

Introduction: the nature and significance of medieval statistics

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CHAPTER 1

THE NATURE AND SIGNIFICANCE OF MEDIEVAL STATISTICS

Mark Casson and John S. Lee

1.1 INTRODUCTION

This book aims to introduce the reader to the range of medieval statistics and how they have been applied by economic and social historians. Both a sources and methods book, it outlines quantitative medieval sources, and provides simple methods of interpretation accessible to historians.

Many people believe that statistical record-keeping in England and Wales, that is to say the systematic collection and arrangement of numerical facts or data, was invented by the Victorians, or by early political economists of the seventeenth and eighteenth centuries. More than five hundred years earlier, however, statistics were being compiled for English kings. The Norman and Plantagenet kings established a sophisticated system of royal accounts, and their records survive today in The National Archives. Religious institutions also compiled accounts of their income and expenditure. These institutions managed large agricultural estates and the accounts of some of their stewards and bailiffs have survived, giving valuable information about commodity prices and agricultural productivity. Contracts recorded in surviving medieval legal records show the purchase prices and rents paid on property, both for agricultural land and for urban housing. Coin finds, treasure hoards and the records of the royal mints provide information on the medieval money supply. When all this information is synthesised, it is feasible for modern researchers to define and measure annual gross domestic

product, the consumer price index, the money supply and other important performance measures for medieval England and Wales.

The study of medieval economic history in England has a long tradition of quantification and the application of theoretical models. This predates the ‘New Economic History’, or ‘Cliometrics’, of the 1960s, which introduced formal economic models and statistical methods of estimation and inference to the study of economic history.¹ The nineteenth-century historian, James Thorold Rogers was a pioneering contributor to the study of statistical sources for medieval economic history, making the first attempt to collect long run data on agricultural, work and wages based on a prodigious amount of archival work. He assembled detailed tables of prices and wages and noted, for example, the rise in the level of wages and of prices and the greatly increased mobility of labour following the Black Death. During the twentieth century, William Beveridge and David Farmer, among others, refined this approach, producing more detailed and accurate datasets.²

Statistics have long been used to inform wider explanatory models around the nature of the medieval economy and its transformation. Many of these debates have revolved around the long-term structural changes to England’s economy that occurred during the Middle Ages, particularly from the demographic losses of the Black Death and later epidemics.³ Kosminsky, for example, drew on statistical analysis of landholdings within the Hundred

¹ P. Hudson and M. Ishizu, *History by Numbers. An Introduction to Quantitative Approaches*, 2nd edn (London, 2017), 241–51.

² See below, section 5.4.2.

³ For a detailed discussion of these explanatory models, see J. Hatcher and M. Bailey, *Modelling the Middle Ages. The History and Theory of England’s Economic Development* (Oxford, 2001).

Rolls of 1279 to support his Marxist interpretation of the primacy of class struggle.⁴ From the 1960s until the late 1980s, the views of M. M. Postan, emphasising the primacy of demographic factors, were highly influential within the historical literature. Postan argued that a growing population in the thirteenth and fourteenth centuries faced land hunger, a predominance of smallholdings, declining soil fertility, and a series of crop and livestock disasters occurring between 1315 and 1322 which constituted a Malthusian crisis. The pressure of population on the inadequate resources available resulted in a declining standard of living until that pressure was dramatically eased with the Black Death.⁵ Research generally focused on producing agricultural rents, prices and wages series.⁶ Alternative explanations of economic change though, have increasingly challenged this approach, notably commercialisation, emphasising the growth of markets, towns and trade.⁷ The role of environmental conditions has also been highlighted, relating statistics such as crop and livestock yields to other datasets produced by climate scientists and bioarchaeologists. Some recent studies have also sought to identify the origins of the ‘Little Divergence’ through

⁴ E. A. Kosminsky, *Studies in the Agrarian History of England in the Thirteenth Century*, (ed.) R. H. Hilton and trans. R. Kisch (New York, 1956).

⁵ M. M. Postan, ‘Medieval Agrarian Society in its Prime’, in M. M. Postan (ed.), *The Cambridge Economic History of Europe, I: Agrarian Life in the Middle Ages*, 2nd edn (Cambridge, 1966), 548–659; M. M. Postan, *The Medieval Economy and Society: An Economic History of Britain in the Middle Ages* (London, 1972).

⁶ Much of this work was summarised in H. E. Hallam (ed.), *The Agrarian History of England and Wales, II: 1042–1350* (Cambridge, 1988) and E. Miller (ed.), *The Agrarian History of England and Wales, III: 1348–1500* (Cambridge, 1991).

⁷ R. H. Britnell, *The Commercialisation of English Society, 1000–1500* (Cambridge, 1993); B. M. S. Campbell, ‘Land and People in the Middle Ages: 1066–1500’, in R. A. Dodgshon and R. A. Butlin (eds), *An Historical Geography of England and Wales* (London, 1990), 69–121; M. Bailey, ‘The Commercialisation of the English Economy, 1086–1500’, *Journal of Medieval History*, 24 (1998), 297–311.

which certain early modern economies in north-west Europe, including England, pulled away from those of the rest of the continent.⁸

1.2 RECORD-KEEPING

There was a remarkable proliferation of written records between the Norman Conquest and the fourteenth century. The use of charters recording transfers of property became much more widespread, and new types of record began to be kept by government, institutions and private individuals, which are of outstanding importance for understanding the economy and society of medieval England.⁹ This section provides an introduction to the types of medieval records likely to be of interest for statistical study and which are explored in more detail in the rest of the book.

1.2.1 Crown records

⁸ Key works include B. M. S. Campbell, *The Great Transition: Climate, Disease and Society in the Late Medieval World* (Cambridge, 2016); M. Bailey, *After the Black Death: Economy, Society and the Law in Fourteenth-Century England* (Oxford, 2021), 1–6, 283–316. For a summary of recent research, see C. Briggs, ‘Current trends and future directions in the rural history of later medieval England (c. 1200–c. 1500)’, *Rural History*, 34 (2023), 318–29.

⁹ M. T. Clanchy, *From Memory to Written Record: England, 1066–1307*, 3rd edn (Chichester, 2013); R. H. Britnell, *Britain and Ireland 1050–1530: Economy and Society* (Oxford, 2004), 266–85, 473–90.

As English royal government grew in complexity and professionalism, this encouraged the keeping of records. The two principal departments of the Crown's administration were the Chancery, the royal writing office, and the Exchequer, the financial office and treasury.¹⁰ From the reign of King John (1199–1216), the Chancery routinely kept a record of its grants and outgoing correspondence, which include the Charter Rolls, documenting royal grants of lands or rights, and confirmations of these grants, the Patent Rolls, detailing grants to individuals and corporations of lands, privileges and licences, and the Close Rolls, which registered private letters and documents closed with a seal, and recorded large numbers of land sales.¹¹ The Chancery also filed inquisitions *post mortem*, formal inquiries into the lands held at their deaths by tenants holding land directly from the crown. The quantity of their social and geographical coverage makes these records particularly useful for studying land values and use, as well as for examining landholding and inheritance.¹² The Exchequer, which housed the royal treasury, was the place where royal officials and debtors rendered their accounts. The Pipe Rolls, the annual accounts of crown revenues, sent by sheriffs to the Exchequer, survive from 1130, and run in an almost unbroken series from 1155 until 1832.¹³ The royal courts of justice generated records of litigation and procedure, providing evidence for the incidence of crime, conflict between

¹⁰ Many of these records can be searched on The National Archives' online catalogue, Discovery, <https://discovery.nationalarchives.gov.uk/>

¹¹ These series of rolls have been published in summarised calendar form, and are listed on Medieval English Genealogy, <https://www.medievalgenealogy.org.uk/sources/rolls.shtml>

¹² M. Hicks (ed.), *The Fifteenth-Century Inquisitions Post Mortem. A Companion* (Woodbridge, 2012); *Inquisitions Post Mortem, Mapping the Medieval Countryside*, <https://inquisitionspostmortem.ac.uk/>

¹³ Some have been published by the Pipe Roll Society, <https://piperollsociety.co.uk/>

landlords and tenants, and credit and indebtedness.¹⁴ Around two-thirds of the lawsuits recorded in the Court of Common Pleas relate to debt cases, which reveal the extent of London's economic hinterland as well as occupational structures.¹⁵

The earliest detailed enquiry into landownership undertaken by the Crown was Domesday Book, William the Conqueror's great survey of England in 1086. Providing valuations of property both before and after the Conquest, the survey was compiled by royal representatives who toured the country, each following a specific circuit, and collecting evidence from local representatives. It contains a vast amount of statistical information, and although its interpretation is not straightforward, recent research has demonstrated the continuing relevance of Domesday Book in modern historical debates over land ownership, agricultural productivity and long-run economic growth. Although the Crown initiated later enquiries into landholding, with the compilation of the Hundred Rolls in the 1270s (based on information supplied by juries for the hundreds of each county) and the Quo Warranto proceedings, conducted between 1278 and 1294, establishing what privileges private lords exercised in the kingdom, far less material has survived for these subsequent surveys than for

¹⁴ Coroners' records, for example, have been used to map murder cases in London, Oxford and York:

<https://medievalmurdermap.co.uk/>

¹⁵ D. Keene, 'Changes in London's economic hinterland as indicated by debt cases in the Court of Common Pleas', in J. A. Galloway (ed.), *Trade, Urban Hinterlands and Market Integration c.1300–1600* (London, 2000), 59–81; M. Stevens, 'London creditors and the fifteenth-century depression', *Economic History Review*, 69 (2016), 1083–1107; Court of Common Pleas: the National Archives, Cp40 1399–1500, British History Online, <https://www.british-history.ac.uk/no-series/common-pleas/1399-1500>. See also below, sections 7.2.3 and 8.6.4.

Domesday.¹⁶ There were in fact two Domesday Books - Great Domesday and Little Domesday - and the latter, covering the three counties of Essex, Norfolk, and Suffolk, contains even more detailed accounts of resources and income in 1066 than Great Domesday. James T. Walker uses this data to calculate growth rates between 1066 and 1086, and demonstrates that the organisational change that occurred with the Norman Conquest was an important driving force for short-term growth.¹⁷

Taxes levied by the Crown can be used to estimate population size, particularly when taxes with national coverage extended to the lowest levels of society. These taxes include lay subsidies of a fraction of moveable wealth, the poll taxes of 1377–81, and the subsidies of 1524–5, which record the names and wealth of individuals as well as the total size and wealth of communities. John S. Lee shows how these records have been used to estimate population trends over time, linking benchmark years of 1086, 1377, and 1524, based on the data in Domesday Book and the tax returns, to establish population trends.¹⁸ These taxation records can also be used to identify the agricultural resources of individual peasant farmers, and occupational structures in towns.¹⁹

Other records of the royal Exchequer include the remarkable body of systematic statistical evidence produced to administer the national system of customs and subsidies in medieval England, unparalleled in the rest of western Europe. Stephen H. Rigby with Robert

¹⁶ *Rotuli Hundredorum*, 2 vols, (Record Commission, 1812–18); S. Raban, *A Second Domesday? The Hundred Rolls of 1279–80* (Oxford, 2004); C. Casson, M. Casson, J. Lee and K. Phillips, *Compassionate Capitalism: Business and Community in Medieval England* (Bristol, 2020).

¹⁷ See below, chap. 2, The Domesday Book(s) - Income before and after the Norman Conquest.

¹⁸ See below, chap. 4, Population Statistics.

¹⁹ See below, sections 5.3.2 and 8.6.4.

C. Nash show how this can be used to survey England's overseas trade and reveal major changes in commerce between the thirteenth and fifteenth centuries. They also examine inland and coastal trade, which in the absence of a similar nationwide system of regulation, relies largely on case-studies based on local and partial evidence.²⁰

Industry is less well documented, but Nicholas R. Amor and Stephen H. Rigby draw useful statistical information about the production of cloth and of tin using the tax payable on the commercial sale of woollen cloth, known as *alnage*, and the receipts from the tax of coinage levied on tin output. These sources reveal the development of these industries and how their locations changed.²¹ Sources for the other industries of medieval England are much more scattered and impressionistic, but Stephen H. Rigby utilises a range of surviving royal, manorial, ecclesiastical and borough records to examine mining, fishing, salt-making, building and urban manufacturing. He shows that different industries could have diverse chronologies of development and be affected by a range of varying causal factors, and highlights the ongoing need for further detailed archival research and integrated study.²²

1.2.2 Church records

The reorganisation of the Church after the Norman Conquest included the building of churches, cathedrals and monasteries on a scale never before seen in England. Existing English monasteries were reformed on Norman lines, and many new monasteries were

²⁰ See below, chap. 6, Overseas, Inland and Coastal Trade.

²¹ See below, chap. 7, Industry I: Cloth and Tin.

²² See below, chap. 8, Industry II: Mining, Fishing, Salt-Making, Building and Urban Manufacturing.

established, with new religious orders offering their own versions of communal living. These institutional households needed to manage their resources carefully, encouraging the preparation, presentation and retention of accounting documents. Alisdair Dobie explains the wide range of data that these medieval monastic accounting records can provide, including the prices and quantities of agricultural and manufactured products, rents and wages, landholding size and succession. Historians have used these sources to investigate macro-economic changes, accounting systems and financial controls, agricultural management and yields, population movements, living standards, and the impact of war, disease, and climate change.²³

The medieval Church within England operated a hierarchy of administrative units descending from the two provinces or archbishoprics of Canterbury and York, into dioceses, archdeaconries, deaneries and down to parishes. At the lowest tier of church organisation, the parish, churchwardens were responsible for financial affairs. Surviving churchwardens' accounts from the fourteenth and fifteenth centuries enable historians to identify patterns of expenditure on church fabric, sources and prices of building materials, and commemorative bequests.²⁴ A series of ecclesiastical courts, extending from the province down to the archdeaconry, had powers to grant probate, and surviving wills set out instructions regarding burial and commemoration, bequests to individuals, payments of debts, and appointment of executors.²⁵ Overseeing the Church were archbishops and bishops, with roles combining

²³ See below, chap. 3, Medieval Monastic Accounting Records: Potentials and Pitfalls for Statistical Analysis.

²⁴ G. Byng, *Church Building and Society in the Later Middle Ages* (Cambridge, 2017). A searchable national database is available at the Churchwardens' Accounts of England and Wales, https://warwick.ac.uk/fac/cross_fac/myparish/projects/cwa/.

²⁵ H. Falvey, 'The probate process in medieval England and Wales and the documents which it generated', *The Local Historian*, 52:1 (2022), 8–26. For the use of wills to examine trends in mortality, see below, section 4.6.2.

spiritual leadership, judicial responsibilities and estate management. Their registers record their oversight of the clergy and the spiritual life of parishioners, their interactions with royal government and the papacy, and also the management of their landed estates.²⁶ The estates of the bishop of Winchester, for example, were among the largest holdings in England, comprising about 60 manors spread across seven counties. To administer this large and wealthy estate, a detailed system of accounting was introduced, including probably the earliest example of accounts to detail the income and expenditure of each manor, submitted by local officials, checked by auditors, and then recorded on the Winchester pipe rolls.²⁷

1.2.3 Manorial records

Manors were the territorial units held and run by lords with dependent tenants living on the land, ranging in size from a few acres to over a hundred square miles. The lord had rights through custom and law over the land and its resources, and these rights were exercised through a manor court. The main features of the manor comprised the residence (the manor house); the lord's own land (the demesne) and land let to tenants; physical and jurisdictional rights; and the manor court. The lord's physical and jurisdictional rights could include markets and fairs, commons, mineral rights, parks, and mills. All tenants had to attend the manorial court, at which the lord or his representative presided. The administrative records

²⁶ The Northern Way, the Archbishops of York and the North of England, 1304–1405, <https://archbishopsregisters.york.ac.uk/northernway>; P. Dryburgh and S. Rees-Jones (eds), *Church and Northern English Society in the Fourteenth Century: the Archbishops of York and their Records* (Woodbridge, 2024).

²⁷ See below, section 5.2.1.

created by the manorial system date back to the twelfth century but survive in increasingly large numbers from the fourteenth century. They include court rolls, accounts, rentals and surveys. Manorial documents have been used to study a wide variety of subjects including agricultural and industrial development, landownership, crime, welfare, buildings, trade, and landscapes.²⁸ Medieval manorial accounts provide very detailed information on agriculture and commodity prices. Jordan Claridge and Greg Salter outline these sources, describe the possibilities and pitfalls in using them, and discuss how they have shaped historical research.²⁹ They note that few premodern historical contexts are better documented in terms of agriculture than medieval England.

1.2.4 Urban records

Historians usually identify towns in medieval England as settlements with a dense and permanent concentration of people engaged in industrial and service activities, given that they were small in comparison both to modern towns, and to contemporary urban centres in Flanders or the Italian peninsula. Many towns had borough status, where the property holders (known as burgesses) enjoyed personal freedom, freedom of tenure, and access to a market. Markets were also held on many manors without borough status, including market towns which were effectively run through the manor court. Surviving records for the larger

²⁸ P. D. A. Harvey, *Manorial Records*, 2nd edn, (London, 2000); M. Bailey, *The English Manor c.1200–c.1500* (Manchester, 2002); Z. Razi and R. Smith (eds), *Medieval Society and the Manor Court* (Oxford, 1996).

The Manorial Documents Register is a comprehensive listing of English and Welsh manors which is searchable via The National Archives catalogue at <https://discovery.nationalarchives.gov.uk/>

²⁹ See below, chap. 5, Agricultural Statistics.

boroughs can include the proceedings of the borough court, the sittings of the common council and orders made, admissions to the freedom of the borough, financial accounts of the borough corporation, leases, and rentals of borough property. These can be used to examine manufacturing and trade, wages and prices, apprenticeships and training, mobility and the job market, migration and immigration, and participation in political and administrative processes. Data sets of tolls, property rents and debt cases for example, shed light on the wider growth and decline of urban economies.³⁰ Larger towns often had additional systems of debt registration available through the Statute Merchant and Statute Staple courts, introduced through legislation in the 1280s and 1353. Recognisances were drawn up and enrolled at these courts which could also offer speedier resolutions of cases. These systems were generally used for high-value commercial transactions, predominantly for buying and selling goods in domestic markets.³¹ Properties within towns were used as assets by individuals and institutions throughout the medieval period, as Catherine Casson examines. Statistical analysis can be applied to rent levels and lump sum payments, alongside the qualitative profiles that can be compiled of individuals and institutions and their entrepreneurial strategies in acquiring and managing their property holdings.³²

³⁰ R. H. Britnell, *Growth and decline in Colchester, 1300–1525* (Cambridge, 1986); S. H. Rigby, *Medieval Grimsby: Growth and Decline* (Hull, 1993); J. S. Lee, *Cambridge and its economic region 1450–1560* (Hatfield, 2005).

³¹ P. Nightingale, ‘The Impact of Crises on Credit in the Late Medieval English Economy’ in A. T. Brown, A. Burn and R. Doherty (eds), *Crises in Economic and Social History: a comparative perspective* (Woodbridge, 2015), 261–82; R. Goddard, *Credit and Trade in Later Medieval England, 1353–1532* (London, 2016).

³² See below, chap. 9, Urban Rents and the Property Market.

1.2.5 Accessing the sources

Many medieval sources are written in Latin, and some in French, in what may appear an unfamiliar script. Commonly used words and phrases were often abbreviated. Fortunately, many medieval sources have been transcribed, translated and published as editions of historical records. These include the efforts of county record societies and similar organisations with a wider geographical coverage such as the British Academy Records of Social and Economic History, and those focusing on specialised records such as the Pipe Roll Society, the Selden Society (legal records) and the Canterbury and York Society (bishops' registers). From the early nineteenth century onwards, the Record Commission and subsequently the Public Record Office published calendars, providing translations and summaries of chancery documents and state papers, that are generally sufficiently detailed to make consultation of the original documents unnecessary. Many older publications have now been digitised.³³

The digitisation of medieval sources continues apace, offering new opportunities for research. More than 9 million images have been garnered by the Anglo-American Legal Tradition project, which displays documents from The National Archives generated by central government including records of the Chancery, Exchequer and Court of King's Bench.³⁴ The National Archives itself has digitised the folios of Domesday Book and the registers of wills proved before the Prerogative Court of Canterbury, beginning in 1383, which covered the south of England and Wales. Indexes, however, are often needed to make sense of this bewildering abundance of primary source material. Take for example the

³³ Medieval English Genealogy, <https://www.medievalgenealogy.org.uk/sources/rolls.shtml>

³⁴ M. Kipling, 'Historical research without leaving home: the Anglo-American Legal Tradition archive', *The Local Historian*, 52:3 (2022), 196–206; Anglo-American Legal Tradition, <http://aalt.law.uh.edu/>

registers of the archbishops of York, where more than 20,000 images from between 1225 and 1650 have been digitised, which relate to the administration of the northern province, extending north from Nottinghamshire to the border with Scotland. The Northern Way project has made available online descriptive data for the fourteenth-century registers alongside the digital images.³⁵

1.3 AGGREGATING THE DATA: DATABASES AND TIME SERIES

Developments in computing have also facilitated the collection of large bodies of data and their analysis from medieval sources. The Medieval Crop Yields database aggregates several estate studies to provide crop yields from the seigniorial sector searchable by grain, county and manor, covering the early thirteenth to mid fifteenth century.³⁶ England's Immigrants 1330–1550 is a fully-searchable database containing over 64,000 names of people known to have migrated to England, drawn primarily from records of a series of taxes levied upon first-generation immigrants at various times between 1440 and 1525.³⁷ Records of the many thousands of single finds of medieval coins and large numbers of coin hoards discovered in the United Kingdom, and reported through the Portable Antiquities Scheme and the Corpus of Early Medieval Coin Finds, provide an important source of information for

³⁵ <https://archbishopsregisters.york.ac.uk/northernway>

³⁶ B. M. S. Campbell, *English Seigniorial Agriculture, 1250–1450* (Cambridge, 2000); B. M. S. Campbell and K. Bartley, *England on the Eve of the Black Death: An Atlas of Lay Lordship, Land and Wealth, 1300–49* (Manchester, 2006). The Crop Yield database is hosted at <https://jordanclaridge.com/datasets>

³⁷ W. M. Ormrod, N. McDonald and C. Taylor (eds), *Resident Aliens in Later Medieval England* (Turnhout, 2017); W. M. Ormrod, B. Lambert and J. Mackman, *Immigrant England, 1300–1550* (Manchester, 2019); England's Immigrants 1330–1550, <https://www.englishimmigrants.com/>.

long-term trends in money supply.³⁸ Martin Allen explains how this data has been combined with records of English mint outputs to produce estimates of the volume of the English coinage and of the money supply.³⁹

Drawing on the sources discussed in several of the earlier chapters, Stephen Broadberry assesses the size of the economy during the medieval period and relates it to the long run development of the British economy over the last millennium. Annual time series are constructed for agriculture, industry and services, which are then aggregated together using weights derived from a reconstruction of the structure of the economy in benchmark years. The reconstructed English gross domestic product (GDP) can then be divided by population to arrive at GDP per capita, and all three series can be considered together to provide a full picture of the evolving size of the medieval economy. Medieval estimates of GDP can be linked up with estimates for the early modern and modern periods to provide a continuous series for the period 1270–1870. The discovery of a sustained increase in GDP per capita after the Black Death turns out to have been the first step on the road to modern economic growth.⁴⁰

Future research might aim to expand the existing series of prices and quantities of commodities and consumables. These series can all be used to investigate individuals, families and institutions at the micro level but also provide evidence for wider economic developments at the macro level. Comparative work will allow much greater understanding of the extent to which conditions or changes on an individual estate reflected local conditions

³⁸ Portable Antiquities Scheme, <https://finds.org.uk/>; Corpus of Early Medieval Coin Finds, <https://emc.fitzmuseum.cam.ac.uk/>

³⁹ See below, chap. 10, Money Supply.

⁴⁰ See below, chap. 11, The Size of the Medieval Economy.

or were part of a broader experience across a wider geographic area. The growing availability of large digital historical datasets, combined with the emergence of new methodologies and computer algorithms, has the potential to revolutionise research. It is hoped that this book will not only showcase what has already been achieved but also inspire others to conduct further quantitative research into the medieval economy.

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