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The Bishops' Census of 1563: a re-examination of its reliability

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The ecclesiastical census of 1563, the Bishops' Census, has long been known to local historians as a potentially valuable source of information on population size for particular communities, has been used as a basis for estimates of urban populations and, more recently, to suggest a national population figure for this date [1]. Like all early modern sources used for this purpose, which invariably require manipulation to allow for categories of the population excluded either intentionally or accidentally, it is far from ideal, and certainly was not prepared with the interests of the twentieth century demographer in mind. That said, it appears to be more straightforward than most. Unlike the Exchequer lay subsidies of 1524-5 or the Compton Census of 1676, there is no disagreement or confusion over the categories of persons included: they clearly relate to the number of families within each parish and dependent chapelry [2]. If these lists were accurately compiled, therefore, one has simply to employ an appropriate multiplier which reflects mean family (or household) size in 1563 to produce an approximate population estimate. To derive regional or national estimates, the data available for 12 dioceses must be further adjusted to allow for missing parishes and the remaining 14 dioceses in England and Wales. Just such a procedure was used by Palliser and Jones to produce national population estimates of 2.6 millions for England and 0.2 millions for Wales [3].

The data for Cambridge

In 1985 I published a brief note in *Local Population Studies* indicating that urban evidence, from Cambridge, throws some doubt on the accuracy of these lists [4]. Although the Cambridge return claims to be "The true certificate made by the Reverend father in god Richard Bishop of Ely of all and singular the households and the whole number thereof…" [5], there is evidence that the numbers given represent an undercount. Doubt was initially shed by the existence of an estimate of the town's population published in 1587 by the Vice-chancellor of the University giving a total of 4,990. Application of a mean household size of 4.5 to the number of households included in the 1563 returns for the town's 14 parishes produced a total of just 2,400, and it was judged to be unlikely that the town's population would have doubled in size in just 24 years.

The validity of the 1563 returns for Cambridge was tested by comparison with the extant parish registers available for Little St Mary, Great St Mary, St Benedict and St Edward. The decadal average of baptisms for these parishes, unadjusted for any possible distortion caused by delay between birth and baptism, was compared with the population totals derived from the census. This allowed the calculation of baptism rates, which were treated as if they were crude birth rates, and these were then examined for their plausibility. Birth rates lying within the range 28-40 per 1,000 are generally regarded as plausible in the pre-industrial context, and it was felt that as decadal averages of baptisms had been taken, as there was no internal evidence from the registers that there were any special conditions to be considered and as baptismal figures are likely to understate the number of births rather than to exaggerate them, one might expect the Cambridge figures to fall within, or very near to, this range. They did not, or more precisely they did not for two of the four parishes. The crude baptism rate stood at 39 per thousand for St Benedict and 40 for Little St Mary, but for Great St Mary it stood at 47 per thousand and for St Edward at 65. These figures are implausibly high, indicating that in these instances the Bishops' Census understates the number of households.

Some researchers, perhaps prematurely, appear to have accepted that the Cambridge results might be applicable more generally [6]. But the scepticism beginning to surround the Bishops' Census has not been universally accepted, and a concerted attempt to refute the Cambridge evidence was recently made in *Local Population Studies* by Alan Dyer [7]. Dyer's piece is typically inventive and searching, containing a particularly valuable analysis of the frequency of numbers of households listed in parishes of different sizes and in the various dioceses covered by the census. His detailed treatment of my Cambridge evidence, however, invites response.

In order to render the Cambridge figures, and hence the census generally, more credible, Dyer adopts a number of strategies. The first of these is to recalculate the Cambridge figures on the assumption that the mean household size in 1563 was 5.1. There is little hard evidence produced to support the adoption of this figure, a good deal of speculative discussion about the hypothetical impact of the demographic crisis of 1556-61 on household size, and an even larger wedge of indirect evidence produced by comparing communicant returns from 1548, 1551 and 1557 with the 1563 census, which requires, *inter alia*, estimates to be made of population trends between these dates in the three counties concerned [8]. Readers will no doubt want to judge for themselves how compelling they find this evidence, based as it is on a further raft of assumptions, and one must in particular look forward to the completion of Dr Dyer's own detailed analysis of the 1557-60 mortality crisis. But whether or not one reserves judgement on the argument in general, there is nothing here that relates specifically to an *urban* community in 1563. Whatever the mean household size may have been in 1563 or at any other point in the pre-industrial period, there is no doubting the fact that it varied considerably between different communities, and even varied considerably *within* communities, a point that Dyer himself rehearses towards the end of his article [9].

The household multiplier of 4.5 applied to the Cambridge returns was neither chosen arbitrarily nor to mirror a figure conventionally employed: it was chosen as a figure markedly higher than the 4.13 discovered for a different sample of five Cambridge parishes in the 1620s when in-migration, poverty and plague had served to reduce the mean size of households [10]. Of course it is an estimate, but it is an informed one. Furthermore, the possibility that mean household size in the relatively central parishes of Great St Mary and St Edward was higher still was allowed in my earlier note, where it was calculated that a mean household size of 5.0 produced baptism rates of 43 and 59 respectively, both still outside of the likely range [11].

Further evidence to support any choice of an appropriate mean household size should surely be sought from a town of a similar size and status. Canterbury is just such a town, and an enumeration for the very year 1563 indicates a figure of just 3.4 [12]. This is, of course, based upon four suburban parishes, which tended generally to exhibit lower mean household sizes [13]. But occupational analysis of 109 male householders in Canterbury reveals that the great majority of trades represented lived in small households, and that the mean figure was not simply the product of overrepresentation in this sample of poor labourers [14]. The Coventry enumeration of 1523, biased in favour of the wealthier areas of the town, reveals a mean household size of 3.8, whilst after adjusting the figures to allow for the economic problems the town was experiencing the figure rises to just 4.1 [15]. There is little here to support the adoption of a high urban mean size of household, and a figure of 4.5 for Cambridge remains more plausible than 5.1.

The second strategy adopted by Dyer to invalidate the Cambridge evidence is remarkable for its simplicity: he adjusts upward the number of families in Great St Mary from 80 to 89. This procedure, alongside the adoption of a higher mean household size of 5.1, reduces the crude baptism rate from an unlikely 47 to an

eptable 37. In entering 80 families for Great St Mary, we are told, the incumbent probably meant "closer to eighty than sixty or one hundred" [16]. He may have done, although we have no way of knowing this, and might prefer to assume that he meant either 80 itself or approximately 80. The choice of 89 appears entirely arbitrary, even if the round four score is somewhat suspect. One might just as well adopt the figure of 71, which would render the data even more problematical. Perhaps more reasonably, if adjustments must be made to remove the offending round number, 79 is most likely, for, as Dyer later argues, in the more accurately assessed dioceses (including Ely) "many of the suspect even numbers, even some of those over fifty, have probably only been rounded up by one numeral, which is too small a distortion to bother with" [17].

All such hypothetical arguments are anyway rather academic, for in "saving" the accuracy of the census in this way Dyer has effected the most remarkable sleight of hand. Faced with independent evidence that questions the accuracy of the census, he has taken one of the offending figures, adjusted it upwards by 11.25%, to conclude "there is no good reason to suppose that the 1563 returns under-record population levels in any way" [18]. What he has in fact done is to *accept* that, for Cambridge at least, the census clearly *does* under-enumerate households, for if it did not there would be absolutely no need for upward adjustment of the Great St Mary total to produce credible crude baptism rates.

Faced with the intractable problem of the parish of St Edward, where the figure of 34 households is not at all suspect, Dyer suggests that the inflated crude baptism rate may be the product of incomplete baptismal records. But this is to misunderstand the problem: an even higher decadal average number of baptisms would produce an even higher and still *less* credible baptism rate. Dyer's other solution is to assume that in this parish the incumbent was mistaken, or the figure has been subject to scribal error. This is, of course, entirely possible, just as it is for all other figures given in the census, but we have absolutely no way of knowing without recourse to independent evidence. Again it is clear that we need to test the accuracy of the census on a wider basis.

Dyer's final strategy is to suggest that the required growth rate between 1563 and 1587, reduced to approximately 92 per annum if a higher mean household size is used, may not be so unlikely , for "perhaps a town of this sort was capable of such a spurt at this date" [19]. But if my research, or Mary Siraut's detailed work on Elizabethan Cambridge, had indicated that a rate of growth of this magnitude was plausible, then no suspicion would have been cast on the figures in the first instance [20]. The evidence of parish registers, topography and contemporary comment and concern all point to the later sixteenth and earlier seventeenth centuries as the key period of growth, and hence such rapid growth between 1563 and 1587 is highly unlikely.

The Cambridge data indicates clearly that, for this small sample of urban parishes, the figures given in the Bishops' Census represent an undercount of the number of households and will thus produce an underestimate of population unless allowance is made for this shortfall. Whether this was a peculiarly urban phenomenon , one that was more widespread or merely a localised quirk remains to be seen. Dyer's ingenious work on the frequency distribution of parochial totals is an important first step towards answering this question, and is particularly valuable for drawing our attention to those dioceses that are more likely than others to give unreliable returns.

The Hertfordshire parish register evidence

The main purpose of my note in *Local Population Studies* was not necessarily to cast doubt upon the reliability of the census but to encourage local historians to test it against other evidence, particularly parish registers. As a further, more substantial, contribution to that process, the returns for Hertfordshire in 1563 have been compared with all extant parish registers [21]. The census covers 73 parishes, and registers survive for a comparable date for 40 of these. All 40 were examined, and 9 rejected because of incomplete coverage or unreliability. Baptisms were counted for the remaining 31 and an annual average figure established. Generally this pertained to the years 1560-9, although as an attempt was made to ensure that the average was based upon at least seven years it was occasionally necessary to stray into the early 1570s. A minimum of five years was used as the basis for annual average baptisms, though it proved necessary to drop below seven years only twice. Alternative procedures for calculating the average were tried for all parishes, such as the employment of a centred average upon the year 1563 where possible. In the vast majority of cases only a marginal difference, if any, resulted, and there was no discernible tendency for different procedures to bias the results in any particular direction.

Further preliminary analysis drew upon Dyer's methodology to test for excessive rounding of the returns and for any apparent shortfall in odd numbers [22]. Although his analysis revealed that Huntingdonshire and Hertfordshire parishes in Lincoln Diocese combined produce relatively low levels of "suspect" figures at only 12.3 per cent, the Hertfordshire data was tested independently to ensure that it was not peculiarly flawed. An identical methodology was employed, analysing all numerals between 17 and 105 for the 53 parishes that fell within this range, and calculating the disparity between the expected number of tens, dozens and scores if numerals had been evenly distributed and the actual number found. For Hertfordshire six tens were found where 2.4 would be expected, eight dozens instead of 3.7 and four scores rather than the expected 3.0. The general tendency to round to the score was not evident in Hertfordshire, but both tens and dozens were over-represented, producing a proportion "suspect" of 16.8 per cent. This figure lies within a range that would classify the county as reasonably reliable rather than particularly suspicious [23].

A further test was undertaken for a shortfall of odd numbers for the 57 parishes which lie within the range 10-99, and again a procedure identical to Dyer's was employed, which assumes an even distribution of odd and even numbers. For the census in general Dyer found a greater shortfall of odd numbers that would have been produced by the tendency to favour ten, twelve or twenty [24]. This was not evident in Hertfordshire, which gives a relatively low overall excess of odd numerals in comparison to the degree by which figures subject to rounding are over-represented. There was some tendency for the shortfall of odd numbers to be more marked for larger parishes, though perhaps surprisingly this was not apparent for the largest parishes in the sample. Most importantly, there is no indication of an excessive tendency to favour even over odd numbers, the overall figure of a 14.9 per cent deficit of odd numerals standing towards the bottom of the identified range [25]. The Hertfordshire returns should therefore be expected to be amongst the more reliable of those extant, and can certainly *not* be characterised as unduly suspect.

Having established the relative credibility of the Hertfordshire returns, it remains to test them against the parish register data. The procedure employed was the same as in my original *Local Population Studies* note: a population total was calculated from the census by adopting a mean household size as a multiplier, and a crude baptism rate established by comparing this figure with the annual average number of baptisms established from the parish registers. Three different calculations were made, assuming mean household sizes of 4.5, 4.75 and 5.1, with separate breakdowns for market towns, by size of parish, and according to whether the figure given was a rounded number (a multiple of ten, twelve or twenty) or not.

Wrigley and Schofield's national crude birth rate for the relevant quinquennium,1561-5, stood at 34.7 per thousand, whilst Dyer's recalculation of a rate for the decade as a whole gives a figure of 36.7 [26]. Whichever figure is regarded as appropriate for the purpose of comparison, the overall estimated crude baptism rate for these 31 Hertfordshire parishes, using the census in this way as a guide to total population, is high. Even if the generous household multiplier of 5.1 is used the resultant crude baptism rate is 45 per thousand, 8-10 points or 23-30 per cent above the national figure produced by back projection. Adoption of a compromise mean household size of 4.75, the most commonly employed average derived from Laslett's seminal work [27], gives a figure of 49 per thousand, 12-16 points or 34-41 per cent above the national rate. It is *most* unlikely that such a high baptism rate prevailed across an entire English county, and equally unlikely that Hertfordshire should exhibit a rate so discrepant from the national average. It is difficult to avoid the conclusion that for Hertfordshire the Bishops' Census is of little value as a basis for the calculation of a regional population total.

Little comfort is given by the various separate breakdowns of the data. There is no indication that the returns for towns are particularly unreliable and therefore distorting the overall total. Hertfordshire was not a particularly urbanised county, containing no substantial towns at all, but the crude baptism rates

...ved from market towns are slightly *more* acceptable than the county average rather than less, if still implausibly high. Both large and medium sized ...shes, somewhat surprisingly, exhibit lower figures that the small parishes, 46 and 47 per thousand respectively for medium and large parishes if a multiplier of 4.75 is used, compared to 55 per thousand for the 14 small parishes. This contradicts Dyer's general conclusion that the greatest inaccuracy lies in the middle range, whilst small parishes produce better results [28]. A clear difference is apparent between parishes with rounded numbers in 1563 and those that are not rounded, a multiplier of 4.75 producing crude baptism rates of 55 per thousand and 47 respectively. But whilst this supports the common sense proposition that rounded figures are generally *more* likely to be in error than ones that are not, even parishes with unrounded numbers produce implausibly high baptism rates. Nor can we "assume that all odd numbers are very likely to be correct" [29]. Aldbury, Ardeley, Aston, Baldock, Hertford All Saints and Therfield, all exhibiting unrounded, odd numbers, produce crude baptism rates *above* the average for the sample as a whole, in Aldbury and Aston above 60 per thousand even on the most optimistic assumptions about mean household size.

If we arrange the data in a different way, according to the number of parishes which fall within various crude baptism ranges, we get a clearer indication of exactly how many parishes provide credible data on the basis of different assumptions about mean household size. Whichever household size is employed, the results are not encouraging. Using the compromise figure of 4.75, only four parishes out of 31 (13 per cent) exhibit a crude baptism rate that falls within the plausible range of 28-40 per thousand, and of these the parish of Flamstead only just qualifies at the bottom end of the range, possibly reflecting the need to rely upon an unrepresentative run of years for this parish [30]. Extending the realms of plausibility to below 45 per thousand, still only seven (23 per cent) fall into this category. As many as 24 parishes (77 per cent) produce crude baptism rates of 45 per thousand or above when annual average baptisms are compared with population totals derived from the census, and as many as 15 (48 per cent) give a figure of 50 per thousand or over. Using the generous household multiplier of 5.1 the results are a little more encouraging, but not much. Still only six parishes (19 per cent) produce baptism rates that are quite clearly plausible, whilst as many as 18 (58 per cent) produce rates of 45 per thousand or above, a level which must cast serious doubt upon the reliability of the census data.

The fact that there is no reason to believe that the Hertfordshire returns are particularly defective must be re-emphasised. The parish registers employed are of good quality, and all clearly suspect ones were rejected, though as noted above there is room for doubt in the case of Flamstead. But if this register, or indeed any others, was defective, then this would only serve to produce unrealistically *low* crude baptism rates, and give spurious credibility to the population totals that can be calculated from the 1563 returns. Given that baptism rates below 40 per thousand can be derived from so few, and given that there is no reason to suppose that *over* registration might have occurred, the possibility of under-registration only serves to reinforce the argument offered here. Furthermore, no allowance has been made for a well attested cause of under-registration, the delay between birth and baptism in the light of prevailing rates of infant mortality, which has led to the suggestion that the number of baptisms registered for the half century 1550-99 should be increased by 2 per cent [31]. Had the raw data used here been adjusted in this way, the crude rates produced by employment of the Bishops' Census would have moved even further in the direction of general implausibility. Any residual under-registration would have the same effect.

Conclusions

There are clearly many observations in Alan Dyer's valuable article with which one can only agree. The Bishops' Census remains a potentially useful source of demographic information for a period that deserves far closer attention that it has hitherto received. Analysis of the numerical distributions contained in the returns for the various dioceses and counties can provide an approximate insight into their *relative* accuracy. It is most important that such sources are tested for internal coherence at the local level, as well as against external evidence wherever possible. Even then, the conversion of these returns to accurate population totals will never be easy due to the fact that mean household size can vary considerably between communities and across time, even if the likely range is more narrow than was once believed. The Bishops' Census is indeed a curate's egg, and it is indeed difficult to determine which parts are good and which are bad.

In all of these respects there is agreement over the census, but there is discord too. First, the Cambridge evidence which cast doubt upon the accuracy of the returns for this town cannot be dismissed through arbitrary adjustment of the figures, circular reasoning, the assumption of scribal error or the introduction of an unlikely household multiplier without reference to particularity of place and established demographic history.

Second, it is more difficult to establish the accuracy (as opposed to the probable relative accuracy) of the census for various localities than Dyer suggests. The Hertfordshire figures, like those for Cambridge, indicate that rounding was probably not generally confined to an increase of one numeral, even in the more accurately assessed dioceses, and neither is it possible to assume that odd numbers are generally correct [32]. Nor do small parishes necessarily produce more acceptable figures than large ones. This serves to underline the crucial importance of external testing of the census against other sources.

Third, if the Bishops' Census is indeed "good in parts", then we need to explain carefully what we mean by "good", as well as to quantify the likely proportion of the "parts" to which this judgement applies. If we mean by "good" a generally reliable basis for the calculation of population size, then the Hertfordshire evidence suggests that the proportion of parishes for which this holds true is low, probably as low as one-fifth or one-sixth. If we mean that it provides the basis for a very rough and ready approximation of population size, and the likely relative differences between parishes, then it could perhaps be applied to one-half of the parishes included within a county or diocese for which the returns appear to have been generally conscientiously prepared. It is very difficult to defend the census against the accusation of quite general unreliability, and a recent attempt to rescue it for the Diocese of Canterbury looks rather unconvincing in view of Dyer's discovery that Canterbury produced the highest level of suspect figures in the entire country at 65 per cent, and the highest shortfall of odd numbers at 76 per cent [33].

Finally there are some wider implications. First, the 1563 census is most unlikely to provide a solid foundation for the calculation of national population figures, Palliser and Jones' calculation, employing a generous household multiplier of 5.05, gives a total for England of just 2.6 millions, well below the Wrigley and Schofield figure of almost 3 million for 1561 [34]. Furthermore, recent reworkings of the Cambridge Group data appear to indicate the need for a slight upward revision of the figures initially suggested to perhaps 3.2 millions [35]. Despite the generous household multiplier, the census still produces a shortfall of 19 per cent, a figure that would increase to over 23 per cent if the more generally accepted multiplier of 4.75 were used. These percentages are remarkably close to those that can be derived for Hertfordshire. In order to achieve the baptism rate of *circa* 36 per thousand that back projection suggests, a mean household size of 5.1 would imply a shortfall of 20 per cent in the totals calculated from the 1563 returns for the 31 Hertfordshire parishes, whilst a mean of 4.75 would indicate a shortfall of 26 per cent.

Second, the census is clearly not a firm basis for the calculation of population trends between the Exchequer lay subsidies of 1524-5 and 1563. Side-stepping the fact that the categories of person included in these two sets of documentation differ, both urban and rural evidence indicates a substantial undercount in 1563, besides the need for extreme scepticism where figures are clearly rounded. In particular, the employment of this data as evidence for general urban demographic decline across the second and third quarters of the sixteenth century cannot be endorsed [36].

Third, and finally, the evidence suggests the need for general scepticism with regard to early modern ecclesiastical censuses, whether they be those of 1563, 1603 or the Compton Census of 1676. Although it is clearly necessary to await the results of further independent tests before reaching a definitive conclusion, the burden of proof with regard to the 1563 returns must now rest with those who would wish to revive its credibility.

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1. J.Patten, *English towns 1500-1700* (Folkestone, 1978), p. 103; D.Palliser and L.J.Jones, "The diocesan population returns for 1563 and 1603", *Local Population Studies*, No. 30 (1983), pp. 55-8.

2. Some historians have claimed that the subsidies list households, although most accept that - as intended - males age 16 or over are listed: C.Phythian-Adams, "Urban decay in late Medieval England", in P Abrams and E.A.Wrigley (eds.), *Towns in societies* (Cambridge, 1978), p. 170; N.R. Goose, "In search of the urban variable: towns and the English economy 1500-1650", *Economic History Review*, Vol. 39 (1986), p. 183; J.Sheail, "The distribution of taxable population and wealth in England during the early sixteenth century", *Transactions of the Institute of British Geographers*, Vol. 55 (1972), pp. 111-26; A.Whiteman (ed.), *The Compton Census of 1676: a critical edition*, (Oxford, 1986), pp. xxv-xxxvi, lix-lxxvi.

3. D.Palliser, *The age of Elizabeth: England under the later Tudors 1547-1603*, (London, 1983), Table 2.1, pp. 34-8.

4. N.Goose, "The ecclesiastical returns of 1563: a cautionary note", *Local Population Studies*, No.34 (1985), pp. 46-7.

5. British Library, Harley MS 594, f.196.

6. *Victoria County History of Gloucestershire*, Vol. 4 (Oxford, 1988), p. 73; P.Clark, K. Gaskin and A. Wilson (eds.), *Population estimates of English small towns 1550-1851*, (Leicester, 1989), p. v.

7. Alan Dyer, "The Bishops' Census of 1563: its significance and accuracy", *Local Population Studies*, No. 49 (1992), pp. 19-37.

8. Dyer, "Bishops' Census", pp. 20-5.

9. Dyer, "Bishops' Census", p. 36.

10. N.Goose, "Household size and structure in early-Stuart Cambridge", *Social History*, Vol. 5 (1980), pp. 350, 363-5.

11. Goose, "Ecclesiastical returns", p. 46.

12. P. and J. Clark, "The social economy of the Canterbury suburbs: the evidence of the census of 1563", in A.Detsicas and N.Yates (eds.), *Studies in modern Kentish history*, (Maidstone, 1983), Table 1, p. 69.

13. Goose, "Household size", pp. 364-5; P. and J. Clark, "Social economy". p. 70.

14. P. and J. Clark, "Social economy". p. 76-7.

15. C.Phythian-Adams, *Desolation of a city. Coventry and the urban crisis of the later Middle Ages*, (Cambridge, 1979), p. 244.

16. Dyer, "Bishops' Census", p. 27.

17. Dyer, "Bishops' Census", p. 35.

[18] Dyer, "Bishops' Census", p. 28.

19. Dyer, "Bishops' Census", p. 28.

20. N.R. Goose, "Economic and social aspects of provincial towns: a comparative study of Cambridge, Colchester and Reading circa 1500-1700", (unpublished PhD. thesis, University of Cambridge, 1984), pp. 241-5; Goose, "Household size", p. 353; M.C.Siraut, "Some aspects of the economic and social history of Cambridge under Elizabeth I", (unpublished M.Litt. thesis, University of Cambridge, 1978).

21. L. Munby, *Hertfordshire population statistics 1563-1801*, (Bedford, 1964), pp. 30-41; Herts C.R.O., D/P1 - D/P129. These parishes all fell within the Diocese of Lincoln.

22. Dyer, "Bishops' Census", pp. 29-32.

23. Dyer, "Bishops' Census", p. 30, 35.

24. Dyer, "Bishops' Census", p. 32.

25. Dyer, "Bishops' Census", Table 5, p. 31.

26. E.A.Wrigley and R.S.Schofield, *The population history of England 1541-1871. A reconstruction*, (London, 1981), p. 528; Dyer, "Bishops' Census", p. 27.

27. P.Laslett and R.Wall (eds.), *Household and family in past time*, (Cambridge, 1972), p. 126.

28. Dyer, "Bishops' Census", p. 32.

29. Dyer, "Bishops' Census", p. 35.

30. For Flamsted it proved necessary to use 1558-1564 to determine an annual average of baptisms as registration was defective thereafter. The data may thus be distorted by the mortality crisis of the late 1550s: Wrigley and Schofield, *Population history*, p. 333.

31. E.A. Wrigley, "Births and baptisms: the use of Anglican baptism registers as a source of information about the number of births in England before the beginning of civil registration", *Population Studies*, Vol. 31 (1977), p. 310.

32. Dyer, "Bishops' Census", p. 35.

33. J.S. Moore, "Canterbury visitations and the demography of mid-Tudor Kent", *Southern History*, Vol. 15 (1993), pp. 36-85; Dyer, "Bishops' Census", pp. 30-1.

34. Goose, "Ecclesiastical returns", p. 47; Palliser, *The age of Elizabeth*, Table 2.1 and pp. 34-6; Wrigley and Schofield, *Population history*, Table 8.7, pp. 208-9.

35. R.A. Houston, *The population history of Britain and Ireland 1500-1700*, (Basingstoke, 1992), p. 28.

36. Phythian-Adams, "Urban decay", pp. 170-3.

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