

42. Finding the ‘Missing Pieces’

Coin Weights and the Circulation of Gold Coin in England and Wales, 1300–1600

▼ **ABSTRACT** Copper-alloy weights were used throughout the late medieval and Renaissance periods to control and monitor the circulation of gold coins, and their presence on archaeological sites offers a unique means of evaluating the nature and extent of gold circulation in places that otherwise lack gold coin finds. This paper uses 1924 finds of fourteenth- to sixteenth-century coin weights from England and Wales to explore long-term dynamics in the circulation of gold coinage, and assesses the significance of this dataset in the light of historical and coin find evidence.

▼ **KEYWORDS** medieval, early modern, gold coinage, coin weights, currency flows, international trade

Introduction

The rise of gold coinage is one of the defining features of the monetary history of Northwestern Europe in the later Middle Ages, and England and Wales are no exception to the trend. From 1344 onwards, gold coins formed an increasingly significant portion of English mint output, and by the beginning of the fifteenth century had become the standard medium of exchange for merchants trading with continental Europe (Spufford 1988, 319–38; Woodhead 199; Allen 2012, 312–16). Exactly what role gold played in domestic circulation, however, is less clear. Key archival sources like the Cely and Paston letters, two collections of fifteenth-century correspondence that are ripe with monetary references (Gairdner 1904; Hanham 1975), offer glimpses of gold coin use seen through the lens of wealthy merchant and gentry households, but tell us very little about how more modest individuals engaged with gold currency, if indeed at all. Coin finds can be

similarly problematic. Despite recent contributions from hobbyist metal detecting, hoards of gold coins are still uncommon, with just under 120 examples buried c. 1351–1544 known from all of England and Wales, the interpretation of which is complicated by an overtly selective process of thesaurization (Andrews 2019; 2020, 309–15). Single finds, most of which result from accidental loss, might offer an alternative perspective, but are exceedingly rare, with fewer than 500 examples recorded by 2015 (Kelleher 2012; Andrews 2017). This latter dataset has clear biases in survival and recovery, since coin users might spend more time seeking to recover lost gold coins than less valuable silver ones (Blackburn 1989, 17–18).

In light of these problems, this paper seeks to trace patterns in the circulation of gold coins in England and Wales between the fourteenth and sixteenth centuries by means of a parallel dataset of single finds of late medieval and Renaissance coin weights. Made of lead or copper-alloy and bearing motifs adapted

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from coin designs, these objects offered a practical means of monitoring the intrinsic value of gold coins in the course of large or high-value transactions: by placing coins and weights in the opposing pans of an equal-arm balance, coin users could quickly discern and reject the clipped, counterfeit, or defective coins that might otherwise pass visual inspection (Egan 2010, 322–27; Bolton 2012, 237–38; Withers and Withers 2021, 4). Since coin weights served no useful purpose independent of the gold coins they weighed, examples found on archaeological sites can serve as indicators of the presence of contemporary gold coins and therefore offer a useful proxy for tracing the ‘missing pieces’ of gold that otherwise rarely figure in the single finds record.

Data and Methods

The source material used in this study consists of a corpus of 1924 copper alloy and lead coin weights dated 1300–1600 found in England and Wales by June 2022, which have been collated from published excavation reports, the Portable Antiquities Scheme (PAS) and UK Detector Find (UKDFD) metal-detector find databases, and the author’s own checklist of unpublished finds. The weights include specimens designed for use with gold coins issued in England, France, Germany, Hungary, Italy, the Low Countries, Portugal, Spain, and the Anglo-Gallic realms (Fig. 42.1), and have a widespread distribution across England and Wales. They are, however, noticeably more common to the southeast of a line between the Humber and Severn Estuaries, a familiar pattern from British archaeological distributions of all periods (Green et al. 2017, 249–52).

One of the major difficulties of this dataset concerns its temporal uncertainty. Apart from a small number of dated pieces, most late medieval and Renaissance coin weights are coarsely dated by reference to denominations and weight standards, so are more often attributable to spans of decades or centuries than months or years (Withers and Withers 2011, 80–84; 2021, 7–14). Tracking dynamic changes in such coarse data using traditional tools — for instance, dot distribution maps or histograms of count data neatly slotted into quarter-, half-, or whole centuries — risks two equally unacceptable outcomes: either the results are so general as to be largely meaningless, or, conversely, they create a false sense of precision that is not borne out by the underlying data. In order to account for the ‘fuzzy’ dating of coin weights, this paper traces chronological patterns using aoristic analysis, a probabilistic approach that was pioneered in criminology (Ratcliffe 2000; 2002) but has since been used to analyse several archaeological datasets with imprecise chronologies, including prehistoric Japanese houses, portable objects from medieval

England, and excavated fish bone assemblages from London (Crema 2012; Orton et al. 2015; Oksanen and Lewis 2020). The basic principles are straightforward. For every coin weight in the corpus, the date range (e.g. 1400–1600) is assigned a value of 1, which is split between defined chronological bins (e.g. 100-year periods — 1400–1500, 1500–1600 — with a value of 0.5 in each bin). The summed total of values in each bin, the ‘aoristic sum’, provides an overall impression of the chronological distribution of coin weights in the dataset, and is used as a weighting metric for heatmaps that give a probabilistic indication of changes in their spatial distribution over time. Given its advantages for tracing broad patterns in imprecise assemblages, aoristic analysis is used here in preference to analysis of raw counts.

Late Medieval and Renaissance Coin Weights: Chronology and Distribution

Period I: 1300–1400

While there is some documentary evidence for the circulation of imported gold coin during the late twelfth and thirteenth centuries (Cook 1999, 247–50), it is not until the fourteenth century that we encounter material evidence for the use of gold coin weights in England and Wales. Finds from this period are, however, relatively scarce: the aoristic sum for the entire century is equivalent to c. 90 coin weights, with c. 12 belonging to the period 1300–1350 and c. 78 to the period 1350–1400 (Table 42.1).

The composition of the coin weight dataset offers a stark illustration of the significance of foreign gold coins in the currency of fourteenth-century England and Wales, which continued to play an important, if diminishing, role after the introduction of a domestic gold coinage in 1344. Nearly two-thirds of the aoristic sum for 1300–1400, and the entirety of the aoristic sum for 1300–1350, is supplied by weights for French gold coins: agnels, écus, and masses before c. 1350, and couronnes, francs, and moutons in the half century thereafter. Nearly a fifth of the aoristic sum for 1300–1400, meanwhile, is provided by weights for the Italian gold florin and its derivatives. By contrast, weights for English gold nobles, half-nobles, and quarter-nobles make a more modest contribution to the aoristic sum, with a figure equivalent to c. 17 coin weights recorded in the period 1350–1400. These figures offer an important quantitative gloss on a wider body of qualitative evidence from accounts, inventories, and administrative documents, which record the use of French écus and Florentine florins by bishops, merchants, and royal and noble households in debt repayments, ransoms,

Table 42.1. Aoristic sums of coin weights from England and Wales by date and denominational region.

	Anglo-Gallic	Low Countries	England	France	Germany	Hungary	Italy	Portugal	Spain	Total
1300–1350	0	0	0	12.06	0	0	0	0	0	12.06
1350–1400	0	0.33	16.79	46.16	0	0	15.5	0	0	78.79
1400–1450	20.31	2.82	205.62	31.12	0	0	15.5	0	0	275.37
1450–1500	2.95	4.65	280.53	59.22	0	0	15.5	0	0.55	363.40
1500–1550	0.74	34.57	268.66	84.56	6	13	15.5	2.5	23.72	449.25
1550–1600	0	127.53	384.9	113.78	15	37	1	8.5	57.72	745.43

and international trade during the 1320s–40s (Mate 1978, 127–28; Cook 1999, 255–58), and underline the influence of these coins on the development of a domestic gold currency, as otherwise suggested by the weight standards and styles of the earliest English gold coins struck in 1344–1351 (Stewartby 2009, 184–88). Moreover, the data reveals some of the shortcomings of the English and Welsh hoard dataset for this period, which includes only a handful of gold finds — most of them fairly small — concealed before the 1370s (Cook 1999, 260; Andrews 2019, 71–88).

While finds of gold coin weights are relatively scarce for the period 1300–1400, their spatial distribution is nonetheless fairly broad (Fig. 42.2). As might be predicted from contemporary coin hoards and single coin finds (Kelleher 2012, 124–31; Andrews 2019, 33–36), the more intensively monetized regions of eastern and southern England have produced the largest number of gold coin weights, and certain ‘hotspots’ of finds around east coast trading centres like Dover and Hull might hint at the importance of mercantile activity to gold circulation in the fourteenth century. However, isolated specimens have also been recorded beyond this core zone, with examples known from as far north as Burneside and Cockermouth (Cumbria) and as far west as Hayle (Cornwall) and Ripple (Worcestershire). These finds, which mainly relate to the period 1350–1400, offer an important glimpse of the inland uptake of gold coinage in areas outside the mainstream of international commerce. Most significantly, they raise fundamental questions about the user base of high-value currency in this period, which might conceivably have widened as real incomes and living standards improved in the decades after the Black Death (Dyer 1989; Poos 1991; Munro 2004; Dyer 2005).

Period II: 1400–1500

The fifteenth century has long been considered a monetary ‘golden age’ in England and Wales, and evidence from mint accounts and die studies have traced the large-scale, if sometimes erratic, production of gold coin during the reigns of Henry IV, Henry VI, and Edward IV (Woodhead 1996, 23–36; Stewartby

2009, 316). This shift from silver to gold, a consequence of wider changes in Eurasian bullion flows during the late Middle Ages (Spufford 1988, 319–62; Bolton 2012, 227–51), had a considerable impact on the composition of the English and Welsh currency, and recent estimates suggest that c. 90% of the currency in circulation in 1422 and c. 53% in 1470 took the form of gold coin (Allen 2012, 344). These general trends are largely mirrored in the gold coin weight dataset, whose aoristic sum for the period 1400–1500 is equivalent to c. 639 weights, and represents a sevenfold increase on the sum for the period 1300–1400. Indeed, the degree of correspondence between the evidence of mint accounts and coin weights is visible at a fine grain level when the aoristic sum is split into 25-year bins: the period of high gold output around the 1464/5 recoinage is reflected in an aoristic sums equivalent to c. 195 weights in 1450–1475, while reduced output in the early reign of Henry IV and late fifteenth century is echoed by lower aoristic sums equivalent to c. 78 weights in 1400–1425 and c. 169 in 1475–1500 (Woodhead 1996, 23–36).

While finds of coin weights suggest that the gold currency of England and Wales was dominated by foreign specie in the fourteenth century, the same data points to a dramatic reversal of fortunes in the fifteenth century. While the fourteenth-century aoristic sum drew mainly from weights for foreign gold coins, three quarters of the aoristic sum for 1400–1500 is supplied by weights for English gold nobles, half-nobles, and quarter-nobles, with weights for the newly-introduced angel and its fractions appearing after 1464/5. While the residual quarter is contributed by weights for foreign gold coins, these represent a more heterogenous mix of denominations than before, such as the French écu and royal, the Italian florin and its derivatives, Low Countries crowns, guldens, lions, and rijders, and the Anglo-Gallic salut, the latter of which is referenced in contemporary documents and features in the Fishpool (Nottinghamshire) and Reigate (Surrey) hoards (Cook 1999, 261–66; 2001; Andrews 2019, 88). These shifts in the composition of the coin weight dataset are striking, and hint at the increasing success of efforts to enforce the monopoly of English gold in domestic currency by legal and administrative means, which included

systematic recoinages in 1412 and 1464/5, the creation of a network of currency exchanges, royal proclamations and statutory prohibitions and restrictions on the use of foreign gold coin, and the official confiscation of foreign specie found in ports and coastal towns (Allen 2012, 364–66).

The significant growth of the coin weight dataset in the period 1400–1500 can also be traced at the spatial level. Large numbers of finds are known from across lowland England, and particularly intense concentrations are recorded in the vicinity of major towns like Norwich (Norfolk) and York (North Yorkshire) in the east, and Dover (Kent), Southampton, and Winchester (Hampshire) in the south. However, the distribution of coin weights within the core zone of southern and eastern England is clearly not restricted to the hinterlands of large towns, and significant bands of rural finds are also known from the mixed farming districts of the Bedfordshire and Cambridgeshire claylands, the Severn and Avon Valleys, and the Somerset Levels. This pattern of expansion is visible not only in this core zone but also at the margins, which by the fifteenth century extend ever further westwards into south Wales and north towards the Scottish Border.

Period III: 1500–1600

The fifteenth-century expansion of the English and Welsh coin weight dataset continues on a dramatic scale during the sixteenth century, with an aoristic sum equivalent to *c.* 1195 weights in the period 1500–1600 — nearly twice as many as calculated for 1400–1500. While growth is fairly regular across the first three quarters of the century, coinciding with the steady expansion of gold minting in the early Tudor period, there is a pronounced spike in the period 1575–1600, which produces an aoristic sum equivalent to *c.* 480 coin weights yet is not mirrored by any dramatic growth in English gold output late in the reign of Elizabeth I (Challis 1978, 305–08).

This apparent paradox can be explained with reference to the changing composition of the coin-weight dataset. While weights for English coins account for three quarters of the aoristic sum for 1400–1500, they contribute to three-fifths of the aoristic sum in 1500–1525, 1525–1550, and 1550–1575, and just under half of the aoristic sum in the period 1575–1600. This relative decline is a direct mirror of the growing number of weights intended for use with European gold coins, including French *écus* and *moutons*, German *goldgulden*, Hungarian *ducats*, Low Countries *crowns*, *guldens*, *reaals*, and *rijders*, Portuguese *cruzados*, and Spanish *escudos* and *excelentes*. Several of these denominations, including the crown, *cruzado*, and *excelente*, were guaranteed as legal tender by royal proclamation (Challis 1978,

215–18), but others — such as the German *goldgulden* and Hungarian *ducat* — never received official sanction, and are otherwise attested by only a handful of isolated coin finds from England and Wales (Kelleher 2007; Andrews 2021). The twin trends of expansion and ‘Europeanisation’ witnessed in finds of gold coin weights from England and Wales therefore have a solid empirical basis, and might conceivably reflect directional shifts in the pattern of Tudor overseas trade, which saw well-attested pivots to and from markets in the Netherlands, Germany, Spain, the Baltic, the Mediterranean, and the Americas over the course of the sixteenth century (Palliser 1983, 278–98).

As in the fifteenth century, the absolute growth of the coin weight dataset in the sixteenth century had major spatial repercussions. Gold coin weights of the period 1500–1600 are recorded from virtually every part of lowland England, and there is evidence of a continued expansion along the margins, which now firmly extend to Wales and northern England. While the core distribution of gold coin weights remains skewed towards lowland England, certain shifts of emphasis within this region might reflect broader changes in late medieval and early modern economic geography: the woollen districts of Suffolk and western Britain, for instance, have produced significant groups of gold coin weights, while the rise of Tudor London is reflected in a pronounced cluster of gold coin weights found by ‘*muclarks*’ searching the foreshore of the River Thames (Ramsay 1982; Palliser 1983, 202–36).

Coin Weights and the Social Circulation of Gold

The data and analyses presented in this paper offer important insights into the changing patterns of gold coin use in England and Wales during the fourteenth to sixteenth centuries, which were defined by periods of slow and rapid expansion and by shifts in the relative significance of domestic and foreign currency over time, and give a clear illustration of the potential of coin weights as sources for late medieval and early modern monetary history. Such a rich dataset will clearly reward further enquiry, and in closing it seems prudent to ask one more question: what can finds of coin weights tell us about the social dimensions of gold coin circulation during the late medieval and Tudor periods?

One approach to this question is presented in Fig. 42.3, which plots the spatial distribution of gold coin weights dated 1300–1600 in relation to two other historic economic indicators: on the left, the distribution of taxable wealth in England as recorded in the 1524–5 *exchequer lay subsidies* (Sheail 1998, 438), and on the right the distribution of 520 hoards of gold and/or

silver coins dated 1351–1603 from England and Wales (Brown and Dolley 1971; Andrews 2019, with additions). Visual inspection reveals close correlations between the distribution of gold coin weights and both of these comparative datasets, the strength of which are confirmed by the results of formal linear regression analyses.¹ These observations are of fundamental significance, and suggest that the circulation of gold coin, as measured by the distribution of gold coin weights, essentially mirrors the wider economic and monetary topography of England and Wales as measured by taxable wealth and coin hoards. There is, therefore, little evidence for a two-tier system of gold and silver circulation in fourteenth- to sixteenth-century England and Wales; contrary to the view of some historians and numismatists (Woodhead 1996, 1; Deng 2009, 269; Nightingale 2010, 1095–96), gold was not simply a 'prestige' medium restricted to nobles and wealthy merchants in large towns and coastal ports, but flowed across town and country in the course of commerce and exchange, just as silver coin did.

This broad conclusion is reinforced by the archaeological contexts of coin weight finds, which encompass a remarkably broad selection of site types: from towns like London and Norwich to religious houses at Cirencester and Strata Florida, and even to rural villages like Pivington, Shapwick, Somerby, and Wharham Percy. These last examples are of no little interest, and complement the large number of gold coin weights unearthed by metal-detectorists in ploughed fields, which probably represent losses from farmers and peasant households. Such finds are best understood in light of economic developments in the aftermath of the Black Death: as incomes and living standards rose,

even peasants might find a use for gold in paying entry fines and heriots, buying and selling land, livestock, or produce, and in the delayed settlement of debts (Dyer 2012, 122–23; 2022, 260–62).

Conclusion

The finds of coin weights examined in this paper offer important new insights into the development of an expansive gold currency in late medieval and Tudor England and Wales. Judging from coin weight finds, gold circulation was relatively small scale, and dominated by foreign specie, for much of the fourteenth century, but expanded after the introduction of an English gold coinage in 1344. Buoyed by increasing mint output and a post-Black Death rise in living standards, gold circulated on a much larger scale in the fifteenth century, and domestic stocks were increasingly dominated by English coin at the expense of foreign coin. While growth continued throughout the sixteenth century, with a dramatic spike in 1575–1600, shifts in the balance and pattern of trade created new openings for the circulation of foreign gold coins, which now came from an increasingly wide range of sources. Crucially, the geographical distribution and archaeological contexts of coin weights suggest that gold coins were not restricted to a wealthy elite trading with the continent, but increasingly permeated the economies of small towns and villages across England and Wales. Finds of coin weights, then, leave the unmistakable impression of a region awash with gold, which served a variety of economic roles beyond the limits of international commercial exchange.

¹ Gold coin weights vs taxable wealth in the 1524–5 lay subsidy, $r^2 = 0.983$; gold coin weights vs coin hoards deposited 1351–1603, $r^2 = 0.914$.



Figure 42.1. Late medieval and Renaissance coin weights found in England and Wales. Left to right, top to bottom: English noble, ryal, angel, and crown; French agnel, écu, écu d'or au soleil, and Anglo-Gallic salut; Italian florin, Low Countries lion, rijder, and emdergulden; German goldgulden, Hungarian ducat, Portuguese cruzado, and Spanish excelente. Photographs copyright Birmingham Museums Trust, Colchester Museums, National Museums Liverpool, National Museum Wales, Norfolk County Council, Portable Antiquities Scheme, Salisbury and South Wiltshire Museum, St Albans District Council, Suffolk County Council, and Surrey County Council, reproduced with permission under a CC BY-SA 4.0 licence.

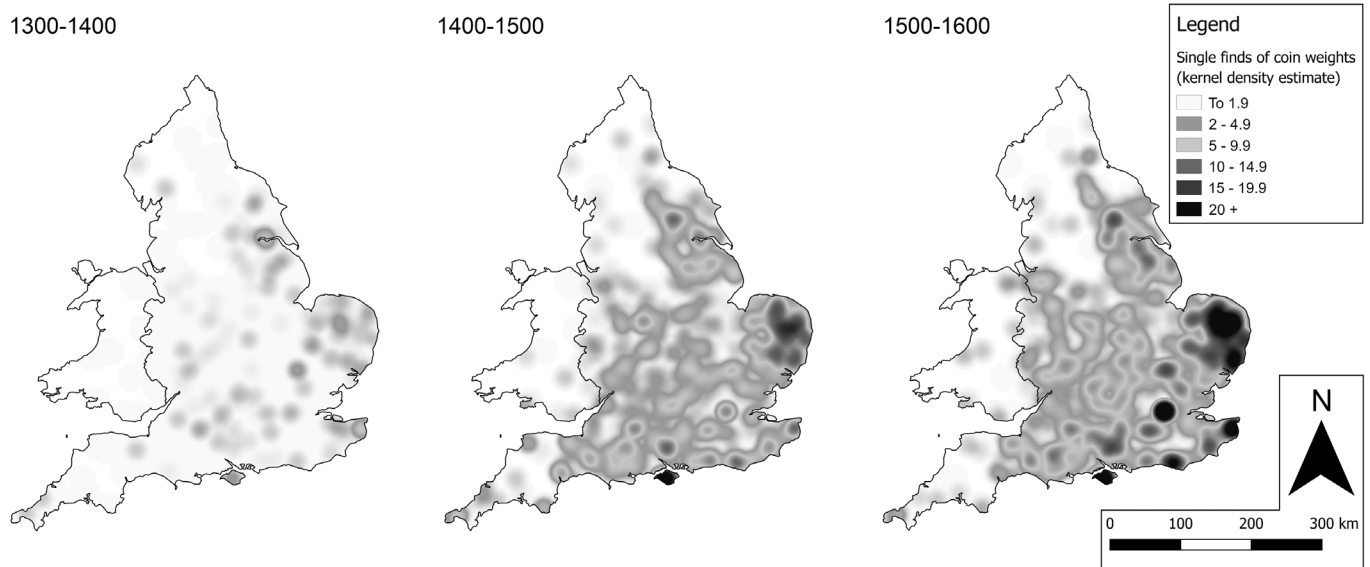


Figure 42.2. Kernel density estimate heatmap of coin weights dated 1300–1600, weighted by aoristic probability. Map by the author.

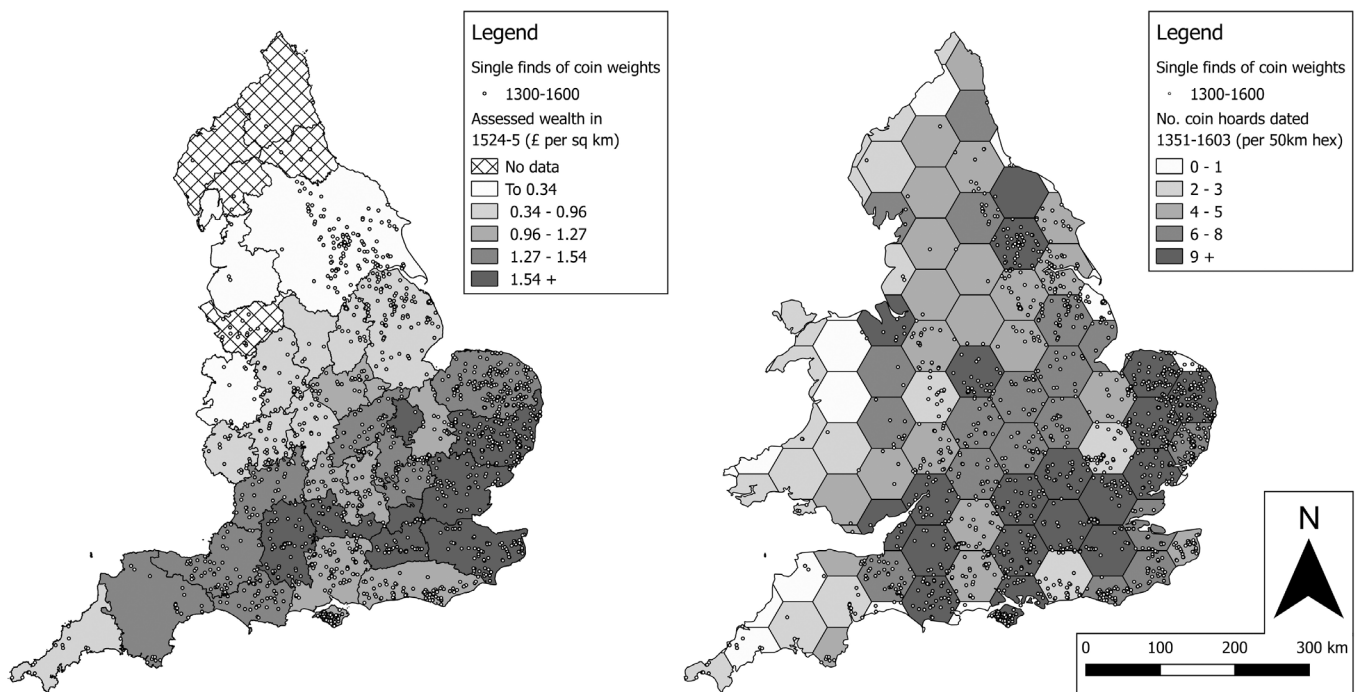


Figure 42.3. The distribution of coin weights dated 1300–1600 compared to taxable wealth in the 1524–5 lay subsidy (left) and coin hoards dated 1351–1603 (right). Map by the author.

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