

SEASONALITY OF BAPTISMS: AN URBAN APPROACH

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It is by now an accepted fact of pre-industrial demography that the level of baptism is subject to marked seasonal variations,¹ and attempts have been made to derive more general conclusions from these patterns.² This article attempts firstly to produce a more sensitive, and so more revealing, picture of these seasonal fluctuations, and in particular to show that they vary significantly between country and town. Its second purpose is to try to probe those forces which created the seasonal pattern and so to argue that it tells us something about the more general character of life in the communities concerned.

Previous studies of seasonality have taken the calendar month as their basic unit of measurement, but this study employs the week, thus ensuring a greatly enhanced sensitivity, readily apparent from the accompanying figures. Only by this means can the time of conception be pinpointed with sufficient accuracy for a convincing explanation of short-term seasonal variations. The best illustration of this fact is shown by the peak of conception which occurs during the Christmas season; when working by months this comparatively brief but quite distinct phase tends to be effectively obscured when spread over the whole of December and January.

The technique employed was to distribute baptismal numbers among 52 seven-day periods; since this gives a 364-day year, the omission of the (very few) events falling on 31 December, and on 29 February in leap years, was unavoidable. A wide variety of parishes was chosen, and in all cases an effort was made to restrict the period of time covered to the years 1580-1620, though in smaller parishes it was sometimes necessary to expand a little on these dates in order to secure an adequate sample. The purpose here was to minimise the intrusion of extraneous factors, in particular changes in religious belief and church organisation, as well as changes in the basic factors determining the pattern of seasonality. These baptismal figures were then translated into conception patterns by assuming a delay of 39 weeks between conception and baptism, comprising a 38 week gestation period and a one week delay between birth and baptism. The weekly totals were expressed as a percentage of the annual total so that figures from different parishes might be compared.

Before moving on to a discussion of the causes of seasonality, we should establish that the baptismal pattern does in fact provide a reasonable echo of the conception pattern. An element of unavoidable inaccuracy is represented by the fact that the 38-week gestation period is at best an approximation; in a modern study 59.5 per cent of pregnancies lasted 37-39 weeks, while 29.8 per cent were two or three weeks 'early' or 'late' and the remaining 10.7 per cent fell even wider of the mean.³ The effect of this must be a smudging of the originally sharper pattern of conceptions which underlies the birth pattern: baptismal customs present further problems. Parish register evidence from the 1650s, when it was not unusual to record the date of birth with that of baptism, suggests that a delay of two to three weeks was then normal.⁴ However, the special circumstances prevailing in the church in the interregnum probably encouraged delay. The limited evidence available points to a shorter period between birth and baptism for the years at issue here, which we have assumed to be one week.⁵ Even if this should prove to be rather too short, the difference can only affect the dating, not the actual nature of the pattern presented above. However, the inevitable variation in individual cases between a delay of a few hours and twenty or more days must throw the small-scale pattern further out of focus. In rural areas where the parish church lay inconveniently distant, baptism may well have been more frequently delayed, which may well help to explain the tendency shown in fig. 1 for the rural pattern to lag behind the urban one. It is also probable that rural baptisms were postponed during the crucial harvest season,⁶ and if this were so it would help to explain the apparent failure of rural conceptions to recover from the 'harvest trough' until December, for if August baptisms were artificially depressed this would have the effect of lowering the level of conceptions assumed to have taken place in the previous November.

The results are seen in fig. 1.⁷ The broad pattern shown by all four types of settlement is similar, essentially a spring peak between April and June followed by a trough in summer and autumn and another peak at Christmas, after which there is another trough before the spring revival comes round again. It will be noted that rural parishes show a much more pronounced spring peak and autumn trough, and that the exact timing of phases varies between the urban groups. We should also observe that the seasonal pattern reflected here is very distinct, and no minor statistical irregularity: in the case of the five rural parishes the peak week (in June) has 157 conceptions compared with only 61 for the lowest week in the October trough, while the conceptions in the quarter beginning on 16 April amount to 33 per cent of the annual total, compared with 19 per cent for the quarter beginning on 27 August.

The pattern in fig. 1 is 'smoothed' by use of the three-week moving average, and needs to be supplemented by fig. 2 which shows the total number of events in each week when all three urban groups are combined. It shows more accurately the timing of the phases though it contains eccentricities due to the coincidence, or failure to coincide, of the inevitable peculiarities present in all the individual parishes.

It shows that the broad movements suggested in fig. 1 are actually manifested in rapid and relatively extreme shifts in the balance over short

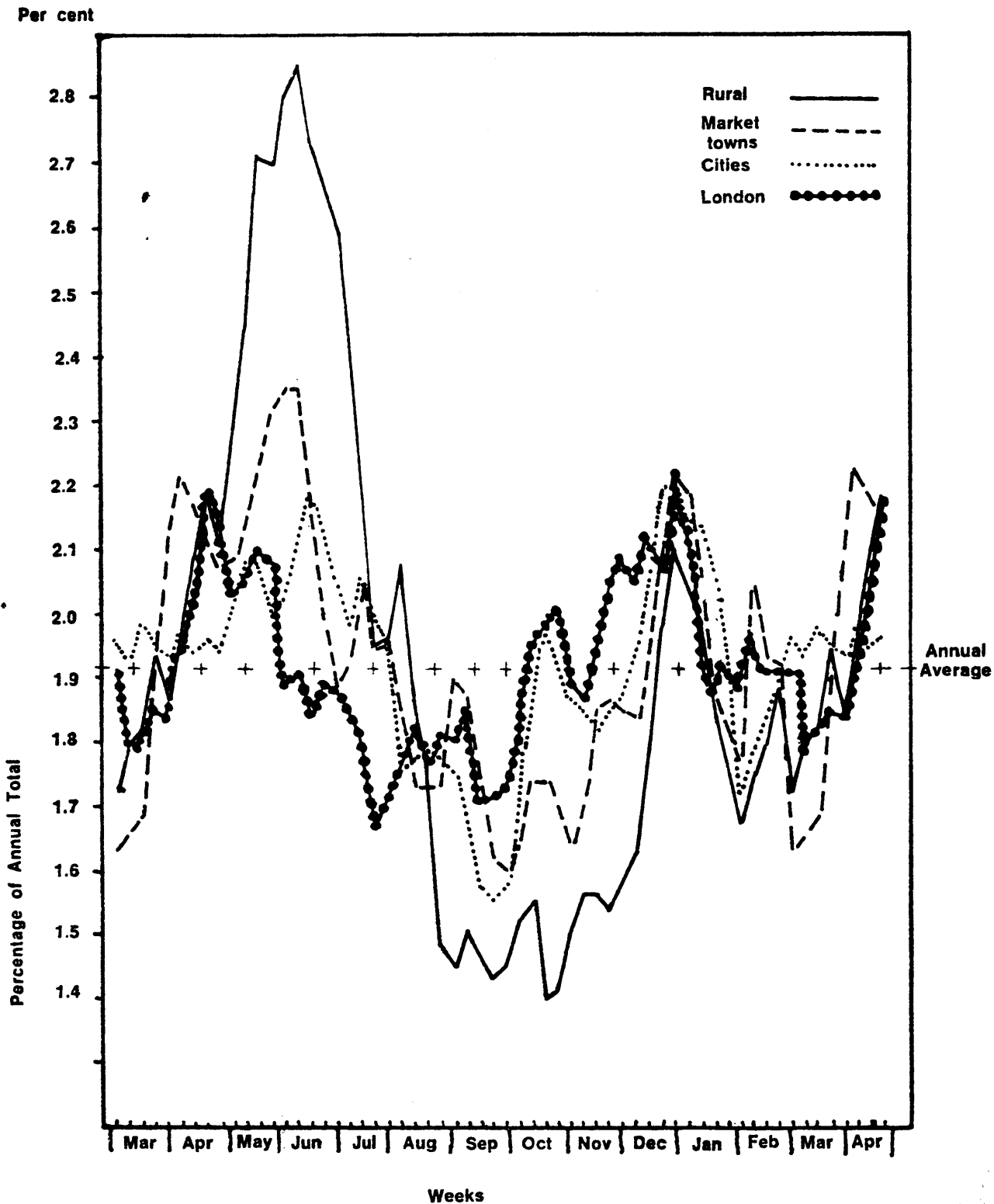


Fig. 1. Conception levels by weeks (three week moving average)

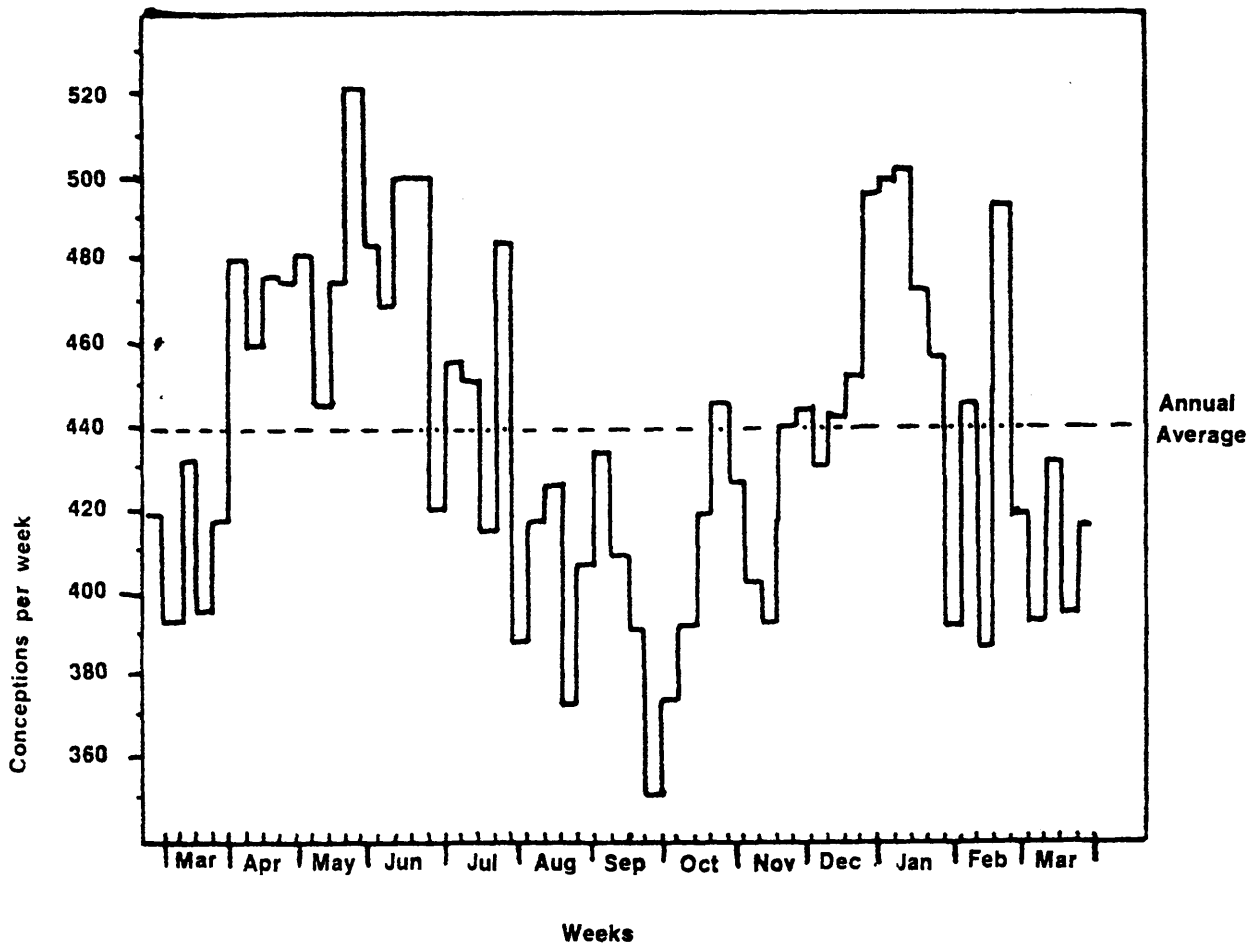


Fig. 2. Conception totals by weeks (towns only)

periods of time, so that while the two peaks are sustained at a fairly consistent level for a number of weeks, their beginning and ending are the result of a rapid alternation from the trough: this is particularly evident in the onset of the spring peak at the end of March, and in the rapidity with which the Christmas peak is created and terminated, not to mention the consistency with which it is maintained during its duration. All this points to the importance of particular dates in the calendar in determining the timing of these phases, as opposed to broad and gradual changes in the natural environment or human physiology.

If we accept that these patterns are fairly accurate reflections of the original conception seasonality, then we must seek to explain the phenomenon. Explanations have already been advanced, and prominently the red herring of seasonality of marriages. It is certainly true that there is a pronounced seasonal variation in nuptiality, dominated by an avoidance of the prohibited seasons of Lent and Advent, which gives us troughs in March and December preceded by peaks in late January and November as couples seek to marry before the ban. Although there is some correlation between marriage and conception levels in the first half of the year, they fail to correspond in the second half; more seriously, it is hard

to see how the date of marriage could affect the majority of births when the average wife may well have christened three or four children. In addition, there is evidence that the conception of even the first child can be traced to the 'honeymoon' period in only a minority of cases: at Ludlow a sample of 112 fertile marriages drawn from the period 1580-1620 shows that a mere 11.6 per cent baptised a child within 14 months of marriage, while the majority (63.3 per cent) produced their first child after 18-26 months of married life, though these figures would probably be higher in the countryside.⁸ Thus seasonal fluctuations in marriage levels, though not to be discounted entirely, must be assigned a very minor role in the influences controlling the conception pattern.

We can sub-divide the problem of explaining seasonality into two broad categories, for likelihood of conception leading to birth depends on both the physical condition of the mother and frequency of intercourse. Modern medicine has established that malnutrition and general debility substantially reduce the likelihood of both conception and the successful carriage of the foetus to term. It has always been assumed that the quality of the harvest determined the prevailing nutritional level of the following year, granted a dietary regime dominated by high cereal consumption: food should have been most plentiful in September and at its dearest in

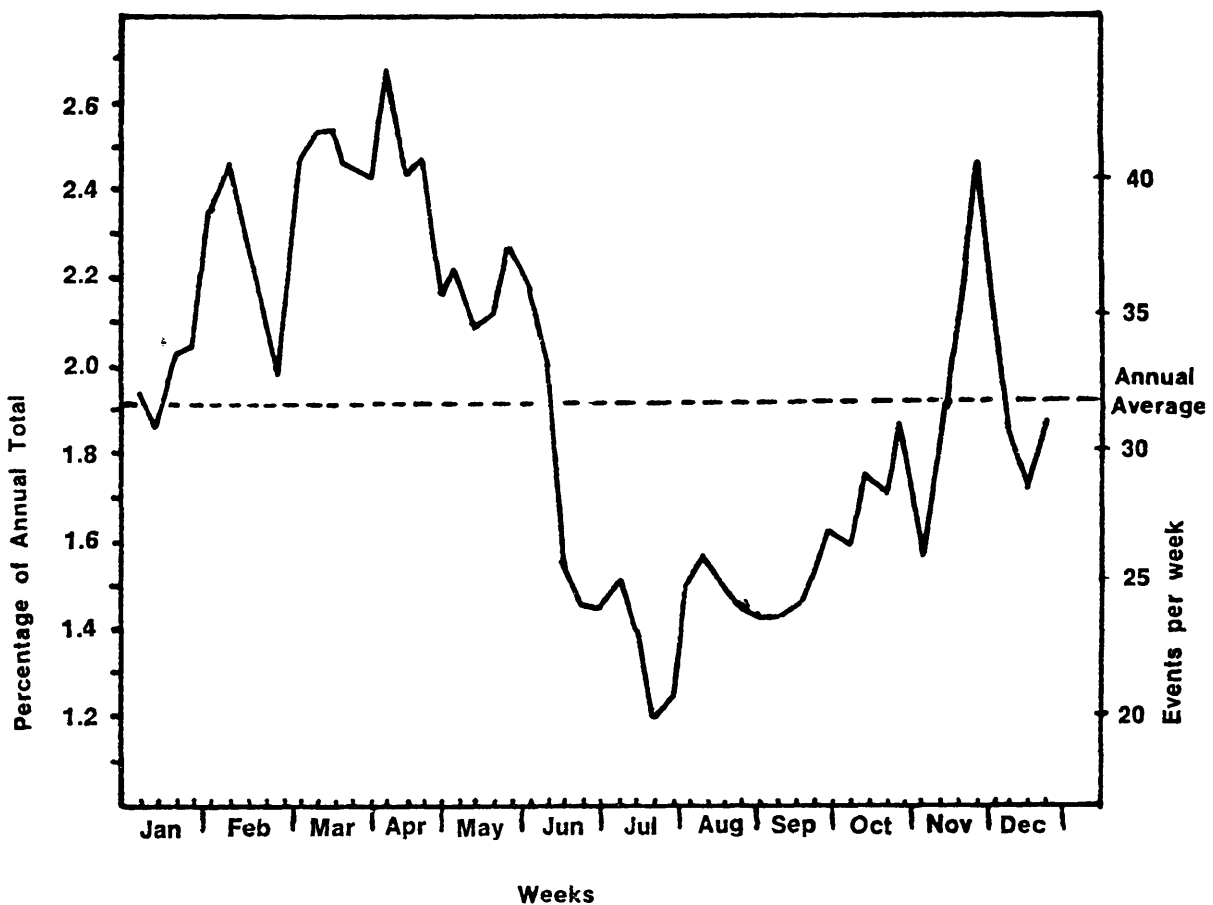


Fig. 3 Ludlow adult mortality by weeks (three week moving average)

June and July. However, the conception pattern largely contradicts this cycle, with a trough at harvest time and the main peak when food was becoming exhausted. However, if one takes a broader view of contemporary diet, especially that of the poor, and considers the importance of dairy produce and perhaps the intake of vitamins, then it would be possible to fit the dietary and conception patterns together, with the springtime increase in conceptions coinciding with the generally improving supply of non-cereal foodstuffs.

Some confirmation of this idea is shown in fig. 3 which displays seasonal mortality patterns for Ludlow calculated in the same way as was done for conceptions.⁹ The seasonal pattern for adult mortality shows an improvement taking place suddenly and strikingly in mid-June, and sustained until October. It seems unlikely that the June amelioration principally reflects improved weather, for it comes rather late, so it may well point to rising dietary standards. Since vegetables played a very minor part in contemporary diet, and would not in any case have been cropping this early in the season, perhaps the new spring grass improved the nutritional content of dairy produce. We might then assume that both the individual's capacity to stay alive and women's ability to conceive and carry a child are both related to the quality of the food supply, albeit in different ways. Although this may be a less important influence over the beginning of the spring conception peak, it would help to explain its second half, ending in July. But one must admit that the dietary argument is still at odds with the autumn slump in conceptions, though it could be extended as a factor in the Christmas peak, a season of dietary indulgence, and in the Lenten trough, when for natural as well as ecclesiastical reasons nutritional standards were probably at their lowest point.

It seems probable that the most important factor causing seasonality was frequency of intercourse, and that this in turn owes much to patterns of work and leisure. Here one is suggesting that during periods of heavy work both lack of time and sheer exhaustion resulting from long hours of exacting physical labour reduced sexual activity to a minimum. This is the only explanation for the trough, at odds with dietary and health considerations, which stretches from July to October. It would be worth while investigating the possibility that in pastoral areas the hay harvest, rather earlier in the year, replaced this cereal harvest-dominated pattern; it may well also be possible that the absence of husbands engaged on seasonal agricultural work was influential. Support for the work-pattern explanation can be derived from greater degree of seasonality in the countryside as opposed to the towns, reflecting the more highly seasonal nature of rural employment, and of country life generally; the towns do show a short harvest break, but this is entirely consistent with what we know of the agricultural element in urban economies, as well as the widespread practice of returning to the countryside to help with the harvest.¹⁰

But the patterns of work are only half of the story: just as significant is the coincidence between conception levels and the seasonal pattern of leisure, when we presume that heightened sexual activity followed periods when menfolk were at home at leisure, and at festivals when general relaxation and self-indulgence were sanctioned by a society otherwise inclined to

suspect the idea of pleasure. Here the best example is the Christmas season, which so neatly coincides with a peak of conceptions beginning in the week commencing with 24 December. Due to the low ebb in agricultural and all other forms of economic activity at this time of year (the 'dead season' as it was known at the time) the Christmas festivities represented the longest and most intensive period of leisure in the whole year, and, significantly for this study, spent at home and indoors. The festivities centred on Shrove Tuesday may well explain the curious peak shown in fig. 2 for the week 19-25 February,¹¹ while the season of highest fertility, stretching from April to July, is also the period when traditional festivals and holidays were concentrated between Easter and Corpus Christi, and included many secular festivals like May Day and Midsummer Day.¹² Conversely, the second half of the year is notably short of traditional holidays, except perhaps for fairs, until Christmas comes round again, thus reinforcing the dampening effect of the harvest.

One last area of interest in this general phenomenon remains, and one of particular interest to the urban historian. We suspected that the degree of seasonal variation in different types of settlement might present some significant comparisons, so all the parishes studied were compared by calculating the standard deviation of the weekly percentages already presented in fig. 1. When placed in rank order, as in table 1, it is immediately apparent that the obvious differences evident in fig. 1, with rural parishes displaying the most seasonal variation and London the least, are

Table 1. Seasonality of baptisms: standard deviation of weekly percentage of annual total.

Standard deviation	Towns	Standard deviation	Villages
0.33	Ludlow	0.58	Bebington
0.34	Banbury	0.60	Pattingham
0.34	York St. Crux	0.60	Selattyn
0.34	London St. Michael Cornhill	0.61	Prestbury
0.35	London St. James Clerkenwell	0.66	Whittington
0.39	Stafford St. Mary		
0.39	Worcester St. Helen		
0.39	Bristol St. Augustine		
0.40	Shrewsbury St. Mary		
0.40	York St. Olave		
0.41	London St. Dionis		
0.42	Oswestry		
0.42	London St. Mary Woolnoth		
0.42	Stratford-upon-Avon		
0.44	London St. Peter Cornhill		
0.45	London St. Mary Woolchurch		
0.47	London Christchurch		

supported. But note the consistency with which this happens: no village has a standard deviation below 0.58, and no one town above 0.47.¹³ If we assume that these statistics are a reflection of the pattern of everyday life in these parishes, with the towns taking on a more regular, uniform, disciplined and 'modern' flavour, then the phenomenon can be shown to be spread fairly evenly among towns of all sizes. While the larger towns

tend to cluster in the centre of the spectrum, London parishes tend to appear at both ends, and two small towns, Ludlow and Banbury, appear to be least 'rural' of all. Some explanation of this may lie in the proportion of recent immigrants from the countryside present in the towns: the contribution of these migrants to the populations of large towns seems to have been greater than to small ones, so that their urban character was constantly diluted by the presence of these groups with their intermittent employment and ruralised patterns of leisure.

The regularity of the pattern of the market towns, so different from the villages near them, shows how misleading it is to see them as semi-rural and very different from the major provincial cities: on this showing at least, quite small towns have much more in common with the larger urban centres than with the countryside in which they were set. It is possible that many students of pre-industrial society are inadequately aware of this vital distinction between small towns and the countryside, and tend to assume that because there is no glaring difference in population size between these two types of settlement, they can be treated as if they were identical. In fact much of the newly-emerging demographic knowledge underlines the distinctiveness of all urban communities and indicates the important gulf which exists in areas such as infant mortality, age at marriage, fertility and household size between the rural areas and towns of every size, including the smaller ones.¹⁴

Notes

1. L. Bradley, 'An enquiry into seasonality in baptisms, marriages and burials', part 2, **Local Population Studies**, 5, 1970; M. Massey, 'Seasonality, some further thoughts', **L.P.S.**, 8, 1972; U. M. Cowgill, 'An historical study of the season of birth in the City of York, England'; **Nature**, 209, 1966, pp. 1067-70; J. Dupâquier, 'Sur la population française au xvii^e et au xviii^e siècle', **Revue Historique**, 239, 1968, p. 71.
2. L. Stone, **The family, sex and marriage in England 1500-1800**, 1977, p. 620; E. Shorter, **The making of the modern family**, 1977, pp. 244-5, 337-49.
3. H. Léridon, **Human fertility**, Chicago, 1977, pp. 12-13; Dr R. Schofield kindly drew my attention to this study.
4. At Wem, a parish with both rural and urban elements, 7.1% were baptised within one week, 41.1% by the end of the second and 85.1% by the end of the third week in 1652-8 (**Shropshire Parish Register Society**, 1908); at Chester Holy Trinity, 1656-60 the equivalent figures are 8.7%, 47.1% and 77.9% (**Records of Holy Trinity Chester 1532-1837**, L. M. Farrall, ed., 1914).
5. B. M. Berry and R. S. Schofield, 'Age at baptism in pre-industrial England', **Population Studies**, 25, 1971.
6. Certainly rural marriages were postponed during harvest: C. E. Brent, 'Employment, land tenure and population in eastern Sussex 1540-1640', Sussex D. Phil. thesis, 1973, pp. 76 et seq.
7. Parish registers employed:
Rural. Bebington, Cheshire (**The parish register of Bebington, Co Chester 1553-1701**, F. Sanders and W. F. Irvine, ed., 1897); Prestbury, Cheshire (**Lancashire and Cheshire Record Society**, 5, 1881); Pattingham (**Staffordshire Parish Register Society**, 1934); Selattyn (**Shropshire Parish Register Society**, 1898); Whittington (**Shrops. P.R.S.**, 1898). Total number of events: 5,184.

Market Towns. Banbury (**Banbury Historical Society**, 7, 1965/6); Ludlow (**Shrops. P.R.S.**, 1910); Oswestry (**Shrops. P.R.S.**, 1898); Stafford St. Mary (**Staffs. P.R.S.**, 1935-6); Stratford-upon-Avon (**Parish Register Society**, 1897). Total number of events: 9,193.

Cities. Bristol St. Augustine (**The register of the Church of St. Augustine the Less, Bristol, 1577-1700**, A. Sabine, ed., 1956); Shrewsbury St. Mary (**Shrops. P.R.S.**, 1911); Worcester St. Helen (**The parish book of St. Helen's Church in Worcester**, J. B. Wilson, ed., 1900); York St. Crux (**Yorkshire Parish Register Society**, 70, 1922); York St. Olave (**Yorks. P.R.S.**, 73, 1923). Total number of events: 6,856.

London. Christchurch Newgate St. (Harleian Society Registers, 21, 1895); St. Dionis Backchurch (H.S.R., 3, 1878); St. James Clerkenwell (H.S.R. 9, 1894); St. Michael Cornhill (H.S.R., 7, 1882); St. Peter Cornhill (H.S.R., 1, 1877). Total events 6,813.

In all cases, obvious years in which plague epidemics occurred, (identified by heavy summer mortality when the disease is recorded as prevalent in the area concerned) were omitted.

8. Ludlow parish register, 1580-1620. See note 7 above. Evidence from the period 1748-1880 suggests that in principle as well as practice it is 'impossible for nuptiality to explain short run variation in a birth series'. R. D. Lee, 'Models of pre-industrial dynamics with application to England' in C. Tilly, (ed.), **Historical studies of changing fertility**, 1978, p. 191. I am grateful to Dr. Schofield for this reference.
9. Based on 1658 events, with plague years excluded as outlined in note 7, Adult burials were assumed to be the residue when all described as 'son of ...' or 'daughter of ...' were extracted; the relative proportions of the two groups would indicate that this eliminated most child burials. The pattern of child burials is quite similar to that of adults except in the summer, when there is a distinct peak, presumably due to infections of the alimentary tract spread by dust and flies.
10. Norwich worsted weavers suspended work for a month from August 15 to supply harvest labour, (P. Millican, **Registrar of the freemen of Norwich 1548-1713**, 1934, p. xix); the great fire of Dorchester of 1613 spread in part because most of the inhabitants were absent harvesting. (A. L. Clegg, **A history of Dorchester, Dorset**, 1972, p. 124).
11. Shrove Tuesday involved 'festivities which in gaiety and variety were a close second to Christmas'. (D. G. Spicer, **Yearbook of English festivals**, New York 1954, p. 192). It has been suggested that the Lenten trough is due to the church's discouragement of intercourse during Lent (Stone, pp. 500, 620), but there is little evidence that the church campaigned on this point, and it could hardly have gone unrecorded. In this case, after a generation of protestantism deprived of the discipline of the confessional, it seems unlikely that such an uncongenial sacrifice was often made.
12. C. Phythian-Adams, 'Ceremony and the citizen: the communal year at Coventry 1450-1550', in P. Clark and P. Slack, **Crisis and order in English towns 1500-1700**, 1972. The twentieth century British conception pattern shows its chief peak in August, the main holiday month (Shorter p. 348).
13. Sources as in Note 3, with the addition of London St. Mary Woolnoth and Woolchurch Han (**The transcript of the registers of St. Mary Woolnoth and St. Mary Woolchurch Han**, J. M. S. Brooke and A. W. C. Hallen, eds., 1886). Parishes were found with standard deviations which bridged the gap between the urban and rural levels, but they are all urban parishes with large rural fringes, naturally producing a mean between the two. It should be noted that even in the quoted examples parishes like Stratford-upon-Avon are brought down the scale by the small rural element contained within the parish boundaries.
14. See the tables in R. M. Smith, 'Population and its geography in England 1500-1730', in R. A. Dodgshon and A. A. Butlin, (eds.), **An historical geography of England and Wales**, 1978, where the three modestly sized market towns of Alcester, Banbury and Gainsborough display a demographic experience quite unlike that of the villages. In the infant mortality rate, for instance, the urban level is as much as double that of the villages by the early eighteenth century (p. 210); in the age at marriage there is a considerable difference of nearly four years for instance between the sixteenth century ages for men in town and country (p. 217). In the same way, work on the size of the household has taken notice of the size of the parish but not of whether it is urban or rural, so that the trend to a larger rural mean household size during the eighteenth century is confused by the fact that the urban household, larger than the rural one in the late seventeenth century, is much more static, or even shrinking during the eighteenth (chapters by P. Laslett and R. Wall in Laslett and Wall, **Household and family in past time**, 1972, pp. 125-203).