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The male occupational structure of Kent in the seventeenth and eighteenth centuries

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Abstract

Few indicators of economic development are more revealing than occupational structure. Yet, if England's path to modern economic growth over the seventeenth and eighteenth centuries counts as an economic transition of unparalleled historical importance, its changing occupational structure has been a peculiarly neglected line of enquiry. Lately, studies from the Occupational Structure of Britain Project, part of the Cambridge Group for the History of Population and Social Structure, have addressed the topic, through various sources, though there is much still to be done. This dissertation seeks to shed light on the occupational structure of Kent in this critical period, using almost 5,000 unique adult male occupational observations between c.1610 and the early nineteenth century. Given the bounds of an undergraduate dissertation, one of the primary arguments made here concerns the methodology used to study occupational structure in this region. It makes the case for a more systematic approach than has hitherto been pursued. While the dataset created represents only a minority of the available archival information, the data are sufficient to make persuasive the utility of this new methodology and show how it should best be applied. At the same time, the results themselves are robust enough to form the basis of commentary already.

Multiple sources contain occupational information, with testamentary records and parish baptism registers amongst those exploited most by historians. This dissertation uses an alternative source, court recognizances. It is argued that these can provide a cross-check to the biases in the testamentary records and expand upon the limited geographical scope of the parish register material pre-1817. The dataset has been put together using recognizances from the Kent Quarter Sessions and Maidstone's borough court sessions. The county sessions have broad geographical scope *and* contain multiple persons from virtually every parish. The whole of Kent was covered around 1610, but only West Kent thereafter in my dataset. These sources are sufficiently representative of the male population at large to estimate the occupational structure of Kent around 1610 and the northwest of the county in the two centuries following, and, to a lesser degree, to explain occupational geography. The northwest is of interest given its proximity to London. A 'metropolitan county' encompassing the southern bank of the Thames from Deptford to Dartford, the area is an important part in understanding

the puzzle of London's growth. Given the capital's economic importance, understanding the occupational structure of the city and its surroundings has implications for the broader understanding of England's precocious specialisation in the seventeenth century and industrialisation in the eighteenth and nineteenth centuries.

I show that the major sectoral shift from primary to secondary and tertiary activity began in the sixteenth century, and that the share constituted by the secondary sector stayed constant over the two centuries, but changed in character, at the sub-sectoral level, with implications for the spatial division of labour. I highlight the growth of dockyards, and related industries, which were concentrated in northwest Kent by c.1715. This area also accounted for most of the county's demographic increase in the seventeenth century. I suggest that the second-half of the eighteenth-century witnessed a more even spread industrial *and* demographic expansion across the county but maintain that the northwest was still significantly different at the sub-sectoral level. Finally, the recognizance data make clear the importance of the tertiary sector in the county, which, consistently larger than the national average, reflected the county's precocious and sustained urbanisation over the two centuries.

Section I: Introduction

Substantial revision of England's early modern economic history is currently underway. New estimates of the country's population growth and distribution, occupational structure and transport costs have each revealed that England's economy was more advanced by the early eighteenth century than previously thought and subsequent industrialisation more complex.[1] Thanks to the mass of occupational data gathered by the Cambridge Group for the History of Population and Social Structure (henceforth 'Cambridge Group'), the secondary sector is now thought to have employed as many as two-fifths of the male workforce around 1710, making the case for later structural change in employment less clear. At first glance, the label of the 'industrial revolution', as conceived of as a dramatic structural shift into industry in the late eighteenth century, has lost descriptive and explanatory power.[2] Seemingly, the timing is roughly a hundred years too late. The contention of this dissertation, though, is that the heart of the problem of understanding structural change is not so much temporal, but spatial. Around 1710, regional differences between northern and southern counties in occupational structure were apparent, but a century later they were many times greater. At the sub-county level, the differences were even starker, at least in terms of manufacturing, which became concentrated in just a few hundreds by 1800. Even in 1710, once the primary sector is broken down into different types of farming, it is clear that regional specialisation was already apace. The demographic data supports the occupational story. One-tenth of England's hundreds in the century preceding the Great Exhibition absorbed two-thirds of the population growth – 'population growth was markedly lopsided.'[3] England's early modern economic history is now the story, above all, of the

[1] Dan Bogart, 'The transport revolution in industrialising Britain', in *The Cambridge Economic History of Modern Britain*, vol. 1, 4th edn., ed. Roderick Floud, Jane Humphries and Paul Johnson (Cambridge: Cambridge University Press, 2014), pp. 368–391; E. A. Wrigley, *The Early English Censuses* (Oxford: Oxford University Press, 2011); Leigh Shaw-Taylor and E.A. Wrigley, 'Occupational structure and population change', in *The Cambridge Economic History of Modern Britain*, vol. 1, 4th edition, ed. Floud, Humphries and Johnson, pp. 53–88.

[2] Shaw-Taylor and Wrigley, 'Occupational structure', Table 2.2, p. 59; a closer look reveals that structural change still took place but did so *within* the secondary sector, at the sub-sectoral level from traditional industry to manufactures, while the prominent sectoral shift in the late eighteenth century appears to have been into the tertiary sector.

[3] E. A. Wrigley, 'Coping with rapid population growth', in *Structures and Transformations in Modern British History*, ed. David Feldman and Jon Lawrence (Cambridge: Cambridge University Press, 2011), p. 42.

remarkable evolution of the division of labour over the seventeenth and eighteenth centuries between regions and, increasingly, within them.

It is argued here that the ideal unit of analysis is local and regional not national. This dissertation examines the dynamics of regional development in the county of Kent in the belief that to understand the 'national' structural trends just outlined, evidence is desperately needed at the regional level to add chronological and, crucially, spatial precision. Kent is in many respects an early bloomer in this tale of specialisation. It was influenced by its relationship with other counties and the national market. Its inter-regional connections made it open to the forces of competition and the 're-arrangement of industrial locations and of agricultural specialisations' this entailed.[4] Indeed, if recent county-level estimates of male occupational structure from the Cambridge Group are of importance due to the regional nature of industrialisation, it is for the same reason that their lack of resolution below the level of the county is not ideal. Counties were themselves composed of very varied local economies and, as E. A. Wrigley has lately emphasised, much of interest is 'blurred unless description and analysis are based on a smaller unit than the county.'[5] Ann Kussmaul ingeniously used the link between marriage seasons and type of work to offer spatially and temporally sweeping 'views' of the changing rural economy – and to pinpoint the transition from bound and localized to economically-integrated regions to the later seventeenth-century – but admitted that 'much detail has been obscured' in order to see change 'whole'.[6]

Conceptually, the major framework in the existing historiography that could be given evidential ballast with regional studies like that of Kent is Wrigley's notion that England became an 'advanced organic economy' in the early modern period, with over half the population in non-agricultural occupations by c.1710. In non-advanced organic economies, by contrast, low agricultural productivity

[4] A. Kussmaul, 'The pattern of work as the eighteenth century began', in *The Economic History of Britain since 1700*, vol. 1, 2nd edn., ed. R. Floud and D. McCloskey (Cambridge: Cambridge University Press, 1994), pp. 1–11.
[5] E. A. Wrigley, *The Path to Sustained Growth: England's Transition from an Organic Economy to an Industrial Revolution* (Cambridge: Cambridge University Press, 2016), p. 159, an examination of the unusually detailed 1831 census.
[6] A. Kussmaul, *A General View of the Rural Economy of England 1538–1840* (Cambridge: Cambridge University Press, 1990), p. 180.

required that 70–80 percent of the workforce be employed on the land. The concept of an 'advanced organic economy' captures an economic regime still limited by reliance on the fruits of the land – limited by the diminishing returns set out by David Ricardo – but capable of sustaining a significant proportion of the workforce in secondary and tertiary activities.[7] As Adam Smith reflected in 1776, such an economy was close to the 'full complement of riches' – one in which agriculture was highly productive, the division of labour was markedly mature and significant urbanisation was possible.[8] This might be called 'Smithian' growth. Occupational specialisation was necessarily accompanied by geographical specialisation. Roger Schofield long ago commented, on the evidence of the geographical distribution of harvest failure, that the demographic record 'points to an increasing integration of market networks over the seventeenth and early eighteenth century.'[9] With its proximity to London, the testament to such market integration, Kent provides an excellent case study of this kind of development and this dissertation utilises new data to map the intricacies of the occupational geography of the western half of the county in particular.

Since this occurred before the late eighteenth century, the conventional understanding of the industrial revolution requires modification. The prevailing view has contended that industrialisation only really occurred with the onset of the nineteenth century.[10] Nicholas Crafts argued there was in fact no industrial 'take-off' in economic growth until the railway age, with growth in gross domestic product below 1 percent per annum prior to 1830. For Crafts, the substantive change was structural and focused on a shift to the secondary sector between 1800 and 1841, over which time its share of national employment ballooned from 25 to 40 percent. The recent work of the Cambridge Group modifies this in two key related ways. First, many more people than Crafts estimated were employed in the secondary sector already at the beginning of the eighteenth century: around 37 percent, rather than 19 percent in circa 1710. By 1817, that figure had grown to 42.1 percent – in relative terms, a

[7] E. A. Wrigley, *Energy and the English Industrial Revolution* (Cambridge: Cambridge University Press: 2010), chs. 1-2; idem., 'The transition to an advanced organic economy', *Economic History Review* 59 (2006), pp. 435–80.
[8] A. Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, ed. E. Cannan, 2 vols. (Chicago: The University of Chicago Press, 1976).
[9] R. Schofield, 'The impact of scarcity and plenty on population change in England, 1541–1841', *Journal of Interdisciplinary History* 14 (1983), p. 289.
[10] N. F. R. Crafts, *British Economic Growth during the Industrial Revolution* (Oxford: Clarendon Press, 1985).

moderate rise.[11] This leads to the second point: the changing nature of the secondary sector. Wrigley's analysis of the 1831 census highlights the decline of proto-industry (production for non-local markets) across England since the later eighteenth century. While industrial production for non-local markets was likely widespread across many English counties a century earlier, by 1831 employment of this sort was highly concentrated, with a mere 24 hundreds employing 62.4 percent of the manufacturing labour force.[12] Partial de-industrialisation took place in much of the south of England between c.1710 and 1813-20, though the exact chronology is still in question and has not received much attention. Textiles have received the greatest treatment in this regard by historians, though in Kent it seems the industry declined well before the late eighteenth century.

Using a dataset of almost 5,000 unique adult male occupational observations from circa 1600 to 1815, this dissertation seeks to shed light on the structural development of Kent in the early modern period. Notably, while data for the eighteenth-century is more plentiful and has been used by previous historians, there is a serious deficit of occupational information for the seventeenth century as far as past historiography is concerned. Given the importance of this century in the discussion of Smithian growth, I have compiled the greatest quantity of data for this period to examine at the local level the economic geography of Kent. I show that the county was industrial at the beginning of the period, that rural self-sufficiency was a limited rather than dominant feature of the county's parishes and that the division of labour was advanced. Section II, in addition to evaluating the use of recognizances as a source, sets out the results of the raw data and shows that the seventeenth-century data is especially representative; the later data, for c.1715 and c.1803, is also tested. Section III looks at methodology. Section IV examines the data for c.1610. Section V analyses the fluctuating fortunes of the primary, secondary and tertiary sectors, and subsectors, between c.1610 and c.1800 and examines more closely change at the sub-county level, in northwest Kent, to show that while the experience of the 'advanced organic economy' was widespread, the other side of the coin was that it became more differentiated and certain areas developed concentrations of secondary and tertiary activity at the expense of a more

[11] Shaw-Taylor and Wrigley, 'Occupational structure', Table 2.2, p. 59.
[12] Wrigley, *Path to sustained growth*, pp. 165–9.

even spread of these types of economic activity.[13] A theme of Section V and the conclusion in Section VI is the influence of London and its role as a source of unparalleled demand in engendering extreme specialisation in northwest Kent – which would have been impossible in the rest of Kent.

Historiography of structural change in Kent

The literature on early modern Kentish economic history is reasonably expansive and consequently there is comment on male occupational structure from a variety of angles. Observing the fortunes of towns, John Patten highlighted records of the regulation of their internal economies; occupational information has been found in records of admissions to town freedom and of enrolment into apprenticeship, as well as in more miscellaneous lists of households, trades, aliens, and the poor.[14] However, such information is limited and historians often fail to acknowledge its elite bias. Peter Clark and Lynn Murfin, for instance, used lists of townsmen admitted as freemen between 1600 and 1617 to conduct occupational analysis for Maidstone. The occupations of 153 freemen are specified, with 32 unspecified, in their dataset. Clothing and textiles constituted 20.9 percent (or 31 men) of the occupations recorded, followed by distribution (19.6 percent), the food and drink trades (12.4 percent) and the leather trades (11.1 percent). The sample provided by Clark and Murfin imply that two-fifths and one-third of freemen were in the secondary and tertiary sectors respectively. These are plausible estimates. Their main use is to show the extent of the division of labour in the secondary and tertiary sectors, rather than to provide comprehensive sectoral estimates.[15]

There are various studies of small towns and individual parishes in Kent, mostly from a local history perspective. If rarely systematic, many have explored a useful source in the form of parish registers. These will be looked at in detail later in the Introduction since they have recently been exploited by the Cambridge Group, but we can note here the studies of historians like Christopher

[13] Wrigley, *Path to sustained growth*, p. 192 suggests that at the end of the sixteenth-century county population densities were similar, reflecting 'a similarity of agricultural practice closely linked to local self-sufficiency.'
[14] John Patten, 'Urban Occupations in Pre-Industrial England', *Transactions of the Institute of British Geographers* 2 (1977), pp. 296–31. Note these were largely taken by corporate towns.
[15] Peter Clark and Lynn Murfin, *The History of Maidstone: The Making of a Modern County Town* (Stroud: Alan Sutton Publishing Ltd., 1995), pp. 47–48, who also found a range of other crafts and service trades but which are not assigned numbers, aside from 7 physicians by 1630, 6 attorneys by 1600 and a few silk-weavers.

Chalkin (for the town of Tonbridge, on the River Medway) and Lawrence Biddle (for the parish of Leigh, near Tonbridge). For Tonbridge, Chalkin explored the occupations of 125 tradesmen recorded by the Parish Clerk for 1661–71 and, given the absence of specialised or luxury trades, found that trades were largely restricted to the necessities of life. He argued that this was 'probably not an untypical picture' of a small market town in the early modern England, dependent for its livelihood on the local farmers.[16] For Leigh, a rural parish in the Weald, Biddle found evidence of rural specialisation. Almost two-fifths worked in the secondary sector, c.1700.[17] While the majority were 'in trades necessary to support the farming community', there were fourteen masons and ten millers, who 'served a much larger area than the parish'.[18]

Another angle from which occupational data has been deemed useful is the study of the secondary sector in Kent, specifically with regards to the deindustrialisation of the Weald. As Short notes, in 1600 the Weald had been 'the major English producer' of glass and iron, especially ordnance, and an important producer of timber, timber products and textiles, especially dyed broadcloth.[19] Recently, in their study of the demise of the Kent broadcloth industry, Flisher and Zell have pointed to the declining incidence of weavers leaving probate inventories over the seventeenth century.[20] Zell and Chalkin note that probate inventories from Biddenden and Cranbrook between 1565 and 1599 showed an involvement in cloth manufacture in roughly one-third and one-quarter of cases respectively. This 'proto-industry' had its heyday in the reign of Queen Elizabeth, after which

[16] C. W. Chalkin, 'A seventeenth-century market town: Tonbridge', *Archaeologia Cantiana* 76 (1961), p. 160.
[17] A high proportion for a rural parish: the large number of masons was due to the quarries in the area and presence of Penshurst Place, home to the Earls of Leicester.
[18] Biddle, *Leigh in Kent, 1550 to 1900* (1991), pp. 30–1, who examined 250 entries in the parish baptism registers between 1696 and 1706, of which 75 were merely described as poor; of the remaining 175 occupations, one-tenth were labourers, around half worked in the primary sector, almost two-fifths worked in the secondary sector and the tertiary sector was negligible.
[19] B. Short, 'The de-industrialisation process: a case study of the Weald, 1600–1850', in *Regions and Industries: A Perspective on the Industrial Revolution in Britain*, ed. Pat Hudson (Cambridge: Cambridge University Press, 1989), p. 156.
[20] L. Flisher and M. Zell, 'The demise of the Kent broadcloth industry in the seventeenth century: England's first de-industrialisation', *Archaeologia Cantiana* 129 (2009), p. 247, note that number of weavers who left inventories in the central Wealden parishes of Cranbrook, Benenden, Biddenden, Goudhurst, Hawkurst and Staplehurst declined from 59 weavers in the period 1600-1629 to only 9 weavers over the period 1670–1699.

point the general consensus is that it entered a slow decline, in part due to the disruptive effect of the Thirty Years' War of 1618–48 on the industry's key markets in Germany and Central Europe.[21]

For a much larger area, Chalkin used the index of wills in the probate registries at Canterbury (covering central and eastern Kent) and Rochester (western Kent) to construct a tentative breakdown of occupations. The seventeenth-century male workforce was predominantly agricultural.[22] Chalkin suggests 'specialised industries' employed between 10 and 15 percent – mostly textile manufactures and shipbuilding, but some in papermaking and ironmaking.[23] This manufacturing workforce was 'heavily outnumbered' by those involved in meeting local demand. His estimates for these 'crafts and trades' are as follows: 6 percent of men worked in the clothing trades; 5 percent in the food and drink trades; 5 percent in transport; between 3 and 5 percent in agricultural processing and the making of farm equipment.[24] Building occupations straddled both categories of industry: growing to satisfy metropolitan and local demand, they constituted between 3 and 5 percent of the workforce.[25] Section IV suggests these are plausible estimates, though Chalkin's method is not without problems. Chalkin uses a small number of sources to make sweeping estimates, with no correction for social bias. Zell has argued that the number of surviving wills is large, 'but the number with the appropriate occupational information is not'.[26] The elite skew of inventories is problematic (a detailed examination of this source will follow in the final part of this Introduction) and the presence of large towns near the Thames lies behind the high proportion of tradespeople in the western diocese. Another study that uses this source is Kent County Council's 'Kent History Project', which draws on figures from Peter King for the 1680s and 1740s. Using nearly 1,300 probate inventories from east and central Kent, King argued that agricultural employment remained constant, at 41 percent of the

[21] M. Zell and C. Chalkin, 'Old and New Industries, 1500–1700', in *An Historical Atlas of Kent*, ed. Terence Lawson and David Killingray (Andover: Phillimore Publishing, 2004), p. 74.
[22] C. W. Chalkin, *Seventeenth-Century Kent* (London: Longmans Green & Co., 1965), p. 45. Between 1640 and 1650, the wills of 688 men described as yeomen and husbandmen were proved at Canterbury. A further 350 wills referred to tradesmen, craftsmen, fishermen and seamen. For western Kent, the probate inventories of 322 farmers and 388 tradesmen and craftsmen were lodged in the court of the Bishop of Rochester between 1687 and 1710.
[23] Ibid., p. 113.
[24] Ibid., pp. 158–160.
[25] Ibid., p. 146.
[26] Zell, *Industry in the countryside*, 114. Sebastian Keibek, 'The male occupational structure of England and Wales, c. 1650–1850,' PhD thesis, University of Cambridge (2017), casts doubt on this assertion.

male labour force, while the cloth and clothing trades declined from 4.7 to 1.5 percent. The most significant growth occurred in maritime occupations, which rose from 8.1 to 14.4 percent of the sample.[27]

While it is true that the relatively large-scale use of probate data has allowed historians to advance occupational estimates of large sections or even all of the county, the data used is not systematic in that it either rarely covers the full early modern period or otherwise is not geographically and socially comprehensive enough to represent what historians have claimed it represents. The exception is Sebastian Keibek's recent thesis using testamentary evidence, which addresses these problems. This will be looked at in the next part of this Introduction.

Sources of systematic occupational information

Various sources could form the basis of more systematic research into England's early-modern occupational structure. Almost all are limited in their coverage to the male population only. Parish records of baptisms and marriages have attracted systematic study, as have testamentary records, wills and probate inventories.[28] Less-used sources include freemens' lists, poll books, and, the focus here, Quarter Session records, such as recognizances, depositions and embezzlement records. Before considering the nature of the Quarter Session material, it is first necessary to discuss parish and testamentary records, the two principal sources that have hitherto been used by the Cambridge Group.

The Cambridge Group's project, 'The Occupational Structure of Britain, c.1379–1911', has brought together occupational data from parish baptism registers across England and Wales. The Parochial Registers Act of 1812 made it a legal requirement to record fathers' occupations in all Anglican parish registers when their children were baptised. Using these records from England and Wales between 1813 and 1820, the Cambridge Group have created a 'quasi-census' of adult male employment for circa 1817, coding the results consistently with the Primary-Secondary-Tertiary

[27] D. Ormrod, 'Industry: 1640–1800', in *The Economy of Kent*, ed. Alan Armstrong (Woodbridge: The Boydell Press, 1995), p. 86.
[28] Shaw-Taylor and Wrigley, 'Occupational structure'; Keibek, 'Male occupational structure of England and Wales'; K. Sugden, 'An occupational analysis of the worsted industry, circa 1700-1851: A study of de-industrialization in Norfolk and the rise of the West Riding of Yorkshire', PhD thesis, University of Cambridge (2015).

(PST) system. Shaw-Taylor and Wrigley made use of 11,364 baptism registers to this end – a dataset of around 2.65 million observations.[29] The results represent a significant improvement on earlier attempts to estimate occupational structure. Previous figures were generally limited spatially to national estimates and were restricted to certain time periods due to the limitations of the evidence, principally social tables constructed by various contemporaries and from the 1841 census. The social tables are unreliable; one of the most famous, constructed by Gregory King in 1688, suggested without further clarification that 56 percent of householders were 'labouring people and cottagers'. King's table leads to very different interpretations: from 32 to 80 percent for agriculture.[30]

Before 1812, far fewer parishes recorded occupational information. About 11 percent of early eighteenth-century parishes are covered. They are not randomly distributed.[31] Significant counties of interest – as gleaned from other sources – and Wales did not record occupations in their parish registers. A much-improved estimate for the occupational structure of England and Wales as a whole can be constructed from the data, but local estimates lack accuracy. For the late eighteenth century – the 'industrial revolution' – it is even harder to construct estimates as fewer parish registers are available.[32]

Responding to this, Sebastian Keibek has used testamentary information, where males record their occupation in the preamble to their wills.[33] Keibek has a database of about 2.5 million of these, of which nearly a million have occupational information between 1600 and 1850 for men. These have been used by multiple historians, but generally at face value. This is problematic because testamentary

[29] E. A. Wrigley, 'The PST system of classifying occupations', The Cambridge Group for Population and Social Structure [http://www.geog.cam.ac.uk/research/projects/occupations/britain19c/papers/paper1.pdf, accessed 2 January 2017]; Shaw-Taylor and Wrigley, 'Occupational structure'; P. M. Kitson, L. Shaw-Taylor, E. A. Wrigley, R. S. Davies, G. Newton, and M. Satchell, 'The creation of a 'census' of adult male employment for England and Wales for 1817'
[http://www.geog.cam.ac.uk/research/projects/occupations/britain19c/papers/paper2.pdf, accessed 2 January 2017]

[30] See, for instance, Charles Wilson's textbook, *England's Apprenticeship 1603–1763* (London: Longman, 2nd ed. 1984), p. 21.

[31] If these parishes were randomly distributed, it would be possible to construct robust estimates of the frequency with which different occupations were recorded and so reconstruct occupational structure at the national and regional level.

[32] The county of Cheshire in the early eighteenth century, for instance, has around 30 percent of parishes covered by registers, but key areas like Macclesfield (for textile manufacturing) are missing.

[33] Keibek 'Male occupational structure of England and Wales'.

evidence greatly underestimates the secondary sector and overestimates the primary sector; making a probate was costly and only done if there was something to bequeath. Testamentary evidence is geographically widespread, but skewed towards the wealthier sorts. Using parish register information to remove this skew, Keibek argues, allows accurate estimates of occupational structure to be made from the plentiful probate inventory evidence. By using parish register data – socially representative but geographically limited – to calculate the extent of bias in testamentary sources, Keibek has devised a reasonably sound method for adjusting testamentary information. For much of England, the results represent a great advance (see Figure 5.3 below for some of his results), but alternative sources to cross-check Keibek's adjustments to occupational groups and test representativeness are wanting. Recognizances are one such source. Furthermore, the reason Keibek's study provides hitherto unparalleled geographical coverage of county occupational structures is due to the abundance of testamentary evidence he has been able to access; however, this is not in fact the case for London and Kent, where his dataset is in proportion quite small. In sum, in relation to Keibek's work, the justification for this dissertation is twofold. First, it offers an independent set of estimates and provides a check on the robustness of Keibek's figures. Second, the recognizances have a high density per area per unit of time: Keibek collected only 1,033 observations for Kent between 1601 and 1618, compared with the 3,383 used here.[34]

The problem of density more generally applies to the study of London's occupational structure, which this dissertation touches on through the coverage of northwest Kent. While there is spatially comprehensive data for c.1817 from parish baptism registers, prior to this the picture is darker. While new work by Shaw-Taylor and Field on the eighteenth century will add detail, they face a similar problem to Keibek.[35] They use records of marriages at the Fleet Prison to identify the occupations of a significant range of Londoners. Roughly half of metropolitan marriages were being conducted at the Fleet by the 1740s.[36] Two three-year samples, 1710–12 and 1750–2, were taken and then reweighted

[34] Keibek 'Male occupational structure of England and Wales'.
[35] J. Field and L. Shaw-Taylor, 'The male occupational structure of London, c.1710-52' (Unpublished).
[36] J. P. Boulton, 'Clandestine marriages in London: an examination of a neglected urban variable', *Urban History*, 20 (1993), pp. 191–210.

according to the relative size of each parish in c. 1711 and c. 1751 – a process complicated by the lack of detailed population figures for London parishes. Given the hurdle presented by rebalancing, the Fleet estimates capture occupational structure better at the overall metropolitan level rather than the parish level. There is also the possibility that the Fleet data may be skewed occupationally towards the less affluent. The need for a cross-check like that offered by recognizances is apparent.

This brings us back to the more general issue outlined in the Introduction: the unit of study. The relative strengths of the parish register and probate inventory source material (or the Fleet material) are reliability in the case of the former and geographical reach in the case of the latter. When these strengths are combined, the two sources facilitate much improved estimates for England not only at the national level but also at the level of English counties. There are signs that the economy was even more integrated still, at the sub-county level of individual hundreds.[37] Helpfully, court recognizances provide a high number of observations per parish per decade. Recognizances as a variety of legal tool will be explained in Section II, but crucial at this stage in the discussion is the fact that they specify many an individual's name, place of residence and occupation (for males) – recording a wide social range at the parish level. They were issued by Justices of the Peace as a bond which committed the prosecutor, the defendant and the witnesses to various courses of action. Individuals who were issued recognizances had to name a further one or two individuals as sureties.[38] This level of density thus provides a cross-check to the seventeenth-century testamentary material. The number of parishes covered is large and, as Timothy Rudnicki has shown, extensive collection of recognizances can create denser datasets for county units than those based on probate inventories.[39]

Within the limits of this dissertation it is impossible to fully exploit recognizances' potential. Only a minority of the Kent Archives material has been examined due to time constraints. Collection on Rudnicki's scale has not proved feasible because little of the Kent material has been digitised, of

[37] E. A. Wrigley, *The Path to Sustained Growth* (Cambridge: Cambridge University Press, 2016), p. 159.
[38] Sometimes, three were named. See R. B. Shoemaker, *Prosecution and Punishment: Petty Crime and the Law in London and Rural Middlesex, c. 1660–1725* (Cambridge: Cambridge University Press, 1991), pp. 25, 27, 108.
[39] T. Rudnicki, 'The male occupational structure of northwest England, circa 1600 to 1851', MPhil thesis, University of Cambridge (2015), p. 9, whose mapping of Lancashire's occupational geography is based on 10,435 occupational observations for the period of 1624 to 1647 and 7,400 for the period of 1774 to 1781, whereas Keibek's samples for each period are 2,071 and 2,813 respectively.

palaeographical problems with the recognizances (relating either to the condition they survive in or to inconsistency in handwriting), and the surviving quantity of recognizance material is smaller than for counties like Lancashire. A separate issue was the lack of occupational data in the recognizances from the East Kent Quarter Sessions. Since the West Kent Sessions recorded the occupations of those involved in most cases, this dissertation focuses on this area. For the early seventeenth-century, though, the whole county is considered, with over 3,000 observations c.1610. The occupations of 900 males c.1710 and a further several hundred c.1800 have been collected. These are still substantial, with the totals for c.1610 and c.1710 similar in magnitude to Keibek's for Kent as a whole, 1,033 and 4,772 respectively.[40] The early seventeenth-century data fulfils a particularly useful historiographical purpose. If the dual themes of this Introduction have been to, one, emphasise the importance of the seventeenth-century as the period during which the organic economy became truly an *advanced* organic economy and, two, the need to describe the extent of this development with occupational data at the sub-county level, then the abundance of recognizances for this period fit neatly into a lacuna of recent research.

[40] Keibek 'Male occupational structure of England and Wales'. There were 1,033 observations for the years 1601 to 1618, and 4,772 for the years 1700 to 1720. These totals refer to the whole of Kent, rather than just West Kent.

Section II: Quarter Sessions Sources

In this section, I set out the process by which justice was conducted in the county and evaluate the significance of recognizances as a tool used by those seeking justice. The central questions to be asked of recognizances for the purposes of collecting reliable occupational data are several.[41] Were they a distinct legal procedure used independently of other tools (as opposed to being, as is sometimes claimed, an appendage to an indictment)? Did they cover a broad range of disputes and crimes? Were they used *by* a broad spectrum of social groups *towards* a broad spectrum of social groups? Does their geographical spread reflect population density and distribution? Did sureties come from a range of social groups?

The context of the Quarter Sessions

For judicial purposes, the county assizes were held at Maidstone. For subordinate jurisdictions, manifested in separate Quarter Sessions in Canterbury and Maidstone, the county was split into East Kent and West Kent. West Kent 'comprehend[ed] the lathes of Sutton-at-Hone and Aylesford, together with the hundreds of Marden, Cranbrook, Barclay, Blackbourne, Tenterden, Rolvenden, Barnfield (East), and Selbrittenden, which form the lower or southern division of the lathe of Scray.'[42] Lathes, the county's ancient subdivisions, were an administrative unit unique to Kent. There were five lathes in Kent – in turn composed of hundreds.[43] There were 57 hundreds (excluding 9 towns treated as hundreds) in the early nineteenth century.[44] Many boroughs also had their own quarter sessions, which have been used for Maidstone here.[45]

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[41] Note that this could be without bias *or* with consistent biases.
[42] The Society for the Diffusion of Useful Knowledge, *The Penny Cyclopaedia of the Society for the Difussion of Useful Knowledge*, vol. 13 (London: Charles Knight & Co., 1839), p. 191.
[43] Wrigley, *Early English Censuses*, p. 55, who notes that in most counties, the usual intermediate units in size between the parish and the county as a whole were referred to as hundreds; hundreds in Kent were considerably smaller on average than was common in other counties.
[44] Terrence Lawson, 'Lathes and Hundreds', in *An Historical Atlas of Kent*, ed. Lawson and Killingray, p. 30; Wrigley, *Early English Censuses*, p. 128; Lawson, 'The Revised Lathes and Hundreds', in *An Historical Atlas of Kent*, ed. Lawson and Killingray, p. 59.
[45] E. Melling, 'Local Government and Administration', in *An Historical Atlas of Kent*, ed. Lawson and Killingray, p. 150.

By the sixteenth century, criminal trials dealt with an array of local government concerns – of trespasses, known as 'misdemeanours', against the king's peace that did not carry the penalty of death and repossession. These grew to encompass regulatory offences that went well beyond breaches of the peace *per se*, such that the criminal law concerning misdemeanours intruded into many aspects of local socio-economic life. The early modern period bore witness to the increasing dominance of the quarter sessions as the foremost court entitled to try misdemeanours, principally to the detriment of the manor courts and the church courts. The agents of the quarter sessions were the justices of the peace.[46] By the seventeenth-century, 'justices of the peace possessed jurisdiction over virtually the entire range of misdemeanours.'[47] If the central government's remaining instrument of control was the judges who presided twice a year at each county's Assizes, by the eighteenth century the judges' supervision of the justices had declined, leaving them relatively autonomous.[48] The process for prosecutions was initiated by the plaintiff – victim, parish official or some other person, either through direct preferment of an indictment at sessions or through consultation with a justice outside sessions. In the latter, the justice could mediate the dispute informally, offer convictions for certain offences on the spot, or bind the defendant over by recognizance to keep the peace (or similar) and to appear at the next sessions to answer the charge.[49] To ensure compliance, the defendant was joined on the recognizance by two sureties, bound for half the sum of the defendant. They guaranteed that the defendant would satisfy the condition specified by the recognizance.[50]

Assuming the plaintiff did not opt for an indictment at the outset, how does the use of recognizances sit in relation to the indictment? While historians thought for some time that recognizances were peripheral in the study of the crime, as a mere prelude to trial by indictment, it is now accepted that recognizances were much more significant. Defendants were often bound over to ensure their appearance in court to enter a plea to an indictment, but, as Robert Shoemaker has argued

[46] Norma Landau, *The Justices of the Peace 1679–1760* (Berkeley: University of California Press, 1984), pp. 6–7.
[47] Shoemaker, *Prosecution and Punishment*, pp. 19–20.
[48] Landau, *Justices of the Peace*, pp. 7–8.
[49] Less frequently, the prosecutor was also bound over.
[50] Shoemaker, *Prosecution and Punishment*, p. 106, who notes that otherwise the sums in which the defendant and sureties were bound – usually £10–£50 per person – became debts to the crown.

in his study of Middlesex Quarter Sessions, 'recognizances were much more frequently used as an alternative to filing an indictment.'[51]

Recognizances were used for a wide range of primarily minor offences. The most common was offences against the peace. Recognizances 'for the peace', along with the not-altogether-different term 'for good behaviour', could bind over people suspected or with the inclination of committing an array of offences. In many cases in Kent, the precise transgression in question was left undetailed.[52] The same was found by Shoemaker for Middlesex, who also notes William Blackstone's *Commentaries on the Laws of England* (1765–69), which state preventing crimes was the primary purpose.[53] Over two-thirds of recognizances sampled by Shoemaker were to 'keep the peace'.[54] Other major categories in Kent were felony, assault and bastardy. For instance, a recognizance from July 1606 required that Richard Bortiboys of Sevenoaks, a cook, 'to appear and answer charges of being a common fisher in the river about the little Park of Otford'. It is clear recognizances covered a wide range of transgressions, but, crucially, they could be used in cases where the prosecutor was merely suspicious of the defendant's demeanour and, therefore, had a universality which other less flexible legal tools lacked. One case from the 1602 West Kent Quarter Sessions captures this well; John Moary of Bromley, clothworker, was bound, in £20, 'to be of good behaviour' for being 'a person of evil demeanour, a common quarreler, a common drunkard, a common slanderer of honest persons'.[55]

The prosecution of misdemeanours was largely left to the public. One study of theft and assault cases in Staffordshire in the second half of the eighteenth century revealed that only 13 percent of prosecutions were brought by public officials.[56] Peter King noted that between 1740 and 1820 officials took responsibility for prosecutions involving property appropriation 'in very exceptional

[51] Ibid., p. 95. In his sample, two-thirds of all recognizances were issued against defendants who were never indicted for the crime.
[52] See, for instance, QM/SRc/1612.
[53] Shoemaker, *Prosecution and Punishment*, pp. 100, 55. As for processing directly to an indictment, this came with the disadvantage of having to gain approval by the grand jury.
[54] Ibid., p. 55.
[55] 'Keep the peace' was often the whole and only description; see, for instance, QM/SRc/1606.
[56] D. Hay and F. Snyder, *Policing and Prosecution in Britain 1750–1850* (Oxford: Oxford University Press, 1989), pp. 21–23.

circumstances'.[57] Shoemaker's study of Middlesex Quarter Sessions shows that private individuals were mostly victims of the offences prosecuted, while private prosecutors constituted most of the prosecutors of recognizances and indictments.[58]

Recognizances' very strength – flexibility – presents a problem. The ability to settle outside the court was an attraction to users of this legal tool. In Shoemaker's Middlesex sample, 62% of the defendants bound over by recognizance were exonerated and discharged when they appeared at Quarter Sessions.[59] King found that while a minority of those bound by recognizance to prosecute at Essex Quarter Sessions between 1760 and 1800 settled out of court, a potential issue arises if, as might be expected, 'a higher proportion of lower-status prosecutors dropped out at this stage.'[60] Shoemaker suggests that rural justices may have been less conscientious in returning those recognizances agreed outside of court.[61] In her examination of late seventeenth- and eighteenth-century Kent Quarter Sessions, Norma Landau notes the prevalence of recognizances 'concordantur' – justices tagged recognizances as 'concordantur' if the parties settled before sessions – implying that Kentish justices had made a practice of releasing recognizances but returning the documents to Quarter Sessions for the record. The proportion of recognizances released by Blackheath justices was substantial, especially in contrast to rural justices. If Kent's urban population was using their justices as 'institutions conveniently provided by the state for the settlement of their quarrels', that rural justices issued so few recognizances concordantur 'questions the nature and even the existence of rural judicial arbitration'.[62] Urban bias is displayed in my own dataset, but, as Landau admits, the real dearth of rural recognizances was concentrated in the mid-eighteenth century, rather than the early eighteenth century. This is fortunate for my study, which draws on recognizances from the latter.

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[57] P. King, *Crime, Justice and Discretion in England 1740–1820* (Oxford: Oxford University Press, 2000), pp. 17–22.
[58] Shoemaker, *Prosecution and Punishment*, pp. 216–217.
[59] Ibid., 102.
[60] P. King, 'Punishing assault: The transformation of attitudes in the English courts', *Journal of Interdisciplinary History*, 27 (1996), p. 55, footnote 13.
[61] Shoemaker, *Prosecution and Punishment*, p. 105.
[62] Landau, *Justices of the Peace*, pp. 188, 261, also notes a decline in the number of justices attending Quarter Session by mid-century (41 percent never attended by the 1740s).

Representativeness of Quarter Sessions sources

How socially-representative were recognizances? They covered a broad range of crimes and were not exclusive of any section of male society, unlike indictments. Indictments have been questioned by historians as Cockburn and Styles for inaccurately reporting occupational information. Styles suggests recognizances, particularly involving bastardy, were more representative of the population than other legal sources.[63] King's study of late eighteenth-century Essex Quarter Sessions contrasted the occupationally-rich recognizances for prosecutors with indictments of the accused; the latter suffered, post-1750, from the adoption of the normal assizes' practice of using the three stereotyped terms, labourer, yeoman and gentleman.[64] The occupations of women were hardly ever recorded in either source; their marital status was generally provided instead.

Glennie pointed to the potential of using recognizances to reconstruct male occupations.[65] Other historians before him experimented with the idea, albeit using other parts of Quarter Session material too. In his history of industrialisation in the Midlands, Court drew on a list of persons appearing before Worcestershire Quarter Sessions between 1591 and 1643; with nearly 130 different callings, it usefully demonstrated the division of labour. He surmised that there 'seems no good reason for thinking that any one group of Worcestershire trademen or workers was more subject to legal process than others.'[66] Rowlands used occupations from testamentary evidence and the Calendar of Staffordshire papers.[67] Legal historians also utilise Quarter Sessions and generally agree with economic historians regarding representativeness, though an earlier paper by King examining Essex property theft found over 70 percent of prosecutions were against labourers, a group who represented

[63] J. S. Cockburn, 'Early-modern assize records as historical evidence', *Journal of the Society of Archivists* 5 (1975), pp. 215–231; John Styles, *The Dress of the People: Everyday fashion in eighteenth-century England* (New Haven: Yale University Press, 2007), p. 329.
[64] King, 'Punishing Assault', pp. 55–57.
[65] Paul Glennie, *Distinguishing Men's Trades: Occupational Sources and Debates for Pre-census England* (Bristol: Institute of British Geographers, 1990), pp. 39–42.
[66] W.H.B. Court, *The Rise of the Midland Industries, 1600–1838*, (Oxford: Oxford University Press, 1938), pp. 25–25, footnotes, however admitted that this figure 'must not lightly be assumed by analogy to apply to the population of the county'.
[67] Marie B. Rowlands, *Masters and Men in the West Midlands Metalware Trade before the Industrial Revolution* (Manchester, UK: Manchester University Press, 1975), p. 1.

around only 40 percent of the Essex population.[68] J. M. Beattie's study of Surrey Quarter Sessions found that prosecutors covered a substantial swathe of socially-differentiated occupations.[69] Shoemaker's sample of Middlesex recognizances from 1660 to 1775 showed that, apart from the poor, 'the residents of urban Middlesex were equally likely to be prosecuted regardless of their social class'. If limited to felonies alone, the results are different: the accused came disproportionately from the lower classes.[70]

Given their positive results but small samples (for short periods), there is a case for larger datasets than these histories amassed. The Cambridge Group has made significant steps in this direction. The theses of Sugden and Rudnicki are the largest systematic studies of English occupational structure using recognizances published. Sugden focused on Norwich, while Rudnicki amassed data for Cheshire and Lancashire. Sugden's sample of 1,864 Norwich Quarter Sessions recognizances was biased towards shopkeepers, innkeepers and labourers. 'Whether prosecutor, accused or a payer of a surety, the secondary sector was consistently under-reported and the tertiary sector over-reported in comparison to those recorded in baptism registers.'[71] Rudnicki used a pre-existing database of 75,124 male occupational observations and transcribed a second distinct set of recognizances himself containing 12,975 observations. Various biases were found. The data collected was disproportionately urban-based relative to the parish register data.[72] There were 'minor biases towards and against different occupational groups'. The primary and tertiary sectors exhibited erratic behaviour, but the secondary sector excluding textiles was 'always slightly underestimated'. Labourers were well-represented in crime cases early in the eighteenth century, but less so thereafter.[73] Overall, unlike urban-rural bias, Rudnicki writes that 'the direction and magnitude of

[68] Peter King, 'Decision-Makers and Decision-Making in the English Criminal Law, 1750–1800', *Historical Journal* 27 (1984), pp. 25–58. Note that in terms of prosecutors, yeomen were slightly overrepresented to the detriment of labourers.
[69] J.M. Beattie, *Crime and the Courts in England, 1660–1800* (Princeton: Princeton University Press, 1986), p. 193, observed occupations of prosecutors from 438 recognizances between 1743 and 1790.
[70] Shoemaker, *Prosecution and Punishment*, pp. 202–203.
[71] Sugden, 'Occupational analysis of the worsted industry', p. 207.
[72] Rudnicki, 'Occupational structure of northwest England', p. 21. It was possible to reweight the data to counter this effect.
[73] Ibid., 27.

these [occupational] biases are not consistent enough over time to apply a rigid set of corrections to the data.'[74]

Rudnicki, noting that the Quarter Sessions were a low-level court in a largely informal justice system, admits that JPs had wide 'latitude to deal with indiscretion and disagreement, which resulted in large differences across time and space in the biases and number of recognizances issued'.[75] Likewise, Landau has shown for Kent that Quarter Sessions' surveillance of minor offenders declined between 1700 and 1750, as the power of Kent's Quarter Sessions to chastise such criminals was applied to a diminishing number of complaints.[76] The rural populace became increasingly averse to using judicial aid in the resolution of disputes. Fewer recognizances were returned to mid eighteenth-century Quarter Sessions than to early eighteenth-century Quarter Sessions for this reason.[77] Nevertheless, as Landau's use of them itself testifies, recognizances are a valuable source. Their wide usage, consistent terminology and large quantity distinguishes them from other sources in English legal history, and, from an economic historian's perspective, constitute a useful dataset. Landau implies in the seventeenth and early eighteenth centuries they covered a broad spectrum of the population. Rudnicki points out recognizances *correctly* capture the reasonable range of possibilities for the size of the various sectors and, where comparison is possible, the means are close to those of the parish registers.[78]

Composition of the dataset

The dataset was compiled using West Kent Quarter Sessions recognizances held at the Kent History and Library Centre in Maidstone.[79] 4,181 observations were recorded for the years 1601 to 1618 inclusive. 943 observations were recorded for the early eighteenth century (between 1702 and 1732).

[74] Ibid., 38.
[75] Ibid., 32.
[76] Landau, *Justices of the Peace*, 244-45.
[77] Ibid., 194.
[78] Rudnicki, 'Occupational structure of northwest England', p. 32.
[79] The East Kent Sessions only rarely seem to have recorded occupations; note that the West Kent sessions met at Maidstone at Easter and Michaelmas; sometimes they met more frequently.

432 observations were made for the years 1802 and 1805. 361 observations were collected for Maidstone, circa 1795.[80]

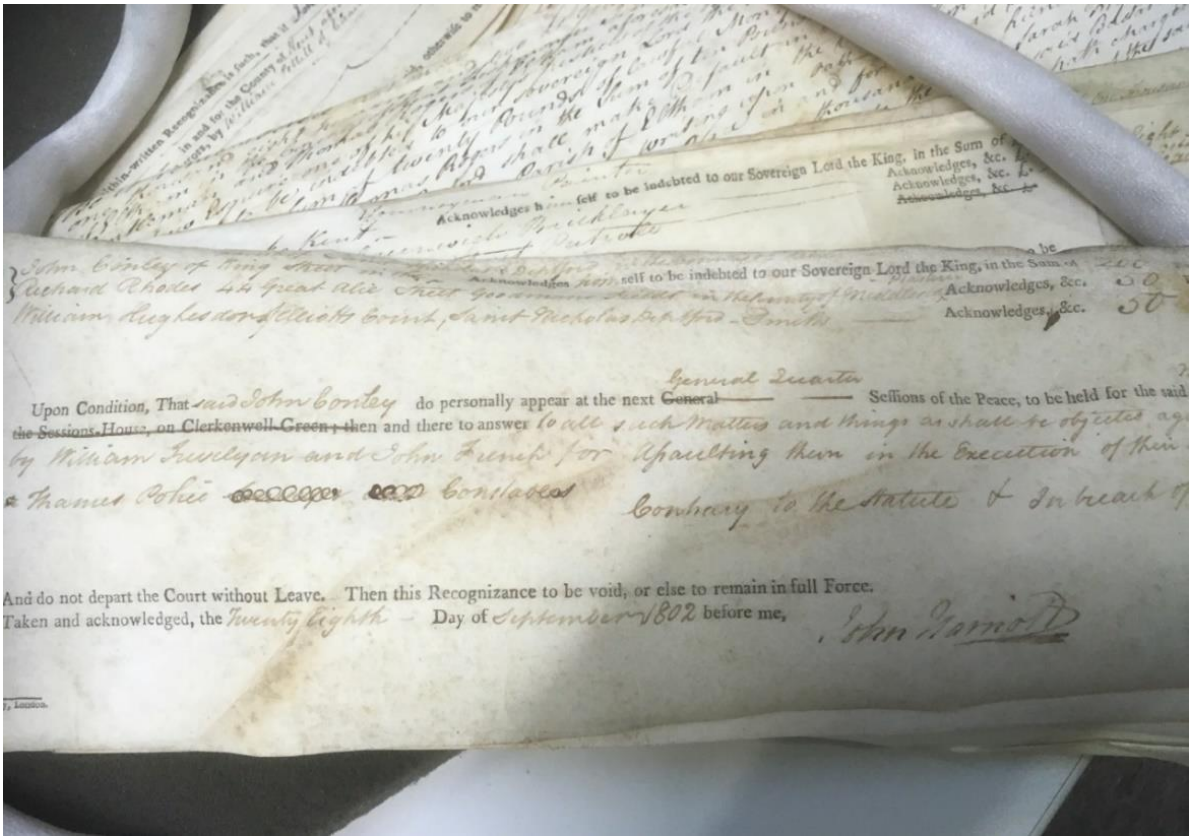
Quarter Sessions records were kept in Order books, which summarised those in attendance and the business conducted. Additionally, there are the sessions papers, containing depositions, petitions and so forth. Separately were the sessions rolls. Then followed indictment and recognizance rolls. Unlike indictments, the recognizances have survived in poor condition.[81] Although time-consuming to transcribe, they are discernible.[82] Several thousand recognizances survive for both centuries, though the eighteenth century brought challenges to their consistency with their absorption into the indictment rolls from Easter Sessions 1733. The recognizance rolls by c.1800 were found to be less paleographically challenging: a standardised printed format using typeface was used by a large number of justices (Figure 2.1).

The observation totals required modification to turn into a consistent dataset. First, the same individuals were occasionally repeated in the recognizances and were generally removed. Their presence seems unlikely to have affected my overall findings, concerned as they are with proportions rather than absolute totals.[83] Second, it was necessary to remove any persons without occupations, including women. Third, to make the database comparable with other work, I linked the occupations to the occupational coding system developed and used by the Cambridge Group. The Primary-Secondary-Tertiary (PST) system devised by Wrigley and others was used to categorise the spectrum

[80] An additional 60 observations were collected for Folkestone, circa 1790, but there has not been space to examine this data properly; it is skewed towards mariners, in any case.
[81] For further detail, visit: http://www.kentarchives.org.uk/CalmView (accessed February 2017); note that the individual records are loose. Also see Felix Hull, *Guide to the Kent County Archives* (Maidstone: Kent County Council, 1958).
[82] Multiple trips to Maidstone over the course of six months were necessary to compile the overall dataset; the condition of the source material was mixed.
[83] This was done for the smaller datasets (c.1715 and c.1803) and was a relatively straightforward task, since individuals with the same name, place of residence and occupation were rare. A further cross-check concerned commonly-named men, who might in fact share the above details but be different individuals (as revealed in the detail of the recognizance). It was not applied to the large c.1610 dataset, however, because repeats were negligible.

of occupations thrown up by the recognizances.[84] This enables comparison with other Cambridge Group data and fits into a growing universe of international data.[85]

Figure 2.1. Photograph of a recognizance roll from the 1802 West Kent Quarter Sessions



The next step is to establish the representativeness of the recognizances in a more systematic way than has previously been attempted. Crucially, there is a significant amount of occupational data that *is* reliable for these periods. The Cambridge Group's exploitation of parish baptism registers has provided occupational information both on a scale previously unheard of and largely without bias – the parish registers' coverage of the parish population was very comprehensive.[86] This data has been

[84] See the Occupational Structure of Britain project website: 'Occupational coding – the PST system' [http://www.geog.cam.ac.uk/research/projects/occupations/britain19c/pst.html, accessed 2 January 2017] and the paper by Wrigley, 'The PST system of classifying occupations' there.
[85] Osamu Saito and Leigh Shaw-Taylor, *Occupational structure and industrialization in a comparative perspective* (Forthcoming).
[86] 1695-1729ParishregisterOccupationsDatabase.mbd; The Cambridge Group for the History of Population and Social Structure; 1740-1820Parish RegisterOccupationsDatabase.mdb, The Cambridge Group for the History of Population and Social Structure. P. M. Kitson, L. Shaw-Taylor, E. A. Wrigley, R. S. Davies, G. Newton, and A.E.M. Satchell, 'The Creation of a "Census" of Adult Male Employment for England and Wales for 1817', Cambridge Working Papers in Economic and Social History, 4 (2012), [http://www.econsoc.hist.cam.ac.uk/docs/CWPESH%20number%204%20March%202012.pdf, accessed March 2017].

joined by Keibek's large dataset built on probate evidence, which is helpful because the parish register data for the early eighteenth century is scattered – constituting an unrepresentative sample at the county-level – whereas the probate evidence is geographically quite ubiquitous. I will now compare the Kent recognizance data with these two alternative types of evidence.

Representativeness

Beginning with the most limited recognizance data, we can compare the recognizances c.1803 with the parish register data c.1817 (Table 2.1).[87] Only 289 individual occupational observations were gathered from these years, so their representativeness at the West Kent county division level is limited.[88] Since those parishes that were part of the London metropolitan zone constitute over two-fifths of the sample, the data has been split accordingly into 'London parishes' and the rest of West Kent. In looking at the nineteenth-century data, the main point is that the cross-section of occupational structure is illustrative of a broad part of society. There is an encouraging fit for the secondary sector comparison. The primary sector would be expected to be larger c.1803. It is in the tertiary sector and with labourers that the discrepancy between the sources arises, though the recognizances seem to capture the reasonable range of possibilities.

The Blackheath comparison, which essentially compares the same parishes across the source types, reinforces this impression. Here, the size of each sector, as well as labourers, closely match-up with the baptism data. Expectedly, given Blackheath's absorption into London, the secondary and tertiary sectors account for over 80 percent of the occupations listed.

[87] Q/SI/W445–446 (Kent Archives) (West Kent Sessions, 1802) and Q/SI/W456–459 (Kent Archives) (West Kent Sessions, 1805 to 1806).
[88] That said, Rudnicki, who overall has collected far more data for Lancashire than I have been able to collect for Kent, uses some very small samples of occupations for some dates; for instance, he analysed only 261 occupations for c. 1800 for Lancashire. See Rudnicki, 'Occupational structure of northwest England', p. 42, Table 3.2.

Table 2.1. Comparison of Sources for Early Seventeenth-Century Kent and Early Nineteenth-Century Kent

	Recognizance data Kent c. 1610[89]	*Testamentary data Kent c. 1621*	*Recognizance data West Kent c.1803*[90]	*Baptism data West Kent c.1817*	*Recognizance data Blackheath c.1803*	*Baptism data Blackheath c.1817*
	(%)	*(%)*	*(%)*	*(%)*	*(%)*	*(%)*
Primary	48.1	58.7	17.5	10.7	3.3	4.9
Secondary	30.6	29.6	26.5	26.7	38.2	40.4
Tertiary	11.5	11.8	30.1	17.3	44.7	41.6
Labourers	9.8	*Reallocated*	25.9	45.2	13.8	13.1
	100.0	100.0	100.0	100.0	100.0	100.0
n	*3383*	*1187*	*166*	*44611*	*123*	*13437*

[89] One issue with the 1601–18 dataset is the large number of Bromley recognizances, yielding 152 occupational observations in total. Sir Timothy Lowe, the principal justice of the peace for Bromley, was trained at Lincoln's Inn and his recognizances often have lengthy explanations of the circumstances and of the characters of those bound over, suggesting an usual degree of involvement. For further detail, visit: http://www.kentarchives.org.uk/CalmView (accessed February 2017).

[90] The parishes included in the 'West Kent' division from the baptism data were those in the Lathes of Aylesford and Sutton-at-Hone, as well as the Hundreds of Barclay, Blackbourne, Cranbrook, Rolvenden, Selbrittenden and Tenterden, which generally fell under the supervision of the Maidstone Quarter Sessions. The Hundred of Blackheath, in the Lathe of Sutton-at-Hone, was excluded.

For individual parishes, the recognizances were even more accurate. For early eighteenth-century Deptford, there is an almost exact match between sources (Table 2.4). For Maidstone, there is an encouraging fit in Table 2.2 between the recognizance data for the 1790s and the baptism data for the 1810s.[91] The population of Maidstone doubled from 4,500 to over 9,000 persons between c.1795 and c.1817, so it is worth disaggregating the data into sub-sectors. The ballooning of paper manufacture is plausible given the expansion of paper mills in these decades. In the tertiary sector, the growth of military coincided with the Napoleonic Wars and a new barracks, while the contraction of the share of food, drink and accommodation services may be explained by the action of town magistrates to reduce the number of licensed premises (increasing inhabitants per licensed house from 126 in 1780 to 265 in 1821).[92] The declining share of the primary sector might appear less rapid than would be expected (with a doubling of population) but can be accounted for by the growth of hop cultivation, market gardening and the intensification of arable production stimulated by the high grain prices during the Napoleonic Wars.[93]

Table 2.1 also compares the 3,383 observational occupations gleaned from the recognizances with the testamentary data of Keibek, who amassed 1,187 observations between 1611 and 1630 for the whole county.[94] The two sources offer remarkably similar estimates of occupational structure. Virtually all of the 9.8 percent labourers constitute can be added to the primary sector.[95] Regarding geographical representativeness, there was a large number of Bromley recognizances in the sample which adds some ballast to Landau's concerns about the disproportionate number of recognizances coming from towns.[96] However, the aggregate results are not significantly affected by this; the rural-urban ratio of observations for c.1610 recognizance data is a plausible 4:1.

[91] Md/JQr4/1/1790–9 (Kent Archives) (Maidstone Sessions, c.1795).
[92] Clark and Murfin, *History of Maidstone*, pp. 84–88.
[93] Gordon Mingay, 'Agriculture', in *The Economy of Kent, 1640–1914*, ed. Alan Armstrong (Woodbridge: Boydell & Brewer, 1995), pp. 68–72; Andrew Hann, *The Medway Valley: A Kent Landscape Transformed* (Chichester: Phillimore & Co., 2009), pp. 11–16; Clark and Murfin, *History of Maidstone*, p. 125.
[94] QM/SRc/1601–1618 (Kent Archives) (West Kent Quarter Sessions, 1601 to 1618).
[95] Keibek, 'Male occupational structure of England and Wales'.
[96] See note to Table 2.1. Landau, *Justices of the Peace*, 189.

Table 2.2. Comparison of Sources for Maidstone, c.1795 and c.1817

	Recognizances	*Baptism registers*	*Recognizances*	*Baptism registers*
	c.1795	*c.1817*	*c.1795*	*c.1817*
Sector	*(%)*	*(%)*	*(Number)*	*(Number)*
Primary	**32.4**	**27.1**	**90**	**1018**
Agriculture	3.9	25.5	86	1012
Other	1.4	0.2	4	6
Secondary	**33.5**	**45.2**	**93**	**1698**
Food and drink	1.1	5.2	3	195
Clothing	1.8	2.5	5	94
Footwear	2.5	4.9	7	185
Textiles	1.1	0.7	3	26
Wood	2.5	2.2	7	81
Paper industry	1.8	8.1	5	304
Iron and steel	2.2	2.5	6	95
Boat and ship building	1.4	0.5	4	20
Building and construction	11.9	11.8	33	445
Other	7.2	6.7	20	253
Tertiary	**34.2**	**27.7**	**95**	**1040**
Dealers and sellers	7.2	4.4	20	167
Food, drink and accommodation services	4.7	2.0	13	74
Miscellaneous service industries	7.9	6.3	22	238
Armed forces	2.5	7.3	7	274
Transport	11.9	7.6	33	287
Labourers	*Reallocated*	*Reallocated*	**71**	**1052**
	100.0	**100.0**	**278**	**3756**

When broken down by crime and group involved, the data displays various biases. The main charge was to 'keep the peace', constituting over half the dataset; Table 2.3 compares the different groups involved in such cases. The victim/accused has a discernible bias towards labourers, which might make sense in the context of the seventeenth-century reformation of manners, as a concerned 'middling sort' wanted to ensure the poorer members of the parish were 'of good behaviour' or 'kept the peace'.[97] Sureties, who were often better off, contained the fewest labourers.[98] Overall, the so-called biases are small for the secondary and tertiary sectors; the relationship between the proportion of labourers and explicitly primary sector occupations explains away most of the turbulence in the figures for these occupations across the different groups.

Finally, I collected a dataset for circa 1715.[99] Various hurdles hindered its evaluation. The aggregates are unrepresentative of the half county as a disproportionate share of the recognizances were from the urbanised northwest.[100] Comparison with baptism data was tricky – only 15 parishes in West Kent were covered.[101] In fact, almost 40 percent of occupational observations came from Deptford. This figure is far too large (see Section III). Since Deptford is the *only* parish for which there is a large quantity of data from both sources, Table 2.4 proceeds by testing the representativeness of the recognizance estimates for this parish alone, and disaggregates the data by charge type.[102] Judged against the baptism estimates, 'misdemeanour' cases deviate substantially more than other crime types for the primary sector and labourers. 'Assault' cases are quite unrepresentative,

[97] Without looking at subsectors, though, it is hard to tell. See Steve Hindle, *The State and Social Change in Early Modern England, 1550–1640* (Basingstoke: Palgrave Macmillan, 2002), pp. 176–203.
[98] Shoemaker, *Prosecution and Punishment*, pp. 106–7.
[99] Q/SRc/W/104, Q/SRc/W/111, Q/SRc/W/112, Q/SRc/W/118, Q/SRc/W/120, Q/SRc/W/121, Q/SRc/W/126, Q/SRc/W/129, Q/SRc/W/134, Q/SRc/W/141, Q/SRc/W/147, Q/SRc/W/151, Q/SRc/W/154, Q/SRc/W/166 (Kent Archives) (West Kent Sessions, c. 1715).
[100] Landau, *Justices of the Peace*, pp. 179–180, notes that by the late seventeenth-century, 'the combination of London's expansion into Lewisham and Deptford and the growth of naval dockyards at Woolwich and Deptford had imparted a distinctive urban character to large portions of the [Blackheath] division', and that the justices of this division were 'called upon to assume magisterial duties more onerous than those of their rural colleagues.'
[101] Note that, if the ratio of 'urban parishes' to 'rural parishes' of these 15 parishes is calculated, it transpires that roughly 53 percent are urban (approx. 2660 observations) and 47 percent are rural (2380 observations).
[102] While 'keep the peace' was the most common charge, there was a wider spread of cases amongst crime types than in c.1610; it made sense to ask whether occupational bias was correlated with the type of charge.

over-representing secondary occupations and labourers, but under-representing the tertiary sector. ‘Keep the peace’ cases are the closest fit with the baptism estimates.

Taken as a whole, the recognizance-datasets make two important points regarding their representativeness. First, sectoral biases existed but were not consistent over time. While the biases could potentially be problematic, they were *not* large. This brings us to the second point: the range of possibilities for the size of each sector for each period seems to have been captured by the recognizances. The data was accurate at the individual parish level for the eighteenth and nineteenth centuries (where such determinations are possible). It was quite accurate at the aggregate level for each period, too, particularly so for the early seventeenth century. The major bias concerned urban-rural ratios.

Table 2.3. Occupational Behaviour of Groups Involved with Recognizances 'To Keep the Peace', c.1610

	All		*Accused*		*Prosecutor*		*Surety/Other*	
	(Number)	*(%)*	(Number)	*(%)*	(Number)	*(%)*	(Number)	*(%)*
Primary	829	*47.5*	291	*40.7*	63	*44.4*	462	*53.6*
Secondary	544	*31.1*	237	*33.1*	47	*33.1*	250	*29.0*
Tertiary	210	*12.0*	79	*11.0*	17	*12.0*	110	*12.8*
Labourers	164	*9.4*	108	*15.1*	15	*10.6*	40	*4.6*
Totals	1747	*100.0*	715	*100.0*	142	*100.0*	862	*100.0*

Table 2.4. Comparison of Sources for Deptford in the Early Eighteenth-Century

	Baptism Registers c.1710		*All Recognizances c.1715*		*Assault*	*Keep the Peace*	*Misdemeanour*
	Number	*(%)*	*Number*	*(%)*	*(%)*	*(%)*	*(%)*
Primary	112	5.7	12	7.7	4.5	2.5	20.0
Secondary	1026	52.5	87	55.8	63.6	52.5	48.9
Tertiary	622	31.8	47	30.1	13.6	33.8	28.9
Labourers	194	9.9	10	6.4	18.2	11.3	2.2
Number of cases	1954		156		22	80	45
Proportion of total cases (%)	100.0		100.0		14.1	51.3	28.8

Section III: Estimating the Occupational Structure of Kent

Sections I and II have made the case that recognizances are amongst the best sources that exist for estimating occupational structure before the nineteenth century. Section III will explain the methodology behind my estimates of occupational structure.

Sample size and geographical bias

Compared to other Home Counties, urbanisation was a prominent feature of Kent's history in the seventeenth and eighteenth centuries. Chalkin has pointed to the laggard development of Sussex in comparison to Kent in this regard. As late as 1750 Sussex only had small market towns and a handful of significant coastal centres. Kentish towns were both greater in size and more numerous than in the other Home Counties. The biggest trading centres were Maidstone and Canterbury, with populations of around 3,700 and 7,500 at the end of the seventeenth-century respectively.[103] The other largest towns, Deptford and Chatham, were primarily made up of dockyards and each numbered roughly 6,000 people, ranking around twentieth in the national urban hierarchy.[104]

In 1700, the county as a whole contained around 160,000 people.[105] 60,000 (40 percent) were in settlements of four hundred people or more – the definition used by Chalkin.[106] This was a rise from 48,000 (30 percent) in 1663–4.[107] Assuming the county was less urbanised in 1610, the recognizance data for the early seventeenth-century reflects the rural-urban ratio quite well: between one-fifth and one-quarter of occupations recorded derived from urban areas. Such a high figure by 1700 is in part

[103] J. Bower, 'The Development of Towns and Markets', in *An Historical Atlas of Kent*, ed. Lawson and Killingray, pp. 66–7; Chalkin, 'The Growth of Urban Kent', in *An Historical Atlas of Kent*, ed. Lawson and Killingray, p. 100.
[104] E. A. Wrigley, 'Urban growth and agricultural change', *Journal of Interdisciplinary History*, 15 (1985), Table 7.1, pp. 160–1.
[105] Wrigley, *Early English Censuses*, Table A2.6. Note that this estimate is larger than previous estimates by historians, notably that conducted by Dobson, who put the population at 150,000: M. Dobson, 'Population 1600–1831', in *The Economy of Kent*, ed. Armstrong, p. 11.
[106] See Chalkin, *Seventeenth-century Kent*.
[107] The Hearth Tax provides information on the number of households (and so, by extrapolation, population). Percentages have been calculated using the figures provided by Chalkin from the Hearth Tax data, with slight modification (since, in some cases, he only provided town populations for a later date than 1663–4). Chalkin, 206. The following places were deemed towns: Ashford, Bromley, Canterbury, Chatham, Cranbrook, Dartford, Deal, Deptford, Dover, Faversham, Folkestone, Gravesend, Greenwich, Maidstone, Margate, Milton, Rochester, Sandwich, Sevenoaks, Tonbridge, West Malling, Westerham, Woolwich. Also see Dobson, 'Population 1600–1831', p. 11.

explained by the inevitably hazy definition of a town. 'In the main', Supple remarked of the seventeenth-century, 'Englishmen inhabited the countryside or the large villages which passed for towns, and whose principal economic role lay not in manufacturing but in finishing and distributing, in marketing and arranging supplies of food and raw materials.'[108] Even so, as elaborated below, the bounty of small towns was key to Kent's integration as an economic area, as 'urban growth undermined local self-sufficiency and in so doing increased secondary and tertiary employment.'[109]

Judging by new numbers from Wrigley, at least 55 percent of the population of the county was living in West Kent in the middle of the eighteenth century.[110] Approximately 88,000 lived in West Kent in 1700.[111] Of these, it can be estimated that over 35 percent lived in those settlements deemed towns by Chalkin.[112] The recognizances c.1715 contain an urban bias: 56.8 percent of the observations recorded were from Chalkin's list of towns.[113] Reweighting the data according to the urban-rural ratio is complicated by the small size of the dataset and the large size of Deptford in the sample. The estimates later in this Section instead split-up the data geographically.[114]

On sample size, it is worth noting the work of Wrigley and Schofield, who, through their reconstitution of the demographic structure of 26 parishes in 1831, suggest that 23 percent of the

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[108] B. Supple, *Commercial Crisis and Change in England 1600–1642* (Cambridge: Cambridge University Press, 1959), p. 2.
[109] Wrigley, *The Path to Sustained Growth*, p. 74.
[110] Wrigley, *The Early English Censuses*, Table A2.7. In 1761, the combined population of the lathes of Aylesford, Scray, Shepway, St Augustine and Sutton at Hone (including Woolwich, Deptford and Greenwich) was estimated at 184,597 persons. This figure excludes six towns, which bring the total for the county to 212,126: Canterbury City (5,261), Chatham and Rochester (12,150), Dover Town (4,775), Maidstone Borough (3,335) and Sandwich Town (2,008). Once Maidstone, Chatham and Rochester are added to West Kent and the other towns to East Kent, the proportion of the population in West Kent stays largely the same, at 55.1 percent. Around a third of the population of the lathe of Scray (around 13,000) should be included in the West Kent total, since the West Kent Quarter Sessions covered part of this lathe. This modification means around 130,000 people lived in West Kent, 60 percent of the county total.
[111] Applying the 55 per cent lower bound of the 1761 population distribution figures to the population in 1700.
[112] Chalkin, 'Towns', 206. This is a similar figure to the proportion Chalkin estimated for the whole of Kent. His estimates for towns in the period 1663–4 to c. 1700 were used. These estimates were for settlements of 400 persons or more and were as follows: Deptford, 6,625; Chatham, 5,000; Greenwich, 4,641; Maidstone, 3,676; Rochester, 2,999; Dartford, 1,279; Gravesend, 1,279; Cranbrook, 1,215; Woolwich, 1,130; Sevenoaks, 891; Tonbridge, 586; Westerham, 684; Bromley, 437; West Malling, 501; Tunbridge Wells, 450. In sum: 31,393 persons in 15 towns. This is an under-estimation of the real c. 1700 total, given the c.1663–4 data.
[113] With the absence of Tunbridge Wells and Rochester.
[114] County-level estimates are not particularly useful due to the geographical contrasts that widened over the seventeenth-century: London's growth gave northern Kent a strikingly different character to the rural southern and eastern parts of the county, as Landau, *Justices of the Peace*, pp. 179–180 notes.

population were males aged 20 and over.[115] If we assume that this proportion was roughly constant over time, then further comment on the representativeness of the recognizances can be made. For the c.1610 dataset, there were 3,383 observational occupations. Assuming 23 percent of the 130,000 persons in the county were males over 20 years of age – approximately 30,000 men – then the recognizances capture roughly 10 percent of the male workforce at this date. For the c.1715 dataset, if 88,000 people lived in West Kent c.1700, the male workforce numbered approximately 20,000 and so the recognizances capture almost 5 percent. (For Deptford and Greenwich, they cover over 15 percent.) For the c.1803 dataset, for Blackheath only, recognizances cover around 1 percent of the workforce.[116]

The allocation of labourers

It appears that recognizances as a source, at least for Kent, are liable to under-represent labourers. A 'labourer' could be in either the primary, secondary or transport sector. This is not a greatly disabling problem since most of my data is for the early seventeenth-century, when almost all labourers worked in agriculture. Nevertheless, Kent was reasonably industrial, so labourers are problematic. Various means of allocating labourers exist. Saito and Shaw-Taylor have devised a method for allocating labourers in national-level data, but not for county-level estimates.[117] Keibek has recently developed an alternative, superior method. His regression model estimates the allocation of labourers into the three sectors according to such relevant factors as the size of occupational groups in the raw data, the elevation of land and farm size in a given area.[118] This is the method used here.

The impact of by-employment

A final hurdle is that recognizances almost always record only a single occupation for each man. It was not uncommon to have more than one occupation. For the 1601–18 recognizances, three such men were recorded: a 'clothier and husbandman', a 'yeoman and husbandman' and a 'brewer &

[115] E. A. Wrigley, R. S. Davies, J. E. Oeppen and R. S. Schofield, *English population history from family reconstitution 1580-1837* (Cambridge: Cambridge University Press, 2005 edn.), pp. 42–50.
[116] For c.1803, it is not necessary to use the reconstitution figure because the parish register data can be compared with directly.
[117] This method is used in Shaw-Taylor and Wrigley, 'Occupational structure and population change', p. 60.
[118] Keibek, 'Male occupational structure of England and Wales'.

borsholder of Bromley'.[119] Other evidence suggests the incidence of by-employment in early-modern England was substantial. Thirsk viewed the combination of farming with industrial by-employments as a 'principal characteristic of all pastoral economies throughout England'.[120] By-employments helped sustain the large population in the Weald.[121] Some Wealden dairymen were part-time cloth weavers.[122]

An important approach has been to use probate inventories, which Everitt pioneered.[123] Overton, Whittle, Dean and Hann have used descriptions of goods in probate inventories to conduct systematic analysis, though their data includes both sexes. They argue that there was a fall in the level of by-employment in Kent from the 1720s onwards, but for the preceding hundred years around half the inventories indicating commercial production displayed evidence of two or more production activities.[124] However, they rightly acknowledge that their 'methods introduce some distortions'. It is likely the extent of by-employment among farmers is exaggerated. Farmers were often involved activities necessary to maintain their farming operations that could also be associated with other occupations and Wrigley has noted the possibility that when aggregated these activities may have cancelled each other out.[125]

Recently, Keibek and Shaw-Taylor argued the 'probate record exaggerates by-employment incidence amongst farmers and rural manufacturers by a factor of two or three' because those men that were by-employed were more likely to be probated because of their additional wealth.[126] The

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[119] A 'borsholder' may have been a parish constable. See https://www.merriam-webster.com/dictionary/borsholder (accessed March 2017).
[120] J. Thirsk, 'The Fantastical Folly of Fashion', in J. Thirsk, *The Rural Economy of England: Collected Essays* (London: Hambledon Press, 1984), p. 247.
[121] J. Thirsk, *Agricultural Regions and Agrarian History in England* (London: Macmillan, 1987), pp. 28–9. By-employments in ironworking and clothmaking were important factors underlying the large populations and small size of arable holdings in the Weald.
[122] J. Thirsk, 'The Farming Regions of England', in *The Agrarian History of England and Wales*, vol. iv, ed. J. Thirsk (Cambridge: Cambridge University Press, 1967), p. 58. The clothiers' storehouses contained large quantities of cheese and cloth.
[123] A. Everitt, 'Farm Labourers', in *The Agrarian History of England and Wales*, vol. iv, ed. J. Thirsk, pp. 428–29.
[124] M. Overton, J. Whittle, D. Dean, and A. Hann, *Production and Consumption in English Households* (London: Routledge, 2004), p. 66, who add that if spinning is included, the figure is around 70 percent.
[125] Overton et al., *Production and consumption in English households*, p. 69; Wrigley, 'The PST system of classifying occupations', p. 3.
[126] S. A. J. Keibek and L. Shaw-Taylor, 'Early modern rural by-employments: a re-examination of the probate inventory evidence', *Agricultural History Review*, 61 (2013), p. 27.

probate information could chart the declining incidence of by-employment, but this has not been attempted in the historiography.[127] Keibek and Shaw-Taylor are persuasive in their use of occupational data from parish registers and estimates of contemporary livestock numbers to show that by-employment has been over-estimated; given this, and in the absence of a clear means of quantitatively reweighting the recognizance data, by-employment is *unlikely* to greatly affect the overall conclusions here.

[127] Overton et al., *Production and Consumption*, make some headway in this direction, but to my knowledge, oddly no historian seems to have systematically attempted to chart any decline in this way.

Section IV: The Early Seventeenth Century

We can now turn to a detailed sectoral and sub-sectoral analysis of the occupational data. Since there is more data for the early seventeenth century – the period we know least about – this Section examines it in depth. I will examine change over time in Section V.

Over 3,000 observations were compiled from the records of the West Kent Quarter Sessions (covering, unlike later data, the *whole* county). The overall raw data produced a very plausible occupational structure, which is summarised in Table 4.1.

Table 4.1. Male Occupational Data for the Whole of Kent, c.1610 and c.1621

Sector	*Recognizance data c. 1610 (Number)*	*Recognizance data c. 1610 (%)*	*Testamentary data c. 1621 (%)*
Primary	**1626**	**56.0**	**58.7**
Agriculture	1608	55.5	56.6
Other	18	0.5	2.1
Secondary	**1036**	**32.4**	**29.6**
Food and drink	182	5.4	N/A
Clothing	171	5.1	1.8
Footwear	69	2.0	0.6
Textiles	245	7.2	6.3
Metals	88	2.6	3.1
Building	134	4.6	3.9
Other	147	5.5	13.9
Tertiary	**389**	**11.6**	**11.8**
Dealers and sellers	76	2.2	2.3
Services and professions	285	8.4	4.0
Transport	28	0.9	5.5
Labourers	**332**	*Reallocated*	*Reallocated*
	3383	**100.0**	**100.0**
		n = 3383	***n = 1187***

This is strikingly similar to the male labour shares estimated by Keibek (shown in the final column). His results suggest 58.7 percent of the workforce was in the primary sector in 1621. Since most labourers worked in the primary sector at this point, the recognizance results for this sector are in line with Keibek's figures, which are based on a sample one-third as large. The testamentary evidence puts the secondary and tertiary sectors at 29.6 and 11.8 percent respectively, both of which

fit very closely with the recognizance data. At the sub-sectoral level, there is more divergence. Within the secondary sector, clothing is 3.3 percentage points larger as a sub-sector than it is in the testamentary evidence, while footwear is three times as large.[128] Textiles, metals and building are similar in each source. The tertiary sub-sectors show some divergence. 4.0 percent of the workforce were in services and professions according to testamentary records; the recognizances return twice as many. This is at the expense of transport, which is one-sixth of the probate figure for 1621.[129]

The aggregate figures suggest that Kent was markedly industrial. If a century later 37 percent of English males worked in secondary occupations, Kent was only 7 percentage points behind this number around 1610.[130] Another arresting feature is the large proportion employed in textiles (7.2 percent). This is larger than Keibek's figure of 6.3 percent for 1621 – many historians suggest textiles, at least in the Weald, peaked in Kent at the start of the century before slowly declining thereafter.[131] Supple notes the disruption of foreign markets beginning in 1614–16.[132] Much discussion of the Wealden industry revolves around its 'proto-industrial' character: the 'region's industries were oriented to the external world' and the 'marked spatial and sectoral specialisation' evident was a consequence of this.[133] Ironmaking was the other major such industry, but was especially active in the Central Weald. The spatial aspect will be addressed below.

Food and drink, clothing, and building each constituted 5 percent of the overall labour force and were the other significant industries at this date. The shares of food and drink are higher than in most counties – perhaps explained, as Coleman has observed, by London's proximity which had the effect of elevating wage rates in much of Kent – but not by any great margin.[134] The income elasticity of demand for the essential goods they produced was relatively low and they were not traded over

[128] Considering how essential footwear was, this is in fact a more plausible figure.
[129] Keibek, 'Male occupational structure of England and Wales', Appendix B.18. It is three-tenths of Keibek's 1601 figure.
[130] Shaw-Taylor and Wrigley, 'Occupational structure', Table 2.2, p. 59.
[131] D. Ormrod, 'Industry: 1640–1800', p. 86; Chalkin, *Seventeenth-century Kent*; Michael Zell, *Industry in the Countryside: Wealden Society in the Sixteenth-century* (Cambridge: Cambridge University Press, 1994).
[132] Supple, *Commercial crisis*, chs. 1-5.
[133] Short, 'De-industrialisation of the Weald', 174.
[134] D. C. Coleman's PhD thesis: cited in Ormrod, 'Industry 1640–1800', p. 106. Wages seem not to have been counterproductively high in the early seventeenth-century: Ormrod, 'Industry 1640–1800', p. 94.

large distances c.1610.[135] Along the income elasticity spectrum, the relatively large size of the building industry may be taken as a sign of Kent's precociousness in England's transition to an 'advanced organic economy', outlined in the Introduction. While most builders constructed houses and farms, Wrigley's observation that only areas of higher population density – a concomitant of a large secondary sector – could justify certain types of capital investment, like roads, might be noted as regards Kent's development at this date, especially since transport investment was vital for integration.[136] Chartres analysed Taylor's 1637 volume *The Carriers Cosmography*, a guide to carrier and coach service from London, and concluded that Kent, with ten services per week in 1636, was better provided for than Surrey with eight.[137] Keibek's testamentary data suggests a figure of 5.5 percent for this subsector; the recognizances likely under-estimate it.

Kent's economic geography, c.1610

How did this evidence of (advanced) division of labour play out spatially? Economic activity in highly-agricultural counties was 'necessarily widely dispersed given the nature of farming', but in Kent was markedly more developed.[138] Rudnicki argued that the high density of recognizance observations per parish allows the mapping of 'economic geography with a much higher degree of detail and precision . . . than has hitherto been possible.' While the number of observations for Kent is smaller – my 1601–18 dataset is about half as large as Rudnicki's 1774–1782 dataset – they likely represent one-tenth of the male workforce.[139] Figure 4.1 shows their geographical distribution roughly reflects population distribution in the county; the major parishes are labelled.[140] Analysed by lathe, the

[135] For a county like Kent where, given the relative sophistication of occupational structure, there was greater aggregate demand for all goods and services – a result of relatively higher incomes – the relatively large share of the labour force in food, drink and clothing seems plausible. See Wrigley, *Path to sustained growth*, pp. 75-83 for a discussion of income elasticity, wages and occupational structure.
[136] Wrigley, *Energy and the English Industrial Revolution*, p. 18.
[137] J. A. Chartres, 'Road Carrying in England in the Seventeenth Century: Myth and Reality', *Economic History Review* 30 (1977), pp. 73–94.
[138] E. A. Wrigley, 'The region as a unit of study; history and geography in harmony', *Romanian Journal of Population Studies* (2013), p. 111.
[139] Rudnicki, 'Occupational structure of northwest England', p. 72.
[140] Cartography courtesy of Keith Sugden, University of Cambridge. The map is constructed from boundary data created initially by Kain and Oliver and subsequently modified by the Cambridge Group for the History of Population and Social Structure, University of Cambridge. See A. E. M. Satchel, P. M. K. Kitson, G. H. Newton, L. Shaw-Taylor, and E. A. Wrigley, *1851 England and Wales census parishes, townships and places* (2006), Cambridge Group for the History of Population and Social Structure, University of Cambridge, dataset created with funding from the ESRC (RES-000-23-1579), the Leverhulme Trust and the British Academy. A

distribution is as follows: 18.8 percent from Aylesford; 34.0 percent from Scray; 4.5 percent from Shepway; 14.9 percent from St. Augustine's; and 27.8 percent from Sutton-at-Hone. This broadly reflects the distribution of population in the county.[141]

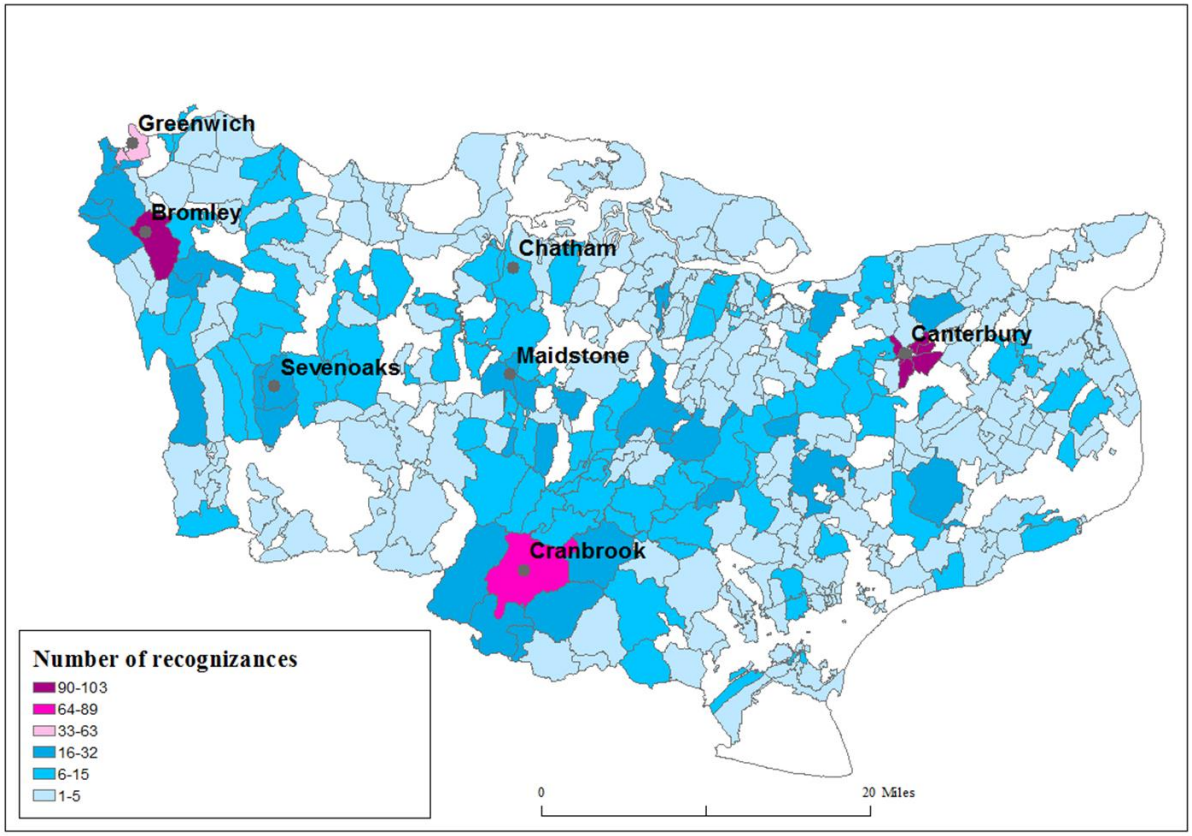
While primary occupations were widespread geographically, there was a clustering of various predominantly secondary-oriented parishes. The Wealden parishes of Cranbrook, Biddenden, Hawkhust and Goudhurst and to a lesser extent those of Sutton Valence and Leeds slightly further north, represent a significant proportion of secondary occupations in the county as whole, rivalled only by Canterbury in East Kent and the metropolitan parishes in West Kent in absolute numbers employed. This confirms much of what the existing historiography has suspected, but not been able to quantify in absolute (or percentage) terms.[142] There were secondary occupations in most hundreds in the recognizance sample, presumably manufacturing items that are closer in function to necessities than the proto-industrial areas. The tertiary sector was naturally largest in towns. Expressed in percentage terms by parish, there is not significant divergence from one town to another in the proportion of tertiary occupations.

description of the dataset can be found in A. E. M. Satchell, *England and Wales census parishes, townships and places: documentation* (2006, 2015). It is an enhanced and corrected version of N. Burton, J. Westwood J, and P. Carter, GIS of the ancient parishes of England and Wales, 1500-1850 (Colchester, Essex: UK Data Archive, May 2004), SN: 4828, which is a GIS version of R. J. P. Kain, and R. R. Oliver, *Historic parishes of England and Wales: An electronic map of boundaries before 1850 with a gazetteer and metadata* (Colchester, Essex: UK Data Archive, May, 2001), SN: 4348.

[141] Aylesford and Scray, the central lathes, contained the densely-populated areas in the north-central belt between Sittingborne and Faversham and south to Maidstone and the Weald (Cranbrook) and southeast to Ashford, while Sutton-at-Hone, the western lathe, contained the London-influenced hundred of Blackheath: Lawson, 'The Hearth Tax Data', in Lawson and Killingray, eds., *Atlas*, 65.

[142] As will be examined below, the historiography on the Weald is voluminous compared to the rest of Kent. See Zell, *Industry in the Countryside*; Brian Short, 'The De-industrialisation Process'.

Figure 4.1. Distribution of Recognizances, c.1610



Roughly 60 percent of those recorded as working in textiles hailed from the Central Weald or surrounding hundreds, and 25 percent came from the parishes of Cranbrook, Benenden and Hawkhurst alone. Less than 5 percent came from Canterbury.[143] The upshot of this was a precociously high population density: the central Weald hundreds (Cranbrook, Barclay and Barnfield) that covered most of the main clothmaking parishes 'shows a region as densely populated as any area in north or east Kent' in the mid-sixteenth-century.[144] Short points to the Compton census of 1676, which recorded a higher population density for the Kentish Wealden clothmaking area than the average for the Canterbury Diocese. Tellingly, though, in the 1660s half of the inhabitants of Cranbrook had been too poor to be included in the Hearth Tax.[145]

Regarding population density, David Ormrod argues that 'one of the conspicuous characteristics of Kent's economy' in this period was 'a relatively mobile labour force'. Even late

[143] Note that the full dataset of recognizances does not under-represent Canterbury.
[144] Zell, *Industry in the countryside*, p. 56.
[145] Short, 'De-industrialisation of the Weald', p. 168.

sixteenth-century workers appear to have been considerably more mobile in Kent than in the Sussex Weald. When Wealden industry declined fifty years later, the Kentish Petition of 1640 made clear the willingness of clothworkers to move.[146] Clark used court records to illustrate how areas of waged-employment, especially towns, were 'besieged' with subsistence migrants in the early seventeenth-century.[147] A parallel might be drawn with Wrigley's recent examination of how England coped with rapid population growth between 1761 and 1851. Population growth was lopsided in this period, as a tenth of the country's hundreds absorbed two-thirds of the population growth, 'a process which implies internal migration on a very large scale as those who could not find gainful employment locally moved to the places in which industry and commerce provided them with the living wage not available in their native parishes.'[148] As Wrigley acknowledges, the annual rate of national population growth was 0.73 percent for 1761 to 1791, 'a high rate by comparison with any earlier comparable period other than the peak years of the Elizabethan growth surge'.[149] In Kent's case, during this earlier surge, the population reached roughly 130,000 in 1603 and had risen to 159,000 by the 1640s (before stagnating for the next fifty years or so).[150] Parishes in the central Kentish Weald were densely populated compared to the eastern two-thirds of Kent in the 1560s.[151]

Disaggregating the recognizance data chronologically to explore male occupational change for Kent between c.1603 and c.1616 suggests there was a substantial rise in the secondary sector's share of employment.[152] Textiles grew by over one-fifth between the two dates. There was a boom in exports precisely during these years: textiles 'enjoyed [their] last boom decade in the years after the

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[146] Ormrod, 'Industry 1640–1800', p. 93, table 1; K. Wrightson, *Earthly Necessities: Economic Lives in Early Modern Britain* (London: Penguin, 2002). See also E. Griffin, *Liberty's Dawn: A People's History of the Industrial Revolution* (Newhaven: Yale University Press, 2012), esp. p. 46, who notes the attraction of cottage industry compared to agricultural work in the Industrial Revolution.
[147] Clark, 'The migrant in Kentish towns 1580–1640', in *Crisis and Order in English Towns 1500-1700*, ed. P. Clark and P. Slack (London: Routledge & Kegan Paul Ltd, 1972), p. 145.
[148] Wrigley, 'Coping with rapid population growth', p. 42.
[149] Wrigley, 'Coping with rapid population growth', p. 39.
[150] Dobson, 'Population 1600–1831', Table 1, p. 11.
[151] Joan Thirsk, 'Industries in the Countryside', in *Essays in the Economic and Social History of Tudor and Stuart England in Honour of Professor R. H. Tawney*, ed. F. J. Fisher (Cambridge: Cambridge University Press, 1961), p. 79 note.
[152] QM/SRc/1601, QM/SRc/1602, QM/SRc/1603, QM/SRc/1604 and QM/SRc/1605 constituted the c. 1603 dataset, while QM/SRc/1614, QM/SRc/1615, QM/SRc/1616, QM/SRc/1617 and QM/SRc/1618 constituted the c. 1616 dataset. Because this breakdown lacks precision and due to space constraints, a table has not been produced here.

1604 peace treaty with Spain'.[153] Was there differential growth in the Weald? Over 40 percent of the c.1603 data for textile occupations derived from the Central Weald parishes; this proportion had risen to over 50 percent by c.1616. While definitive conclusion is impossible, the Wealden data seem to fit Wrigley's 'lopsided growth' scenario – 'a differentially rapid growth in non-agricultural employment, which in turn will cause changes in the geographical distribution of the population.'[154] There is not space to explore this further, but caution should be exercised over using the recognizances in this way: a definitive conclusion for the early seventeenth-century is impossible because the recognizance estimates are affected by changes in the geographical composition of the sample. The actual geographical distribution of the population is unknown for this date, so the recognizances may be over-representing the Wealden parishes (though it is plausible to argue otherwise).[155] Rudnicki, who maps recognizance data at length for Lancashire, admits there is a 'high level of local variation' in his c.1778 data, distorting the economic geography.[156]

Conclusion

The Elizabethan and early Stuart years constitute a discrete period in the county's economic history. An early case of 'coping with rapid population growth', the county was distinctive for its relatively extreme sectoral – and, arguably, spatial – division of labour. Since occupational structure reflects aggregate demand, that almost one-third and around one-tenth of the male workforce worked in the secondary and tertiary sectors respectively marks Kent out as an unusually complex economy. Kent was one of the main textile counties, if not manufacturing counties, in early seventeenth-century England, with production for non-local markets likely larger than the national average.[157] The recognizances essentially support Chalkin's contention that 15 percent of the male workforce operated in specialised industries like textiles, shipbuilding, ironmaking and papermaking – manufactures

[153] Zell, *Industry in the countryside*, p. 242.
[154] Wrigley, 'Coping with rapid population growth', pp. 33, 47.
[155] Plausible on the basis of later estimates of distribution.
[156] Rudnicki, 'Occupational structure of northwest England', pp. 73, 78.
[157] Another recent work which supports this conclusion – one hundred-years earlier – is Nicholas Amor's abstraction of textile occupations from cases heard at the Court of the Common Pleas, at Westminster, in which Kent is significant relative to other counties. See N. Amor, *From Wool to Cloth: The Triumph of the Suffolk Clothier* (Bungay: RefineCatch Limited, 2016).

which were, perhaps, 'more numerous and varied than those of any other English county.'[158] Rudnicki suggests Lancashire employed a comparable proportion, but was relatively unique.[159] Kent may have had a similar 'minor industrial revolution', as Wadsworth and Mann characterised Lancashire in the late sixteenth- and early seventeenth-centuries.[160]

As it was complex, it was fragile. When the period of stagnating population growth from the 1640s until the early eighteenth-century is brought into view, the early seventeenth-century regime appears transitory. The major export-industry, textiles, was not sustained.[161] Keibek shows that the share of Kent's population in textiles almost doubled between 1600 and 1640 (to almost 10 percent of the workforce) and then slid into precipitous decline (to under 3 percent by 1720).[162] The rise and fall of textiles reflects the central change Toynbee was later to attribute to the Industrial Revolution: 'the substitution of competition for the mediaeval regulations which had previously controlled the production and distribution of wealth.'[163] While other English woollen-producing areas reacted to reduced foreign demand for traditional broadcloth by diversifying their products – the growth of the 'New Draperies' in Canterbury and other parts of Kent was a case in point, albeit with little impact on the overall figures – the Wealden textile industry did not. Clothiers eventually turned instead to commercial farming. 'At a time when markets for their traditional manufactured commodities seemed to be in decline, the metropolitan market for their agricultural commodities continued to grow', such that it was easier to withdraw from clothmaking altogether than to take risks in developing new products.[164]

The recognizances' geographical breadth diminishes after this period, making attempts to plot subsequent sectoral change in Kent as a whole less meaningful. Other sources make clear that the

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[158] Chalkin, *Seventeenth-century Kent*, p. 113.
[159] Rudnicki, 'Occupational structure of northwest England', p. 56.
[160] A.P. Wadsworth and Julie Lucy de Mann, *The cotton trade and industrial Lancashire 1600–1780* (Manchester: Manchester University Press, 1931), 21.
[161] Short, 'De-industrialisation of the Weald', p. 159, notes that agricultural investment had been minimal and resulted 'in a profusion of marginalised smallholdings, such that 'the Weald contrasted with its neighbours. In no sense was it a commercial corn-producing region'.
[162] Keibek, 'Male occupational structure of England and Wales', Appendix B.18.
[163] A. Toynbee, *Lectures on the industrial revolution of the eighteenth century in England* (London, 1919), p. 64.
[164] Zell, *Industry in the countryside*, p. 246; F. F. Mendels, 'Proto–industrialization. The first phase of the industrialization process', *The Journal of Economic History* 32 (1972), pp. 241–61.

secondary sector underwent significant sub-sectoral change in the second half of the seventeenth-century. The decline of the Weald was one such change, as both textiles and ironmaking declined,[165] though armament production was the industry's 'final buttress' and lasted into the eighteenth-century.[166] The other change was in north Kent. Industrialisation and rapid population growth shifted north in the eighteenth century and this is explored in Section V.

[165] H. C. Tomlinson, 'Wealden Gunfounding: An Analysis of Its Demise in the Eighteenth Century', *The Economic History Review* 29 (1976), pp. 383–384; P. King, 'The Production and Consumption of Bar Iron in Early Modern England and Wales', *The Economic History Review* 58 (2005), pp. 3–4.
[166] D. C. Coleman, 'Naval Dockyards under the Later Stuarts', *The Economic History Review* 6 (1953), p. 147.

Section V: Economic Change, c.1610–1817: The Importance of London

This Section utilises recognizance data for c.1610, c.1715 and c.1803 to estimate the changing male occupational structures of two areas in Kent which diverged from the rest of the county demographically and economically from the later seventeenth-century onwards. The final part of the Section compares the whole county estimates for c.1610 and c.1817, from the recognizance data and baptism data respectively.

The nexus of London, the growth of the dockyards and industrial expansion set northern Kent on a distinct economic trajectory from c.1650. Ormrod refers to 'the shift in the county's industrial centre of gravity' from the Weald to north and north-east Kent and identifies a transition in the character of the secondary sector. In north *and* east Kent, a 'new form of proto-industrial growth' more suited to urban than rural manufactures developed, but not capital-intensive; by contrast, in the hundreds in the *far* northwest, integration into the metropolitan economy and London's overseas trade led to the growth of 'more centralised capital-intensive modes of production'.[167] The former category was transitory and overshadowed by the capital-intensive category, in which the growth of dockyards was the greatest change, though paper and glass production were other similarly punctiform, capital-intensive industries – all predominantly situated on the London fringe. In this respect, the recognizance data is useful, since for West Kent, and especially the northern part, there is a good sample size.

Figures 5.1 and 5.2 show the geographical spread of the 631 recognizances c.1715. The majority were from the towns on the navigable section of the Medway, the county's main river, and what is now south-east London.[168] Their importance is clear demographically as well as economically. Of the approximately 88,000 people lived in West Kent in 1700 the following towns constituted around one-third of this total: the metropolitan parishes of Deptford, Greenwich and Woolwich in the Hundred of Blackheath comprised almost 14,000 people; at the Medway's mouth, the dockyard town

[167] Ormrod, 'Industry 1640–1800', p. 101.
[168] The Lower Medway area, in terms of the recognizance sample, is defined as the Hundreds of Dartford and Wilmington, Axtane, Toltingtrough, Gravesend, Shamwell, Rochester, and Chatham and Gillingham, and Maidstone borough. Refer to the footnote for Table 5.2 for more detail on its construction.

of Chatham and its contiguous neighbour, Rochester, 8,000; the market town of Maidstone, upstream on the Medway, almost 4,000.[169] The population growth of Deptford, Greenwich and Chatham accounted for most of the population increase in the county, c.1600–1700.[170] The expansion of these six towns continued in the eighteenth-century. Between 1700 and 1800, the London and Lower Medway urban parishes accounted for a smaller share – over one-fifth – of Kent's demographic increase. They constituted roughly two-fifths of the West Kent's population, c.1800.[171] Note, though, that the county as a whole saw accelerated growth post-1771; Kent's population had grown to over 210,000 by 1771, 322,525 by 1801, and 436,841 by 1821.[172] The expansion of the secondary and tertiary sectors went hand-in-hand with this demographic growth, which was linked to the growing incorporation of at least five of these six parishes into the metropolitan economy, especially through dockyards.[173] The rest of this Section examines the shift in the 'centre of gravity' using recognizance data to describe these two urban areas in West Kent: London (Table 5.1) and the Lower Medway (Tables 2.2 and 5.2).

[169] Chalkin, 'Towns', p. 206.
[170] Wrigley, *The Early English Censuses*, Table A2.6; Chalkin, *Seventeenth-century Kent*, 31. Greenwich grew from 3,000 to 5,000; Deptford from less than 2,000 to almost 7,000; Chatham from under 1,000 to around 5,000. New estimates by Wrigley estimate that Kent's population numbered around 150,000 in 1600 and 160,000 in 1700.
[171] Using Wrigley, *The Early English Censuses*, Table A2.6, and assuming that one-third of the population of the Lathe of Scray (approx. 20,000 people) was in West Kent along with the entire populations of the Lathes of Aylesford (61,082) and Sutton-at-Hone (89,223), roughly two-fifths (approx. 70,000) lived in the towns of Deptford, Greenwich, Woolwich, Chatham, Rochester and Maidstone. Note that this is an increase on the c.1700 proportion of (over) one-third. To estimate the c.1600 proportion, the six towns made up less than one-tenth of the West Kent total at the start of the eighteenth-century. Clearly then, even if the estimates are imprecise, these towns' greatest growth relative to the growth rate of West Kent as a whole was between 1600 and 1700.
[172] Wrigley, *The Early English Censuses*, Table A2.6: At the start of the nineteenth-century, Deptford had grown to 18,329 persons, Greenwich to 15,001, Woolwich to 10,242, Chatham to 10,944, Rochester to 7,102, and Maidstone to 8379. By 1821, the respective totals were: 20,352; 21,254; 17,417; 15,644; 9,013; and 12,824.
[173] The market town of Maidstone was also increasingly linked to London, though to a lesser extent.

Figure 5.1. Distribution of Recognizances, c.1715

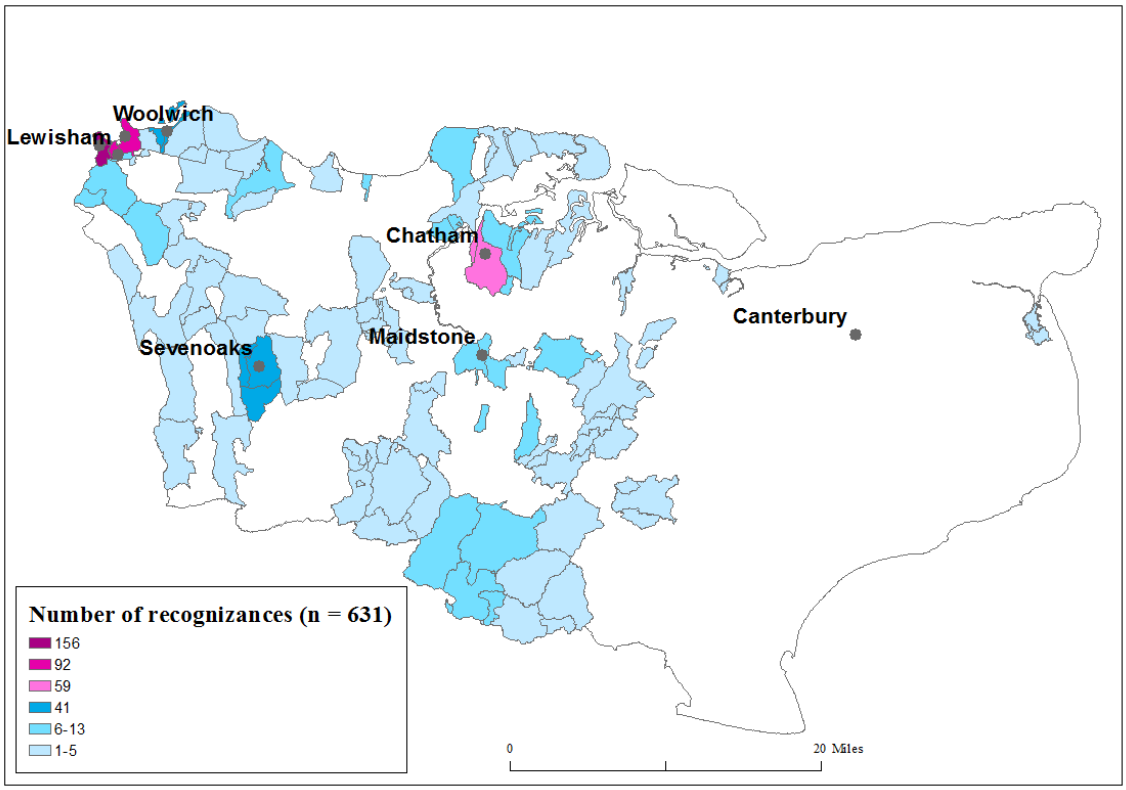


Figure 5.2. Distribution of Recognizances for Blackheath and Surrounds, c.1715

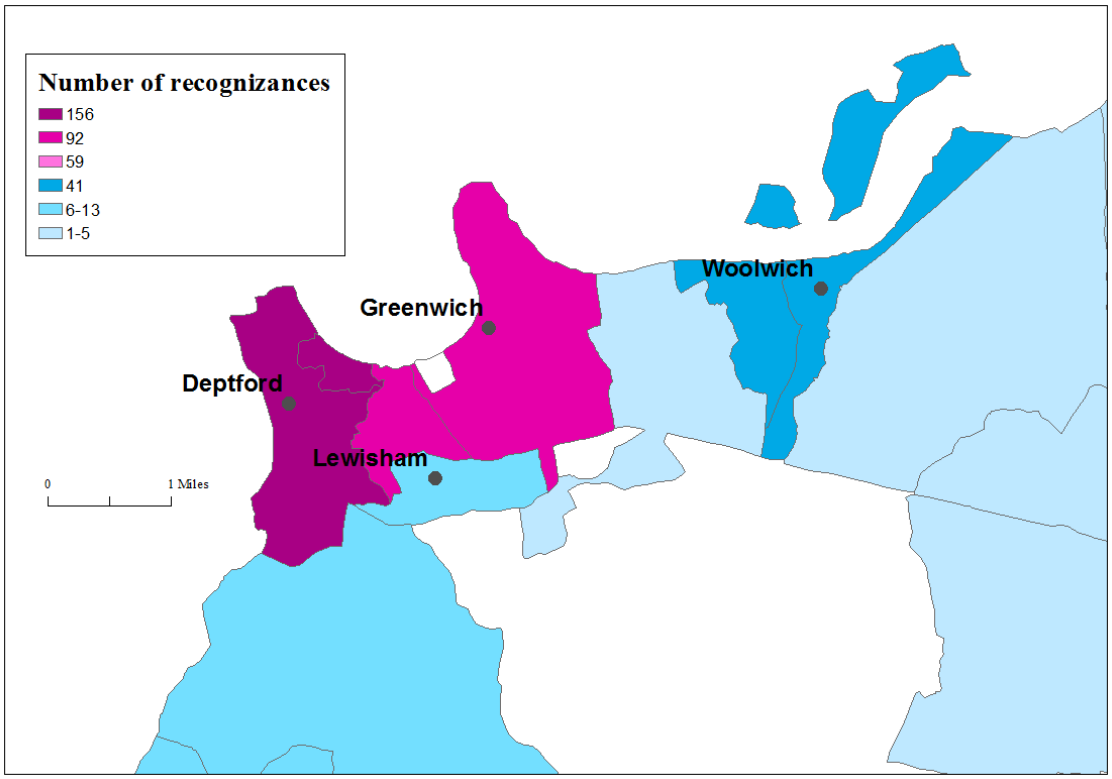


Table 5.1. Male Occupational Structure of Kent's London Parishes, c.1610–c.1817[174]

Sector	*c. 1610 (%)*	*c.1715 (%)*	*c.1803 (%)*	*c.1817 (%)*	*c. 1610 (Number)*	*c.1715 (Number)*	*c.1803 (Number)*	*c.1817*[175] *(Number)*
Primary	**46.8**	**10.4**	**8.2**	**9.7**	**153**	**25**	**4**	**654**
Agriculture	45.9	4.4	4.1	2.2	149	10	2	122
Gardening	0.7	4.4	4.1	5.9	3	10	2	321
Other	0.2	1.6	0.0	1.6	1	5	0	211
Secondary	**35.4**	**55.8**	**45.6**	**47.6**	**127**	**163**	**46**	**5432**
Food and drink	5.8	8.3	6.6	3.3	24	26	8	448
Clothing	7.0	1.9	1.6	1.7	29	6	2	228
Footwear	2.9	2.2	3.3	2.9	12	7	4	395
Textiles	1.9	0.6	0.0	0.3	8	2	0	36
Wood	0.0	5.4	2.5	3.1	0	17	3	415
Metals	3.9	3.8	4.9	5.6	16	12	6	756
Boat and ship building	0.0	16.7	4.9	7.7	0	52	6	1036
Building	6.6	10.9	9.0	11.7	21	32	9	1397
Other	7.3	5.8	12.8	11.3	17	9	8	721
Tertiary	**17.7**	**34.0**	**46.3**	**42.8**	**66**	**104**	**55**	**5589**
Dealers and sellers	2.9	2.2	9.8	3.1	12	7	12	421
Services and professions	11.2	14.1	23.0	23.3	46	44	28	3129
Transport	3.6	16.3	13.5	15.6	8	49	15	1944
Other	0.0	1.3	0.0	0.7	0	4	0	95
Labourers	*Reallocated*	*Reallocated*	*Reallocated*	*Reallocated*	**66**	**20**	**17**	**1761**
	100	***100.0***	***100.0***	***100.0***	**412**	**312**	**122**	**13436**

[174] Note on construction of Table 5.1: For 1610, both the Hundred of Blackheath and the Hundred of Bromley and Beckenham have been used, due to the relatively small size of Blackheath at this point and similarity in economic functions between the Hundreds. For later dates, when Blackheath diverged from Bromley, only the former has been used with a few neighbouring parishes. The hundred of Bromley and Beckenham included the parishes of Chelsfield, Cudham, Downe and Keston in its southern half, West Wickham, Beckenham and Bromley in its northwest quarter, and Chislehurst, St. Mary Cray and Crayford in its northeast quarter. The hundred of Blackheath was made up of the parishes of Lewisham and Eltham in its southern half, which bordered Bromley; in the northern part of the hundred, bordering the River Thames, were Deptford, Greenwich, Charlton and Woolwich.

[175] All data is from recognizances, except for c.1817, which is from parish baptism registers.

Table 5.2. Occupational Structure of the Lower Medway, Dartford and Gravesend, c.1610–c.1817[176]

Sector	*c. 1610 (%)*	*c.1715 (%)*	*c.1817 (%)*	*c. 1610 (Number)*	*c.1715 (Number)*	*c.1817 (Number)[177]*
Primary	**56.5**	**27.5**	**24.0**	**54**	**20**	**903**
Agriculture	56.5	23.1	18.6	54	15	334
Fishing	0.0	4.3	5.3	0	5	569
Secondary	**22.9**	**59.9**	**47.4**	**22**	**62**	**4083**
Food and drink	5.6	10.4	3.9	6	12	413
Clothing	0.9	1.7	1.1	1	2	113
Footwear	2.8	5.2	2.9	3	6	307
Paper industry	2.8	4.3	0.3	3	5	31
Iron and steel	0.0	7.0	3.1	0	8	335
Boat and ship building	2.8	5.2	11.1	3	6	1185
Building and construction	2.1	15.3	8.0	2	17	771
Other	6.5	10.7	17.1	4	6	928
Tertiary	**20.6**	**12.7**	**28.6**	**22**	**14**	**2969**
Dealers and sellers	0.9	2.6	2.6	1	3	276
Food, drink and accommodation services	13.9	3.5	2.6	15	4	272
Miscellaneous service industries	0.0	3.5	13.6	0	4	1446
Transport	5.8	3.1	9.9	6	3	975
Labourers	*Reallocated*	*Reallocated*	*Reallocated*	**10**	**19**	**2710**
	100	**100**	**100.0**	**108**	**115**	**10665**

[176] Note on construction of Table 5.2: The following parishes (largest to smallest in terms of observations) were in the sample: Chatham, Gravesend, Cliffe, Dartford, Gillingham, Strood, Frindsbury, Crayford, Sutton, Swanscomb, Wilmington, Horton Kerby, Meopham and Stone. These parishes were used because the appear in each dataset.

[177] The c.1817 data is from parish baptism registers; the rest of the data is from recognizances.

Primary sector, c.1610–c.1817

In Blackheath and its surrounds, rapid urban growth coincided with the contraction of the primary sector to 10.4 percent of the male workforce c.1715 from 46.8 percent c.1610, once labourers have been re-allocated (Table 5.1).[178] The area was less agricultural than the county mean c.1610, but the seventeenth-century was transformative regardless. That said, market gardening increased to 4.4 percent c.1715 and 5.9 percent c.1817. This was also evident in the Dartford-Lower Medway area, where, besides a substantial fishing industry (Table 5.2), market gardening comprised 1.6 percent of its male workforce c.1817. In Maidstone, too, gardening made up 3.2 percent in c.1795. Fisher argued that, in many places close to London, 'the production of fruit, hops, and vegetables, rose from the position of insignificant and neglected branches of general farming almost to the status of independent industries'.[179] This is corroborated by the recognizance data – half of Blackheath's primary sector were gardeners c.1715. The primary sector in Dartford-Medway appears to still have constituted around one-quarter of the workforce c.1715. Fisher referred to the 'great granary of Kent', particularly the northern coast, with mid-seventeenth-century London taking over 90 percent of cereal exports from Milton and Faversham. Dartford was the chief corn market in northwest Kent.[180]

Secondary sector, c.1610–c.1817

In c.1610, the Blackheath secondary sector already constituted one-third of the workforce, primarily comprised of clothing (tailors), food and drink, and building. All were oriented towards an immediate, large market of consumers. A. L. Beier and Roger Finlay argue that the early modern period saw the centralization of hitherto regionally-dispersed economic activity in the metropolis. Although industries producing for wider markets are largely absent in the data, brewing and textiles each constituted 2 percent of workers. Brewing was 'gradually becoming, from the sixteenth-century, a

[178] Using Keibek's regression methods, almost all labourers in c. 1610 should be allocated to the primary sector; Keibek, 'By-employments and occupational structure in pre-industrial England'.
[179] F. J. Fisher, 'The Development of the London Food Market, 1540–1640', *The Economic History Review* 5 (1935) pp. 52, 56–7.
[180] Chalkin, *Seventeenth-century Kent*, p. 32.

form of centralised production'.[181] London accounted for 86 percent of national woollen exports by the mid-1540s.[182] Shipbuilding – which was present in Deptford on a small scale, explaining its absence in the dataset – should be added to this category.[183] While such industries were not large yet, the *diversity* of the secondary sector generally is striking.

The seventeenth century brought dramatic change to both Blackheath and Dartford-Medway. In each, the secondary sector share grew to over 50 percent and the great bulk of the increase was in shipbuilding, which stimulated the other main growth industry, building.[184] These industries probably underpinned much of the secondary sector, either through boosting demand for business-to-business industries like wood and fibre, or through increasing consumer demand (raising aggregate demand and incomes) for consumer-oriented industries in food, drink and clothing. Chalkin's contention that naval shipbuilding 'matched' the Wealden cloth industry in size and importance is clearly borne out in the recognizance data.[185] As textiles dwindled, shipbuilding became the largest industry in Kent and the several thousand men employed in three dockyards provided the demand to support hundreds as shopkeepers and craftsmen and the growth of brick and tile manufacture in north Kent. The impression gleaned from the recognizances is corroborated by the State Papers of Charles II, which recorded, in August 1665, the breakdown of the 800 men employed at Chatham: 440 shipwrights, 129 labourers, 47 house-carpenters, 41 joiners, 31 caulkers, 23 scavelmen, 18 bricklayers, 17 'ocam boyes', 15 boat-makers, and others. 238 men were employed at Deptford in 1663 and 302 at Woolwich in 1664; forty years later the total in Kentish yards, 3,275 in 1704, had doubled.[186] Over the eighteenth-century, shipbuilding's share fell slightly in Blackheath, but in absolute terms the industry

[181] D. C. Coleman, *Industry in Tudor and Stuart England* (London: Palgrave Macmillan, 1975), p. 48.
[182] A. L. Beier and Roger Finlay, 'Introduction', in *London 1500-1700: The Making of the Metropolis*, ed. A. L. Beier and R. Finlay (London: Longman, 1986), pp. 14–16.
[183] K. N. Chaudhuri, *The English East India Company: The Study of an Early Joint-Stock Company* (New York: Routledge, 1999 edn.), p. 91; Brian Dietz, 'Overseas trade and metropolitan growth', in *London 1500-1700*, ed. Beier and Finlay, p. 129.
[184] Note that there is some imprecision around size of the two industries, since carpenters could be in either sub-sector, but are allocated to the building sector in the PST classification. In the absence of any unusual number of carpenters in Deptford in the c.1610 dataset, however, those that appear have been allocated to building.
[185] Chalkin, *Seventeenth-century Kent*, p. 146.
[186] Coleman, 'Dockyards', pp. 139–141.

grew greatly. In Medway, it constituted over one-tenth by c.1817. Generally, the secondary sector underwent relatively little change in the eighteenth-century in comparison to the seventeenth-century.

Tables 5.1 and 5.2 highlight another aspect of the changing secondary sector aside from the dockyards: other capital-intensive industries had emerged in these areas that were not present c.1610. Wrigley's basic distinction between 'new' or 'modern' and 'traditional' industries is relevant here. 'Modern' industries as a group were energy-intensive. Usually dependent on mineral sources of raw material supply to a significant degree, they were more capital-intensive than 'traditional' industries in which production methods had hardly changed.[187] Paper-making can be squeezed into this schema as a burgeoning, concentrated form of industry. Centred around Dartford and the Medway, like most other 'modern' industries which were capital-intensive it employed only a small fraction of those engaged in secondary occupations, but its impact was substantial – in the years 1714–1740, approximately three-quarters of annual British consumption was made in Kent.[188] 8.1 percent of Maidstone's male workforce, c.1817, was in papermaking and Table 2.2 shows the town industrialised significantly between c.1795 and c.1817 as the secondary sector share rose from 33.5 percent to 45.2 percent. The other industries in this regard that emerge in the c.1715 data are related to building, but were not straightforwardly traditional. One was glass production, which required investment in furnaces and the payment of skilled labour; a couple of glaziers were recorded in Chatham and Greenwich. Another was brickmaking – significant in Deptford in the data, but also present along the lower Medway. Unlike dockyards, which accounted for around one-fifth of secondary activity directly in both areas, these other industries (except paper-making in Maidstone) were relatively minor employers in the secondary sector c.1817. This is a drawback of using occupations as indicators of economic change. When ranked by their level of investment and

[187] E. A. Wrigley, 'The occupational structure of England in the nineteenth century', in Wrigley, *Poverty, Progress and Population* (Cambridge: Cambridge University Press, 2004), p. 170: 'In general, what might be termed traditional industries, such as leather, woodworking, jewelry, coachbuilding, gunmaking, and ropemaking were growing less rapidly than the adult male population as a whole. In contrast some of the 'new' industries were growing much faster than the general growth of population. This was true of iron and steel; engineering; printing; papermaking; chemical industries; and gas, coke, and water.'
[188] See D. C. Coleman, *The British Paper Industry, 1495–1860* (Oxford: Clarendon Press, 1958).

productivity these capital-intensive industries were disproportionately significant. The 1831 census recorded only 10.4 per cent of the national male workforce in 'modern' sectors.[189]

Tertiary sector, c.1610–c.1817

An equally dramatic change in the seventeenth century was the doubling in size of the tertiary sector share to around one-third of the workforce in Blackheath – without parallel in the county. While the proportion of dealers and sellers remained similar to the c.1610 figure, the growth in services and professions was more substantial. Food, drink and accommodation services grew (from 5.1 to 8.7 percent), presumably as incomes rose in line with London's increasing prosperity and to service the growing transport volumes entering London. Government service occupations also appear – a consequence of the naval dockyards and the settling of a 'leisured class' of large numbers of retired lawyers, merchants and army and naval officers.[190] Transport had risen from around 2 percent in the early seventeenth-century to over 15 percent c.1715. Of this, there was a relatively even split between service occupations in inland navigation (watermen) and in seaborn transport (sailors). This was, primarily, a consequence of becoming part of London and of the growth of the dockyards and water-borne commerce from London – if English trade expanded greatly during the century, 'London enjoyed the lion's share of it.'[191] In the case of the Dartford-Medway area, the growth in transport – and the tertiary sector – was more an eighteenth-century phenomenon, constituting 9.9 percent of the recognizances c.1817.

Conclusion

This Section has examined the changes associated with the rapid urbanisation of northwest Kent. The recognizance data, which seem broadly accurate, illustrate that the industrialisation associated with the growth of dockyards was the major change of this period, but there was also specialisation within

[189] Wrigley, *Path to Sustained Growth*, pp. 169–170.
[190] Chalkin specifies that this was mostly in Greenwich and, to a lesser extent, the more rural parishes of Lewisham, Eltham, Charlton and elsewhere in northwest Kent by the end of the century; Chalkin, *Seventeenth-century Kent*, p. 258.
[191] E. A. Wrigley, 'A Simple Model of London's Importance in Changing English Society and Economy 1650–1750', *Past & Present* 37 (1967), p. 61; P. Corfield, *The Impact of English Towns, 1700-1800* (Oxford: Oxford University Press, 1982), pp. 71–2.

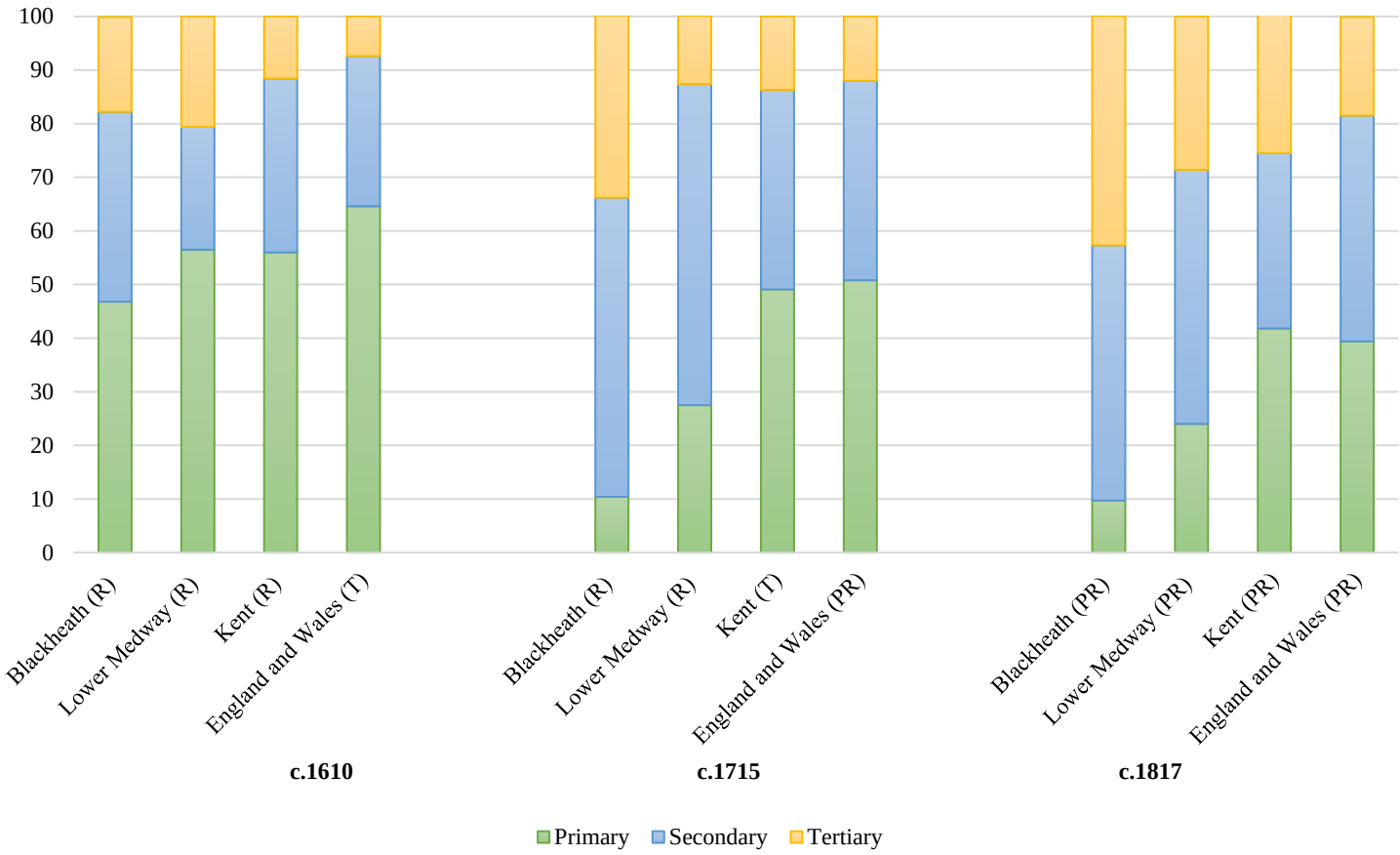
the secondary and tertiary sectors more widely, notably in terms of papermaking and transport. Specialisation was also at play in the primary sector as fishing and gardening grew. Table 5.3 shows these changes for the whole of Kent. By c.1817 the uniqueness of the Blackheath area had declined somewhat, since the secondary and tertiary sector shares are substantial regardless of whether it is included or excluded from the dataset. It is likely that northwest Kent was most precocious in the early-to-mid-eighteenth-century, when it had already achieved a level of development the whole county would match in c.1817 (Figure 5.3). This conclusion is supported demographically: most of the population growth in the county was found in Chatham, Greenwich, Woolwich and Deptford in the century beginning with the reign of Charles I, whereas they constituted a minority in the following century. Maidstone is interesting in this regard; despite its trade and interaction with London, it was more reflective of the rest of Kent than the metropolitan areas. Its industrialisation and population 'took off' only in the late eighteenth-century. This chronology of divergence followed by convergence at the sectoral level is of course oversimplified – and the sub-sectoral story is different. While there is not space to explore it here, the occupational effects of Kent's rapid population growth in the later eighteenth-century would reward further research. Wrigley's analysis of a new population series for each of the 610 English hundreds at decennial intervals from 1761 to 1851 implies as much in highlighting the fact that London and its hinterland, including, importantly, 'almost the whole of Kent and the eastern half of Sussex', accounted for 19 per cent of the rise in the national population total between 1791 and 1831.[192]

[192] Wrigley, 'Coping with population growth', p. 40.

Table 5.3. Male Occupational Structure of Kent, c.1610 and c.1817

Sector	*Recognizances c. 1610 (%)*	*Baptism registers c.1817 (%)*	*Baptism registers minus Blackheath (%)*	*Recognizances c. 1610 (Number)*	*Baptism Registers c.1817 (Number)*	*Baptism registers minus Blackheath (Number)*
Primary	**56.0**	**41.8**	**45.8**	**1626**	**9047**	**8393**
Agriculture	55.5	40.4	44.5	1608	7718	7275
Other	0.5	1.4	1.3	18	1329	1118
Secondary	**32.4**	**32.7**	**31.2**	**1036**	**27253**	**21821**
Food and drink	5.4	3.6	3.7	182	3570	3122
Clothing	5.1	1.5	1.5	171	1465	1237
Footwear	2.0	3.0	3.0	69	2910	2515
Textiles	7.2	0.3	0.3	245	330	294
Metals	2.6	1.8	1.2	88	1779	1023
Building	4.6	8.6	8.3	134	7357	5960
Other	5.5	13.8	13.2	147	9842	7670
Tertiary	**11.6**	**25.9**	**23.0**	**389**	**25004**	**19415**
Dealers and sellers	2.2	2.7	2.6	76	2617	2196
Services and professions	8.4	13.4	11.8	285	13094	9965
Transport	0.9	9.9	9.1	28	9293	7349
Labourers	*Reallocated*	*Reallocated*	*Reallocated*	**332**	**36570**	**34809**
	100.0	**100.0**	**100.0**	**3383**	**97873**	**84437**

Figure 5.3. The Male Occupational Structure of England and Wales, Kent, and Selected Parts of Kent, c.1610–c.1817[193]



[193] Figure 5.3 was constructed in the following way: places marked 'R' display the recognizance data (and the parishes) used in Tables 5.1–5.3; places marked 'T' display the testamentary evidence for c.1601 and c.1721 from Keibek, 'Male occupational structure of England and Wales', Appendix B.18; places marked 'PR' display the parish register evidence for c.1710 and c.1817 from Shaw-Taylor and Wrigley, 'Occupational structure', Table 2.2, p. 59.

Section VI: Conclusion

As a measure of economic change, occupational structure has often been overlooked in English and European economic history. Specialisation has been under-estimated and its importance under-acknowledged, aside from in studies of agriculture and of proto-industry, which, lacking systematic quantification, often proclaim small case studies to be more representative than can be proven to be the case.[194] This is changing as economic historians grasp that there is a relatively large amount of occupational data extant for men and (to a lesser extent) women from in England and elsewhere to permit systematic measurement.[195] There has also been a recognition amongst some historians that more commonly-used measures such as GDP are not the most appropriate measures of historical economic performance.[196] Occupational structure yields insights, above all into the growth of the market-based economy, that other measures might obscure.[197] Of course, economies are characterised by complex feedback, so a combination of measures is the ideal to strive to: this dissertation has at least partially pointed the way for further research insofar as changes in occupational structure, the structure of aggregate income, and migration 'were intimately related'.[198] The concept of an 'industrious revolution', though much-contested, at least reflects concern that the 'the dynamics of … pre-[I]ndustrial [Revolution] economic growth remain unclear', a pressing matter given the 'complex

[194] On proto-industry, see *European Proto-Industrialization*, ed. Sheilagh Ogilvie and Markus Cerman (Cambridge: Cambridge University Press, 1996). On agriculture, see Robert Allen, *Enclosure and the Yeoman: The Agricultural Development of the South Midlands, 1450–1850* (Oxford: Clarendon Press, 1992); idem., 'Economic Structure and Agricultural Productivity in Europe, 1300–1800', *European Review of Economic History* 3 (2000), pp. 1–25; George Grantham, 'Division of Labour: Agricultural Productivity and Occupational Specialization in Pre-industrial France', *Economic History Review* 46 (1993), pp. 478–502. For an attempt at establishing occupational structure in the late eighteenth-century Dutch economy, see Jan de Vries and Ad van der Woude, *The First Modern Economy. Success, Failure, and Perseverance of the Dutch Economy, 1500–1815* (Cambridge: Cambridge University Press, 1997), ch. 11.
[195] Keibek, 'The male occupational structure of England and Wales'; Shaw-Taylor and Wrigley, 'Occupational structure and population change'; Osamu Saito and Leigh Shaw-Taylor, *Occupational structure and industrialization in a comparative perspective* (Forthcoming); Amy Erickson, 'Married women's occupations in eighteenth-century London', *Continuity & Change* 23 (2008), pp. 267–307.
[196] Pat Hudson and Mina Ishizu, *History by Numbers: An Introduction to Quantitative Approaches* (London: Bloomsbury Academic, 2016), p. 261.
[197] See, for instance, Gregory Clark, *A Farewell to Alms: A Brief Economic History of the World* (Princeton: Princeton University Press, 2007), which argues that there was no rise in the standard of living until the advent of modern economic growth on the basis of a graph of the real wage in England from 1200 to the present.
[198] Wrigley, *Energy and the English Industrial Revolution*, 138.

occupational character' of European economies.[199] England's division of labour attracted the attention of many European commentators in the eighteenth-century prior to Adam Smith's famous description of pin-making.[200] A growing number of economists and public policy theorists, for their part, have been influenced by research on the 'Second Machine Age' and 'The Future of the Professions' that explore the potential consequences of artificial intelligence on changing occupational structure in the present century – from inequality to unemployment.[201] Karl Marx loudly problematised the division of labour, but Adam Smith also wrote of its ill effects.[202]

Simply establishing, then, that the male occupational structure of England was highly advanced both in terms of range and geography as early as 1600 is an important step historiographically. While understanding the interaction of occupational structure with other measures of economic change in the early-modern economy is a task of *explanation* that would require another study, such that this dissertation has been largely limited to *describing* economic complexity, the very deficit of description, particularly for early seventeenth-century Kent, mandated the *systematic* collection of data to fill a historiographical lacuna. Figure 5.3 summarises the outcome, bringing together the data from this dissertation, Keibek's recent work, and the Cambridge Group's work. Kent does not appear dramatically different to England and Wales. Of course, Figure 5.3 does not show sub-sectoral change, which is significant. More generally, though, it is clear that there was a remarkable range of occupations hosted by the county (and the country) as early as the sixteenth century. Four major points should be highlighted regarding Kent's experience, c.1610–c.1817. The first is that the major sectoral shift from primary to secondary and tertiary activity began in Tudor times, such that the county was precociously advanced by 1610 – its primary sector share was significantly smaller and the secondary share somewhat larger than the sectoral averages for England and Wales. Thereafter,

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[199] Jan de Vries, *The Industrious Revolution: Consumer Behavior and the Household Economy, 1650 to the Present* (Cambridge: Cambridge University Press, 2008), pp. 7, 94; *idem*., 'The Industrial Revolution and the Industrious Revolution', *Journal of Economic History*, 54 (1994), pp. 249–70.
[200] Sophus A. Reinert, *Translating Empire: Emulation and the Origins of Political Economy* (Cambridge, MA: Harvard University Press, 2011), pp. 150–151, 176.
[201] Klaus Schwab, *The Fourth Industrial Revolution* (London: Penguin, 2017); Richard Susskind and Daniel Susskind, *The Future of the Professions: How Technology Will Transform the Work of Human Experts* (Oxford: Oxford University Press, 2015); Andrew McAfee and Erik Brynjolfsson, *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies* (New York: W.W. Norton & Company, 2014).
[202] E. G. West, 'Adam Smith's Two Views on the Division of Labour', *Economica* 31 (1964), pp. 23–32.

the primary share declined at a gradual rate, converging with the national average by c.1710 and lagging behind it by c.1817. Second, the share constituted by the secondary sector stayed constant over the two centuries, but changed substantially in character, at the sub-sectoral level, such that if early seventeenth-century growth was geographically dispersed, thereafter it was concentrated. The shift from textiles to shipbuilding encapsulates this. Dockyards, and other industries, were concentrated in certain areas, above all near London. This was already visible c.1715, as the recognizance data shows for northwest Kent, which accounted for most of the county's seventeenth-century demographic increase. Third, the second-half of the eighteenth century witnessed a weakening of this trajectory insofar as there was more evenly spread industrial *and* demographic expansion across the county. Although the rest of the county had partly 'caught up', the northwest remained significantly different at the sub-sectoral level both in the secondary sector and in the tertiary sector, organised around dockyards, transport and notably capital-intensive activities. Fourth, the tertiary sector was consistently larger than the national average. This reflected the significant degree of urbanisation in the county relative to the country over both centuries.

The other strand of this dissertation has been methodological. Recognizances can systematically quantify large numbers of past occupations at the level of individual parishes. This was patently true for seventeenth-century Kent, where the whole county was covered in more depth by recognizances than any other source used hitherto, but arguably similarly so for the subsequent century at the level of a few *critically-important* hundreds in northwest Kent. This level of depth has allowed the scale of demographic change in a relatively small area in the years c.1650–c.1750 to be better understood in occupational terms. Understanding change below the county-level is evidently very revealing and this dissertation reinforces the message communicated by Wrigley following his analysis of the striking sub-regional variation of the 1831 census, as well as other historians who have sought to put forward a more geographically-informed analysis of the 'Industrial Revolution' period.[203] Regarding the c.1610 data, which closely matched Keibek's data at the county-level, the

[203] Wrigley, *Path to sustained growth*, ch. 8; D. Gregory, 'The production of regions in England's industrial revolution', *Journal of Historical Geography* 14 (1988), pp. 50–58; J. Langton, 'The production of regions in England's industrial revolution: A response', *Journal of Historical Geography* 14 (1988), pp. 170-174; Derek

geography of the textile industry in the Weald was tentatively mapped using recognizances.[204] For the early eighteenth century, when the data was concentrated heavily on a few hundreds, there was an alternative source to test reliability against in the form of parish baptism registers. There was an almost perfect fit for the (very populous) parish of Deptford. The upshot of this is that we can say with confidence that the Hundred of Blackheath estimates are quite reliable. They illustrated a contraction of the primary sector from around half to one-tenth of the male workforce in this area, along with a rise in the secondary share to over half and the tertiary share to around one-third. Similar results were found for the Dartford and Lower Medway parishes. By c.1817, the divergence of these areas appears to have lessened, as the rest of Kent underwent considerable demographic and industrial expansion. There has not been space here for proper explanation of this phenomenon, but examination of the rest of Kent's occupational structure in the eighteenth century – a century neglected in the historiography – should be a future avenue of research.

In sum, the 'revolt of the early modernists' in European economic history is firmly supported by the evidence of this county study. The occupational structure of Kent, sophisticated as it was throughout these centuries, begs further questions about themes in the historiography relating to the apparently high level of wages in the county, the importance of London as a source of demand for the array of occupations and the integration of the county's seemingly very specialised subdivisions into the broader economy and transport network.[205] The interactions between occupational structure and other measures of economic change should prove revealing.

Gregory, 'Reply', *Journal of Historical Geography*, 14 (1988), pp. 174–176; P. Hudson, 'The regional perspective', in *Regions and Industries: A perspective on the industrial revolution in Britain*, ed. P. Hudson (Cambridge: Cambridge University Press, 1989), pp. 5–40; M. Berg and P. Hudson, 'Rehabilitating the Industrial Revolution', *The Economic History Review*, 45 (1992), pp. 24-50.

[204] Given the fit with Keibek's data for the county-as-a-whole, the recognizances clearly are quite accurate at this level for c.1610, but, in the absence of much data from other sources for the sub-county level, the accuracy of the c.1610 dataset for individual parishes is harder to assess.

[205] Ormrod, 'Industry 1640–1800', p. 106.

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