

How fluid were labour markets in pre-industrial Britain? New evidence from apprenticeship records

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Abstract

This paper uses a newly constructed dataset of over 150,000 London apprentices and over 50,000 masters to examine patterns of migration between 1600 and 1800 in order to ascertain whether the quality of information about London opportunities was equally good across England. We find evidence that it was: apprentices were drawn from a wide area early on, kinship and name ties were uncommon, the proportion apprenticed to a master from the same town or county was low, and stable over time. Those from faraway counties or counties who sent few migrants went into a wide range of companies, the distribution of apprentices across companies was not radically different by place of origin, and new companies soon recruited from across England. We conclude, therefore, that Britain had a fluid, well-functioning labour market well before the industrial revolution.

Introduction

Migration was important in pre-modern Britain, particularly migration to urban areas. London required a huge inflow of migrants, because deaths exceeded births and because it was growing rapidly: from 200,000 in 1600 to 575,000 in 1700.¹ Such was London's need for migrants that one in six of the 17th century English adult population had lived in London at some point in their lives.²

Early modern England was unusually well integrated by European standards. This is true for product markets, such as grain, and in demographic terms. Clark and Souden see migration as "mediating between changing levels of economic demand and national population supply, and also compensating for the differential rates of population growth between regions, towns and villages."³

Apprenticeships also mattered in pre-modern Britain. They were critical to human capital formation, since they were the primary way to acquire upper level craft skills. They were also critical for migration, since large numbers of people moved to take up apprenticeships and within that group a significant number moved to London. Furthermore, apprenticeship migration has a great attraction for economic historians compared with other forms of migration: it was well recorded.⁴

Apprentices were not, of course, typical migrants. They were invariably young, almost all male, migrated further than subsistence migrants, and came from relatively affluent backgrounds.⁵ Indeed, there is evidence of a rise in the economic status of apprentice backgrounds over this period.⁶ While it would be possible to argue that this is a Greg Clark downward mobility story, it seems more likely that as apprenticeships became less necessary, those who had previously struggled to afford one decided to forego them. Apprenticeship migration also differs from subsistence migration because the migrant's destination is known in advance. Apprentices did not travel to London to search for a master: they arranged their apprenticeship before travelling. For this reason apprenticeship migration is a good measure of information flows. Against that, we need to remember that the apprenticeship decision is determined not only by information but also by opportunity. In particular, would-be apprentices would have taken into account opportunities in the place in which they lived as well as opportunities available in London. If many migrate to London we know that information about London must have been adequate. In contrast, if few migrate to London it might be that information was inadequate or that local alternative opportunities were more appealing.

¹ Harding, 'Population'

² Wrigley, 'Simple Model'

³ Clark and Souden, 'introduction', p. 23.

⁴ Apprenticeship has been widely studied more generally, including work by Humphries 'English Apprenticeship'; Epstein 'Craft guilds'; Oglivie 'Guilds'

⁵ Rappaport, 'Social Structure'

⁶ Brooks, 'Apprenticeship'; Clark and Souden, 'introduction'

Apprenticeship migration is well-studied. We know that even by the 14th century London was already attracting at least some apprentices from across England.⁷ By the mid-16th century almost one half of apprentices who became Freemen came from counties of the north and west of England, more than three times as many as had been born in London.⁸ The attraction of London to would-be apprentices from places far from London declined in the 17th and 18th centuries.⁹ Furthermore, we knew that apprenticeship migration from places with strong employment prospects for would-be apprentices was always relatively limited: regional centres such as Norwich and Bristol attracted many from their area who might otherwise have migrated to London.¹⁰

Apprenticeships were costly – at around a year’s agricultural wages – and it is likely that families investigated the possibilities as thoroughly as they could.¹¹ Not only did families need to be sure of the quality of training that their son would receive, the master also had to have a sense of the quality of apprentice being offered. This, then, is a system whose effectiveness would improve with improvements in the quality and quantity of information available to all parties. Surprisingly little is known about how individuals chose their master, or about how masters chose their apprentices, although evidence drawn from surviving records often show kin or others known to the would-be apprentice’s family acting as intermediaries. Ben-Amos describes Richard Oxinden being placed as an apprentice with the help of a kinsman, Valentine Pettit, who does not seem to have had any prior connection with the master he found.¹² Similarly, Bartholomew Adsworth’s apprenticeship to Mr Walton in 1688 was arranged by his cousin, George Fox, a citizen and Vintner of London.¹³ George Long of Ludlow also arranged for his friends to make a ‘diligent enquiry’ for a ‘fit person’ for his son to serve.¹⁴ Clearly, both kinship and friendship could play a part in matching apprentice with master.

Data

As we have noted, apprenticeship migration is much studied. The constraints of the evidence available mean that much of this work is inevitably narrow in focus, often by time period or by Company (as London’s guilds are known), or by looking in detail at a relatively limited number of apprentices for whom particularly good records survive. Thus, for example, McKenzie looks at

⁷ Thrupp, ‘Merchant class’; McClure, ‘Patterns’

⁸ Rappaport, ‘Social Structure’; Wareing, ‘Geographical distribution’

⁹ Stone, ‘Social mobility’; Kitch ‘Capital and kingdom’; Rappaport ‘Social Structure’; Wareing, ‘Geographical distribution’; Smith, ‘Social and geographic origins’; Whyte, ‘Migration’

¹⁰ Ramsay, ‘Recruitment’

¹¹ Brooks, ‘Apprenticeship’, cf. Mitchell ‘British Historical Statistics’.

¹² Ben-Amos, ‘Adolescence’

¹³ LMA, MC6/500A

¹⁴ CLA/024/07/81

stationers' apprentices, Keene looks at a butcher's apprentices, while Ben-Amos uses surviving apprentices' letters and diaries as her source.¹⁵

This paper is able to go beyond previous work in one important way: we have access to a dataset an order of magnitude larger than that available to previous authors, which will allow us to examine hypotheses about the factors underlying apprentice migration patterns for the first time. Our dataset is based on the extensive series of extracts from London Companies' own manuscript records that has been made by Cliff Webb and published by the Society of Genealogists. Webb's lists contain the details of all apprentices recorded by the officials of a large number of London Companies for the period for which their records survive. In total, our data contains records of more than 50,000 London masters, and over 150,000 London-bound apprentices. The first apprentice recorded in our dataset took up his position in 1496, while the last commenced his training in 1928. Our data cover around 2% of the entire population of relevant age in the period 1600-1750.

Our data confirm much more robustly than has previously been possible the standard notions that historians have always believed about apprentice migration in this era, namely that the number of people taking up an apprenticeship in London from counties outside of London first rose and later fell. Figure 1 sets out the pattern given by our data.

Figure 1: Apprentice numbers over time

Analysis

This section will use the data that we have available to investigate the decision to become an apprentice. First we look at the geographical range of apprentices' origins over time, to see whether information appears to become more evenly spread over time. Second, we investigate the importance of kinship. Third, we look at the importance of local information by investigating the proportion of apprentices who came from the same town as their master. Fourth, we widen this to look at the proportion who came from the same county as their master. Fifth, we investigated that effect over time, by looking at whether the proportion of apprentices from the same county as their master increased or decreased over time. Sixth, we look at the relative role of urban and rural areas in the supply of migrants. Seventh, we look at whether the range of companies chosen by apprentices from counties further from London was narrower than that of apprentices from counties closer to London. Eighth, we look at whether the range of companies chosen by apprentices from counties that sent fewer apprentices to London was narrower than that of counties that sent higher volumes of apprentices. Ninth, we look at whether non-London-born apprentices chose the same

¹⁵ McKenzie, 'Stationers Company'; Keene, 'Metropolitan values'; Ben-Amos 'Service'

companies as London-born apprentices. Tenth, and finally, we look at the experience of new companies in terms of being able to recruit apprentices from a wide geographical area.

In each case we are trying to answer the question of whether England was one place in terms of information and opportunity. This in turn has implications for our understanding of the degree of trust, and the effective working of the economy that we will explore later. If we find that few people were apprenticed to their kin, or to someone from the same town, but that instead apprentices were drawn similarly from across the country and that apprentices from different counties were distributed evenly across the London companies, and that new companies were rapidly able to recruit from a wide area then we shall conclude that the quality of information and opportunities available to would-be apprentices across England was of a high and uniform standard. If in contrast we find that apprentices were likely to have as a master a relative or at least someone from their same town, that they were drawn very unevenly from across Britain, and that apprentices from different counties were distributed very differently across the London companies, and that new companies were only able to recruit from a limited number of locations, then we shall conclude that England was not a single place in terms of information.

Where did apprentices come from?

Our data confirm the notion widely-held in the literature that early 17th-century apprentices were drawn from a wider region across Britain than apprentices in the early or particularly in the late 18th century. Yorkshire, for example, sent more than 700 apprentices a year to London in the middle of the 17th century. Of course, Yorkshire is a large and populous county and it is in some sense more illuminating to look at the number of apprentices cent per head of population. We can do this by comparing the total number of apprentices per county with Rickman's estimates of the 1600, 1700 and 1750 population of that county. The results are given in figure 2.

Figure 2 (a,b,c)

If Britain was a fragmented labour market, one symptom would be that apprentices were drawn disproportionately from the London area early on, becoming more even as information transmission and so labour market integration rose over the period. Figure 2 show that this is not the case. Between 1600 and 1625, take-up of apprenticeship was highest in the Home Counties and central Midlands (Leicestershire and Northamptonshire), but were high in the area bordered by London, Gloucester, Chester, and the Wash. By the start of the 18th century, apprenticeship rates had risen in London and the area immediately around it, but remained high in the wider area mentioned above. In 1775 the picture is considerably different, with the propensity to send apprentices to London much more concentrated; London, Middlesex, and Surrey continue to have high rates of

apprenticeship, but the movement of apprentices to London from the Midlands was curtailed, and from the North became almost nonexistent.

Such a pattern is readily explainable within our framework. Early on, information is reasonably good across England and opportunities are concentrated in London, resulting in many being willing to travel a long way to London for an apprenticeship. As time goes on, information remains good across England, but the dawn of the Industrial Revolution means greater opportunities in Northern England and other provincial centres, leading to a falling off in numbers of apprentices from these areas. The importance of both Lancashire and Yorkshire as sources of apprentices declines between 1600 and 1775, with the decline beginning earlier in Yorkshire than in Lancashire.

The availability of local alternatives, rather than lack of information, appears to explain the failure of some distant regions to send many apprentices at the start of the period. We find, for example, very few apprentices travelling from the area around Newcastle upon Tyne. It could be that Newcastle, which is a long way from London, had limited information about the opportunities available in London. But that is hard to believe. Newcastle, after all, was the centre of a thriving coal trade with London. Ships travelled back and forth between the two cities regularly. It is hard to imagine that people in Newcastle were unaware of conditions and opportunities in London. Rather, it is more plausible to imagine that young men in the Newcastle area had good opportunities in Newcastle, and therefore did not feel the same pull of London. We can say the same of Cornwall, which was the centre of the tin trade with London.

The role of kin

Our records allow us to investigate the relationship between apprentice and master in ways that are more systematic than has previously been possible. In total the records contain details of 167,000 apprentices. Each is linked to a master: there are, in total, 54,397 different masters names.¹⁶ There are few details of the masters in the dataset itself, but since many masters served their apprenticeship in London in an earlier era, we look up the names of the masters in the apprenticeship records for the period 7 to 50 years prior to their taking on their own apprentices.¹⁷ In total we are able to find the apprenticeship records of 16,171 Masters, which represents around a third of the total number of masters taking on apprentices in the period covered by our data. These masters in turn took on a total of 50,867 apprentices. This means that, for those fifty thousand, we know not only their name, and place of birth, but also the name and place of birth of their master.

¹⁶ These are the number of different master name and surname combinations that appear in the data. We use Double Metaphone to classify written surnames; this means that Jim Smith and James Smythe are considered to have the same name. We use company and names to identify individual masters, so the number of potential masters is larger than the number of unique name combinations.

¹⁷ Where we find two apprentices with the same name and from the same company in the relevant time period, we discard the match as ambiguous.

The literature has stressed the importance of kin networks in fostering master-apprentice relationships, and we can explore to what extent kin apprenticeship was a significant phenomena. Direct kin relations are recorded in the company records: about 2,000 apprentices are known to be related to their master, with the bulk of these ties being father-son relationships, kin ties were particularly common after 1750. Masters may also have taken on more distant relatives who are not identified as kin in the company records. One proxy for a distant paternal family relationship is whether a master and apprentice share a surname. For common surnames (e.g. Smith), a shared name may not indicate kinship, but if masters and apprentice share an unusual surname it is likely both are kin. We restrict ourselves, therefore, to apprentices with unusual names, defined as those that occur at most five times in the Vicar-General's list of names appearing in marriage licenses in the Archbishopric of Canterbury for the period 1694-1800.¹⁸ Since we are interested in the role of kinship ties in the transmission of information and opportunity over distance, we restrict our attention to those masters with unusual names born outside of London and Middlesex.

Table 1: Kin apprentices, 1600-1750

Number of apprentices	% of apprentices recorded as being kin to their master	% apprentices with same name as their master, unusual names
1	0.6	10.0
2	0.3	10.8
3	0.3	5.0
4	0.3	6.5
5	0.1	8.0
6 to 9	0.1	4.3
10 to 20	0.1	4.2
More than 20	0.2	No observations
All Masters	0.3	6.9
N	29,602	1,472

Notes: from matched sample where apprentice and master origins are known. Column 2 includes some apprentices who do not share a name with their master.

As can be seen, very few apprentices are recorded as being directly related to their master: on average only 0.3% of apprentices were bound to a known relative (mostly their father), and under 7% shared a surname with their master. Of course, maternal and some paternal relatives will not be captured in the latter measure, but the smallness of the figures in both cases make it clear that this omission is not going to undermine the conclusion that kinship was not the usual method of joining masters and apprentices. Using a kinship tie may well have been common for those who had kinship ties, but it was not a critical factor in explaining who migrated to London to take up an apprentice.

¹⁸ Available from <http://www.sog.org.uk/vg/index.html>

Nor do masters seem to have sought out their kin. Even among masters who took more than 10 apprentices, only 1 in 24 took someone of the same name. Nor were there significant numbers of masters who did not usually take on apprentices, but who made an exception for members of their family: only 1 in 10 of those who took only one apprentice shared a surname with that apprentice. It is likely that having a master in the family made it easier for young men to take up an apprenticeship in London,¹⁹ but having a relative as a master was emphatically not required, or even common.

The importance of local connections 1: the role of town networks

It is not necessary to be related to a master to know them and to be known by them. We can get a sense of the extent to which apprentices may have known their master, and their master the apprentice, by looking at the number of apprentices who came from the same town as their master.

Table 2: Did masters and apprentices come from the same town? 1600-1750

Number of apprentices	All names		Excluding apprentices with same name as master	
	% masters with home town apprentice	% of apprentices with home town master	% with home town apprentice	% of apprentices from home town
1	9.6	9.6	4.5	4.5
2	15.4	8.6	8.2	4.8
3	17.3	6.5	9.1	3.5
4	19.4	6.0	11.6	3.5
5	22.3	6.0	13.8	3.8
6 to 9	24.9	4.9	15.5	3.0
10 to 20	26.9	3.3	18.7	2.3
More than 20	44.0	4.1	36.0	3.5
All Masters	15.9	6.1	9.1	3.5
N	9,888	29,602	9,533	28,038

Notes: from matched sample where apprentice and master origins are known. Masters from London and Middlesex are excluded.

Table 2 lists the percentage of masters with at least one apprentice from their home town, and the percentage of apprentices who join a master from their place of origin. To exclude kinship-based geographical commonality, we also report the results excluding any master and apprentice who share the same name, however common that name may be. This is not a perfect measure: Smith the apprentice may not be related to Smith the master, and Smith the apprentice may be related to a master with another name maternally. But the size of the figures reported in the table leaves us in no

¹⁹ We intend to explore patterns of selection into apprenticeship for those with and without kin ties in the trade at a later date.

overall doubt: apprenticeship migration to London was not in any sense driven by knowledge of individual masters derived from growing up in the same town.

Only a small minority of apprentices were apprenticed to a master from their home town. There is also no significant evidence that masters limited themselves to apprentices from their home town or were looking to their hometown particularly as a source of apprentices. Some masters with large number of associated apprentices had several from their home town, but only about nine percent of masters ever trained a non-relative from their place of origin.²⁰

The importance of local connections 2: the role of county networks

Some apprentices came from smaller places, and could not have had a master from their hometown even had they wanted to. If these people were using local information flows then it is likely that they would be apprenticed to someone from the same county. Similarly, would-be apprentices even from places that did have masters offering apprenticeships might not find a master from their hometown in the relevant company. In both cases our “same town test” may be too severe. In these cases, if local information flows were important, we would expect to find that these people were apprenticed to someone from their county even if that person was not from their hometown. We investigate this possibility in the table 3.

Table 3: Home county apprentices, by size of apprentice pool, 1600-1750

Number of apprentices	All names		Excluding apprentices with same name as Master	
	% masters with home county apprentice	% of apprentices with home county master	% masters with home county apprentice	% of apprentices with home county master
1	22.2	22.2	16.5	16.5
2	34.8	20.8	26.2	16.4
3	40.8	18.2	31.7	14.5
4	48.5	17.7	41.3	15.0
5	56.0	17.7	47.4	15.1
6 to 9	59.3	16.1	52.9	13.7
10 to 20	68.3	13.2	62.9	11.5
More than 20	88.0	10.6	88.0	9.6
All	37.8	17.5	31.1	14.3
N	9,888	29,602	9,533	28,038

Notes: from 1600-1749 matched sample where apprentice and master origins are known. London and Middlesex masters excluded.

²⁰ Ideally we would like to compare the figures in Table 2 to the proportion of apprentices who could have been bound to a home town master. We do not know the full distribution of place of origin for London masters, as only a minority of masters’ origins are known.

The figures are, inevitably, larger, but they are not dramatically larger, with 17.5% of apprentices having masters from the same county. This suggests that there was an observable degree of home bias in the hiring of apprentices, as no counties contributed 17.5% of the total number of apprentices. Nevertheless, this surely overstates the extent of personal knowledge: it is not realistic to think that every Yorkshire-born apprentice knew the Yorkshire-born master to whom he was apprenticed. Furthermore, in that an apprentice had more than an 80% chance of serving their apprenticeship with a master from their county other than their own it strongly suggests that apprentices had good information about the range of masters in London: their choices were not limited by any means to masters who came from their area.

The importance of local connections 3: the changing role of county networks

So far we have been treating the evidence as a cross section. It is also possible to look at it in time-series terms. If the quality of information available to apprentices was improving over time, we would expect apprentices to exhibit steadily less of a bias towards masters from their home county over time. Figure 3 plots the proportion of (non-London and Middlesex) apprentices who were apprenticed to a master from the same county over time.

Figure 3: the proportion of apprentices apprenticed to a master from their home county over time.

The share of home county apprentices is fairly constant, suggesting that there was little change over time in the relative importance of networks linking masters to their counties of origin. There is no evidence, in other words, of deficiencies in the earlier period leading to greater use of local networks or knowledge.²¹

The importance of urban and rural places as suppliers of apprentices

Were information flows to be limited and patchy, we might expect that those who lived in urban centres would have had better information than those who lived in rural districts in the same area, and would be correspondingly more likely to migrate to London to become apprentices. We can investigate this for Leicestershire for which we have particularly good apprentice and population data, covering the towns of Ashby de la Zouch, Hinckley, Loughborough, Melton Mowbray and Mountsorrel at various dates. We can therefore see if these towns sent more apprentices per head of population than the county of Leicester as a whole.

Table 4: Were urban areas more important sources of apprentices than rural areas?

²¹ Until the 1720s, the majority of apprentices bound to masters not from London came from provincial counties other than the master's home county.

Apprentice data dates	1600-1649	1650-1699		1750-1799
Population data dates	1603	1670	1676	1811
Apprentice share (%)	10.2	9.8		20.7
Population share (%)	9.4	11.8	10.9	16.3
Apprentices relative to county	109%	83%	90%	127%

Sources: Clark and Hosking 1993, Rickman, Wrigley and Schofield.

At first sight the propensity of these five towns to send apprentices to London appears to be a little above the county average, declining to below the county average, before rising to substantially above it. However, since the population data for 1600-1649 is taken at the start of the period (1603) it will understate the degree of urbanisation for 1600-1649 as a whole, and correspondingly overstate the extent to which these towns sent apprentices to London relative to the rest of the county. Similarly, using 1811 population data to investigate apprenticeship 1750 to 1799 means that we overestimate urbanisation, and correspondingly underestimated the extent to which these towns sent apprentices relative to the rest of the county at this date. In addition, while these towns sent more than 120 apprentices in each of the two earlier periods, they sent only 23 in the last period. Given these constraints, we believe that the best way to read this table is as showing no substantive change between 1600 and 1700, with these towns sending apprentices roughly in proportion to their share of the population, with a likely rise towards the end of the 18th century in the period in which the importance of apprenticeship declines.

The importance of distance from London in determining apprenticeship levels

We can go further in our attempts to assess the quality of information available to would-be apprentices, by looking at individual counties in more detail. It would be plausible to imagine that counties that are closer to London would have better information about the range of opportunities available in the capital. It seems plausible that knowledge will atrophy with distance, particularly in an era where travel and communication was slow and expensive. If this is correct, then we would expect to find apprentices from counties close to London spread out over a wide range of masters, reflecting their knowledge of the myriad of opportunities that were available. Conversely, we would expect to find apprentices from counties further from London to be more likely to be apprenticed to a master from their own county, reflecting their relatively limited knowledge of the opportunities available. We investigate this possibility in figure 4, which plots the propensity to be apprenticed to a master from your home county against a distance of your county from London. This figure uses three observations for each county: 1600 to 1649, 1650 to 1699, and 1700 to 1749.

Figure 4: Propensity to be apprenticed to a master from your home county against distance

Figure 4 does not show the pattern that would be expected if counties further from London had more limited knowledge of the opportunities available in London. On the contrary, figure 4 shows no discernible pattern at all. Once more, this suggests that distance was no barrier to information transfers in this era. Counties far from London appeared to have had as good information as those that are near to London.

The importance of apprenticeship rates in determining apprenticeship levels

Similarly, it would be plausible to imagine that apprentices from counties that send a large number of apprentices to London would have access to better information about the opportunities available than would those from counties that send far fewer apprentices. We investigate whether this was an important issue by plotting the number of apprentices from each county, relative to their population size, against their propensity to be apprenticed to a master from their own county. If counties that send few apprentices to London do indeed have less knowledge of the opportunities, then we would expect their apprentices to be more likely to be apprenticed to someone from their own county. In contrast, those apprentices who are lucky enough to come from counties that send many apprentices to London might be expected to have better information, and so to be able to make their choice of master from a wider range of options. As such, they would be less likely to be apprenticed to a master from their home county.

Figure 5: Propensity to be apprenticed to a master from your home county against number of apprentices per head of population

Figure 5, which follows Figure 4 in cutting the period 1600 to 1749 into three 50-year bands, does not show the downward trend that we would expect if those from counties that sent few observations had worse information: counties that sent fewer apprentices do not in fact have a strong home bias. Again this points to the notion that information was widely spread.

The spread of different counties' apprentices across companies

An alternative way of understanding the extent to which would-be apprentices in different areas were equal in the apprentice matching market is to look at the extent to which they made similar choices as to which companies to join. Were we to find, for example, that apprentices from Leicester joined very different companies to people from elsewhere, it would be clear that Leicester apprentices either had a particularly good knowledge about a particular company compared to apprentices from elsewhere, or particularly poor knowledge about other companies compared to apprentices from elsewhere. It is clear that the group who had the best information were London-born apprentices. We therefore look for differences in the distribution of a county's apprentices

across companies compared to that of London-born apprentices. Of course, there will inevitably be variation caused by natural chance and individual choice. To capture this we look at the choices of apprentices from Middlesex vis-à-vis those of London. It seems reasonable to assume that those from Middlesex had as good information as those from London, and therefore that we can use the difference in choices between the two groups as a rough and ready measure of the differences caused by natural variation and idiosyncratic choice. If, then, we find that the difference in the choices of people from another county were much more different to those of the people of London than were those of the people of Middlesex, we might begin to think that the people in that county had less information than the people of London or Middlesex. Conversely, were we to find that the choices of people from our chosen county were no more different to those of London and were the choices of people from Middlesex, we would conclude that that county's apprentices had as good opportunities as those from London or Middlesex.

We use the DDI (Duncan dissimilarity index) to compare similarities and differences between distributions.²² If two distributions are identical the DDI will take the value zero. If the two distributions have no overlap whatsoever it will take the value 100. In reality integer constraints mean that although the value could approach zero it is unlikely ever to be exactly 0. Equally, so long as London born apprentices are found in all trades, it is impossible for there to be no overlap between the county under consideration and London. For that reason the value will never be 100. It is also necessary to ensure that we have a reasonable sample size. If we are looking at a county that has only a handful of apprentices, then integer constraints alone will again prevent it matching the London sample. In those circumstances a high DDI will not reveal historically interesting information. We therefore look at the two counties that send the highest numbers of apprentices: Leicestershire and Yorkshire, to limit ourselves to the period 1625 to 1700 when the companies are unaffected by institutional change, such as subdivision, when our data are richest and to use a 25 year rolling average (that is, data from 1613-1712 are used in this analysis) to ensure that the sample size for each county, and our control groups of London and Middlesex, is at least 700. We calculate the DDI for Middlesex, Leicestershire and Yorkshire as measured against London: the results are given in figure 6.

Figure 6: DDI scores for Leicestershire, Middlesex and Yorkshire

Figure 6 shows that, broadly speaking, the choices of apprentices from Yorkshire were more similar to those of apprentices from London than were the choices of apprentices from Middlesex, and that

²² The DDI is equal to $0.5 \times \sum_i \left| \frac{C_i}{\sum C_i} - \frac{L_i}{\sum L_i} \right|$, where C_i is the number of apprentices in company i in the county, and L_i is the number of apprentices in company i in London.

the choices of both groups were more similar to those of Londoners than were the choices of those from Leicestershire. The average values in each case are 24, 27 and 33, respectively. This measure makes it clear that conditions were such that would-be apprentices from Yorkshire were able to make choices approximating those of London-born apprentices. Furthermore, the average values show that the additional dissimilarity of Leicestershire over London compared with that of Middlesex over London (6) is smaller than the difference between Middlesex and London itself (27). This again suggests that those growing up in Leicestershire were not significantly disadvantaged in finding masters. In addition, the fact that Yorkshire, the furthest county from London, has the lowest DDI score of the three counties suggests that distance was no barrier to apprenticeship opportunities in this period.²³

This is not to deny that particular counties sent particularly large numbers of apprentices to particular companies in London. Our data show that, for example, Leicester sent a high numbers of apprentices to the butcher's company – 47 between 1600-49 alone. It is probably best to see Leicester's higher DDI score as representing Leicester's peculiar proclivity to send high numbers of apprentices to some companies, rather than its inability to send apprentices to other companies. That is to say, apprentices from Leicestershire could be found in a wide range of companies, demonstrating that a range of opportunities were available, but that for whatever reason Leicestershire apprentices are particularly prone to choosing certain companies in which to serve their apprenticeships.

The ability of new companies to attract apprentices from a wide geographical area

The final way in which we can use our data to assess the evenness of opportunity is to look at the recruitment performance of the new companies that were founded in our period. Sometimes these were subdivisions of existing companies, at other times they were new creations. If information flows across Britain were slow or patchy then we would expect to find the apprentices joining new companies in the years immediately after their formation to come from geographically concentrated areas. In contrast were information to be disseminated quickly and evenly then we would expect apprentices to be drawn from across England even in the early years.

We looked in detail at the companies that were founded after 1650, with the results given in table five. For each company we record the percentage of the forty counties of England from which apprentices were drawn within the first five years of the company taking apprentices.

Table 5: The geographical spread of apprentices in recently formed Companies

²³ We are currently developing DDI measures over time, to capture the extent to which apprenticeship flows over time changed with changing opportunities.

Company	Year of foundation	Year in which an apprentice was first taken on	Number of apprentices, first 5 years	Percentage of all counties represented in first 5 years
Gunmakers	1656	1656	57	60
Distillers	1638	1659	50	66
Needlemakers	1656	1664	45	47
Glassmakers	1664	1665	34	51
Spectaclemakers	1629	1667	18	32
Cardmakers	1628	1676	13	25
Coachmakers*	1677	1677	87	66
Carmen*	1668	1678	130	66
Tinplateworkers*	1670	1681	36	40
Wyre Drawers	1693	1693	61	60
Framework Knitters	1657	1725	132	47
Gardeners	1605	1764	36	25
Fanmakers	1709	1776	12	10

* There is one carman listed in 1668, six coachmakers prior to 1673, and four tinplateworkers prior to 1676. These are disregarded.

As can be seen, new companies rapidly drew apprentices from many counties. The apothecaries first 247 apprentices covered all but one English county. If we look at the other extreme, the companies that recruited fewer than 100 apprentices had 41 apprentices on average, and those apprentices were drawn from 18 counties. On average, therefore, the typical county supplied just two apprentices, evidence that these companies were not attracting blocks of apprentices from a handful of places, but rather a smattering of people from a wide area.

The evidence from this table is clear: it is overwhelmingly the case that even newly created companies drew their apprentices from across England. Of course, in some cases pre-existing networks could have been used: some companies as we have noted throughout the previously existing companies. Nevertheless the rapidity with which information about opportunities flowed across England is quite remarkable, and is evidence that information about opportunities for would-be apprentices really did disseminate quickly in England in this era.

The table is arranged with companies ordered by the date in which their first apprentice was taken. Were information flows to improve over time we would expect to find the proportion of counties covered by new companies to be higher at the end of the period than at the beginning. Simply reading the last column of the table from top to bottom shows that this is not true: there is no discernable trend in the numbers: new opportunities were able to be seized as easily in the mid-17th century as in the late 18th century.

Conclusions

We have used better data than has been available to other historians to show first, that migrants were drawn from a wide area throughout this period, and second that the changes that we observe do not suggest a widening of opportunity over time. As such, we conclude that the ability to make contracts over long distances was remarkably well-developed even as early as 1600, and plausibly well before then. We need, therefore, to think a little more about the institutions that allowed such transactions to take place. It is certainly not the case that apprenticeships were advertised widely in the modern sense. Although newspapers existed, and became increasingly common in the 18th century, even then only a tiny proportion of apprenticeships were advertised. Rather, knowledge of apprenticeships seems to have spread through informal channels. We know that would-be apprentices did not travel to London until they had arranged their apprenticeship. We have found that, by and large, apprentices were not bound to people whom they were related, or to people that they knew. There must, therefore, have been a mechanism by which the would-be apprentice and their family found a master that they did not know in a city far from where they lived. It appears most likely that would-be apprentices and their family used friends, acquaintances and kin in London to find a master. Their London resident relative or friend would then seek out a master that they knew, or that they knew all, but to whom they had no particularly deep relationship. We mentioned earlier that Bartholomew Adsworth's apprenticeship to Mr Walton was arranged by his London-resident cousin, George Fox,²⁴ and that George Long of Ludlow arranged for his friends to make a 'diligent enquiry' for a 'fit person' for his son to serve.²⁵ In both cases the agent was known to the family, but the master was not, nor is there evidence of a close relationship between master and agent.

The use of agents known to the family can be seen as a halfway house between personal relationships and market relationships. In a world in which trust and credibility are established only within kinship groups, or groups from a relatively narrow place, it would be hard to have sustained the sheer quantity of apprenticeships that we see in London in this period. In contrast, a market arrangement in a world in which knowledge can flow quickly and easily -- perhaps through newspapers -- would have no difficulty in sustaining high levels of immigration to a town such as London, as modern day firms and universities demonstrate.

But for this to have happened in the 17th century demonstrates the extent to which the English economy and society had advanced. Although would-be apprentices do appear to have relied on those they knew or were related to to find them a master, their friend or relative in London was not using kinship or close friendship or regional identity to find that master. Thus a transaction from would-be apprentice to master has two stages, the first between the would-be apprentice and the

²⁴ LMA, MC6/500A

²⁵ CLA/024/07/81

agent is based on kinship, friendship or at least acquaintance, but the second and in some sense more substantive part of the transaction, in which the agent finds the master, was not based on kinship or friendship or even regional ties: neither would-be apprentice nor master saw any significant advantage in terms of trust or credibility in regional ties. Thus our findings indicate a high degree of national cultural integration in England at this time.

We should not overstate the perfection of this institution. We know that many apprentices worked for up to a month for their master on a trial basis. This was a way for both master and apprentice to decide whether the relationship was likely to work. We also know that some apprentices moved master: Wallis has found that 14% of apothecary apprentices did change master during their training, although this figure includes those whose masters died during the apprenticeship. And of course, some apprenticeships broke down: there were legal disputes from time to time between master and apprentice. Nevertheless, the willingness of young men to spend significant sums to start an apprenticeship tells us that this was an institution that, by and large, was effective. It was costly, but it provided a training that was valuable and equipped a young man with valuable skills for life. As such, it was important not only to the London economy but to the wider national economy.

It is not possible from a study entirely of England to make explicit inter-country comparisons. Nevertheless, we note that there is no suggestion that other countries had at this time such a strong sense of national culture that would facilitate a similarly national outcome. As such, it seems likely that England was the first country to establish widespread long-distance information flows and levels of trust that allowed the allocation of those embarking on high-level training with potential masters that they did not know and who sometimes lived hundreds of miles away. It is also worth commenting on the fact that immigrant skilled groups did not appear to join English society in this sense. Groups such as the Huguenots tended to reside in a relatively limited number of places inside London and in other places in the country. They had their own Huguenots networks and do not seem to have been part of the general English ability to cut across such specific area groups and so to access wider opportunities.

Finally, it is worth noting that none of the measures that we have used show any evidence that the Glorious Revolution was significant. The institutions that link would-be apprentices to masters were not state institutions. Although the London companies were often authorised by the state, the taking of an apprentice by a master was essentially a private transaction. This suggests that, in so far as the Glorious Revolution created better institutions within Britain it did so in the context of a country that was already successfully developing the sort of institutions that are necessary for training, for trade, and for economic growth.

Figure 1: The number of London apprentices recorded in the data over time

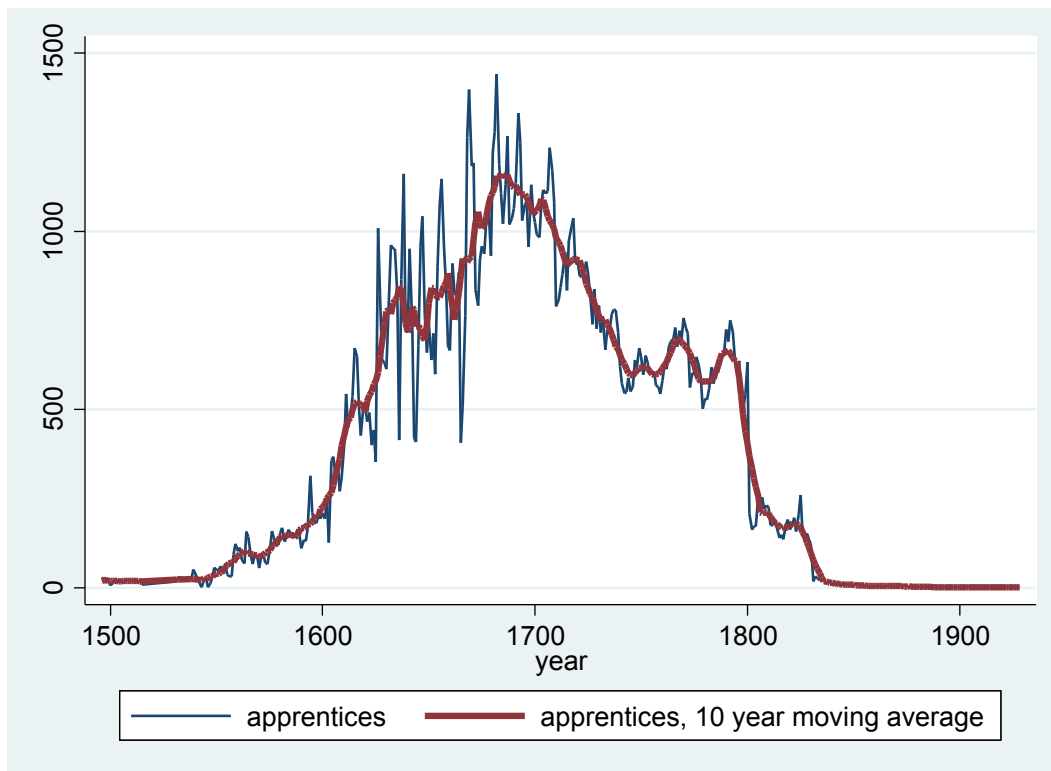


Figure 2 a,b,c: Apprenticeship rates over time per head of population: 1600-1625, 1700-1725 and 1750-1775 respectively

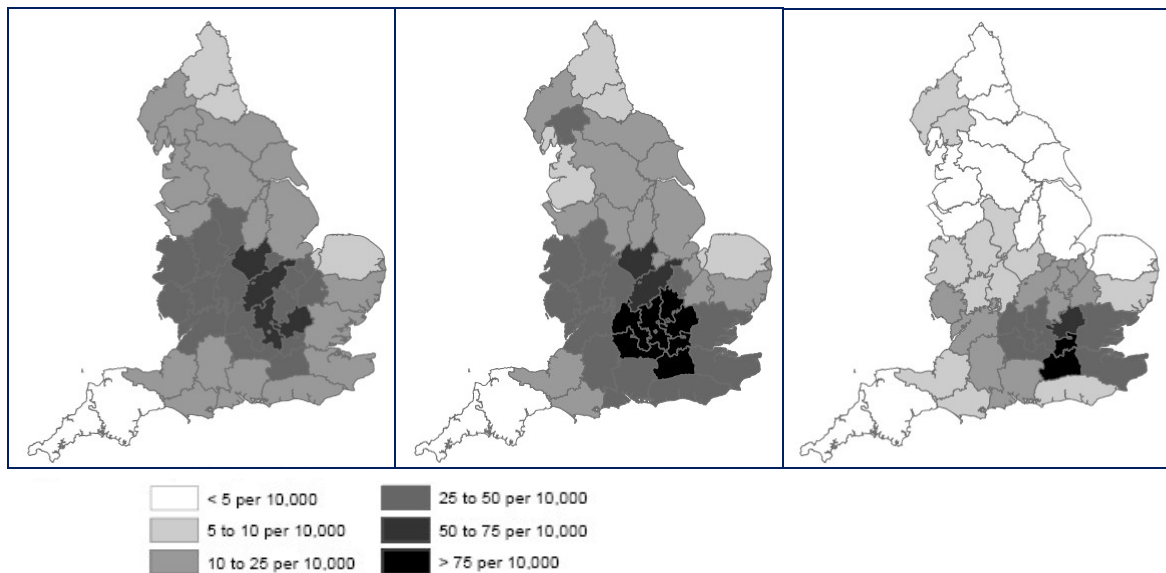


Figure 3: The proportion of apprentices apprenticed to a master from their home county over time (London and Middlesex masters excluded)

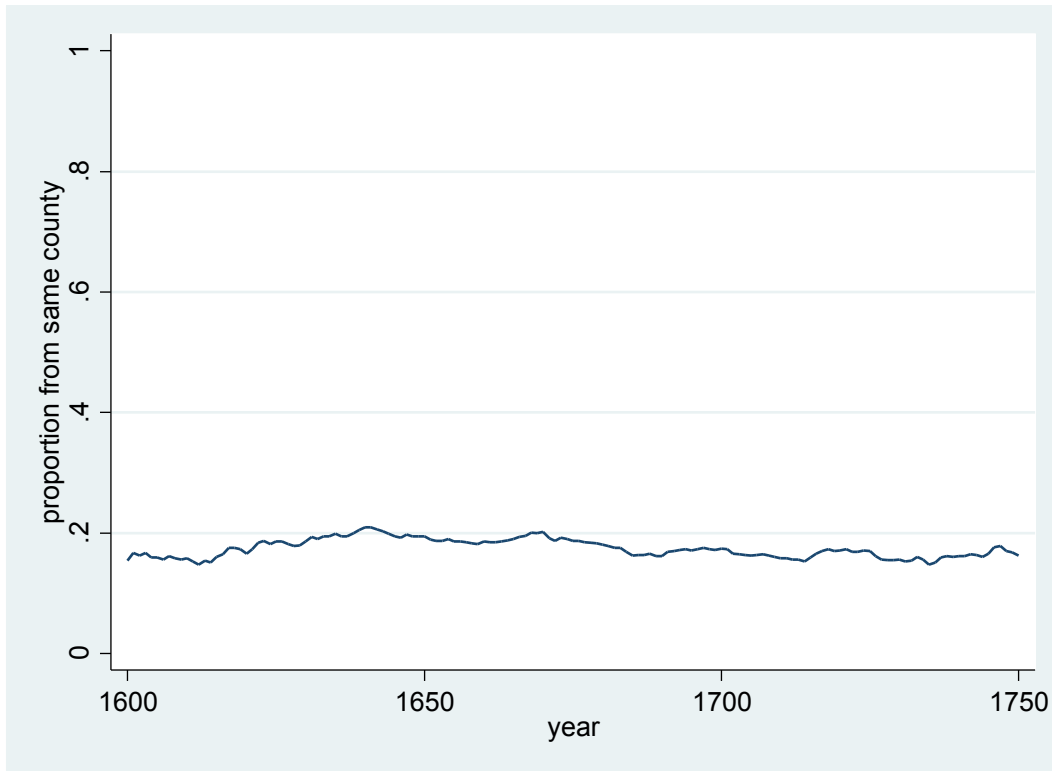


Figure 4: Propensity to be apprenticed to a master from your home county against distance, by county

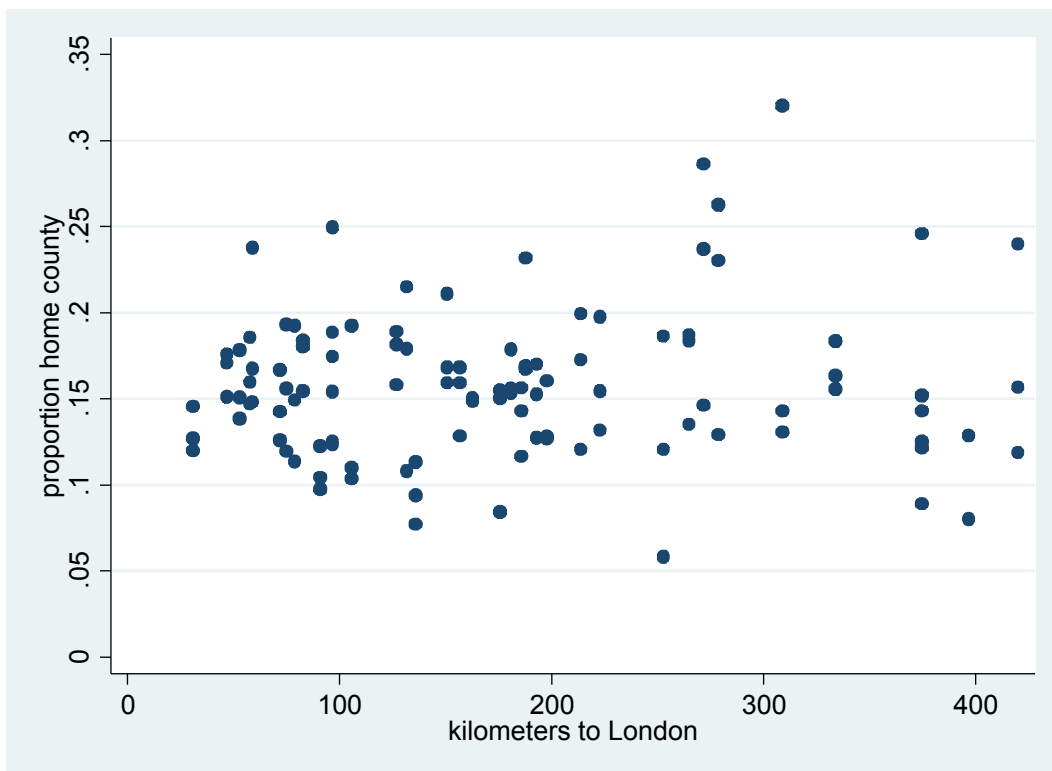


Figure 5: Propensity to be apprenticed to a master from your home county against number of apprentices per head of population, by county (London and Middlesex masters excluded).

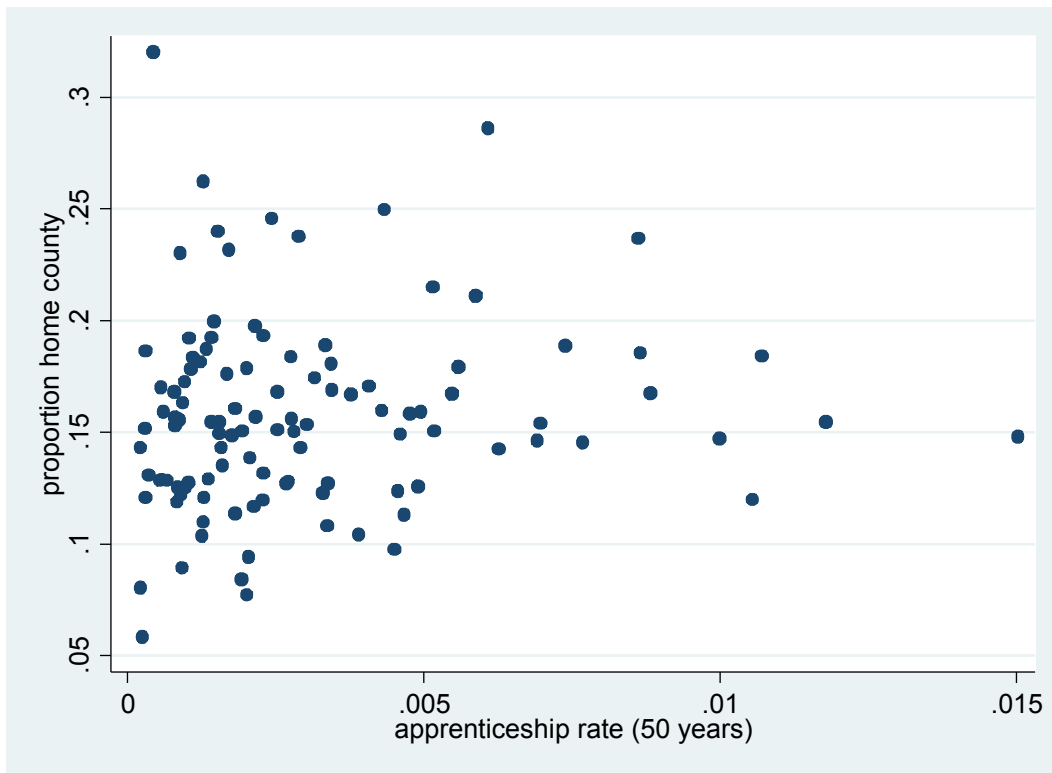
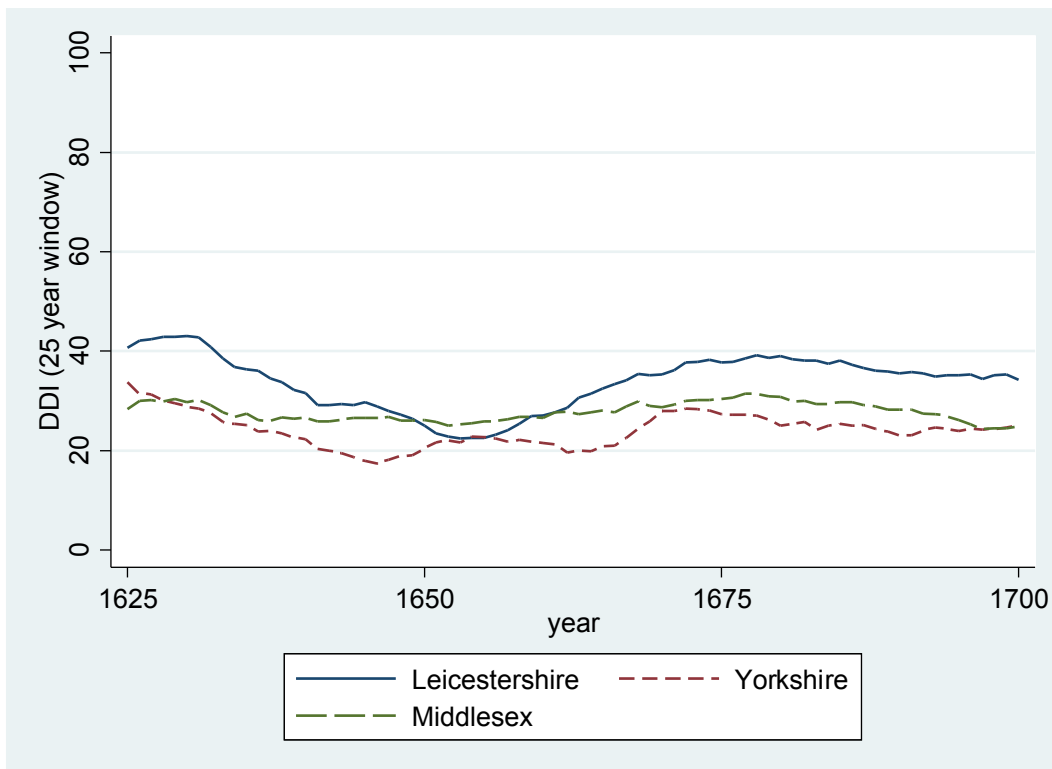


Figure 6: DDI scores for Leicestershire, Middlesex and Yorkshire, 1625-1700



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