Nicholas R. Amor

The origins of the putting-out or domestic system of industrial production in England[*]

The out-worker has long been seen as a key figure in the transition from feudalism to industrial capitalism. Operating from home, often using their own equipment, out-workers earned a piece-rate in return for their labour, but had no other stake in the financial success of the business. They stood half way between the artisans of the middle ages selling their products at the local market, and the waged proletariat of the industrial age toiling in dark satanic mills. Out-workers became well-established in woollen cloth production which was the most important industry in late-medieval and early-modern England and the first to develop a degree of specialization in the division of labour. They worked as carders and spinners who turned wool into yarn; weavers who interlaced yarn on a loom to produce cloth; fullers who washed the cloth to remove natural oils and give it a thick baize-like finish; dyers who added colour; and shearmen who gave it a smooth finish.[1] Clothiers brought each of them in turn the material on which they were to work and then took the product away to sell for profit. This was the essence of the putting-out or domestic system of production.

Ever since Marx wrote about domestic industry in *Capital*, historians have been fascinated by putting-out. In his influential volume, *Studies in the development of capitalism*, Dobb contended that capital began to penetrate production on a considerable scale, either in the form of a fairly matured relationship between capitalist and hired wage-earners or in the less developed form of the subordination of domestic handicraftsmen, working in their own homes, to a capitalist on the so-called «putting out system» (1946, 18).

His work triggered the famous academic debate that was published as *The transition from feudalism to capitalism*, and edited by Hilton who echoed Tawney (1938, 79-

[*] My thanks to Professor Mark Bailey, Dr John Lee and Professor Stephen Rigby for their comments on earlier drafts which have made this a much better paper; and to delegates at the 2022 Datini conference for their comments and questions. Needless to say, any remaining errors are entirely mine. Also, to The National Archives at Kew (TNA), Suffolk Archives (SA), and Professor Robert Palmer and his AALT team who made sources available to me.

[1] These workers are designated in various ways within this paper. When seeming to operate independently they are called «cloth-makers», and, when working for clothiers, as «out-workers». In other contexts they are called «cloth-makers» or «artisans».

Nicholas R. Amor, University of Suffolk, United Kindom, drnickamor@icloud.com

Referee List (DOI 10.36253/fup_referee_list)
FUP Best Practice in Scholarly Publishing (DOI 10.36253/fup_best_practice)

Nicholas R. Amor, *The origins of the putting-out or domestic system of industrial production in England*, © Author(s), CC BY 4.0, DOI 10.36253/979-12-215-0092-9.16, in Giampiero Nigro (edited by), *L'economia della conoscenza: innovazione, produttività e crescita economica nei secoli XIII-XVIII / The knowledge economy: innovation, productivity and economic growth, 13th to 18th century*, pp. 263-285, 2023, published by Firenze University Press, ISBN 979-12-215-0092-9, DOI 10.36253/979-12-215-0092-9

80) and Power (1941, 4) in opining that «modern capitalism derived its initial impetus from the English textile industry» (1978, 156).

Britnell and Dyer both recognised the development of out-working in late medieval England, but downplayed its general significance. Britnell argued that the commercial institutions that underpinned capitalism emerged mainly between 1000 and 1300. He acknowledged that the organisation of industrial production of textiles through wage-dependent workers in the putting-out system was one facet of capitalism, but stressed «the restricted extent of the structural change within the woollen industry» and «the subsidiary importance of woollen cloth in the economy as a whole». In his view such industrial organisation was «unlikely to have affected more than a few thousand workers» (1999, 367-9). Dyer identified a class of workers who depend mainly on wages for their livelihood as a hallmark of capitalism, and argued that «a great extension in the dependency of workers came about with the development of the putting-out system». However, like Britnell, he concluded that «there was no wholesale increase in the wage-earning workforce» during the later middle ages (2005, 230; 232).

Lee contended that the putting-out system may have operated sporadically in parts of early-fourteenth-century England, but its use spread late in the century with the arrival of Flemish immigrants (2018, 18-21).[2] Their role in extending the system in England underlines its Continental origins. The great late-medieval wool textile industries of Flanders and Florence relied heavily on out-workers (Carus-Wilson 1987, 639-40. Munro 2003, 218-21). In Italy the merchant members of the *Arte della Lana* organized production of relatively cheap, coarse fabrics through variants of the putting-out system (Munro 2015, 113-4). Over a period of three years, Francesco di Marco Datini himself engaged no fewer than 1,000 out-workers, who in turn were involved in 6,088 distinct or partial operations, in making the cloth on which he built his fortune (Banaji 2020, 91). Nevertheless, the very fact that England became the first industrial nation gives particular importance to the study of the system there.

This paper is concerned with the nature and scale of the putting-out system in the English textile industry at the close of the middle ages, with particular reference to Suffolk, which was, by 1500, the nation's foremost woollen cloth producing county. It begins by explaining how the textile industry evolved in response to increased overseas demand for English cloth and in a way that enhanced the role of the clothier as the commercial link between artisans and merchants. The relationship between the clothier and out-workers is examined in the light of bequests in those wills of wealthy testators that were proven in the Prerogative Court of Canterbury (Prerogative Court of Canterbury). Finally, the scale of the industry and size of the workforce at the beginning of the sixteenth century are explored in detail. In this respect, the evidence of civil litigation within the Court of Common Pleas (Court of Common Pleas) is used to cast new light on these issues. Common Pleas was not the only forum for the resolution of textile disputes, although as a royal tribunal, with a nationwide jurisdiction and a minimum threshold of 40s for claims, it was well matched to the scale of the cloth industry and the long distance of the

[2] Kowaleski found evidence of putting-out in late fourteenth-century Exeter (1995, 150-52).

trade. We cannot assume that every plea by or against a clothier related to textiles, but there is no reason to suppose any variation over region or time in the proportion that did. The value of the litigation provides some indication, however imperfect, of the volume of trade and, in turn, of the scale of the industry.

1. Evolution of England's medieval woollen cloth industry

During the later middle ages woollen cloth overtook wool as England's major export. In the mid-fifteenth century such exports averaged about 40,000 broadcloths per annum. Within a hundred years they had risen to nearly 140,000 broadcloths.[3] In between time London's share of this trade grew from about 40 per cent to close to 90 per cent (Carus-Wilson, Coleman 1963, 96-98; 118-19. Barron 2000, 418. Quinton, Oldland 2011, 113). During the earlier period, cloth exports by the German merchants of the Hanseatic League from the headport of Ipswich (mainly from Colchester and Ipswich itself) had been substantial, outnumbering those from all other provincial ports combined (Lloyd 1991, 228-29), but after 1470 the Hanse more or less abandoned these East Anglian harbours. In consequence, the textile industries of Suffolk and Essex were increasingly targeted towards the London market and exports from there, rather than towards provincial sales (Amor 2016, 201-06). This migration of so much cloth export trade from East Anglia to London had major consequences.

As late as the 1460s cloth-making in Suffolk was relatively broad based. A few men turned out large numbers of cloths, but smaller scale producers, those manufacturing on average less than 33 broadcloths per annum, still dominated production (Amor 2004, 417). They accounted for nearly two-thirds of the cloth sealed and approved for sale by the alnager – without his seal it was unlawful to sell woollens whether intended for ultimate use in England or overseas.[4] Most such clothmakers probably had specialized skills in one or more stages of production, but they operated independently and contracted out those stages in which they were not proficient (Britnell 1999, 368). The fullers of Long Melford, a major textile manufacturing centre in south Suffolk, exemplify these small-scale producers. A rental of 1441/42 for the manor of Melford Hall names five fullers as tenants in Hall Street, which lay south of the Chad Brook from which they could source the plentiful supply of water so important to their trade.[5] Another six or seven fullers can be identified with reasonable confidence from the plea rolls of the Court of Common Pleas, making a total of at least eleven in just one street (Amor 2016, 163). The holdings of the Melford fullers were tiny, certainly not big enough to support subsistence agriculture, with only three extending to more than an acre and

[3] The term «broadcloth» is used throughout this paper to mean whole cloths of assize or their equivalent in narrow cloths, commonly known as straits. One broadcloth roughly equated to four straits. For the purpose of their accounts, customs officials converted them all into cloths of assize (Quinton and Oldland 2011, 117).

[4] *Statutes of the Realm*, ii, 88. The alnager was a royal official or someone to whom the office was farmed out for a fixed payment.

[5] Suffolk Archives (SA) Bury St Edmunds, J/523.

none to more than two. However, one fuller had two shops on his land and another a small tenter-yard. These small-holdings can still be identified in a later estate map of 1613 and they help shape the frontage of Hall Street today.

These fullers had been drawn into textile manufacture for various reasons, but above all by a need for the income that could be generated from craft activity. The demographic collapse caused by the Black Death of 1348/49 and subsequent epidemics had profound economic and social consequences. On the one hand, labour scarcity ultimately pushed up the wages of peasants and artisans, raising their standard of living and increasing per-capita demand for better-quality, commercially produced cloth.[6] Nearly all this cloth was manufactured in England rather than, as had been the case earlier, being imported from the Low Countries. A combination of import controls on cloth and heavy export duties on raw wool helped transform the country into a net exporter of wool textiles. On the other hand, changes in the patterns of land ownership and land use – in particular engrossment of holdings, enclosure and a switch from arable to pastoral husbandry – resulted in «polarisation within village communities between larger landowners and smallholding craft workers and labourers» (Bailey 2021, 307). The move to pastoral husbandry reduced demand for agricultural labour and created a genuine concern about unemployment. As early as 1489 Parliament passed the Husbandry Act, lamenting the «leyeng to pasture londes whiche custumeably have ben used in tilthe, wherby ydilnes ground and begynnyng of all myschefes daily doo encreace».[7] The fullers' could not make a living from husbandry, but they could do so through their craft and by conducting relatively low value transactions with their immediate neighbours in Long Melford, or with residents of nearby towns such as Great Waldingfield, Kersey and Lavenham. Some of them, in turn, sold on to the Hanse.

From about 1470, control of Suffolk's textile industry became increasingly concentrated in the hands of clothiers. Their familiarity with London merchants and better access to city capital and credit gave them a competitive advantage over small-scale producers. The number of clothiers cited in the plea rolls of the Court of Common Pleas increased dramatically, while the number of other recorded cloth-makers showed a marked decline (Table 1). For several reasons the less enterprising of the cloth-makers became increasingly dependent upon out-work provided by the clothiers (Sutton 2010, 163). The exodus of the Hanse from the East Anglian ports broke any direct local route to export markets and the cash payments that the Germans had customarily made. Domestic demand remained slack during, and even after the prolonged mid-century depression. Until 1487 most London livery companies intermittently operated an anti-fair policy which prohibited members from travelling to the provinces to undertake business and expected provincials to

[6] The view that, after the Black Death, workers used their new-found economic muscle to push up real wages, has not gone unchallenged. In the immediate aftermath of the pandemic labour legislation may possibly have moderated wage increases. Munro argued that wages lagged behind price inflation until the 1370s (2003, 211-12); and Bailey opined that wage rates plateaued around 1400 (2021, 291).

[7] *Statutes of the Realm*, ii, 542.

come to them.[8] So, clothiers became essential linkmen between artisans and London merchants. By 1500 Suffolk's position as the leading cloth-making county had created an almost insatiable demand for wool, much of it brought in from other counties. Local woolmen had once supplied cloth-makers with wool, but their number was now in decline (Amor 2016, 109-10; 112-15).[9] Instead, clothiers bought the precious raw material direct from wool growers around the country and supplied it to out-workers themselves. Thus, the dependence of outworkers on clothiers was reinforced by their isolation from both customers and suppliers.

Tab. 1. **Number of different Suffolk clothiers, weavers, fullers and dyers engaged in Court of Common Pleas litigation at 5 yearly intervals during the two periods 1450-70 and 1490-1510**

	Hilary term 1450-70	**Hilary term 1490-1510**
Clothiers	29	115
Weavers, fullers and dyers	262	124

Notes: References to «clothier» include references to «clothmaker» and «clothman» which terms appear to have been synonymous and indeed interchangeable. Very few carders, spinsters or shearmen were cited in either period.

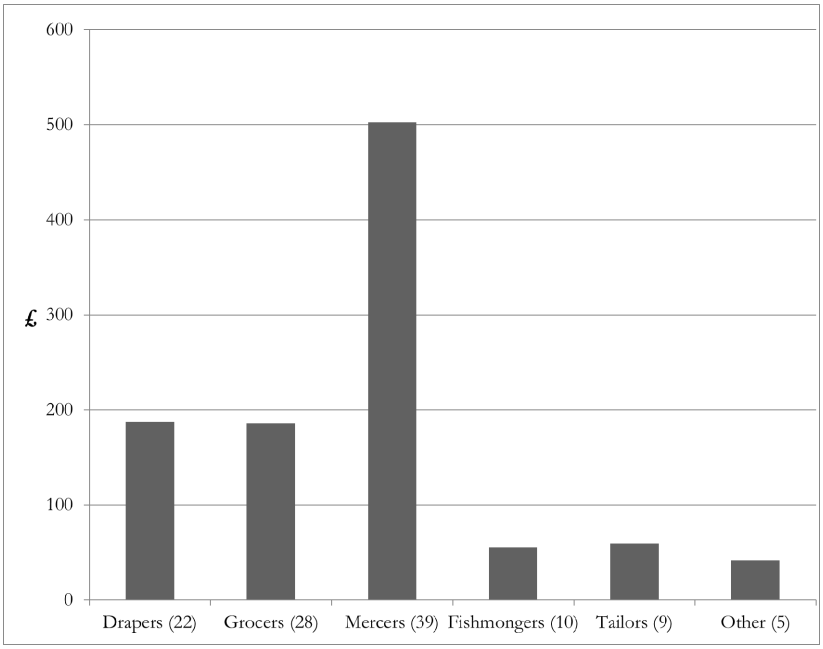
Sources: The National Archives (TNA) CP 40/756, 776, 796, 814, 834, 911, 931, 951, 971, 990.

Among London merchants it was the members of the mercers' company, many of whom traded as merchant adventurers with the Low Countries, who became the most important customers of Suffolk manufacturers. Owing to their dominant position in Antwerp, in the years either side of 1500 «their trade and wealth was reaching a zenith» and their share of denizen cloth exports through London was consistently in excess of 40 per cent (Sutton 2005, 318; 348. Quinton and Oldland 2011, 131). Sutton has explored the close links between London mercers and Suffolk, and the number of the county's more enterprising young men who went on to take apprenticeships and make their fortunes with that company. Among them were members of the Forthe family of Hadleigh and the Sturmyn family of Lavenham who numbered among the county's leading clothiers (2010, 165-66). In the second half of the fifteenth century the value of Suffolk clothiers' debt litigation with London mercers, as recorded in selected pleas of the Court of Common Pleas, was very nearly as much as with members of all the city's other livery companies combined (Graph 1).

[8] *Parliament Rolls of Medieval England*, vi, 402.

[9] This may be attributable to the legislation that was, from 1465, targeted against woolmen: *Statutes of the Realm*, ii, 410, 535-36.

Graph 1. **Value of Court of Common Pleas litigation between Suffolk clothiers and London merchants 1440-1500**



Notes: Each column records the value of litigation between Suffolk clothiers and members of that company and the number of disputes is stated at the bottom.

Source: TNA CP 40/716, 732, 736, 756, 758, 768, 788, 796, 807, 814, 826, 834, 837, 841, 853, 861, 871, 883, 885A, 887, 888, 889, 890, 891, 895, 907, 911, 919, 931, 943, 951.

The growth of the textile industry gave rise to a new status quo, with a hierarchy of merchants, clothiers and out-working artisans. The mercer and merchant adventurer Thomas Kitson made an enormous fortune before retiring to the comfort of his new home at Hengrave Hall outside Bury St Edmunds in Suffolk (Lee 2018, 88-91). Only a few clothiers, notably Thomas Spryng III of Lavenham, did as well as Kitson, but a significant number made more modest fortunes. Between 1450 and 1530 the wills of 79 wealthy Suffolk clothiers were proven in the Prerogative Court of Canterbury. The government's military survey of 1522 survives for the hundred of Babergh, the epicentre of the cloth industry in south Suffolk. It records 119 clothiers, of whom 82 (68.9 per cent) owned goods worth £20 or more. Only 5 out of 196 (2.6 per cent) artisans whose stated occupation identifies them as cloth-workers owned goods of £20 or more, but nearly half owned goods worth 40s or more (Pound 1986, 133). This latter group were essentially out-workers, and Cornwall has argued that their level of assessable wealth was sufficient to raise them above the poverty line. «They were not unaffected by the general prosperity of the district» and their relative affluence was indicative of «a wider, more varied range of jobs

and responsibilities created by a more developed economy» (1988, 24-25). The flow of work was enough to keep them and their families busy.

The hierarchy was, however, a fragile one. When the textile boom came to an end hardship quickly followed. In the 1520s the industry was buffeted by a perfect storm. Warfare, poor harvests and famine in Continental Europe, as well as a trade embargo between England and the Low Countries, slashed overseas demand for cloth. As if that was not enough, Henry VIII made matters far worse by heavy and repeated demands for tax to finance his military ambitions in France. This culminated, in 1525, with the imposition of the Amicable Grant – an onerous levy on the goods of both laity and clergy. The consequences for Suffolk textiles were dire, since heavy taxation not only deprived both merchants and clothiers of the working capital necessary for the production and sale of cloth, but also sapped domestic demand for their fabrics. Clothiers were unable to provide regular work for out-workers, provoking civil unrest and generating a contemporary literature that provides important information about, and perhaps the first direct descriptions of, the putting-out system. A chronicler of the time, Edward Hall, recorded that the clothiers «called to them their spinners, carders, fullers, weavers and other artificers... and said, sirs we be not able to set you a work our goods be taken from us» (Lee 2018, 181). The duke of Norfolk reported to Cardinal Wolsey that a large and volatile crowd, numbering some 4,000 souls, many of them from the major textile centres of Lavenham and Brent Eleigh, had gathered two miles outside of Bury St Edmunds to protest the Amicable Grant, pleading that any offence they might commit was «only for lack of worke soo that they knewe not howe to gett theire lyvinge» (MacCulloch, Fletcher 2020, 143). Of the 528 indicted for involvement in this uprising, 188 (35.6 per cent) were cloth-workers and 415 (78.6 per cent) «must, by any standards, be regarded as desperately poor» (Pound 1999, 320; 323). The economy of south Suffolk in 1525 was far less buoyant than it had been just three years before.

In the next section, we will look at the bequests made by clothiers throughout England to their out-workers and ask what they tell us about the nature of their relationship with that workforce.

2. The relationship between clothiers and out workers

At least sixteen clothier testators, out of a total of 179 between 1450 and 1530, remembered out-workers in Prerogative Court of Canterbury wills, all but one of whom came from one or other of five counties and most of whom came from smaller settlements rather than large towns (Table 2 and Figure 1). In the few cases when one can look behind wills to probate documents one finds more such bequests, such as that of Stephen Draner of Cranbrook in Kent.[10] We can be confident that many other clothiers relied on out-workers, but did not reward their efforts in the same way. Some bequests were generous, but most were only of a few pence and generally less than bequests made to household servants. Christopher

[10] TNA PCC, Prob 2/525.

Pyarde of Trowbridge in Wiltshire did no more than forgive the debts of his spinners and weavers in full up to the first 12d and half of any excess which, at least, indicates that he paid them in advance in cash, rather than in arrears and in kind as was so often the case (Amor 2016, 125). The general parsimony suggests that personal relationships between clothiers and out-workers were rarely particularly close which might, in turn, explain why there were so few such bequests.

Spinsters and weavers were each remembered in nine of those wills, fullers in seven, shearmen in two, and carders, combers and dyers each in just one. Although this database is very small, it supports some tentative conclusions. Combers, who helped prepare the yarn for worsteds, were only mentioned once, reinforcing the view that the putting-out system was largely confined to the manufacture of woollens rather than worsteds. Worsted production remained embedded in the master craftsman's workshop.[11] Out-workers were more often engaged in cloth production, than cloth finishing. Spinning, weaving and fulling were, relative to finishing, unskilled tasks that could be trusted to artisans with only limited training and supervision since England's textile industry was orientated towards standard rather than top quality fabrics. Clothiers looked well beyond their own towns for labour. Thomas Sturmyn of Lavenham bequeathed 2d to each spinner in Glemsford and Stoke-by-Clare, the latter village being more than 14 miles by road from his home. Only 13 clothiers mentioned looms in their wills, none at all mentioned spinning wheels. Some clothiers' probate inventories included references to looms, such as that of Robert Rychardes of Dursley in Gloucestershire who did own broadlooms, but with a total value of only 40s.[12] We can surmise that most out-workers used their own equipment which could be acquired at modest expense (Amor 2016, 144-5). Dyeing and shearing required higher levels of skill and training. A working knowledge of organic chemistry was necessary to dye cloth the right colour. A good eye and a steady hand were essential for shearing which was generally the final stage in textile production – one slip of the shears could damage or even destroy a broadcloth that had been weeks in the making. Many clothiers may have been reluctant to farm out this finishing work and preferred to keep it in-house. At least 14 owned tenter-yards, in which to dry, stretch and nap their cloth once fulled; at least 26 owned stocks of dye; and a similar number owned dyehouses or dye vats. Of the dyes, woad, which turned cloth blue, was the most frequently mentioned, although three Suffolk clothiers also owned stocks of madder which turned cloth red or orange. The two dyes could be mixed to produce other colours. Even when the finishing stages in textile production were not brought in-house, they were often carried out in London or even in Antwerp rather than locally, which may help to explain the rarity of bequests to dyers and shearmen.

In the next section we estimate the scale of the industry and the size of the workforce at the close of the middle ages with a view to assessing the importance of out-working within the national economy.

[11] Woollens were manufactured using short-staple wool as distinct from worsteds which used long-staple wool. The production methods were also different (Amor 2016, 18).

[12] TNA PCC, Prob 2/57 (source courtesy of John Lee).

Tab. 2. **Clothiers' bequests to outworkers 1450-1530**

Reference PROB 11	Date	Testator	Of	Bequest
12/298	1500	William Barley	Potterne, Wilts	To each towker 3s 4d
10/299	1494	Richard Bedford	Newbury, Berks	To 30 weavers 20 yards of canvas divided among them as executors shall determine
09/27	1491	John Brigge	Salisbury, Wilts	To Robert Rumsey weaver 10 marks both for his own use and towards an exhibition for Robert's son William to attend as a minor scholar the new college of Winchester [at Oxford] in equal shares
19/386	1519	Thomas Crystmas	Colchester, Essex	To each retainer who be fullers, weavers and shearmen whose names be comprised in a schedule annexed to will 6s 8d. To each spinner that of old long time have continued with me an ell of linen cloth price 6d. Schedule names John Raynolde weaver, Robert Willoughbye weaver, John Orell weaver, [no forename] Pollesfelde weaver, Robert Parker weaver, John Wodman shearman, Richard Clerke shearman.
11/213	1495	John Golding	Glemsford, Suffolk	To each spinner 'out of town as in the town' 12d
10/401	1495	Thomas Mayhoo	Chewe, Somerset	To John Johns toker 6s 8d
6/171	1473	John Motte	Bildeston, Suffolk	To each person who has worked for me in spinning, fulling and weaving in the shire of Suffolk 6s 8d
19/207	1518	Thomas Paycocke	Coggeshall, Essex	To Thomas Gooday shearman 20s and each of his children 3s 4d. To Edward Gooday shearman 16s 8d and his child 3s 4d. To John Beycham weaver £5. To Robert Taylor fuller release of any debt plus 3s 4d. To other weavers, fullers and shearmen 12d and 'they that have wrought me very much work' 3s 4d. To combers, carders and spinners total of £4.
20/214	1521	Christopher Pyard	Trowbridge, Wilts	To those spinners and weavers who owe less than 12d release of entire debt and to those who owe more release of 12d plus half the excess
11/743	1514	Stephen Raynham	Nayland, Suffolk	To each 'weaver that hath wrought with me and now doth' 20d. and each spinner 8d
7/352	1486	Thomas Spring II	Lavenham, Suffolk	To spinners, fullers and weavers 100 marks
16/289	1510	William Spryng	Long Melford, Suffolk	To each poor spinner 4d
22/368	1527	Richard Stubbington	Farnham, Surrey	To each shearman and dyer within the town of Farnham who serves me and has served me one year 4d each to pray for my soul
10/42	1493	Thomas Sturmyn	Lavenham, Suffolk	To each spinner in Glemsford and Stoke-by-Clare 2d
17/385	1512	John Tyler	Wells, Somerset	To each weaver and touker 4d
15/94	1505	Thomas Webbe	Dedham, Essex	To each spinner an «Aporn» cloth price 4d

Notes: The terms «toker», «touker» and «towker» all mean fuller.

Sources: TNA PROB 11.

3. Number of cloths and cloth-workers

Both Britnell and Dyer downplayed the importance of the putting-out system based on their low estimates of the number of people engaged as out-workers in the textile industry. This, in turn, assumes that the scale of the nation's woollen cloth industry at the close of the middle ages was limited – an assumption worth revisiting, although the sources do not permit any definitive conclusion. Various historians have tried to estimate the scale of the medieval industry and the size of the workforce (Table 3).

Tab. 3. **Historians' estimates of national production of broadcloths (or equivalent) per annum for domestic use and export and size of workforce**

As at year(s)	Historian	Total production	Workforce
1391-95	Oldland	159,525	X
1394-98	Gray	49,308	X
1394-98	Postan	49,308	15,000
1394-98	Carus-Wilson	X	17,000-20,000 (export trade only)
1441-45	Oldland	196,456	X
Late 1460s/early 1470s	Heaton	39,345	X
1491-95	Oldland	209,792	X
1500	Dyer	200,000 to 240,000	20,000 to 24,000 weavers
1541-45	Oldland	308,056	264,137
1540-47	Bowden	187,125 (inc worsted)	X
1590	Muldrew	35,450,538 lbs ≈ 299,602 broadcloths	225,083 spinners

Notes: Unless otherwise stated, these figures exclude worsted. In the 1390s exports averaged just under 40,000 broadcloths per annum (Quinton and Oldland, 2011, 112). X means no estimate.

3.1 Previous estimates of total production

In pioneering work in the early 1920s both Heaton and Gray separately analysed alnage accounts which record woollens, but not worsteds, approved for sale. Gray concluded that, by the mid-1390s, annual production had reached marginally under 50,000 broadcloths (1924, 34). According to Postan, thereafter the fortunes of the industry were mixed until the late 1460s or 1470s when «the late fourteenth century levels of production were decisively overtaken and the industry resumed its uninterrupted progress» (1950, 232). Heaton diligently collected alnage accounts from as many counties as he could find for the late 1460s and early 1470s, when the generation-long economic depression was drawing to a close (1920, 85). On the basis of these accounts he calculated that England's total output was just short of

40,000 broadcloths (Table 4).[13] The alnage accounts have long been a controversial source, Carus-Wilson being very critical of them (1967, 291). Since the farming out could be subject to intermittent competitive tender the farmer might well understate the number of sealed cloths.[14] Heaton's estimates are set out in Table 4, but must be treated with extra caution because he only used one set of accounts for each county. Using other sources relating to the English wool trade, Bowden contended that, during the period 1540-7, when annual exports averaged 124,750 cloths, half that number (62,375) was supplied to the domestic market (1962, 37).

Tab. 4. **Heaton's figures for county cloth production as recorded in alnage accounts**

County	Number of broadcloths	% of total
Berkshire	1,293.5	3.3
Devon	1,036.5	2.6
Essex	2,627.5	6.7
Gloucestershire (inc Bristol)	4,874.5	12.4
Hampshire	1,450.5	3.7
Kent	1,027	2.6
Somerset	4,981.5	12.7
Suffolk	5,188	13.2
Wilts	4,310	11.0
Yorkshire	4,972	12.6
Other counties	7,584	19.3
Total	39,345	

More recently, historians have suggested that «the domestic cloth market was far greater» than this earlier generation thought (Oldland 2016, 233). On the assumption that «in 1500 a million-and-a-quarter adults were buying annually an average of 3 yards of cloth each», Dyer speculated that domestic demand might have been as high as 160,000 broadcloths per annum.[15] By that time exports had risen to over 80,000 broadcloths per annum, so total national output could not have been less than 200,000 and might have approached 240,000 (2005, 149-50). Using a similar split between domestic and export demand, Oldland contended that, in the second half of the fifteenth century, domestic consumption rose from 140,000 to 150,000, and total production to over 200,000 broadcloths, and that by the early 1540s production had reached 308,000 broadcloths per annum. He regarded these as conservative estimates (2014, 29; 39. 2016, 235).

[13] By way of comparison, in 1432-3 the revenue raised 'from the farms of subsidies and alnage' was £720 10s 1d, which equates to alnage and subsidy on 38,427 broadcloths: *Parliament Rolls of Medieval England,* iv, 433.

[14] *Calendar of Fine Rolls 1445-52*, 6. [COMPLETE REFERENCE?]

[15] Broadberry et al reckoned that, in 1300, domestic woollen cloth consumption amounted to 1.18 square yard per person per annum which equates to 0.67 yard of broadcloth, a broadcloth being 1.75 yard wide (2011, 10). Although standards of living undoubtedly rose after the Black Death, it seems unlikely that both Broadberry's and Dyer's estimates are correct.

Oldland's work drew on that of Muldrew who estimated that, in 1590, total output of woollens was 35,450,538 lbs (2012, 518), equivalent, according to Oldland, to 299,602 broadcloths (2014, 39). However, Muldrew candidly admitted that his calculation was «a complex and necessarily speculative process», based on the famous *Scheme* of Gregory King who noted that, in 1688, 2 to 3 yards of cloth were purchased per person per annum. That followed «the great reclothing of rural England» during the Restoration Period when «there is much evidence of a surge in cloth production» (Muldrew 2012, 500; 511; 514-5). Furthermore, between 1590 and 1688, the textile industry had been transformed so that, by the later date, nearly half of the aggregate weight of cloth was devoted to the lighter and cheaper fabrics of the new draperies (Muldrew 2012, 518). King's *Scheme* is, therefore, not a very reliable basis on which to calculate cloth production in 1590, let alone 1500.

Hence estimates of the scale of the textile industry vary markedly. The most pessimistic calculations indicate that total production for both domestic sale and export peaked shortly before 1400 at about 50,000 broadcloths per annum, and only began to rise again 70 years later. The most optimistic suggest a first post-Black Death peak in the early 1390s at about 155,000 broadcloths, rising to over 196,000 broadcloths by the early 1440s, and finally reaching a zenith a century later at about 308,000 broadcloths. The variances here carry important implications for our assessment of the extent of out-work in England at the end of the middle ages.

3.2 Previous estimates of total workforce

Postan contended that, in the mid-1390s, the production of 50,000 broadcloths would have required the equivalent of 15,000 full time workers. Carus-Wilson preferred a higher figure to take account of the labour intensity of carding and spinning, reckoning that between 17,000 and 20,000 full-timers would have been needed to make the 40,000 odd broadcloths that were exported each year (1967, 261n). More recently, historians have used various other methodologies to estimate workforce size. Both Britnell (1997, 234) and Dyer (2005, 149) suggested that each weaver could produce ten broadcloths per annum. Using Flemish evidence of productivity, Oldland reckoned that, by the early 1540s, 264,137 cloth-workers were engaged in textile manufacture – as many as 15-16 per cent of the adult workforce (2016, 235-6). Muldrew calculated that, in 1590, 225,083 spinners were at work in England (2012, 518). If so, the putting-out system was already established on a massive scale in England.

3.3 Revised estimates

In view of these conflicting opinions as to the scale of the industry and the size of the workforce, let us now make revised estimates using four sources, namely alnage accounts, plea rolls of the Court of Common Pleas, wills enrolled in the Prerogative Court of Canterbury and enrolled customs accounts.

If Heaton's alnage figures (Table 4) are compared with the evidence of the plea rolls of the Court of Common Pleas (Table 5), a subtly different picture emerges of

the relevant importance of each county's output in the closing years of the fifteenth century and the opening years of the sixteenth. The Court of Common Pleas evidence indicates that the output of each of Essex and particularly Kent was comparable to that of each West Country county which would suggest that their alnage account figures are too low. Although the value of each county's Court of Common Pleas clothier litigation varied from year to year, there is no pattern in the figures to suggest that, in the 1470s, the Essex and Kent textile industries were still relatively under-developed. Thus we have strong grounds for arguing that Heaton's 40,000 broadcloths are an under estimate. Arriving at a more accurate estimate is no easy task, but if the output of each of Essex and Kent was similar to each of the West Country counties, then that adds about 5,000 broadcloths to the total. Allowing for omission, evasion, and under-counting, between 5,000 and 15,000 additional cloths might be trawled from across England. An uplift of Heaton's total by between 25 and 50 per cent would not be unreasonable. Even so, it is difficult to conceive that the ultimate total would have been in excess of 60,000 and, as Postan contended, was probably at a similar level to output in the late 1390s.

Tab. 5. **Court of Common Pleas clothier debt litigation 1475 to 1510**

County	No. of clothiers	No. of debt pleas	Total value of litigation (£)	% of total value
Berkshire	40	52	808	4.9
Essex	96	155	1,822	11.0
Gloucestershire (inc Bristol)	84	125	1,879	11.3
Kent	147	249	2,332	14.1
Somerset	124	168	2,213	13.4
Suffolk	277	478	4,470	27.0
Wilts	66	71	1,225	7.4
Other counties	147	172	1,826	11.0
Total	981	1470	16,575	

Notes: When enrolling a plea, as required by the Statute of Additions 1413 the residence and occupation of the defendant had to be stated, but not those of the claimant. So, most of this data is drawn from the defendant side. Nevertheless, analysis of the data is like-for-like. Per-capita use of the court by the populations of each county was broadly similar (Stevens 2012, 232-4). In each of the seven principal clothier counties the ratio of clothiers to other cloth-makers, cited in the plea rolls, was again broadly similar (Amor 2016, 222-39).

Sources: TNA CP 40/853, 861, 871, 883, 885A, 888, 891, 895, 907, 911, 919, 931, 943, 951, 959, 971, 983, 990.

This Court of Common Pleas evidence, and in particular the value of the debt litigation, can also be used to ascertain the trajectory of the industry in the 35 years after 1475 and estimate the scale of the industry at the end of that period (Graph 2). The starting date of this analysis is 1475 by when the clothier had become a well established figure in the textile industry – certainly in Berkshire, Essex, Kent, Gloucestershire (including Bristol), Somerset, Suffolk and Wiltshire which we shall

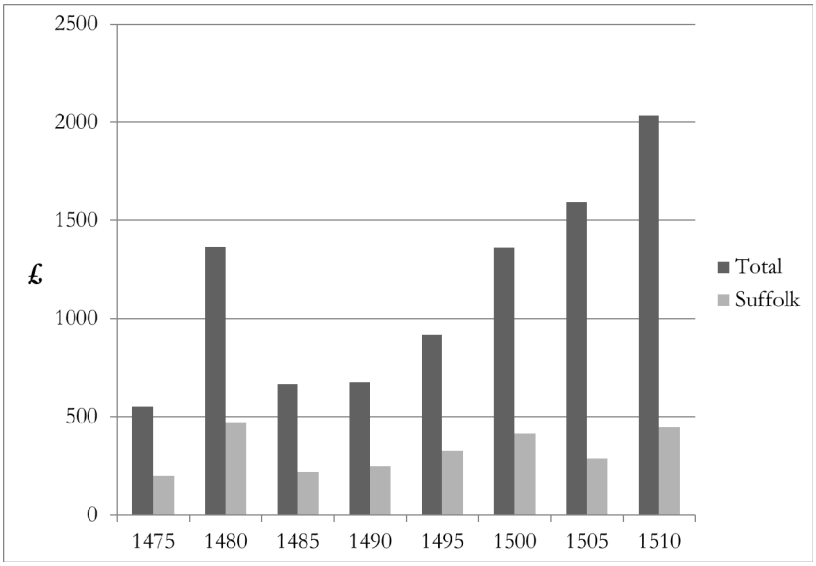
call the principal clothier counties (Figure 1). The end date of 1510 gives a lengthy period of thirty-five years during which England enjoyed «two sharp bursts» of export growth (Britnell 1997, 228) and price inflation was close to zero. It predates the sharp rise in inflation during the early years of Henry VIII which would distort later data.

Fig. 1. **The principal clothier counties**

Format: David Addy.

The plea rolls show that, between 1475 and 1510, the total value of clothier litigation in each of the quinquennial Hilary terms studied rose from £552 to £2035, an increase of 369 per cent. Growth was steady across the period, with the exception of the mid to late 1480s when the industry, trade and the operation of Common Pleas were probably all disrupted by the dynastic struggles that culminated in the defeat of Richard III by Henry VII at the battle of Bosworth Field, and also by a trade embargo with Burgundy.

Graph 2. **Value of Court of Common Pleas clothier debt pleas 1475 to 1510**



Notes: Generally, the business of the court was in decline during the course of the fifteenth century, although the rate of decline slowed in the second half of the century (Stevens 2012, 228).

Sources: TNA CP 40/853, 871, 891, 911, 931, 951, 971, 990.

An even clearer indication of the real scale of growth in the textile industry over this period is provided by adding to the value of clothier debt litigation that of other cloth-makers, particularly master weavers, fullers, dyers and shearmen. By 1510 clothiers had largely displaced other cloth-makers in the plea rolls in the principal clothier counties, and accounted for 85 per cent of the value of textile litigation. What had happened to the former cloth-makers who had disappeared from the court? A number had re-designated themselves as clothiers, some through highly successful careers. Many cloth-makers were, however, downwardly mobile, displaced by the operations of clothiers and now tied as out-workers to their more enterprising colleagues, competing alongside the ranks of semi-skilled peasants seeking to augment their incomes through some textile piecework. In other cloth-producing counties, notably Norfolk and Yorkshire, in 1510 the proportion of cloth-makers remained higher, suggesting that clothiers were less prominent there and the semi-independent producer lasted longer. The rise of the clothier and the outwork system was mainly a feature of the most intensive, commercial, and export-focused areas.

The addition of the value of other cloth-maker litigation points to a much more modest increase in production between 1475 and 1510 (Table 6). Over that period, across the country as a whole aggregate growth in the value of Court of Common Pleas debt litigation was 58 per cent; in the principal clothier counties 70 per cent, or just over 1.5 per cent annualized; and in other counties just 45 per cent, or just

over 1 per cent annualized. If the data reflects a true increase in output, then by the standards of the pre-modern textile industry, these rates are still impressive (Broadberry, Campbell, Klein 2015, 148). The data also suggests that output in the clothier counties, where the putting-out system was in use, increased more than elsewhere.

Tab. 6. **Value of Court of Common Pleas debt pleas 1475 and 1510**

Litigation	1475 (£)	1510 (£)	% increase
All counties – clothier	552	2035	369
All counties – clothier and other cloth-maker	2374	3752	58
Principal clothier counties – clothier and other cloth-maker	1228	2089	70
Other counties – clothier and other cloth-maker	1147	1663	45

Sources: TNA CP 40/853, 990.

If we multiply the total output figure calculated from Heaton's earlier alnage accounts as adjusted (max. 60,000 broadcloths) by the increase in the value of the textile litigation (58 per cent) then, for the opening years of the sixteenth century, we might arrive at national production as high as 100,000 broadcloths per annum.

Tab. 7. **Wills proven in the Prerogative Court of Canterbury 1450-1530**

County	Clothier wills	Other cloth-maker wills	Bequests to out-workers
Berkshire	10	3	1
Essex	15	2	3
Gloucestershire (inc Bristol)	8	5	0
Kent	10	0	0
Somerset	18	3	2
Suffolk	79	3	6
Wiltshire	25	1	3
Others	14	67	1
Total	179	84	16

Notes: Wills were generally proven in the Prerogative Court of Canterbury if the testator (a) lived in the south of England and (b) owned possessions in more than one diocese or (c) owned possessions with a value in excess of £5 (£10 in London): <https://www.nationalarchives.gov.uk/help-with-your-research/research-guides/wills-or-administrations-before-1858/> (2023-01-31)

Source: TNA PROB 11

The evidence of the wills complements that of the plea rolls (Table 7). Nearly all clothier testators came from the small towns and villages of the principal clothier

counties. In each of these seven counties a significant number had been sufficiently successful and accumulated enough wealth to prove their wills in the Prerogative Court of Canterbury. Such men relied on teams of out-workers, a fortunate few of whom were, as considered above, remembered with bequests in the wills. Far fewer other cloth-makers achieved such success and nearly half of those who did so worked in London's cloth-finishing industries.

Although enrolled export figures are well documented, they are not without their limitations. Oldland contended that in the fifteenth century they under estimate, by about 5 per cent, the volume of cloth leaving the country. Cheap narrow cloths were not subject to the cloth custom, while others that were charged were often longer than the standard cloth and became heavier over time (2014, 43). Worsted exports were counted separately. No doubt some cloth was smuggled out, but probably not much (Carus-Wilson, Coleman 1963, 21-23; 199-200). The export numbers are generally regarded as reliable. In the late 1390s they were similar to those in the late 1460s/early 1470s, at just under 40,000 broadcloths per annum, and during both periods were about 80 per cent of alnage figures as adjusted. By the opening decade of the sixteenth century exports had doubled to about 80,000 broadcloths per annum (Quinton and Oldland 2011, 112-3) which, again, was about 80 per cent of our estimate of national output given above. This suggests that the bulk of commercially produced and sealed cloth was sold abroad, rather than to the domestic market. The consistency of the ratio seems more than a coincidence. Furthermore, the annualized growth rate of cloth exports between the late 1460s and the late 1520s was 1.65 per cent, very similar to the growth rate of the value of Court of Common Pleas debt litigation in the clothier counties analysed above (Britnell 1997, 228).

Turning to the size of the national workforce, the Suffolk alnage accounts for the years 1465/66 to 1468/69 provide a good starting point.[16] Prepared by the Crown servant William Whelpdale whom Britnell considered «an experienced and trusted receiver of royal revenues», they were «if not a perfect mirror of reality […] at least the fruit of an attempt to make them so» (1986, 187-8). As such they provide a rare insight into the real world of medieval cloth-making. These accounts reveal that 577 Suffolk cloth-makers presented Whelpdale with just over 5,000 broadcloths a year for approval (Amor 2004, 417). In order to estimate the size of the county's total textile workforce, some further methodological steps are needed. The largest producer was John Stanesby of Bildeston who presented 2,400 narrow cloths in 1467/68, for which he would have needed the help of about 30 weavers and 28 fullers, as well as carders and spinsters to whom we refer below (Amor 2016, 200, based on formulae of Munro 2003, 196-7; 220). If any of his cloth was finished locally then he would also have called on the expertise of dyers and shearmen, some of whom numbered among the 577.[17] A small elite that included Stanesby and another 22 clothiers were responsible for nearly 40 per cent of total output and would all have needed similar help. Over the four years, 303 of the 577 cloth-makers each manufactured on their own behalf less than 16 broadcloths in

[16] TNA E 101/342/25, 101/343/2, 4, 5.

[17] Such as Robert Cake of Stowmarket: TNA CP 40/796, m. 62v.

total, so probably spent much of their time working for this elite. Almost certainly, other weavers and fullers helped out but manufactured nothing for themselves and so remain invisible. If we add the invisibles, as well as apprentices and journeymen from the towns, it would not be unreasonable to round 577 up to say 800. [18] Most carding and spinning was undertaken by women and this work accounted for about two thirds of the hours required to produce cloth (Tawney and Powell 1924, 216-7). A hundred years earlier the fragmentary poll tax returns of 1381 for Suffolk are replete with names of spinsters in nearly every recorded village (Fenwick 2001, 505-36). It is evident from those wills in which looms were bequeathed to widows that some of these women were also competent weavers.[19] Only 15 of the 577 named cloth-makers were female, so the vast majority of those carders, spinsters and weavers are also invisible. Adding them to the equation could boost numbers from 800 to as high as 2,500 cloth-workers, or one for every two broadcloths – a ratio similar to that of Carus-Wilson's mentioned above. In estimating the size of the workforce in later years, some allowance should perhaps be made for productivity gains arising from greater use of spinning wheels and fulling mills, but this must be set off against the additional man-hours necessary to manufacture cloth that became increasingly heavy from the mid-fifteenth century.

So, our revised estimates suggest that, in 1510, the combined national output for both domestic and overseas markets was about 100,000 broadcloths and the workforce about 50,000. The four sources confirm and support each other. Like Bowden, one can conceive that domestic demand might have been half that of the export market and find another 20,000 broadcloths to make up the difference. This, however, would still be well below the figures proposed by Dyer and Oldland. Why should that be? Several explanations present themselves. Perhaps most domestic demand was met by black market cloth that escaped the alnager's attention, or by homespun which was not his concern, or by secondhand cloth that had already received his approval.

By its very nature the black market is difficult to measure. Bridbury certainly thought it substantial, because alnage

> was an excise, and excise is notoriously a tax which is very much easier to evade than a duty which is imposed where trade must concentrate […] evasion was always easier in the countryside than in towns (1982, 52).

The alnage was, however, a very light tax, probably less than 1 per cent of value, so there was little incentive to evade it and run the risk of forfeiting the cloth. Customs officials are likely to have spotted unsealed cloth so most of it must have been sold in the domestic market. If in the early 1500s, in addition to exports of 80,000 broadcloths, domestic demand was 160,000 broadcloths then an implausibly

[18] For apprentices and journeymen see the 1477 ordinances of the Bury St Edmunds weavers: SA Bury St Edmunds, B9/1/2. Only nine clothiers remembered apprentices in the 179 PCC wills.

[19] In 1495 Bennet Wareyn of Bury St Edmunds bequeathed a loom to each of his sons, but reserved for his widow the right to continue using them as long as she «wull use wevyng»: SA Bury St Edmunds, 34 Pye.

high proportion of those would have been unsealed. Assuming our growth estimates are correct, Heaton's alnage figures would have to be uplifted not by 25 to 50 per cent, but by closer to 300 per cent. In Suffolk William Whelpdale might have approved 5,000 broadcloths, but he would have overlooked 15,000, making a total of 20,000 and requiring a workforce of say 10,000. It seems inherently unlikely that such a diligent Crown servant could have been so misled. Furthermore, by the early-sixteenth century the county's output would have risen to 34,000 broadcloths and its workforce to an improbable 17,000 – nearly a third of the adult population (Cornwall 1970, 38).[20]

As for homespun cloth, Oldland himself downplayed its importance after the Black Death (2014, 41). The secondhand market may have been more important than Dyer thought when he described it as one reminder «of pockets of continued urban poverty» (1989, 207). Medieval clothes were made to last. They were stolen from more affluent households and were frequently passed down from one generation to the next as prized bequests. A thriving market for the sale of repaired and secondhand clothes operated in London and elsewhere.[21] In the Suffolk town of Newmarket *le Shraggeryrowe* was a trading row dedicated to the sale of old clothes (Sear, Sneath 2020, 105). According to Staples, fripperers «were not simply dealers in rags or cast-off clothing [...] the sale of secondhand clothing encompassed individuals of varying economic status, some who were quite wealthy» (2010, 171).

A final possible explanation for the discrepancy in the figures turns on the use for clothing of other fabrics not included in the official figures. The expansion of luxury double worsted production in Norwich contributed hugely to the economic success of that city. The rural cloth-makers of north-east Norfolk manufactured a much lighter and cheaper worsted that would have found a ready market among less affluent consumers. Certainly, worsted was available for purchase from drapers in Bury St Edmunds.[22] In Hilary term 1510 the weavers of Norfolk accounted for nearly a third of the value of their craft's nationwide Court of Common Pleas debt litigation. Linen was another material that was used for items such as shirts and smocks and imported in ever increasing volumes. Fur and silk were worn by a wealthy elite.

Whatever the explanation, the discrepancy remains hard to resolve. Is it possible that Dyer and Oldland have over estimated the size of the domestic market for cloth? There was no reason for domestic demand to have grown significantly in the closing years of the middle ages. Indeed, by reference to the total number of sheep and the wool yield from each animal, Broadberry et al contended that the textile sector contracted in the second half of the fifteenth century. If they are correct, then, since overseas sales undoubtedly increased over that period, the domestic

[20] In 1522, 15.9 per cent of those counted in the Babergh military survey were engaged in textiles (Pound 1986, 133). Keibeck estimated that, in 1601, 12.6 per cent of Suffolk's male labour force was engaged in textiles, rising to 16.3 per cent by the end of the seventeenth century, before trailing off thereafter (2016, 646).

[21] https://blog.history.ac.uk/2021/02/recycling-and-upcycling-waste-in-the-late-medieval-urban-economy/ (courtesy John Lee) (2023-01-31)

[22] TNA CP 40/951, m. 392v.

market would have shrunk significantly (2015, 109; 112; 138; 146-7).[23] Any increase in the country's population was modest. Cornwall postulated a rise between 1430 and 1522-5 from 2.1 million to 2.3 million (1970, 44), figures broadly accepted by Broadberry et al (2015, 20-2). However, Smith has identified a mortality cycle «after 1450 when both the levels of life expectation worsened among adults alongside a growing instability in the death rate in that age group» (2012, 82). Without doubt, any demographic recovery was insipid and only began to accelerate from the second quarter of the sixteenth century. As for the country's overall economic performance, Britnell dismissed any idea of a high rate of growth between 1470 and 1529, identifying «only patchy and localized development» and also «considerable slack in home demand» for woollen cloth (1997, 241).

Notwithstanding the reservations of Broadberry et al, the output of woollen cloth did almost certainly grow between 1475 and 1510, from perhaps 60,000 to as many as 100,000 or even 120,000 broadcloths per annum, providing work for as many as 60,000 cloth-workers, but not to the extent envisaged by the higher estimates of the scale of production and the size of workforce.

Conclusion

During the late middle ages the out-worker emerged as a key figure in the wool textile industry of southern and eastern England. From about 1470 the concentration of overseas trade through the port of London prompted the rise, largely in rural locations, of the clothier and the decline of the independent cloth-maker. Some clothiers built substantial businesses by networking with London merchants and engaging out-workers to help meet demand by performing more laborious and lower skilled tasks in their own homes. This created a hierarchy of merchant, clothier and artisan which worked well while export demand remained buoyant. However, changes in the patterns of land ownership and land use after the Black Death had caused greater polarization in village society and denied many out-workers a livelihood from husbandry. So when, in the 1520s, a combination of events undermined the industry and caused unemployment there followed mass poverty and civil unrest among the lower orders. Many of them had no other means of livelihood to fall back on.

Between 1475 and 1510 the textile industry and cloth exports were two rays of light against a drab backdrop of insipid demographic and economic growth. Nevertheless, domestic demand remained weak and at least two in every three commercially manufactured cloths were sold overseas. To judge by Court of Common Pleas debt litigation, the industry expanded at an average rate of between 1 and 1.5 per cent per annum, and was strongest in the seven counties where the clothier had become the dominant figure and putting-out the main means of production. Total output and the number of cloth-workers were not as high as some historians have postulated and involved only a relatively small fraction of the total population, so the putting-out system did not make late-medieval England a capitalist nation. Nev-

[23] To the contrary, Oldland argues that sheep numbers rose dramatically from 1450 to the mid-sixteenth century, and that wool yields were higher than some have suggested (2014, 25; 42).

ertheless, it transformed cloth-making in some regions, so must be regarded as a major step-forward in the organization of the industry, and one that enabled the country to meet escalating overseas demand and move further down the road towards capitalism.

BIBLIOGRAPHY

Amor, Nicholas R. 2004. "Merchant adventurer or Jack of all trades: The Suffolk clothier in the 1460s." *Proceedings of the Suffolk Institute of Archaeology and History* 40: 414-436.

Amor, Nicholas R. 2016. *From wool to cloth: The triumph of the Suffolk clothier*. Bungay: Refinecatch.

Bailey, Mark. 2021. *After the Black Death: economy, society and the law in fourteenth-century England*. Oxford: Oxford University Press.

Banaji, Jairus. 2020. *A brief history of commercial capitalism*. Chicago: Haymarket.

Barron, Caroline. 2000. "London 1300-1540". In *The Cambridge history of Britain*, ed. David M. Palliser, 395-440. Cambridge: Cambridge University Press.

Bridbury, Anthony R. 1982. *Medieval English clothmaking: An economic survey*. London: Heinemann.

Britnell, Richard H. 1986. *Growth and decline in Colchester 1300-1525*. Cambridge: Cambridge University Press.

Britnell, Richard H. 1997. *The closing of the middle ages*. Oxford: Blackwell.

Britnell, Richard H. 1999. "Commerce and capitalism in late medieval England: Problems of description and theory." *Journal of Historical Sociology* 6, 4: 359-76.

Broadberry, Stephen, Bruce M.S. Campbell, Alexander Klein. 2011. "British economic growth 1270-1870: an output-based approach." University of Kent, School of Economics Discussion Papers 1203.

Broadberry, Stephen, Bruce M.S. Campbell, Alexander Klein. 2015. *British economic growth 1270-1870*. Cambridge: Cambridge University Press.

Carus-Wilson, Eleanora M. 1967. *Medieval merchant venturers*. London: Methuen.

Carus-Wilson, Eleanora M. 1987. "The woollen industry." In *The Cambridge economic history of Europe, vol. II,* ed. Michael M. Postan, and Edward Miller, 613-90. Cambridge: Cambridge University Press.

Carus-Wilson, Eleanora M., Olive Coleman. 1963. *England"s export trade 1275-1547*. Oxford: Oxford University Press.

Cornwall, Julian. 1970. "English population in the early sixteenth century." *Economic History Review* 23, 1: 32-44.

Cornwall, Julian. 1988. *Wealth and society in early sixteenth century England*. London: Routledge & Kegan Paul.

Dobb, Maurice. 1946. *Studies in the development of capitalism*. London: Routledge & Kegan Paul.

Dyer, Christopher. 1989. *Standards of living in the late middle ages*. Cambridge: Cambridge University Press.

Dyer, Christopher. 2005. *An age of transition? Economy and society in England in the later middle ages*. Oxford: Oxford University Press.

Fenwick, Carolyn C. ed. 2001. *The Poll Taxes of 1377, 1379 and 1381, part 2: Lincolnshire-Westmoreland.* Oxford: Oxford University Press.
Gray, H.L. 1924. "The production and exportation of English woollens in the fourteenth century." *English Historical Review* 39, 153: 13-35.
Heaton, Herbert. 1920. *The Yorkshire woollen and worsted industries, from the earliest times up to the Industrial Revolution.* Oxford: Oxford University Press.
Hilton, Rodney, ed. 1978. *The transition from feudalism to capitalism.* London: Verso.
Keibeck, Sebastian A.J. 2016. "The male occupation structure of England and Wales, 1600-1850." PhD thesis, University of Cambridge.
Kowaleski, Maryanne. 1995. *Local markets and regional trade in medieval Exeter.* Cambridge: Cambridge University Press.
Lee, John. 2018. *The medieval clothier.* Woodbridge: Boydell.
Lloyd, Terence H. 1991. *England and the German Hanse 1157-1611: A study of their trade and commercial diplomacy.* Cambridge: Cambridge University Press.
MacCulloch, Diarmaid, Anthony Fletcher. 2020. *Tudor rebellions.* Oxford: Oxford University Press.
Marx, Karl. 1909. *Capital: a critique of political economy,* 3 vols. Chicago: Charles H. Kerr.
Muldrew, Craig. 2012. "'Th'ancient Distaff' and 'Whirling Spindle': measuring the contribution of spinning to household earnings and the national economy in England, 1550-1770." *Economic History Review* 65, 2: 498-526.
Munro, John. 2003. "Medieval woollens: textiles, technology and organization, c. 800-1500." In *The Cambridge history of western textiles*, ed. by David Jenkins. 181-227. Cambridge: Cambridge University Press.
Munro, John. 2003 "Wage-stickiness, monetary changes, and real incomes in late-medieval England and the Low Countries, 1350–1500: did money matter?", *Research in Economic History* 21: 185-297
Munro, John. 2015. "The dual crisis of the late-medieval Florentine cloth industry c. 1320-c. 1420." In *Textiles and the medieval economy: production, trade and consumption of textiles, 8th – 16th centuries*, ed. Angela L. Huang, and Carsten Jahnke, 113-148. Oxford: Oxbow.
Oldland, John. 2014. "Wool and cloth production in late medieval and early Tudor England." *Economic History Review* 67, 1: 25-47.
Oldland, John. 2016. "The economic impact of clothmaking on rural society, 1300-1550." In *Medieval merchants and money: Essays in honour of James L. Bolton,* ed. Martin Allen, and Matthew Davies, 229-52. London: Institute of Historical Research.
Postan, Michael. 1950. "Some evidence of declining population in the late middle ages." *Economic History Review* 2, 3: 221-46.
Pound, John. 1986. *The military survey of 1522 for Babergh Hundred.* Woodbridge: Boydell.
Pound, John. 1999. "Rebellion and poverty in early sixteenth-century Suffolk: The 1525 uprising against the Amicable Grant." *Proceedings of the Suffolk Institute of Archaeology and History* 39: 317-30.
Power, Eileen. 1941. *The wool trade in English medieval history.* Oxford: Oxford University Press.

Quinton, Eleanor, and John Oldland. 2011. "London merchants cloth exports, 1350-1500." In *Medieval clothing and textiles*, vol. 7, ed. Robin Netherton, and Gale R. Owen-Crocker. 111-39. Woodbridge: Boydell.

Sear, Joanne and Ken Sneath. 2020. *The origins of the consumer revolution in England: From brass pots to clocks*. London: Routledge.

Smith, Richard M. 2012. "Measuring adult mortality in an age of plague." In *Town and countryside in the age of the Black Death,* ed. Mark Bailey, and Stephen Rigby. 43-85. Turnout: Brepols.

Staples, Kate K. 2010. "Fripperers and the used clothing trade in late medieval London." In *Medieval clothing and textiles*, vol. 6, ed. Robin Netherton and Gale R. Owen-Crocker, 151-71. Woodbridge: Boydell.

Stevens, Matthew F. 2012. "Londoners and the court of common pleas in the fifteenth century." In *London and beyond: Essays in honour of Derek Keene*, ed. Matthew Davies and James A. Gallowa,. 225-45. London: Institute of Historical Research.

Sutton, Anne F. 2005. *The mercery of London: Trade, goods and people, 1130-1578*. Aldershot: Ashgate.

Sutton, Anne F. 2010. "London mercers from Suffolk c. 1200-1570: Benefactors, pirates and merchant adventurers, part II." *Proceedings of the Suffolk Institute of Archaeology and History* 42: 162-84.

Tawney, Richard H. 1938. *Religion and the rise of capitalism*. Harmondsworth: Penguin.

Tawney, Richard H., Eileen Powell. 1924. *Tudor economic documents*, vol. I. London: Longmans, Green.