ONLINE APPENDIX TO THE ARTICLE:

G. Alfani and H. García Montero, "Wealth inequality in pre-industrial England: A long-term view (late thirteenth to sixteenth centuries)", *Economic History Review*, 2022, forthcoming

Appendix A. Population figures

In order to estimate the percentage of households not taxed and, therefore, not included in our sources we proceeded as follows:

1) We collected information about population at the county level in the year 1290 from Broadberry *et al.*[1] (p. 25). We assumed that no significant changes in the population of each county took place between 1280 and 1296, the interval within which most of our earliest data are comprised. For Worcestershire in 1279 we tweaked the estimates for 1290 by assuming the same yearly rate of growth at the county level that we could calculate at national level for 1279-1290 based on information about the overall population of England from Broadberry *et al.* (p. 20). For Bedfordshire in 1309 we assumed the county share of the overall population in 1290 and applied it to the English population estimate for 1315 provided again by Broadberry *et al*.

Population figures for 1327 or 1332 (or 1334 in the case of Kent) were calculated starting with the county shares of the overall population in 1290 and applying them to the population estimate for 1325 provided, at the national level only, by Broadberry *et al*. (p. 20).

Also for 1524-25 we applied a similar procedure, collecting information about the population at county level in 1377 from the same sources mentioned above and applying to it the rate of growth estimated for 1377-1522, i.e. the two extremes for which we had information about the national population. As Broadberry *et al*. also provide information at county level for 1600, we applied to the above estimates some amendments covering only those counties whose population grew, during 1377-1600, at a pace very different from the average national one.

2) The second step was calculating the number of households in each county (as households were the unit of taxation). Again, we relied upon the social tables published in Broadberry *et al.* (pp. 317-23). In practice, this means assuming that there were no significant differences in mean household size

[1] Broadberry, Stephen, Bruce M. S. Campbell, Alexander Klein, Mark Overton, and Bas van Leeuwen. *British Economic Growth*. Cambridge: Cambridge University Press, 2015.

across England. In particular, for the late thirteenth century, 1327-32 (1334 in Kent) and 1524-25 we took as a reference the social table for 1290, which allowed us to estimate a mean household size of 4.34 members. Thereafter, calculating the number of households per county was a simple matter of dividing our population estimates by 4.34. By comparing these estimates to the number of taxed households, we could easily calculate the percentage of households missing from our sources (not taxed). Note that, while it seems reasonable to assume the same household size in 1290 and in 1327-32, we might wonder whether an estimate of 4.34 is proper also for 1524-25. In the lack of specific studies, we rely upon the classic article by Julian Cornwall on the early sixteenth-century English population. As Cornwall considers reasonable an average household size of 4 to 4.5[2], we decided to apply our estimate of 4.34 to 1524-25 as well, in order to contain the number of variables affecting our comparisons of inequality levels at different dates. The implications of this are discussed further in Appendix D. Also note that when we could check our estimates of the county population against independent estimates, we found that they were not very different. For example, Dyer argues that 'Kent contained at least 30,000 households in the 1330s[3]', which is entirely compatible with our estimate of 32,656 households in 1334.

3) Finally, we dealt with some gaps in our sources. For each county and year, we checked at the hundred and, when possible, even at the parish level whether some information was missing. When we discovered that a hundred or parish was missing, we inferred from complete subsidies for different dates the relative size of each hundred compared to the total population of the county (indeed, we had to assume that such a relative size did not change over time). Then we reduced accordingly the size of the population of reference to compensate for the gap. The underlying hypothesis is that the households placed in the hundreds/parishes for which we have no information had the same distribution of wealth as those placed in the observed hundreds/parishes. This procedure is applied to several counties in 1524-25 and to Suffolk in 1283 and Buckinghamshire in 1332.

4) Only for 1524-25 did the fact that some households were not taxed on the basis of their movable wealth, but of their wages or their income from land, pose an additional challenge. As explained in the Main Text, in order to make our measures for 1524-25 comparable with those for other dates, we worked on the distribution of movable wealth only. But it would be improper to define the missing population as all that was not taxed on the basis of "goods" – as possibly some of those taxed in other

[2] Julian Cornwall, 'English Population in the Early Sixteenth Century.', *The Economic History Review* 23, No. 1 (1970): 32-44 (especially pp. 38 and 41).
[3] Dyer, Christopher. 'Taxation and communities in late medieval England.' In *Progress and problems in medieval England. Essays in honour of Edward Miller*, edited by Richard Britnell, R. and John Hatcher, 168-190. Cambridge: Cambridge University Press, 1996, p. 174.

ways, and especially those taxed based on their income from land, were also above the threshold for taxation based on goods. Hence, for the purpose of defining the percent of population above the threshold, we counted all the households taxed on land as well as those taxed on goods (as many of these households were taxed for amounts well above the minimum). Instead, the households taxed on their wages were not considered, which amounts to assuming that their movable wealth was below the minimum for taxation. This is a realistic assumption as the vast majority of these households were taxed at the minimum level. As each household paid the maximum between taxation on goods, land or wages, if they were taxed at the minimum for wages it follows that they were below the minimum for goods – hence they have to be counted among those placed to the left of our censoring point (see methods in Section II of the Main Text).

Finally, for the city of London, we followed a procedure broadly analogous to that described above. We began with Campbell's estimate of a population in the range 60,000-80,000 ca. 1290 – we assumed the intermediate value of 70,000.[4] To this, we applied the average population change for England during 1290-1315 which can be estimated from Broadberry *et al*. (p. 20), obtaining an estimate of 69,116, which we assumed to be valid for 1319 as well. As London's subsidy rolls for 1319 are slightly incomplete (we estimate that 5% of the city taxpayers are missing), for the purpose of calculating the prevalence of missing households we further reduced the population of reference to 65,660. For 1332, an estimate places London's population at about 35,000 at 1335.[5] This, however, seems too low considering our estimate for 1319, so in the absence of other estimates we have assumed a population of 50,000.[6]

The final estimates for the total population, the number of households and the number of households taxed in the counties and years included in this study are reported in Table A1 below. Note that for some counties and years the estimates of taxpayers differ from those of "households taxed" in Table 2 of the Main Text. This, because Table 2 reports all households listed by the sources, while Table A1 reports the computations required to estimate the percentage of households placed to the left of our censoring point (excluding, then, those that were taxed based on wages in 1524-25, as seen above,

[4] Campbell, Bruce. M.S. 2008. 'Benchmarking medieval economic development: England, Wales, Scotland, and Ireland, c. 1290.' *Economic History Review* 61 (4), 2008, p. 908.
[5] Bairoch, Paul, Jean Batou, Pierre Chevre, *La population des villes européennes. Banque des données et analyse sommaire des résultats, 800 à 1850*, Droz, Genève, 1988.
[6] Note that for London, where a large percentage of the population is missing anyway, our reconstructed Gini indexes are quite robust even to sizeable changes in the population estimates. So, assuming a population of 50,000 in 1332 we obtain a Gini index of 0.953 (Main Text, Table 3). Had we assumed Bairoch et al.'s estimate of 35,000 (which we believe to be unrealistically low) the Gini index would have fallen to 0.932, which remains an extremely high inequality level, qualitatively analogous to our preferred estimate.

as well as some households which were occasionally reported with values below the usual threshold for taxation of 10 shillings. As such households were not recorded systematically, they had to be excluded in order to apply properly the reconstruction method discussed in the Main Text, as well as to ensure homogeneity in estimation criteria across counties).

Tab. A1. Total population, households and taxpaying households in late-medieval and early modern England

1280-1319				
COUNTY	POPULATION	HOUSEHOLDS (TOT)	TAXPAYERS	MISSING HOUSEHOLDS (%)
Bedfordshire (1309)	63,383	14,604	5,426	62.9
London (1319)**	65,660	15,129	1,696	88.8
Northumberland (1296)	148,084	34,121	4,273	87.5
Rutland (1296)	23,655	5,450	1,645	69.8
Suffolk (Blackbourne hundred only) (1283)	15,465	3,563	830	76.7
Sussex (1296)	123,415	28,437	6,983	75.4
Worcestershire (c. 1280)	56,396	12,994	7,263	44.1
1327-34				
COUNTY	POPULATION	HOUSEHOLDS (TOT)	TAXPAYERS	MISSING HOUSEHOLDS (%)
Bedfordshire (1332)	55,620	12,816	4,392	65.7
Buckinghamshire (1332)**	30,807	7,098	2,248	68.3
Cumberland (1332)	52,324	12,056	3,495	71.01
Devon (1332)	128,132	29,524	10,231	65.4
Dorset (1332)	84,872	19,556	7,580	61.2
Essex (1327)	145,436	33,511	8,258	75.4
Kent (1334)	141,728	32,656	10,617	67.5
Lancashire (1332)	52,736	12,151	2,567	78.9
London (1332)	50,000	11,521	1,475	87.2
Shropshire (1327)	99,292	22,878	4,872	78.7
Staffordshire (1332)	49,028	11,297	3,948	65.1

Suffolk (1327)	195,700	45,092	11,713	74.0
Surrey (1332)	70,864	16,328	3,649	77.7
Sussex (1332)	107,720	24,820	6,809	72.6
Warwickshire (1332)	75,396	17,372	5,758	66.9
Worcestershire (1327)	52,324	12,056	4,769	60.4

1524-25

COUNTY	POPULATION	HOUSEHOLDS (TOT)	TAXPAYERS (goods)	TAXPAYERS (income from lands)	MISSING HOUSEHOLDS (%)*
Bedfordshire	12,643**	2,913	1,194	543	40.4
Buckinghamshire	36,895	8,501	5,573	143	32.8
Devon	147,580	34,005	18,878	642	42.6
Dorset	51,230	11,804	6,057	65	48.1
Essex	87,420	20,143	10,158	666	46.3
Kent	77,080**	17,760	6,972	919	55.6
Lancashire	41,242**	9,503	1,297	560	80.5
London (1541)	60,000	13,825	2,876	71	78.7
Rutland	8,225	1,895	933	27	49.3
Shropshire	36,284**	8,360	3,146	173	60.3
Staffordshire	41,125	9,476	3,910	398	54.5
Suffolk	89,338**	20,585	8,651	754	54.3
Surrey	37,506**	8,642	4,212	190	49.1
Sussex	59,925	13,808	7,462	782	40.3
Warwickshire	44,415	10,234	5,618	213	43
Worcestershire	32,430	7,472	4,290	129	40.9

* Only for 1524-24, has the percentage of missing households been calculated as the difference between the total estimated households and the sum of the households taxed on goods and on incomes from land (see above for explanation). ** The population of these counties has been reduced to compensate for gaps in the sources, based on the procedure detailed above. In 1319, the complete population of London would be 69,116. In 1334, the complete population of Buckinghamshire would be 77,044. In 1524-25, the complete population would be 93,060 in Suffolk; 45,355 in Shropshire; 94,000 in Kent; 63,450 in Lancashire; 29,610 in Bedfordshire; 39,480 in Surrey. Note that for Suffolk and Surrey the differences between the complete and the reduced population are minimal (in the order of 4% and 5% respectively) as the gaps in the records were very limited.

Appendix B. County-level sources used to build the database

For 1280-1319:

Bedfordshire (1309): Hervey, S. H. A. (ed.) (1925), *Two Bedfordshire Lists. 1309 and 1332*, Bury St. Edmunds, Paul & Mathew, Suffolk Green Books series XVIII.

London (1319): Ekwall, Eilert (ed.) (1951), *Two Early London Subsidy Rolls*, Lund, C. W. K. Gleerup.

Northumberland (1296): Fraser, Constance Mary (ed.) (1968), *The Northumberland Lay Subsidy roll of 1296*, Newcastle-upon-Tyne, Society of Antiquaries of Newcastle-upon-Tyne.

Rutland (1296): Postles, D. (ed.), Leicester University, http://www.historicalresources.myzen.co.uk/RUTLS/ruthome.html

Suffolk (Blackbourne hundred) (1283): Powell, Edgar (1910), *A Suffolk Hundred In The Year 1283 The Assessment Of The Hundred Of Blackbourne For A Tax Of One Thirtieth, And A Return Showing The Land Tenure There*, Cambridge, Cambridge University Press.

Sussex (1296): Hudson, William (1910), *The Three Earliest Subsidies for the County of Sussex 1296, 1327, 1332*, London, Sussex Record Society.

Worcester (c. 1280): Willis Bund, John William and Amphlett, John (eds.) (1893), *Lay Subsidy Roll for the County of Worcester Circ. 1280*, Oxford, Jamer Parker and Worcestershire Historical Society.

For 1327-1332:

Bedfordshire (1332): Hervey, S. H. A. (ed.) (1925), *Two Bedfordshire Lists. 1309 and 1332*, Bury St. Edmunds, Paul & Mathew, Suffolk Green Books series XVIII.

Buckinghamshire (1332): Chibnall, A. C. (ed.) (1966), *Early taxation returns. Taxation of Personal Property in 1332 and later*, Buckinghamshire Record Society 14.

Cumberland (1332): Steel, John Philip (ed.) (1912), *Cumberland Lay Subsidy, Being Account of a Fifteenth and Tenth Collected 6th Edward III*, Kendal, T. Wilson.

Devon (1332): Erskine, Audrey M. (ed.) (1969), *The Devonshire Lay Subsidy of 1332,* Torquay, Devon & Cornwall Record Society, New series 14.

Dorset (1332): Mills, A.D. (ed.) (1971), *The Dorset Lay Subsidy Roll of 1332*, Dorchester, Dorset Record Society 4.

Essex (1327): Ward, Jennifer C. (ed.) (1983), *The Medieval Essex Community. The Lay Subsidy of 1327*, Chelmsford, Essex Record Office 88.

Kent (1334): Hanley, H.A. and Chalklin, C. W. (eds.) (1964), "The Kent Lay Subsidy Roll of 1334/5, Kent Archaeological Society", in F. R. H. Du Bolay (ed.), *Documents Illustrative of Medieval Kentish Society*, Kent Records, vol. 18, Ashford, Kent Archaeological Society, pp. 58-172.

Lancashire (1332): Rylands, J. Paul (ed.) (1896), "The Exchequer Lay Subsidy Roll in the County of Lancaster, A.D. 1332", in *Miscellanies Relating to Lancashire and Cheshire*, Volume 2, Lancashire and Cheshire Record Society 31, London, Wyman and Sons.

London (1332): Curtis, Muriel (ed.) (1918), "The London Lay Subsidy of 1332", in G. Unwin (ed.), *Finance and Trade Under Edward III*, Manchester, Manchester University Press, pp. 35-92.

Shropshire (1327): Fletcher, William George Dimock (ed.) (1907), "The Shropshire Lay Subsidy Roll of 1 Edward III, 1327", Reprinted from *Transactions of the Shropshire Archaelogical and Natural History Societ*y, Second Series, 1, 4-5, 8, 10-11, Third Series 5-7.

Staffordshire (1332): Wrottesley, G. (ed.) (1889), "The subsidy roll of 6 Edward III, AD 1332-3 from the original exchequer roll in the Public Record Office", London, Staffordshire Record Society, Staffordshire Historical Collections, 10, 1.

Suffolk (1327): Hervey, S. H. A. (ed.) (1906), *Suffolk in 1327. Being a subsidy return*, Woodbridge, G. Booth, Suffolk Green Books IX, 11.

Surrey (1332): Willard, J. F. and H. C. Johnson (eds.) (1923), *Surrey Taxation Returns. Fifteenths and Tenths. Part (A) -The 1332 Assessment*, London, Surrey Record Society, 18.

Sussex (1332): Hudson, William (1910), *The Three Earliest Subsidies for the County of Sussex 1296, 1327, 1332*, London, Sussex Record Society 10. Faltaria url

Warwickshire (1332): Carter, William Fowler (ed.) (1926), *The Lay Subsidy Roll for Warwickshire of 6 Edward III, 1332*, London, Publications of the Dugdale Society 6.

Worcestershire (1327): Eld, Francis John (ed.) (1895), *Lay Subsidy Roll for the County of Worcestershire, I Edward III*, Oxford, Worcestershire Historical Society.

For 1524-25:

Bedfordshire: Data kindly provided by the Cambridge Group for the History of Population and Social Structure (from archival research)

Buckinghamshire: Chibnall, A. C., and A. V. Woodman (eds.) (1950), *Subsidy Roll for the County of Buckingham, anno 1524*, Buckinghamshire Record Society 8.

Devon: Stoate, T. L. (ed.) (1979), *Devon Subsidy Rolls 1524-7*, Bristol, T. L. Stoate.

Dorset: Stoate, T. L. (ed.) (1982), Dorset Tudor Subsidies Granted in 1523, 1542, 1593, Bristol, T. L. Stoate.

Essex: Data kindly provided by the Cambridge Group for the History of Population and Social Structure (from archival research)

Kent: Data kindly provided by the Cambridge Group for the History of Population and Social Structure (from archival research)

Lancashire: Data kindly provided by the Cambridge Group for the History of Population and Social Structure. From Tait, J. (ed.) (1924), *Taxation in Salford Hundred, 1524-1802*, Chetham Society, 83, and additional archival research.

London (1541): Lang, R. G. (ed.) (1993), *Two Tudor subsidy rolls for the city of London 1541 and 1582*, London, London Record Society 29.

Rutland: Cornwall, J. C. (ed.) (1980), *Tudor Rutland: The County Community under Henry VIII: the Military Survey, 1522, and Lay Subsidy, 1524-5, for Rutland,* Rutland Record Society 1.

Shropshire: Faraday, M. A. (ed.) (1999), *The Lay Subsidy for Shropshire, 1524-7,* Keele, Centre for Locval History, Shropshire Record Series 3.

Staffordshire: Data kindly provided by the Cambridge Group for the History of Population and Social Structure (from archival research)

Suffolk: Hervey, Sydenham Henry Augustus (ed.) (1910), *Suffolk in 1524, being the return for a subsidy granted in 1523*, Suffolk Green Books 10, Woodbridge, G. Booth.

Surrey: Data kindly provided by the Cambridge Group for the History of Population and Social Structure (from archival research)

Sussex: Cornwall, J. (ed.) (1956), *The Lay Subsidy Rolls for the County of Sussex, 1524-25*, London, Sussex Record Society 56.

Warwickshire: Data kindly provided by the Cambridge Group for the History of Population and Social Structure. From Hulton, M. H. M. (ed.) (1999), *Coventry and its People in the 1520's*, Dugdale Society vol. 38, and additional archival research

Worcestershire: Data kindly provided by the Cambridge Group for the History of Population and Social Structure. From, Faraday, M. A. (ed.) (2003), *Worcestershire Taxes in the 1520s*, Worcester Hist. Soc. NS, 19.

Appendix C. Wealth share of the richest 10% and robustness checks

As an alternative to the Gini index, the share of the richest 10% can also be used to grasp the overall level of wealth inequality in a given society. While, generally speaking, the Gini index is preferable as a single indicator as it summarizes the distribution of wealth across society, the share of the richest 10% has the advantage of being more intuitive and of being easier to reconstruct from incomplete information (as usually the data available for the richest are better and more complete). This is not our concern as we are able to observe also the middle part of the distribution, but the fact remains that our reconstructed distributions can be expected to reflect more closely the "real" distribution when they pertain to the middle and the top, simply because this is the information used for the estimate. As a consequence, in Table C1 we provide full information about the share of the richest 10% calculated on the observed and the reconstructed part of the distribution, while in Table C2 we compare the ordinal analysis performed upon the reconstructed Gini indexes and the wealth shares. This can be understood as a robustness check of the overall validity (in terms of relative position, i.e. of higher or lower inequality in a county *relative* to other counties) of some of the analyses presented in the Main Text (Section III, Table 4).

As can be seen, the ordering of the Gini and the top 10% wealth share is identical in 1332 and almost identical in 1524-25, the only difference being the inversion in the relative position of Essex and Dorset in the second period. This stability in the relative position supports the view that the reconstruction process is respectful of the observed evidence regarding the upper part of the distribution.

Tab. C1. Wealth share of the richest 10% in English counties, 1280-1525: observed and reconstructed distributions compared

	1280-1319*		1327-32*		1524-25 (goods only)*	
	Observed	Reconstructed	Observed	Reconstructed	Observed	Reconstructed
Bedfordshire	36.8	71.3	33.1	61.7	38.3	53.5
Buckinghamshire			29.5	50.7	48.5	45.6
Cumberland			35.1	62.9		
Devon			28.9	33.4	45.8	56.5
Dorset			32.8	46.1	46.9	63.0
Essex			37.4	67.3	51.5	63.5
Kent			36.4	69.7	49.4	74.9
Lancashire			25.0	66.1	31.0	62.0
London	68.9	94.4	53.9	92.4	63.0	75.8
Northumberland	38.4	80.2				
Rutland	32.1	67.5			41.1	61.9
Shropshire			27.7	56.2	37.7	47.6
Staffordshire			24.9	57.7	36.2	48.6
Suffolk	46.3**	57.9**	33.7	62.0	47.2	62.0
Surrey			32.1	51.2	48.6	65.0
Sussex	42.5	68.9	37.2	63.6	46.2	59.3
Warwickshire			28.8	61.1	49.3	49.2
Worcestershire	40.5	51.6	26.7	46.3	38.2	50.7

Notes: (*) Wealth shares calculated on "observed" distributions refer to the incomplete distributions coming directly from the fiscal assessments; wealth shares calculated on "reconstructed" distributions refer to the complete lognormal distributions derived from the observed distributions using the method detailed in Section II.

(**) For Suffolk in 1283, the estimates refer to the Blackbourne hundred only.

Tab. C2. Wealth inequality in English counties, 1280-1525: comparing ordering of Gini indexes and top 10% shares calculated for reconstructed distributions

	1332		1524-25 (goods only)	
	Gini	Top 10%	Gini	Top 10%
London	1	1	1	1
Kent	2	2	2	2
Essex	3	3	5	4
Lancashire	4	4	6	6
Sussex	5	5	8	8
Suffolk	6	6	7	7
Bedfordshire	7	7	10	10
Warwickshire	8	8	12	12
Staffordshire	9	9	13	13
Shropshire	10	10	14	14
Surrey	11	11	3	3
Buckinghamshire	12	12	15	15
Worcestershire	13	13	11	11
Dorset	14	14	4	5
Devon	15	15	9	9
N. counties	15	15	15	15

Notes: to ease interpretation of the table, the counties have been listed according to the ordering of the Gini index calculated on the reconstructed distribution in 1332 (not according to the Gini calculated on the observed distribution as in Table 4 of the Main Text).

The values of Gini indexes based on our reconstructed distributions also depend upon the estimates of the missing population. In their turn, these depend upon our estimates of the population of each county. For 1524-25, although we have used the most updated information available in order to produce our own county-level estimates (see discussion in Appendix A), it might be that some imprecision remains and that this affects our results. To get an impression of the possible ensuing distortion in the Gini values, in Table C3 we compare our 'preferred' estimates based on the reconstructed distributions to those which could be obtained by applying a homogeneous censoring across the counties, that is, by applying the same estimate of the percentage of the missing population. To this end, it seems proper to apply to each county the prevalence of missing households that we have estimated for England as a whole in 1524-25 (53.4%), used to obtain the results which are discussed in the Main Text (Section IV). As can be seen in Table C3, for some counties –those whose

estimate of missing population was already aligned to the national average, like Kent, Staffordshire and Suffolk – the alternative measures are basically the same as our preferred ones. For others, the alternative Gini indexes are either higher (when our county-specific estimates of the missing population are lower than the national average. See Table A1 for such estimates) or lower (when our estimates of the missing population are higher than the national average). The values of the Gini can be substantially different, but note that assuming a homogeneous percentage of the missing population is highly unrealistic based on what we know about the lay subsidies (see discussion in the Main Text) and the conditions which prevailed in each county. Additionally, in terms of ordering, we continue to observe a considerable stability in the relative position of each county, with two exceptions: London, which drops from being the most unequal to the eighth position, and partially Sussex. London is a peculiar case (also because it is not a county), characterized by an exceptionally high estimate of missing population: itself entirely reasonable, given the tendency for big preindustrial cities to have a large share of relatively poor population.[7] Note that if we removed London from the comparison in Table C3, the apparent stability in the ordering would be even more impressive, with Essex, Kent, and Surrey occupying exactly the same position and many other counties being displaced by just one position. By excluding London, also the displacement of Sussex would reduce from 5 to 4 positions. Sussex, however, remains the most striking case of imperfect matching of the ordering. The technical reason for this is that, for Sussex, our preferred estimate of the percentage of missing households is relatively low (40.3%), which leads to a relatively higher estimated inequality when the national average is used in the calculations. This being said, consider that a change of four positions in the ordering does not imply a radical change in our understanding of relative inequality in Sussex, as it just moves from the middle to the upper-middle part of the overall distribution. Indeed, the fact that the maximum individual change in the positioning of a county is of four positions only (when excluding London, which seems proper) further supports the view that our estimates, in relative terms, are quite robust to any possible faults in the estimates of the county-level population.

[7] On this point see the Main Text, Section III for further discussion, as well as Guido Alfani, 'The economic history of poverty, 1450-1800', in D. Hitchcock and J. McClure (eds.), *The Routledge History of Poverty in Europe, c.1450-1800*, Routledge, 2020, pp. 21-38

Tab. C3. Wealth inequality in English counties, 1524-1525: comparing Gini indexes and ordering for reconstructed distributions using county-specific or homogeneous censoring

	Reconstructed	Reconstructed, homogeneous censoring	Ordering	Ordering, homogeneous censoring
Bedfordshire	0.671	0.745	10	6
Buckinghamshire	0.597	0.679	15	12
Devon	0.694	0.745	9	7
Dorset	0.747	0.772	4	5
Essex	0.746	0.777	5	4
Kent	0.833	0.823	2	1
Lancashire	0.743	0.743	6	9
London	0.839	0.744	1	8
Shropshire	0.615	0.584	14	15
Staffordshire	0.627	0.621	13	14
Suffolk	0.736	0.731	7	10
Surrey	0.769	0.789	3	2
Sussex	0.717	0.778	8	3
Warwickshire	0.634	0.678	12	13
Worcestershire	0.647	0.713	11	11
Rutland (*)	0.741	0.761	(excluded)	(excluded)

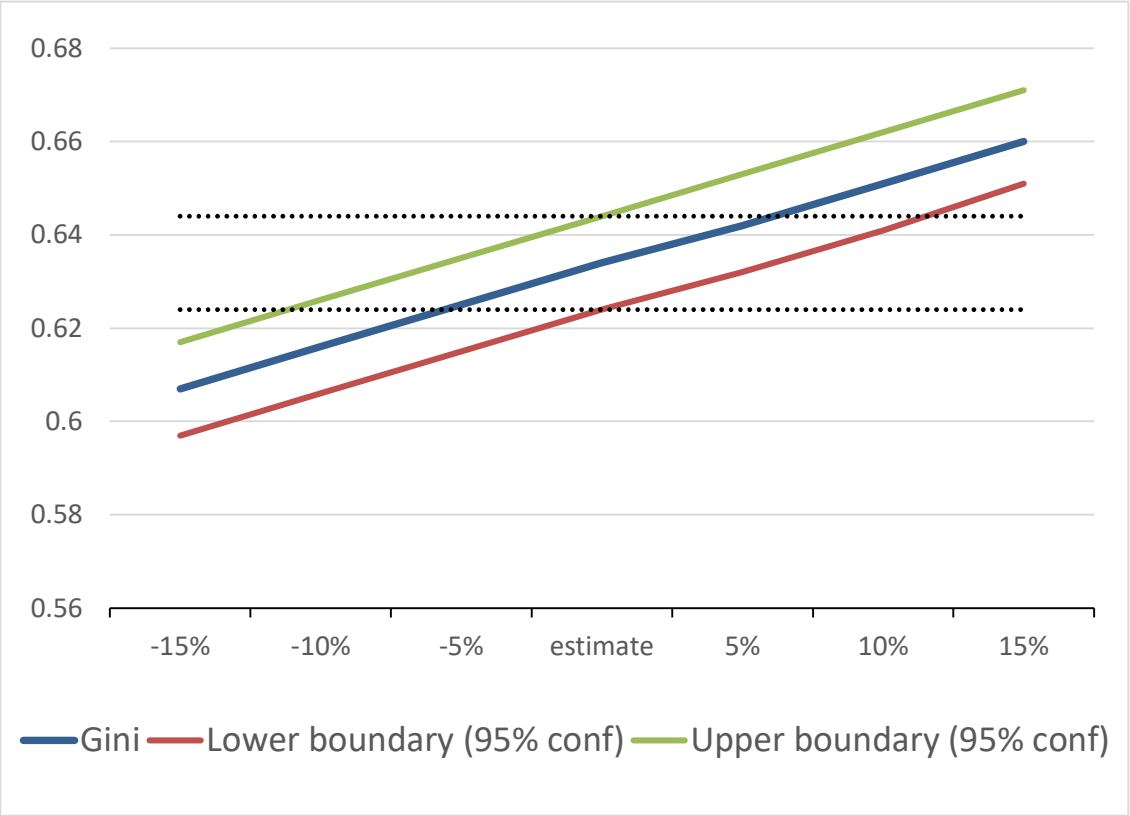
Notes: (*) Rutland is included in the table in order to provide complete information about the impact of county-specific censoring, but is excluded from the ordering to facilitate comparison with table C1 and the analyses performed in the Main Text (where Rutland has been excluded due to unavailability of information for 1332).

Appendix D. Robustness of the estimates to the assessment of missing households

Our parametric estimates of inequality levels are susceptible to imprecision in the estimates of the missing households produced with the method described in Appendix A. The estimates, however, are quite robust to a reasonable degree of imprecision. As an example, we show this by applying changes to the point estimate of the percentage of missing households in Warwickshire in 1524-25 (43%). We apply a 5%, 10% and 15% increase or reduction of the point estimate and calculate the Gini index and the related 95% confidence interval with the usual method (see Main Text). The results are shown in Table D1. Note that there are two possible sources of imprecision: faulty estimates of the total population, and faulty estimates of the average household size. As seen in Appendix A, throughout our analyses we assume an average household size of 4.34. When estimating the percentage of missing households in Warwickshire (which is our variable of interest), a 5% increase in the estimated prevalence of missing households could result from either an increase of 3.9% of the estimated total population (keeping the household size at 4.34), or a 3.8% decline of the household size, to 4.18 (keeping the estimated total population constant). Analogously, a 10% and a 15% increase in the estimated prevalence of missing households can result from a 8.1% and 12.8% increase in the estimate of the total population, or from a reduction of the household size to 4.01 and to 3.85 respectively.

As can be seen by the graph, a -/+ 5% change in the prevalence of missing households leads to estimated Gini values that fall squarely within the 95% confidence intervals calculated using the point estimate. Numerically: the reconstructed Gini for Warwickshire in 1524-25 is 0.634, with a 95% confidence interval of 0.624-0.644 (represented graphically by the dotted lines in Figure D1). If we increase by 5% the percentage of missing households we get a reconstructed Gini of 0.642, and if we decrease it by 5% we get 0.625. If we apply a -/+ 10% change we get Gini estimates just outside the 95% confidence interval (0.616 and 0.651 respectively), but well within the 90% confidence interval. Additionally, in absolute terms the change in the reconstructed Gini values is quite limited. This makes us confident that, notwithstanding the possibility of imprecision in the estimates of the prevalence of missing households, the "real" Gini is placed in a numerical region reasonably close to our estimated one. An additional example of the impact of the alternative estimates of missing households in provided in the Main Text, Section IV: compare the preferred and the alternative inequality measures for England in 1327-32 which are reported in Table 6.

Fig. D1. Susceptibility of the Gini indexes calculated on reconstructed distributions to imprecisions in the estimates of the missing households (Warwickshire, 1524-25)



To assess better the actual size of the possible distortions coming from imprecision in our population estimates, and despite the fact that we are entirely convinced that our preferred estimates are the best that could be produced based on the currently-available information, we compare them below to alternatives obtained from a different source: the muster rolls of 1522. Based on these, Julian Cornwall estimated the population for the only two counties for which we have complete muster rolls: Rutland and of Buckinghamshire. For the latter, the estimate is very close to our own (2.1% higher) while for Rutland the difference is larger as Cornwall's estimate is 11.9% lower than our own. This might be the consequence of the substantial gaps in the Rutland muster rolls reported by Cornwall, which perhaps he failed to fully compensate for, or for some under-estimation of women. Therefore it seems reasonable to take it just as an upper boundary of the potential distortion in the population estimates.[8] Table D1 shows the impact of these differences in the population estimates on the estimated prevalence of missing households and on the reconstructed inequality levels.

[8] Julian Cornwall, 'English Population in the Early Sixteenth Century.', *The Economic History Review* 23, No. 1 (1970): 32-44 (especially p. 37).

Tab. D1. Consequences of using alternative population estimates for Buckinghamshire and Rutland

	Population (preferred)	Population (alternative, from M.R.*)	% missing households (preferred)	% missing households (alternative)	Gini index (preferred)	Gini index (alternative)
Buckhinghamshire	36,895	37,680	32.8	34.2	0.597	0.602
Rutland	8,225	7,248	49.3	42.5	0.741	0.705

Notes: *M.R. = Muster Rolls of 1522

As can easily be seen from the table, the impact of assuming an available alternative estimate of county population is negligible in the case of Buckinghamshire. It is more substantial in the case of Rutland (where, however, the alternative estimate is rather less reliable), but it does not change radically the picture concerning this county. In fact, Rutland would be characterized by a middling level of wealth inequality whatever estimate is assumed (compare with discussion in the Main Text).

For the purpose of adding further examples to the above discussion of the impact of the household size on our estimates, we calculated the household-size change which would be required to produce the alternative estimates of the percentage of missing population, while assuming our preferred estimates of population size.[9] For Buckinghamsire, this would require a reduction of 0.09 points (to a household size of 4.25) while for Rutland, an increase of 0.59 points (to 4.93). Interestingly for Rutland, even a substantial increase in the household size would have a fairly limited effect on the estimates of the prevalence of missing households and ultimately, of wealth inequality levels.

[9] In other words: if the population of Buckinghamshire was of 36,895 individuals, which average household size would lead to an estimate of the percentage of missing households of 34.2% (instead of the 32.8% that we obtain with our preferred average household size of 4.34)?

Appendix E. Average wealth at the county level

Table C1 below provides the average fiscal assessment of all households included in lay and Tudor subsidies, at county level. This information is indicative of differences in the average wealth across counties, but *not* of changes in time of the average wealth level, and should be interpreted conservatively. As discussed in the Main Text (Section III), the average value of the fiscal assessment is strongly positively correlated with the inequality level (measured with the Gini index), both considering the observed distributions and the reconstructed ones. To maximize comparability in the estimates, only households with wealth of at least 10 shillings are included (as 10 shillings was usually the threshold for taxation and poorer households were only sporadically recorded).

Tab. E1. Average wealth of taxpaying households (in shillings)

COUNTY	1290-1319*	1327-1332	1524-1525
Bedfordshire	59.4	41.9	117.4
Buckinghamshire		30.5	96.1
Cumberland		39.6	
Devon		19.6	122.7
Dorset		29	138.1
Essex		41.83	148.0
Kent		51.1 (1334)	184.3
Lancashire		34.6	64.8
London	115.8	90	2812.6 (1541)**
Northumberland	43.2		
Rutland	45.6		126.7
Shropshire		28.8	65.8
Staffordshire		37.1	75.4
Suffolk (Blackbourne hundred)	37.1	36.9	117.9
Surrey		27.1	151.2
Sussex	46.2	39.9	139.4
Warwickshire		39.6	99.3
Worcestershire	62.1	29.9	101.6

Notes: * for the period 1290-1319, the single sources can refer to relatively distant dates ranging from 1280 for Worcestershire to 1319 for London (compare with Table 2 in the Main Text). As a consequence, estimates of average wealth are less comparable across counties than is the case for later periods.

** in the case of London 1541, the average values are not directly comparable with those of the counties for 1524-25 because the threshold of exemption was very different. So no head of household assessed for less than 400 schillings was recorded in the 1541 assessment.

Appendix F. Robustness of the territorial coverage of the sample for England as a whole

When building our sample for England, we have tried to cover the same counties for 1327-32 and 1524-25 insofar as possible. As a result, the sample used to estimate inequality across the entire country at the two dates has almost exactly the same territorial coverage. The vast majority of counties are included in the estimates for both periods (this is the case for Bedfordshire, Buckinghamshire, Devon, Dorset, Essex, Kent, Lancashire, Shropshire, Staffordshire, Suffolk, Surrey, Sussex, Warwickshire, Worcestershire. To these, the city of London was added). However, to improve coverage of some regions and how clarified in the notes to Table 5 in the Main Text, for 1327-32 we included Cumberland and for 1524-25 we included Rutland. These limited differences, which are aimed at maximizing territorial coverage and at making full use of the information that we have available, have only limited consequences for our estimates and do not alter our conclusions, as shown in Table F1 where our preferred estimates for the two periods are compared to those obtained when keeping constant the territorial coverage (hence excluding Cumberland and Rutland at both dates).

Tab. F1. Wealth inequality in England, 1327-32 and 1524-25. Preferred estimates and estimates at constant territorial coverage compared (Gini indexes and relevant percentiles)

Year	Gini	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	Top 5%	Top 1%
1327-32 (reconstructed)*	0.725 (0.723-0.726)	0.2	0.6	1.1	1.7	2.5	3.7	5.6	8.7	15.6	60.3	45.8	21.5
1327-32 (reconstructed, without Cumberland)*	0.722 (0.721-0.724)	0.2	0.6	1.1	1.7	2.6	3.8	5.6	8.8	15.6	59.9	45.6	21.3
1327-32 (reconstructed, alternative estimate)*	0.753 (0.752-0.755)	0.2	0.5	0.9	1.4	2.1	3.2	5.0	8.0	14.8	63.9	49.6	24.4
1327-32 (reconstructed, alternative estimate, without Cumberland)*	0.751 (0.750-0.753)	0.2	0.5	0.9	1.4	2.2	3.3	5.0	8.1	14.9	63.6	49.3	24.2
1524-25 (reconstructed)*	0.756 (0.754-0.758)	0.2	0.5	0.9	1.4	2.1	3.2	4.9	8.0	14.8	64.1	49.8	24.5
1524-25 (reconstructed, without Rutland)*	0.756 (0.754-0.757)	0.2	0.5	0.9	1.4	2.1	3.2	5.0	8.0	14.8	64.0	49.7	24.4

Notes: Estimates produced according to the procedure described in the Main Text, Section IV.

(*) 95% confidence intervals between parentheses

Appendix G. Representativeness of the sample of counties, region by region

Our sample of counties, plus London, covers roughly 30-40 per cent of the entire English population (see Main Text) and can be taken as representative of the entire country, for two reasons. First, because it includes counties from each of the seven regions into which we divide England (Eastern England, Southeast England, East Midlands, Southern England, West Midlands, Southwest England, Northern England). Second, because region by region, our selection of counties seems to proxy well some general characteristics of the region: at least insofar as we could check this, given the very limited amount of county-level information for the period of our interest. This is shown in Table G1, which compares the sample counties (in bold) to the general regional population according to three different variables: population density (in 1290 and 1377, hence before and after the Black Death); percentage of arable land in 1290; and lay wealth in pounds per thousand acres (in 1334 and 1515). For each region, the table compares the regional average ("All counties") to the sample average ("Sample counties"). These averages are weighted by share of the regional population, which is the proper weighting in this case as it reflects how many individual "items" will enter the aggregate "national" distribution from each county (as is discussed in the Main Text, section IV).

A comparison of population density is particularly relevant, as this can be provided for all counties and also because it is probably correlated to another potentially important (but un-observable given the currently available information) variable: urbanization rates. As can be seen, for all regions the average for the sample counties in both 1290 and 1377 (hence, after the Black Death) reflects quite well the regional average. In the East Midlands and in Southern England the match is almost perfect, notwithstanding the fact that our sample counties cover just 24-25% of the population of the first, and slightly over 17% that of the second. In the case of Southern England, which is the region for which we cover the smaller share of the population, this basically means that the only county we have for that region, Dorset, is very close to the regional average, a statement which is true also when looking at the percentage of arable land and the lay wealth per hectare. Note that, according to Stephen Rigby, urbanization rates were probably quite similar in 1524-25 and in 1377. Consequently, under the hypothesis that population density really tells us something about urbanization rates as well, we can assume that our 1524-25 sample represents adequately well each English region also according to this (unobserved) variable.[10]

If we focus on counties excluded from the sample that seem to have characteristics which differ considerably from the average of their region, we do find a few, for example Oxfordshire in the West

[10] Stephen H. Rigby, 'Urban population in late medieval England: the evidence of the lay subsidies.' *The Economic History Review* 63, No. 2 (2010): pp. 393-417.

Midlands. There, in 1290 population density was 125 people per square mile, versus a regional average of 92.6 (in 1377, it was 68.1 versus a regional average of 50.2). Not surprisingly (as in a preindustrial context, these variables tend to be correlated with population density) also the percentage of arable land was well above the regional average, as was the lay wealth per acre (42.2 versus an average of 20.4 pounds per thousand acres in 1335, and 73.8 versus 51.6 in 1515). And yet, in our sample the group of wealthy counties of the West Midlands is well represented by the second-richest in 1290, Warwickshire, so that the impact of losing Oxfordshire is less than one could presume by looking only at the average values. In general, our sample seems to represent adequately the situation across regions, so we are confident that it is also sufficiently representative of the national situation (when treated properly in order to ensure that each region contributes to the aggregate, national distribution proportionally to its population: see the Main Text, section IV).

Tab. G1. Comparison of observable county characteristics, region by region (counties included in the sample are listed in bold)

	Regional population at 1290 (%)	Population per square mile at 1290	% of arable land at 1290	Lay wealth at 1334 (£ per thousand acres)	Regional population at 1377 (%)	Population per square mile at 1377	Lay wealth at 1515 (£ per thousand acres)(*)
Eastern England							
Cambridgeshire	9.8	136	57.5	26.9	8.7	52.3	65.7
Essex	11.9	111	50	18.5	15.2	60.9	102
Lincolnshire	27.5	134	57.5	32.3	28.3	59.7	51.8
Norfolk	34.7	200	60	38.9	29.1	72.6	86
Suffolk	16.1	147	60	22	18.6	73.6	90.4
All counties	*100*	*156.4*	*57.9*	*30.7*	*100*	*65.6*	*77.8*
Sample counties	*28.02*	*131.7*	*55.7*	*20.5*	*33.8*	*67.9*	*95.6*
*Southeast England (Middlesex exluded**)*							
Kent	44.3	118	47.5	52.3	77.5	24.5	100.5
Surrey	22.2	95	42.5	15.8	38.0	17.3	94.1
Sussex	33.5	85	37.5	31.9	45.1	17.4	55.9
All counties	*100*	*101.8*	*43*	*100*	*60.9*	*20.5*	*85.3*
Sample counties	*100*	*101.8*	*43*	*100*	*60.9*	*20.5*	*85.3*
East Midlands							
Nottinghamshire	11.5	102	52.5	18.7	15.3	75.5	32.2

Leicestershire	11.5	112	47.5	20.8	17.9	97.4	61.2
Rutland	3.9	146	62.5	31.4	3.1	66.9	61.7
Northamptonshire	23.7	145	62.5	26.3	22.0	75.1	73.8
Huntingdonshire	10.8	155	62.5	27.6	7.4	60.0	89.8
Bedfordshire	10.5	141	57.5	33.6	10.7	80.8	80.4
Hertfordshire	13.8	123	52.5	22.2	10.5	52.5	90
Buckinghamshire	14.5	117	47.5	21.3	13.0	58.9	70.8
All counties	*100*	*129.9*	*55.6*	*24.6*	*100*	*70.9*	*68.0*
Sample counties	*28.8*	*129.6*	*53.1*	*27.1*	*26.9*	*68.6*	*73.6*
Sample counties, without Rutland (for 1327-32)	*24.9*	*127.1*	*51.7*	*26.5*	*23.7*	*68.8*	*75.1*
Southern England							
Berkshire	10.9	93	50	31.4	11.5	62.1	88
Hampshire	16.7	71	47.5	18.2	19.8	53.4	67.1
Wiltshire	28.3	119	47.5	26.2	23.1	61.7	86.4
Dorset	17.4	104	42.5	19.4	17.3	65.6	72
Somerset	26.8	105	42.5	19.3	28.4	70.5	104.5
All counties	*100*	*101.8*	*45.6*	*22.4*	*100*	*63.3*	*85.4*
Sample counties	*17.4*	*104*	*42.5*	*19.4*	*17.3*	*65.6*	*72.0*
West Midlands							
Derbyshire	11.3	83	35.5	10.2	10.9	43.0	18.7
Staffordshire	7.5	58	30	10.9	10.0	41.6	21.7
Warwickshire	11.5	98	45	21.2	13.5	61.8	59.8
Worcestershire	8.0	82	42.5	15.5	7.2	39.5	54.1
Gloucestershire	20.1	123	47.5	28	20.2	66.3	93.3
Oxfordshire	12.0	125	62.5	42.2	12.2	68.1	73.8
Herefordshire	9.6	77	37.5	14.4	7.5	32.1	38.4
Shropshire	15.2	77	37.5	11.9	12.0	32.6	15.5
Cheshire	4.8	45	15	n.a.	6.6	33.4	n.a.
All counties	*100*	*92.6*	*41.9*	*20.41*	*100*	*50.2*	*51.6*
Sample counties	*42.2*	*80.3*	*39.2*	*14.94*	*42.7*	*45.1*	*37.5*
Southwest England							
Devon	81.0	60	25	7.9	58.2	35.0	67.4
Cornwall	19.0	55(***)	25	7.7	41.8	97.6	50.8
All counties	*100*	*59.0*	*25*	*7.9*	*100*	*61.2*	*64.2*
Sample counties	*81.0*	*60*	*25*	*7.9*	*58.2*	*35.0*	*67.4*
Northern England							
Yorkshire	51.8	78	34	11.9	63.8	45.2	14.8
Cumberland	7.7	34	15	n.a.	6.1	12.7	n.a.
Northumberland	18.9	51	25	n.a.	8.2	10.5	n.a.

Westmorland	4.3	37	12.5	n.a.	3.6	14.6	n.a.
Durham	9.6	62	25	n.a.	6.6	20.2	n.a.
Lancashire	7.7	37	15	4.6	11.7	26.2	3.8
All counties	*100*	*62.9*	*27.7*	n.a.	*100*	*35.4*	n.a.
Sample counties	*34.3*	*44.0*	*20.5*	n.a.	*26.0*	*18.0*	n.a.
Sample counties, without Cumberland (for 1524-25)	*26.6*	*46.9*	*22.1*	n.a.	*19.9*	*19.7*	n.a.

Sources: for population density in 1290 and percentage of arable land in 1290, Broadberry et al., *British Economic Growth*, pp. 66-7. Population density in 1377 is our elaboration based on the figure for 1290 to which we have applied the percentage population change implicit in the data published by Broadberry et al., *British Economic Growth*, pp. 25-6. For lay wealth at 1334 and 1515, Schofield, Roger, "The Geographical Distribution of Wealth in England, 1334-1649." *Economic History Review* 18, no. 3 (1965), p. 504.

Notes: "all counties" and "sample counties" measures of population density, percentage of arable land and lay wealth are population-weighted averages. (*) For simplicity, and lacking information about the population of each county at the beginning of the sixteenth century, the average measures related to lay wealth in 1515 are weighted according to the county population share in 1377. (**) Middlesex is excluded from Southeast England because we treat separately the city of London, where most of the county population resided. (***) Rutland is included only in our sample for 1524-25; Cumberland only for 1327-32. (****) The population density of Cornwall in 1290 is probably under-estimated, for the reasons discussed by Broadberry et al., *British Economic Growth*, pp. 22-4.

Appendix H. The distribution of goods and the distribution of land in the Three Hundreds of Aylesbury (1524-25) and a general discussion of distortions coming from the absence of land from wealth estimates

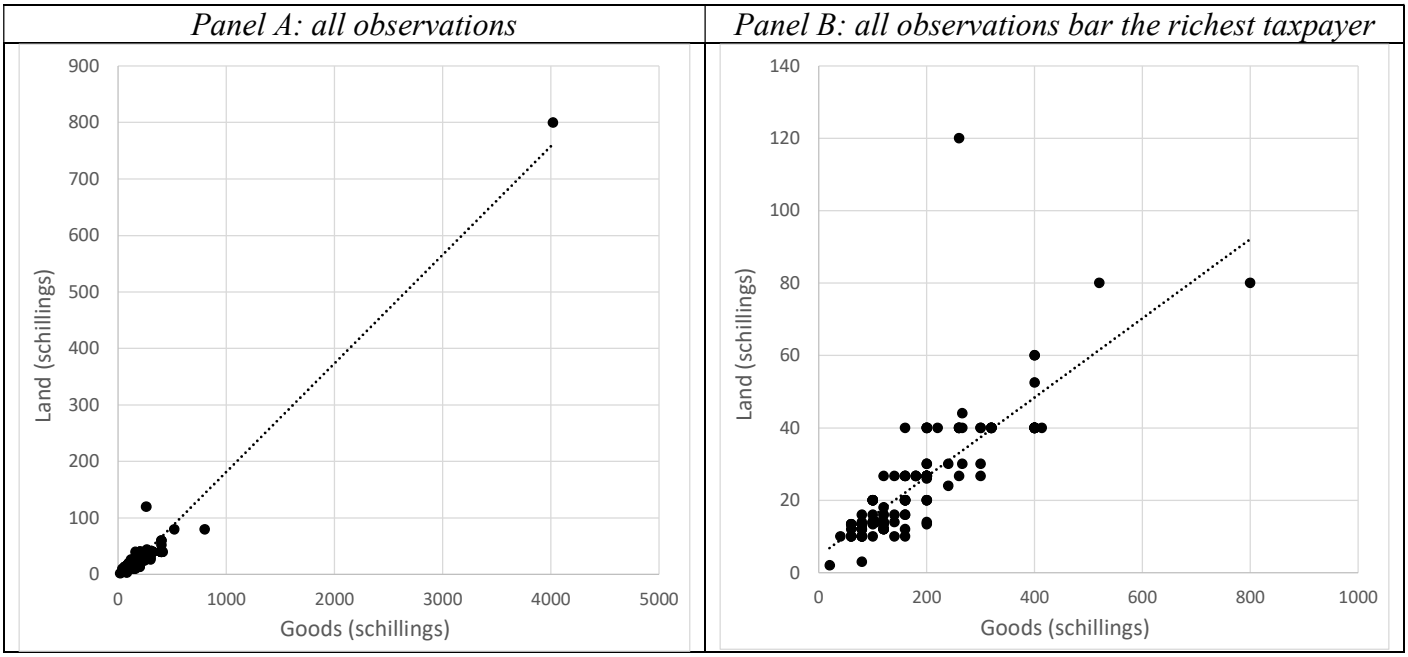
The lay subsidies and the Tudor subsidies were levied upon movable wealth, not on total wealth. The definition of taxable "goods", however, was quite extensive. Richard Hoyle, based on the statute of 1523, has described the Tudor subsidy as «a tax on capital assets including household furnishings, stock, the circulating capital of merchants and retailers, money out at loan or owed by debtors, but excluding standing corn and personal clothing. The taxpayer's debts could be credited against the whole» (note that already collected foodstuff – in the statute words, "all manner of corns and blades severed from the ground" – was taxed. It was only the standing corn which was exempt).[11] Additional discussion of what constituted taxable goods is provided in the Main Text. And yet, in the context of a preindustrial society, the absence of land from the wealth distributions that we have used for calculating our inequality measures has implications that need to be discussed further. This also because in this study, we are forced by the specificities of the English fiscal system to adopt an approach quite different from that used by most recent large-scale reconstructions of wealth distributions – as for Italy, Germany and a few other parts of southern and central Europe information about real estate (lands and buildings) has been used to proxy the distribution of total wealth, not movable wealth which usually remains entirely unobservable in these areas.[12]

Ideally, we would like to address the problem empirically: that is, by comparing the distribution of land and of movable wealth for the same population. This is impossible to do based on the late medieval lay subsidies, because they assessed only movable goods (see the Main Text). And unfortunately, it is also impossible for the Tudor subsidies, as they recorded only the source of wealth which generated the highest fiscal revenue from each specific taxpayer. This means that usually we get to know about the value of the movable goods *or* that of land, not of both. There is, fortunately, an exception: the Three Hundreds of Aylesbury in the County of Buckingham, where for unknown reasons, information about the value of land was provided quite systematically. As argued by Chibnall and Woodman, who published this historical source, «peculiar to this assessment, are the marginal notes on the value of land; the tax itself was levied on goods which brought in a larger sum to the

[11] R. Hoyle, 'Taxation and the Mid-Tudor Crisis.' *Economic History Review* 51, no. 4 (1998), p. 652.
[12] For a synthesis of this literature, see G. Alfani, Economic inequality in preindustrial times: Europe and beyond." *Journal of Economic Literature* 59, no. 1 (2021): 3-44.

exchequer».[13] Based on this exceptional source we can compare directly the estimated value of goods and land for a substantial number of taxpayers.[14] The results are shown graphically in Figure H1: for the entire sample (Panel A), and when omitting the richest taxpayer, John Colyngborn, in order to make more readable the data for the rest of the distribution (Panel B).

Fig. H1. The distribution of land and goods in the Three Hundreds of Aylesbury (1524-25, values in schillings)



Just by looking at the figure, it is clear that in the Three Hundreds of Aylesbury goods and land were two highly-correlated components of total wealth. Indeed, the measured correlation between the two is extremely strong: 0.98. Statistically, this means that in the context of this specific dataset one of the two variables (the value of land or that of goods) could be used to reliably predict the other. This also means that we can expect that most inequality measures will be very similar when the distribution of land or of goods are used. As shown in Table H1, the Gini index is 0.409 when calculated on goods only, and 0.411 when lands are added to the picture leading to a truly excellent and encompassing estimation of total wealth. If we look at the complete distribution, it is clear that the difference in the

[13] A.C. Chibnall and A. Vere Woodman, *Subsidy Roll for the County of Buckingham. Anno 1524*, Buckinghamshire Record Society No. 8, 1950, p. 1.

[14] 125 taxpayers overall. We have excluded from our analyses one taxpayer, Thomas Clarke from Monkysrsborow, because of a probable mistake in the recorded value for land (were the value correct, Clarke should be taxed on land instead of on goods, as he is. It is possible that the mistake was made by Chibnall and Woodman when transcribing the original archival source). Note that the exclusion of Clarke has a negligible impact on the analyses performed in this Appendix

Gini is driven by the increase in the wealth share of the two richest deciles of the distribution and especially of the top 10%. This suggests that in rural England land tended to be more concentrated than other assets. Indeed, what is more striking is that the difference in overall concentration when looking only at movable wealth, and when including lands is so limited. This provides at least some evidence that in distributional terms, goods can be taken as a reasonably good proxy for overall wealth, even for the right tail of the distribution (the richest of all). Further reassurance comes from the fact that the fiscal system treated cities and rural areas in the same way. As argued by John Sheail, «The tax lists do not give undue emphasis to any one form of industry and treat town and countryside in a similar manner[15]» – and note that as our distributions cover complete counties, for those counties they cover both urban and rural wealth.

Tab. H1. Wealth inequality in the Three Hundreds of Aylesbury, 1524-25.

	Gini	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
Goods	0.409	2.8	3.9	4.9	5.3	6.7	8.6	9.3	10.9	14.3	33.3
Goods plus Land	0.411	2.8	4.0	5.0	5.2	6.6	8.5	9.4	11.0	14.1	33.6

Overall, the findings discussed above for the Three Hundreds of Aylesbury offer substantial reassurance about the general validity of our analyses performed on goods only. However, they must be interpreted conservatively as it would be improper to infer a general conclusion from the observation of (part of) one county only.[16] At the same time, they allow us to discuss further some possible risks coming from the lack of systematic information about the distribution of land. Let us begin by considering the most optimistic scenario, in which the relationship between land and goods across England, from medieval to early modern times, is about the same as that described above for Aylesbury. Were this condition respected, our distributions would proxy extremely well the "real" distribution of total wealth: with only one (but unfortunately quite major) issue, that is the lack of taxpayers below the threshold for taxation. Assessing this specific problem, which is typical of the

[15] John Sheail, "The distribution of taxable population and wealth in England during the early sixteenth century." *Transactions of the Institute of British Geographers* 55, no. 1 (1972): 111-126, citation from p. 124.

[16] Interestingly, Buckinghamshire is also the county with the lowest "reconstructed" inequality in 1524-25 (see the main text, Table 4), which seems to suggest further caution. However, if we look at the "observed" inequality, Buckinghamshire's position is right in the middle (seventh most unequal county out of 15) - and the comparison of the distribution of lands and goods discussed in this Appendix is based on the "observed" distribution.

English data and which does not have anything to do with the kind of wealth assessed, is a major objective of this article (see the Main Text for further discussion).

Let us now discuss whether the relationship between land and goods observed for Aylesbury can reasonably be considered to be representative of England in 1524-25. While there is no evidence that this is the case, there are some reasons why the distribution of land and of goods can always be expected to be highly correlated. The definition of goods included food reserves and all kinds of tools and beasts used in rural activities, which we can expect to be proportional to the value of land. Additionally, income from land would have been the basis for constituting reserves of coin as well as for building up financial capital, which was again included in movable goods. Looking at this from the opposite direction, as in a preindustrial society land usually constituted the most appealing item for investment, it can be assumed that in general, those having large amounts of movable wealth were also those investing in land: which is another reason why in a given year the distribution of the two variables can be expected to be highly correlated. Some additional support to this view comes from research conducted on continental Europe, in the exceptional cases when historical sources provide an assessment of all components of wealth. In the city of Ivrea in north-western Italy in 1613, for example, the Gini index calculated on real estate only (lands and buildings) was 0.777, while that calculated on all components of wealth was slightly higher, at 0.794: a result that comes, once again, from the high correlation between ownership of land and of capital assets, and from the way in which the two distributions interact when merged to produce a distribution of total wealth. Ongoing research on the exceptional 1613 "census" of the Sabaudian States suggests that this conclusion can be generalized to the whole of the current Italian region of Piedmont.[17]

The same kind of reasoning can be applied to the late medieval subsidies, although for them we lack even the limited and partial evidence that we have for the Three Hundreds of Aylesbury in 1524-25. Again, great caution is needed when comparing the results from 1327-32 (or earlier) and 1524-25, as for example it might be that the interaction between the distribution of land and the distribution of movable wealth is different at the two dates – which does not have an impact on our estimates (as we build them on movable wealth only at the two dates, to maximize comparability) but might affect how we can think of movable wealth as a proxy for total wealth. If, for example, the value of land was relatively higher in 1524-25, as land tended to be somewhat more concentrated than movable

[17] For the case of Ivrea, see Guido Alfani and Andrea Caracausi, "Struttura della proprietà e concentrazione della ricchezza in ambiente urbano: Ivrea e Padova, secoli XV-XVII." In *Ricchezza, valore, proprietà in Età preindustriale. 1400-1850*, edited by in Guido Afani and Michela Barbot. Venezia: Marsilio, 2009, pp. 185-209. For some general results coming from the 1613 Sabaudian census, see Guido Alfani, "The rich in historical perspective. Evidence for preindustrial Europe (ca. 1300-1800)." *Cliometrica* 11, no. 3 (2017): 321-348 (especially pp. 337-8).

assets, then we would expect that the (probable) distortion towards greater-than-real equality would be higher at that date than in 1327-32, and consequently, that the slight inequality increase which has been reported for England as whole between the two dates (see Main Text, Section IV) would be somewhat larger if total wealth were used instead of movable goods only. This would be compatible, for example, with the substantial increase in land rents between 1450 and 1850 reported by Robert Allen and maybe more importantly, with the consequences of early enclosures: «Between 1450 and 1525, about one-tenth of the villages in the midlands were destroyed. These enclosures eliminated small-scale agriculture and represented an abrupt transition to capitalist relations[18]». And yet, again we need great caution when drawing conclusions as, for example, our last observation (1524-25) still reflects a relatively early stage of the process of land rents increase, and because we have a far from complete picture of the situation at the turn of the fourteenth century. Consequently, as far as we could check based on the available literature (see the Main Text, Section IV for some further discussion), a greater distortion towards equality in our measures for 1524-25 compared to 1327-32, while it is a distinct possibility, remains far from a certainty.

To sum up:

1) it is probable that, at all the dates that we consider, our measures of wealth inequality are distorted towards equality because our wealth estimates do not include land;

2) it seems likely that the size of such distortions is quite limited;

3) the size of the distortions might have been different at different dates, and possibly it was larger at 1524-25 compared to 1327-32. This issue is undoubtedly worthy of future research, as the current literature does not seem to provide the evidence needed to establish it univocally.

[18] Robert Allen, *Enclosure and the Yeoman*. Oxford: Clarendon Press, 1992 (compare in particular pp. 13-15 and 20-21).