labour to their parental household declined over the period. Given that youths from all backgrounds became younger at a broadly similar rate over this period, it would also appear implausible that the fall

⁴⁵ Humphries, 'Child labour', 259.

in ages was driven by an undetected expansion in the numbers of younger pauper children entering apprenticeships.⁴⁶

We might also expect that age of binding would vary widely between companies. Trades had different physical, intellectual and educational requirements, and this meant that some were likely to be better suited to younger or older youths.⁴⁷ The physical demands of blacksmithing or carpentry could call for the greater strength of older teenagers, for example. Although London's companies included individuals who practised a variety of different occupations beyond the trade they each notionally controlled, members did have a tendency to clustered in particular occupations or sectors. This was particularly true for some of the newer companies, such as the Apothecaries and Carmen. However, as figure 4 shows, there was relatively little divergence between the age of apprentices in different companies. As our sample includes a large number of companies which often recruit only small numbers of apprentices in a particular period, the figure shows the spread of ages among the ten companies that recruited most apprentices in each period.⁴⁸ Most companies fell within a narrow range of ages. There are a few outliers – most obviously in 1700-49 when the relatively new Carmen's Company recruited apprentices at an average age of 21.6, almost four and half years older than the next company. It is impossible to determine whether this indicates greater levels of occupational heterogeneity within London's companies than is normally supposed, or that non-occupational factors were more important than occupation in determining the age of binding. Either way, geographical and social

⁴⁶ On pauper apprentices: Pamela Sharpe, 'Poor children as apprentices in Colyton, 1598-1830', *Continuity and Change* (1991), 255-6; Alys Levene, 'Pauper apprenticeship and the Old Poor Law in London: feeding the industrial economy?' (Mimeo, 2009), 10-11; Honeyman, *Child Workers*, 45-6.

⁴⁷ De Munck, *Technologies of Learning*, 177-78.

⁴⁸ This gives a sample size for each company of over 90 in every period.

differences in apprentices' origin appear to have produced a wider range of ages than the corporate differences in their destinations.

3. A Regression Analysis of Apprentices Ages

The descriptive statistics discussed thus far give a useful impression of way in which the ages of London's apprentices varied by time, geography, family background and company. In this section, we extend the analysis a step further by estimating multivariate regressions explaining the age of binding as a function of these and other characteristics. These regressions yield partial correlation coefficients, which speak directly to the statistical and historical significance of alternative explanations for the age at which youths entered apprenticeship.

The results of these regressions are reported in table 2. The estimation method used is ordinary least squares, and the dependent variable is the log of age (in years) of entry into apprenticeship. For certain variables, there are some minor differences from the categories used earlier. For example, to group occupations into meaningful blocks we adopted Wrigley's Primary, Secondary, Tertiary coding scheme to allocate parental occupations to different sectors, and amended it to distinguish two of the largest particular groupings among parents: yeomen and gentlemen.⁴⁹

We report the results of five models in table 2. The first covers the full period and our main variables. The second adds Company dummies. The third explores regions by pastoral and arable. The fourth and fifth separate the seventeenth and eighteenth centuries.

⁴⁹ The PST coding is discussed in E. A. Wrigley, *Poverty, Progress, and Population* (Cambridge, 2004), chapters 5, 11.

The baseline regression in column (1) largely confirms our earlier discussion. Time, region, and family are all significant factors in affecting the age of apprenticeship. The fall in age over time, as shown by the sequence of quarter century dummy variables, is strongly significant, and remains so after the inclusion of other characteristics potentially affecting when youths began their terms. The time dummies in Table 2 indicate that after controlling for other determinants of age, age of apprenticeship fell by 5 months between 1600-24 and 1650-1674 and by 21 months between 1600-24 and 1774-99. These are significant and substantial declines, and only somewhat smaller than the changes reported in Table 1.

Apprentice and company characteristics clearly influenced age of entry into apprenticeship, but the secular decline seen over two centuries was not driven by changes in who entered apprenticeship and who engaged in training. Variables for region of origin show that youths from distant parts of provincial England were considerably older than those from the capital (the excluded reference group) or the south east of England. Apprentices from the North of England were almost 12 months older on indenture than otherwise similar apprentices from London and Middlesex. Family background had a moderate effect on age of binding, with the sons of labourers (the reference group) being older than the sons of families in most other positions. Youths with fathers in sales and service occupations were 10 to 11 months younger than apprentices with labourer fathers. Background effects are somewhat smaller when we include a full set of dummy variables for each company in which apprenticeships took place (column 2). This is also much as one would expect, as it is well known that companies recruited from quite different social groups. In columns (4) and (5), we estimate the baseline model separately for each century. Interestingly, the effect of origins on age is clearer in the eighteenth than the seventeenth century.

There are two new aspects to this analysis that have not been discussed earlier. In our third model (column 3) we explore how age of apprenticeship varied for those coming from pastoral or arable regions. Snell found that agricultural servants in eastern arable counties left home later than the western pastoral areas, while for entrants to apprenticeships the position was reversed.⁵⁰ Snell suggested that this was probably due to the balance of demand for labour between employers and the family: he saw employers' demand as dominant, so that where there is a greater need for farm labour those entering farm service will leave home earlier, while those entering apprenticeships will be retained for longer to help. Our findings here support his analysis: youths from arable counties in the east of England left home to begin apprenticeships earlier than those in western pastoral counties, suggesting that youths' roles in the domestic economy did help determine the age at which they departed home.⁵¹

The second additional element is the effect of the death of a father on the age of apprenticeship. The harsh demographic realities of life in early-modern England made it likely that many youths would lose their father before reaching their mid-teens. In his study of Rye, Graham Mayhew found that most apprentices were orphans or young immigrants, and that when parents survived they normally kept their children with them until marriage.⁵² Rappaport also posited that 'pressure to begin apprenticeships early in life might have been considerable' for orphans.⁵³ However, among our sample of London apprentices, the regression results indicate that a small, positive relationship existed between age of

⁵⁰ Snell, *Annals*, 323-4.

⁵¹ In additional specifications, we experimented with interaction terms for youths from agricultural families (yeoman and farming) in arable and pastoral counties. We find support for Snell's view from arable counties, where apprentices with agricultural fathers had an additional negative age premium, with significant coefficients of about -.025.

⁵² Mayhew, 'Life-Cycle Service', 206, 212-4, 217. See also: Wall, 'Age', 184.

⁵³ Rappaport, *Worlds within worlds*, 296

apprenticeship and death of father, after controlling for other characteristics that influence age: those had lost their father were bound at a slightly older age than those who had not. The difference is not large – about 2 to 3 months in the first three specifications if the typical apprentice was bound at age 16 – and there is an obvious circularity in the relationship given that the probability of one's father dying increases with age. Nonetheless, it seems likely that many London apprentices had been pushed into service at an early age by the death of their father.

This conclusion is supported if we compare the proportions of apprentices whose father was deceased with the rates of mortality that might be expected for parents. Overall, only 25.4 percent of London's apprentices in this period had lost their father when they started service; more of those from the London area were orphans (32.2 percent) than from the provinces (24.1 percent). These numbers may seem large, but in practice they fit reasonably closely with the probability of death for males of the age to be fathers. Between the ages of 30 (when a man could expect to have a child) and 45 (when this child might enter service), male mortality was around 25 percent nationally in the mid-seventeenth century, while Landers found that in London in 1730-49 it was 31.6 percent.⁵⁴ Given this, it seems unlikely that paternal mortality was an important factor in the decision to send youths into apprenticeships in London. In this, we may be observing one of the differences between metropolitan apprenticeship and its provincial equivalent. Becoming an apprentice in London could take considerable financial and organisational effort to arrange. It was not an easy way to respond to the problem of looking after a child whose birth family had suddenly dissolved.

⁵⁴ E. A. Wrigley, *English Population History from Family Reconstitution, 1580-1837* (Cambridge, 1997), 291; John Landers, *Death and the Metropolis: Studies in the Demographic History of London, 1670-1830* (Cambridge, 1993), 172.

4. Conclusion

Our analysis has shown that the age at which apprentices entered service in London experienced a long and slow decline in the seventeenth and eighteenth centuries. Apprentices were also starting at a more tightly defined age-period, suggesting that the ‘suddenness with which children leave home’ that Wall noted as distinguishing modern from past communities is the end-point of a longer process in which children left home at an increasingly narrow range of ages.⁵⁵ This decline affected youths from all areas, all backgrounds, and all companies. Geography and background did still affect the age at which youths began: those from more distant areas were older, while youths from more prosperous backgrounds tended to be younger. Those whose fathers had died before service were somewhat older at entry than otherwise similar apprentices.

Earlier studies by Wall and Horrell and Humphries have observed a fall in the age of leaving home in the eighteenth and early nineteenth century, which only reversed in the mid-nineteenth century.⁵⁶ Our findings suggest that this process began earlier than was previously thought. It is possible that the late sixteenth century saw a peak in the age of entry to service, as indicated by Hanawalt’s estimates of the age of medieval apprenticeship. This would suggest that the age of entering service experienced long cycles in response to changes in real wages, the returns to skill, and other economic and demographic factors.

The fall in the age of apprenticeship was part of a process of change in the institution and its wider role. It implies that formal regulations and norms, and the corporate life-cycle that they defined,

⁵⁵ Wall, ‘Age’, 193.

⁵⁶ Wall, ‘Leaving Home’; Horrell and Humphries, ‘Exploitation’, 496-9; Humphries, ‘Child labour’, 258. On the decline of child labour: Clark Nardinelli, ‘Child Labor and the Factory Acts’, *Journal of Economic History* **40** (1980), 741-50; Hugh Cunningham, ‘The Decline of Child Labour: Labour Markets and Family Economies in Europe and North America Since 1830’, *Economic History Review* **53** (2000), 409-12

were becoming less important. The decision by apprentices and their families to begin terms earlier meant that they would have completed their terms around the age of 21 by 1800, rather than at 24 or older as in 1600, despite guild, city and national rules that set a minimum age of 24 for completion. This is strong evidence that many, if not most, apprentices had incentives to train *beyond* those associated with obtaining citizenship. The fall in the age at which service started may also explain the apparent increase in the payment of premiums, as younger children were probably less productive.⁵⁷ Finally, the big age gap between the age of apprentices in our sample and pauper apprentices underlines the fundamental distinction between craft and pauper apprenticeship.

Age may also have affected apprentices' private and public experiences. Their public role within the London mob would have changed subtly: a group of apprentices aged 14 or 15 gives a different impression to one in which all are 18 or older - apprentices became 'boys' rather than the 'lusty fellows' sought by Bartholomew Steer for the Oxfordshire rising.⁵⁸ London's mob must always have encompassed a wide age range, as John Walter has recently noted, but the intersection of assertive manliness and subordination within apprentices' protest was played out against shifting levels of physical maturity.⁵⁹ As they became younger, apprentices may also have been more vulnerable to exploitation and abuse within the household and workplace. The apprentice increasingly became an 'adolescent'. In modern terms – although not in early-modern definitions of maturity – new apprentices moved from being adults to being children. If we take 21 as the age of adulthood, as has been suggested for this period, apprentices in the early seventeenth

⁵⁷ Cunningham, 'Employment', 131.

⁵⁸ Quoted in John Walter, 'Faces in the crowd: gender and age in the early modern English crowd', in Helen Berry and Elizabeth A. Foyster eds., *The family in early modern England* (Cambridge, 2007), 110.

⁵⁹ Walter, 'Faces', 105-10.

century would have been of 'adult' age for more than half of their term. In contrast, by the late eighteenth century, adulthood and completion coincided. If defined by status, apprenticeship might always have been adolescent labour, but if measured against cultural definitions of adulthood, it would appear that over the early modern period apprenticeship labour increasingly *became* adolescent labour.⁶⁰

The decline in the age of apprenticeship has several wider implications for our understanding of England's economy and society. First, to the extent that it was a product of the demand for labour in London's economy (and we cannot *a priori* exclude supply-side factors), it provides additional evidence for a long-run expansion in the English economy over the centuries before industrialisation. Second, it is a further indication of the importance of the metropolis in shaping the life-cycle and life-course across England as a whole, as Wrigley famously observed.⁶¹ London's long boom, most visible in the growth of trade and population, also made its migrants and adolescent workforce younger. Finally, it points to a previously unrecognised expansion in the supply of semi-skilled and skilled labour in the run up to industrialisation. London's youths were attaining their 'final level' of training at an earlier age by the end of the eighteenth century. Assuming that the proportion of young men in craft occupations was roughly constant, this fall in the age of entry into service would have expanded the relative supply of trained labour by almost 10 percent over the two centuries to 1780.⁶² This is a small, but

⁶⁰ Cf. Rahikainen, *Centuries*, 12-13; Cunningham, 'Employment', 118, where childhood is taken as ending at fifteen.

⁶¹ E. A. Wrigley, 'A simple model of London's importance in changing English society and economy, 1650-1750', *Past and Present*, **37** (1967), 44-70.

⁶² Life expectancy at age 25 was 58.9 in 1780-9 (Wrigley, *English population history*, 290). If we assume that apprentices were skilled workers after 7 years service, then the number of skilled working years if apprenticeship had started at 17.88 (the median in 1580-9) would be 34.02 years; if apprenticeship starts at 14.77, the skilled career is 37.13 years.

not trivial, addition to de Vries' thesis that this period saw an industrious revolution.

The fall in the age of apprenticeship in London has implications for the structure of the household economy as well as the wider labour force. We cannot be sure that apprenticeship was youths first move beyond the family home; the scale and extent of child labour within and beyond the household has been much debated.⁶³ However, to the extent that apprenticeship *did* mark equate to leaving home, our findings suggest a substantial shift in the involvement and importance of children and adolescents in the family economy. If we take the age of fifteen as the end of childhood, as is standard, for apprentices throughout this period nearly all their 'child' labour would have occurred while they remained resident in the family. Nonetheless, the increasingly early departure of youths suggests that children played a declining role in the family economy. By leaving at 15 rather than 18, youths were exiting the household at the point at which they were likely to have become net producers.⁶⁴ It is hard to reconcile the decline in age with arguments that expanding proto-industrialization saw an increasing demand for the labour of children within households over this period, unless apprentices came from a wholly different social group, which does not seem likely on the evidence of their reported backgrounds.⁶⁵ That youths from poorer families left later suggests the their incomes remained more important to their families. That said, the fall in the age of apprenticeship may, however, have had the perverse effect of increasing levels of child labour.

⁶³ Rahikainen, *Centuries*; Cunningham, 'Employment'; Peter Kirby, 'Debate: How Many Children Were 'Unemployed' in Eighteenth- and Nineteenth-Century England?' *Past and Present* **187** (2005), 187-202; Cunningham, 'How Many Children', 203-15.

⁶⁴ Tim Wales, 'Poverty, poor relief and the life-cycle', in R. M. Smith ed., *Land, kinship and life-cycle*, (Cambridge, 1984), 376; Rahikainen, *Centuries*, 53; Kussmaul, *Servants*, 1981.

⁶⁵ David Levine, *Reproducing families : the political economy of English population history*, (Cambridge, 1987), 120-1; Pat Hudson, 'Proto-industrialization in England', in Sheilagh Ogilvie and Markus Cerman eds., *European proto-industrialization* (Cambridge, 1996), 61-63.

Horrell and Humphries found that the labour force participation of younger children depended in part of the presence or absence of older children. If this applies in earlier periods, then the earlier apprenticeship would have led to an increase in child labour within the household.⁶⁶ Finally, as starting younger meant apprentices would then have completed their terms earlier, the fall in their age may help explain the similar decline in the age at which men married and established their own households that occurred from the mid-seventeenth century.⁶⁷ The wide implications of the fall in the age of apprenticeship underline the interconnected nature of the structures of family and economy in early modern England.

⁶⁶ Horrell and Humphries, 'Exploitation', 501.

⁶⁷ Wrigley, *English population history*, 134-5; Richard M. Smith, 'Fertility, economy, and household formation in England over three centuries', *Population and Development Review* 7 (1981), 602-6.

Table 1: Ages of London Apprentices, 1580-1809

Decade bound	Mean	Median	Percentile 25	Percentile 75	Standard Deviation	Valid N
1580-89	17.98	17.88	16.14	20.06	2.58	83
1590-99	17.89	17.39	15.50	19.23	3.55	143
1600-09	17.94	17.24	15.65	19.73	3.44	283
1610-19	17.58	17.09	15.29	19.23	3.46	550
1620-29	17.83	17.33	15.54	19.38	3.28	711
1630-39	17.46	16.86	15.45	18.73	3.07	1156
1640-49	17.21	16.79	15.29	18.66	2.98	1013
1650-59	16.94	16.58	15.08	18.22	2.99	1136
1660-69	17.56	16.88	15.25	19.00	3.45	892
1670-79	16.74	16.25	14.93	17.83	3.09	1211
1680-89	16.70	16.23	14.96	17.70	2.98	1635
1690-99	16.99	16.26	15.10	18.01	3.16	1702
1700-09	16.91	16.27	15.00	17.72	3.10	1750
1710-19	16.96	16.10	14.98	17.98	3.26	1425
1720-29	16.46	15.77	14.87	17.16	2.84	1231
1730-39	16.33	15.70	14.77	17.00	2.74	920
1740-49	16.34	15.43	14.61	16.95	3.02	832
1750-59	15.94	15.26	14.34	16.61	2.74	905
1760-69	15.59	14.90	14.19	15.93	2.56	957
1770-79	15.57	14.75	14.13	15.95	2.74	764
1780-89	15.47	14.77	14.15	15.89	2.47	573
1790-99	15.71	14.86	14.12	16.12	2.86	555
1800-09	15.70	14.70	14.07	16.22	3.23	172
All	16.88	16.20	14.91	18.02	3.07	17,192

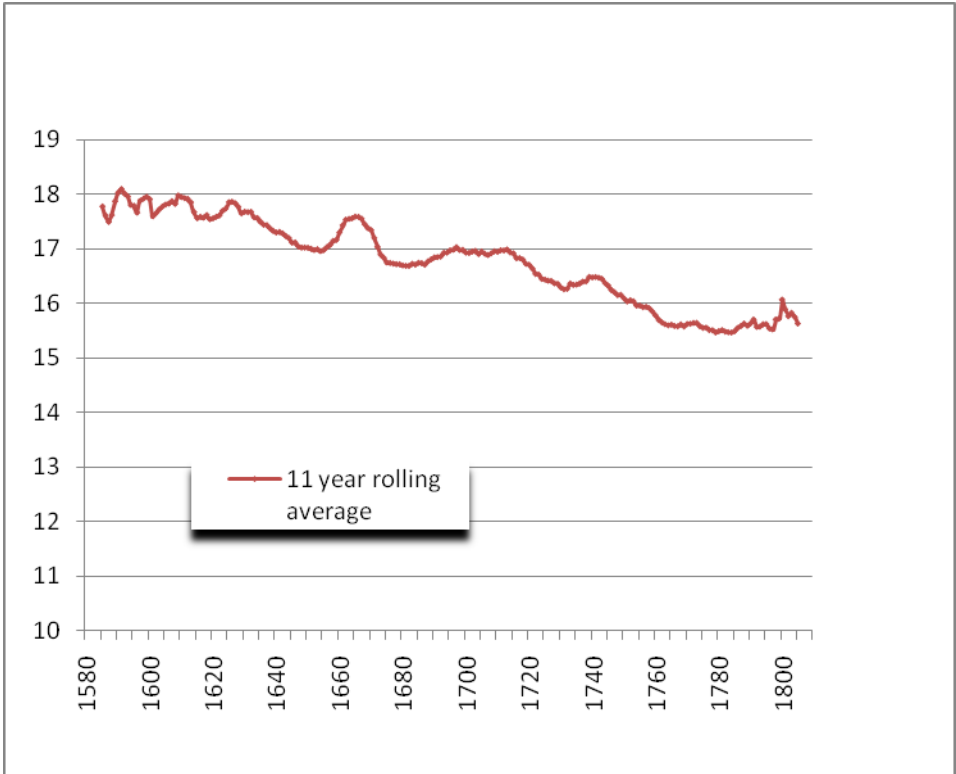
Table 2: Explaining the Age of Apprenticeship

	1600-1799			1600-1699	1700-1799
Father yeoman	-.030 (-4.12)	-.010 (-1.33)	-.026 (-3.54)	-.017 (-1.24)	-.029 (-3.08)
father other primary	-.020 (-2.73)	-.010 (-1.33)	-.016 (-2.15)	-.009 (-0.66)	-.021 (-2.36)
Father manufacturing	-.026 (-3.74)	-.009 (-1.29)	-.026 (-3.82)	-.007 (-0.51)	-.033 (-4.31)
Father distribution	-.029 (-3.28)	-.090 (-1.01)	-.030 (-3.30)	-.005 (-0.32)	-.046 (-4.13)
Father sales	-.045 (-5.11)	-.023 (-2.65)	-.047 (-5.24)	-.020 (-1.16)	-.055 (-5.52)
Father labourer	---	---	---	---	---
Father service	-.054 (-6.77)	-.035 (-4.42)	-.059 (-7.30)	-.047 (-3.00)	-.055 (-6.12)
Father professional	-.052 (-6.24)	-.028 (-3.38)	-.050 (-5.98)	-.040 (-2.67)	-.052 (-5.18)
Father gentleman	-.032 (-4.30)	-.012 (-1.64)	-.030 (-4.03)	-.020 (-1.40)	-.031 (-3.33)
1600-1624	---	---	---	---	---
1625-1649	-.008 (-1.34)	-.010 (-1.67)	-.010 (-1.55)	-.008 (-1.22)	---
1650-1674	-.026 (-4.16)	-.023 (-3.76)	-.028 (-4.53)	-.026 (-3.99)	---
1675-1699	-.047 (-8.04)	-.048 (-7.88)	-.051 (-8.73)	-.050 (-8.02)	---
1700-1724	-.049 (-8.16)	-.050 (-8.15)	-.054 (-9.14)	---	---
1725-1749	-.075 (-11.62)	-.077 (-11.67)	-.084 (-13.14)	---	-.025 (-5.82)
1750-1774	-.108 (-16.62)	-.104 (-15.68)	-.119 (-18.53)	---	-.058 (-13.30)
1750-1799	-.116 (-16.52)	-.113 (-15.68)	-.129 (-18.41)	---	-.066 (-13.00)
Southeast	-.007 (-2.03)	-.007 (-1.93)	---	-.012 (-1.88)	-.007 (-1.65)
Southwest	.037 (7.43)	.035 (7.09)	---	.030 (3.69)	.041 (6.14)
Midlands	.045 (10.78)	.040 (9.81)	---	.041 (5.90)	.043 (7.68)
East	.0003 (0.10)	-.001 (-0.26)	---	-.004 (-0.62)	.003 (0.48)
North	.058 (8.75)	.057 (8.67)	---	.067 (6.78)	.036 (3.86)
Pastoral			.018		

			(4.46)		
Arable			-.022 (-8.54)		
Father deceased	.013 (4.90)	.012 (4.53)	.012 (4.44)	.022 (5.44)	.005 (1.40)
Great 12 company	-.015 (-5.58)	---	-.016 (-5.75)	-.023 (-6.13)	-.004 (-0.90)
Company dummy	N	Y	N	N	N
Constant	2.87 (320.63)	2.85 (239.17)	2.90 (333.09)	2.86 (189.60)	2.83 (346.27)
R-Square	.07	.11	.06	.05	.06
N	18349	18349	20414	9453	8896

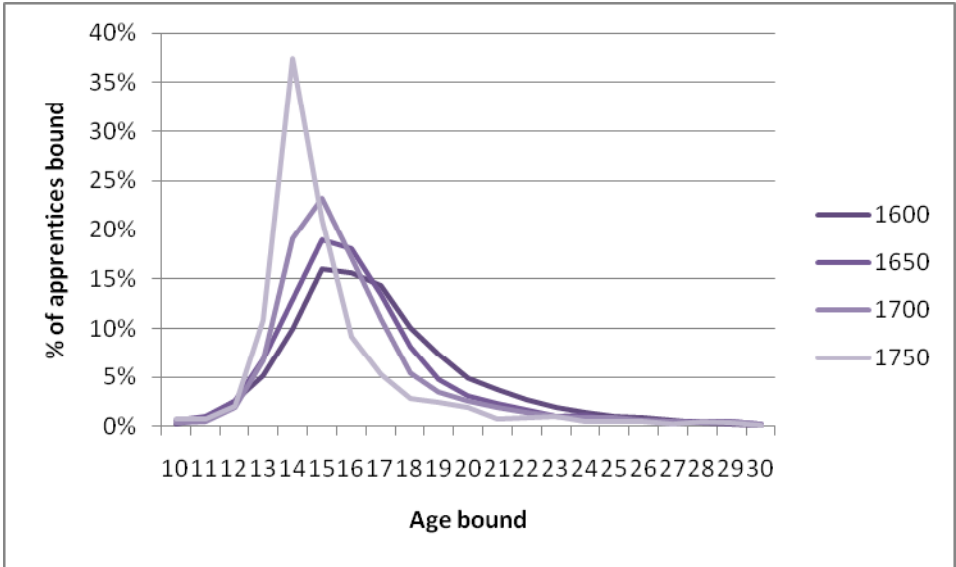
Notes: The regression estimation method is Ordinary Least Squares. The dependant variable is the natural logarithm of age at binding. T-statistics are in parentheses. Sons of fathers without an occupation excluded from sample. Pastoral counties are Devon, Dorset, Gloucestershire, Herefordshire, Somerset, and Wiltshire. Arable counties are Bedfordshire, Berkshire, Buckinghamshire, Cambridgeshire, Essex, Hertfordshire, Huntingdonshire, Leicestershire, Norfolk, Oxfordshire, Suffolk, and Surrey.

Figure 1: Age of London Apprentices, 1580-1800



Source: see text.

Figure 2: Distribution of Apprentices by Age over Time



Source: see text

Figure 3: Apprentices Age by Region

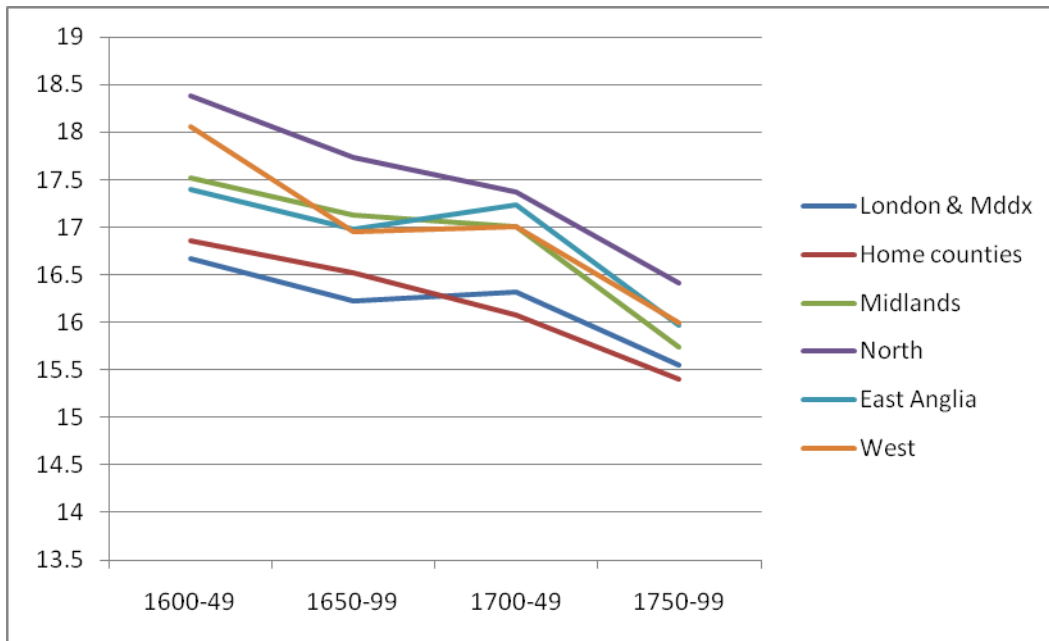


Figure 4: Apprentices by Status/Occupation of Father

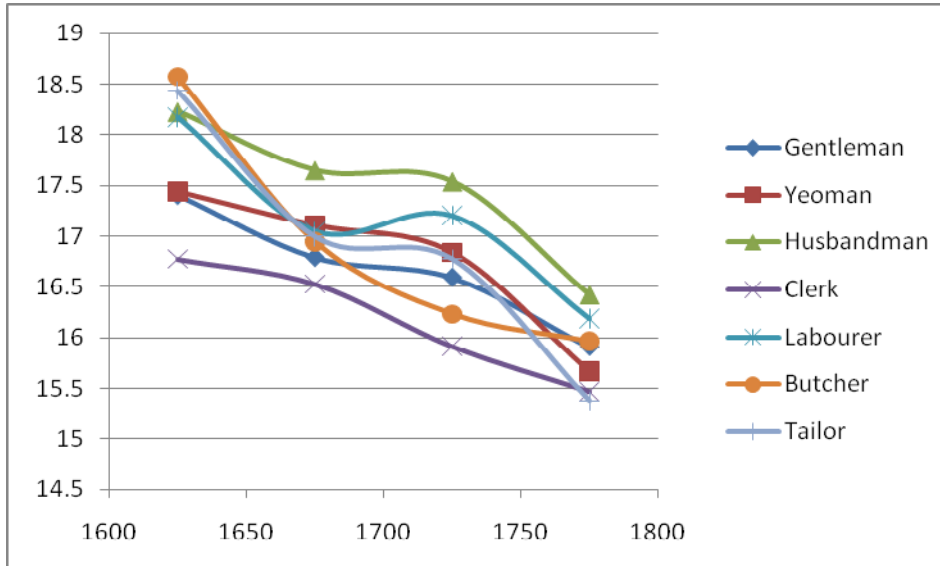
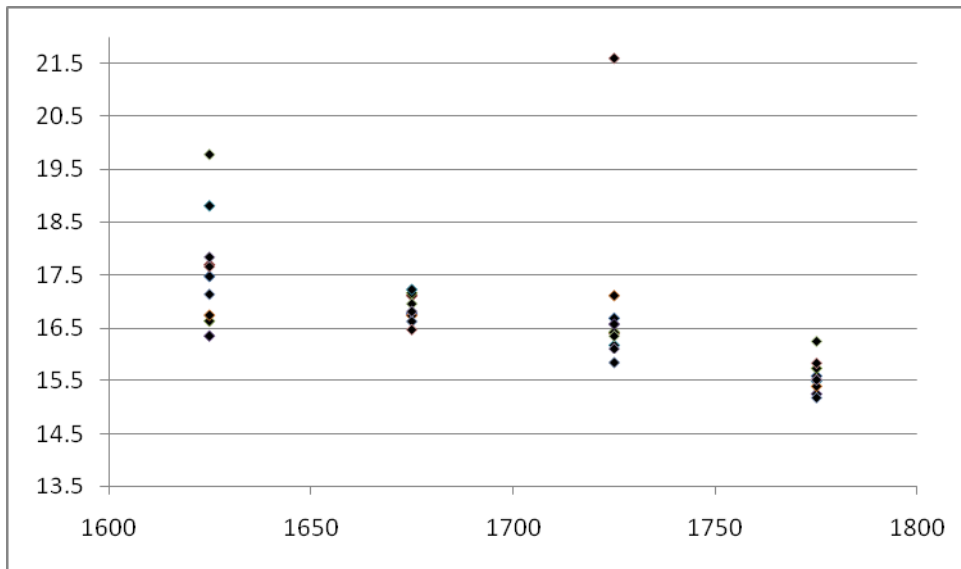


Figure 5: Apprentices' Ages by Company



Note: the table shows the distribution of mean ages for the ten companies that recruit the largest number of apprentices in each half century.

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