COMPARING DEMOGRAPHIC EXPERIENCE: HARWICH AND WHITBY, 1750-1800

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A cautionary tale

There is great temptation, given that the events with which historians deal have already happened, and have indeed generally taken place a considerable time ago, to come to the end of a piece of research, write it up, proof-read it, send it off and heave a great sigh of relief that the task is complete, just as I did, when I delivered a paper to an **LPSS** conference last April, thinking that all I then had to do was tidy it up as an article, and that was that.

The discoveries which have since overtaken me have served to show that while the events of the past may be finite, the technology and research of the present and future can effectively, if not nullify, at least disrupt, the work in hand.

My paper was on demographic contrasts between Harwich and Whitby during the seventeenth and eighteenth centuries. It was based on research done in Essex in the late 1970s as Principal Investigator on an SSRC Project, and on subsequent research done in Whitby since 1984. The work in Essex had been done on the University mainframe computers, 'state of the art' technology in 1978-9, but the database which was produced to run using the SPSS[1] package proved so large that it was not possible to analyse more than a 10 per cent sample at any one time. Thus the first report was written on that basis, and without benefit of a word-processor.

Since I delivered the paper in April 1989, I have acquired an IBM At-compatible, 20mb hard-disc Tandon PCA, and suddenly I find that this domestic machine is quite capable of manipulating a whole data-base, of which my allocation on the university mainframe was only capable of handling 10 per cent fifteen years ago. How can I possibly present my article now, based on out-dated information? The moral is, of course, that as I lodged my data with the then SSRC Data Archive, it can now be converted to a 5 1/4 inch floppy disc, and I can use the SPSS package in my present institution on a PC to tackle the whole problem, as well as working on it at home. In addition, of course, I can now enter my Whitby data using the same format, and extract compatible results without having to resort to the punch-cards of my (comparative) youth. So the world will have to wait a little longer for my final statement on the demographic contrasts between Whitby and Harwich, but as a result of these developments, they may well be much more accurate. It should also be pointed out that the Data Archive deserves to be better known among readers of **LPS** since it holds much historical material that is accessible to researchers with IBM-compatible micro-computers. It would perhaps be beneficial for there to be an article, detailing the holdings of archives of interest to historians.

Comparing and contrasting communities

The work which I have been doing on Whitby and Harwich has made it quite clear that there is a great deal to be learnt from the comparison of data for two communities of similar type but different geographical location. For example an analysis of the parish registers on the basis of a simple aggregation showed that differences can be so marked as to point to a fundamental variation of some kind between two apparently similar places. Both towns are on the east coast; both face, eccentrically, due north; both enjoyed similar status, as boroughs, one incorporated and one seigneurial; both were involved in mercantile seafaring; both built ships of considerable size. Yet the vital statistics of Whitby reveal a town with an almost constant surplus of population, an excess of baptisms over burials, over the two centuries studied, while the statistics of Harwich revealed a deficit so great that the town could only have remained viable through constant inward migration.

As the economic stresses on both towns were of very similar type, and the external perturbations of the one were generally shared by the other, (principally war, civil and foreign, and blockades), the difference must be due to the geography of the two places. Harwich, built on a low-lying peninsula jutting out into an estuary, and surrounded by fresh and salt marsh, has no fresh water within its defined burgage. Moreover, it has a long history of malaria, and experienced a severe outbreak of bubonic plague. Whitby, built on the steep sides of a ravine bisected by a fast-flowing river, sits on lines of springs and has virtually no marsh at all. Plague certainly visited it, but never to the extent that Harwich suffered.

Work has been done on **contiguous** parishes, but it may be that work on carefully chosen distant parishes of similar type but different topography would reveal more of the processes of demographic behaviour than has been hitherto observed.

Crude rates before the Census period

I have always been very unhappy about estimating population in the periods before the decennial Census, when usually all that is available are Hearth Tax documents or some other listing, either fiscal or ecclesiastical. It is difficult to be sure, short of a complete family reconstitution, of the correct Hearth Tax multiplier for any given parish, despite all the work with which readers of **LPS** are familiar. One must always allow a considerable margin of error. At best one might say, for example, that Parish A with 100 households including non-payers, of a rural character, would have had between 325 and 450 inhabitants and that its mean of 14 burials per annum represents a crude mortality rate of between 43 and 31 per 1,000. It becomes more difficult still when one wishes to compare with Parish B of approximately the same number of households but a mean of 16 per annum. Which is the healthier parish? If A is less populous than B, then B, with its higher mean, may well be the healthier parish.

In search for a more systematic method, I have been experimenting with a unit of 100 households. That still begs the question as to size of household, but has

Figure 1   Conventional graphs showing annual distribution of baptisms and burials

A) Harwich and Dovercourt
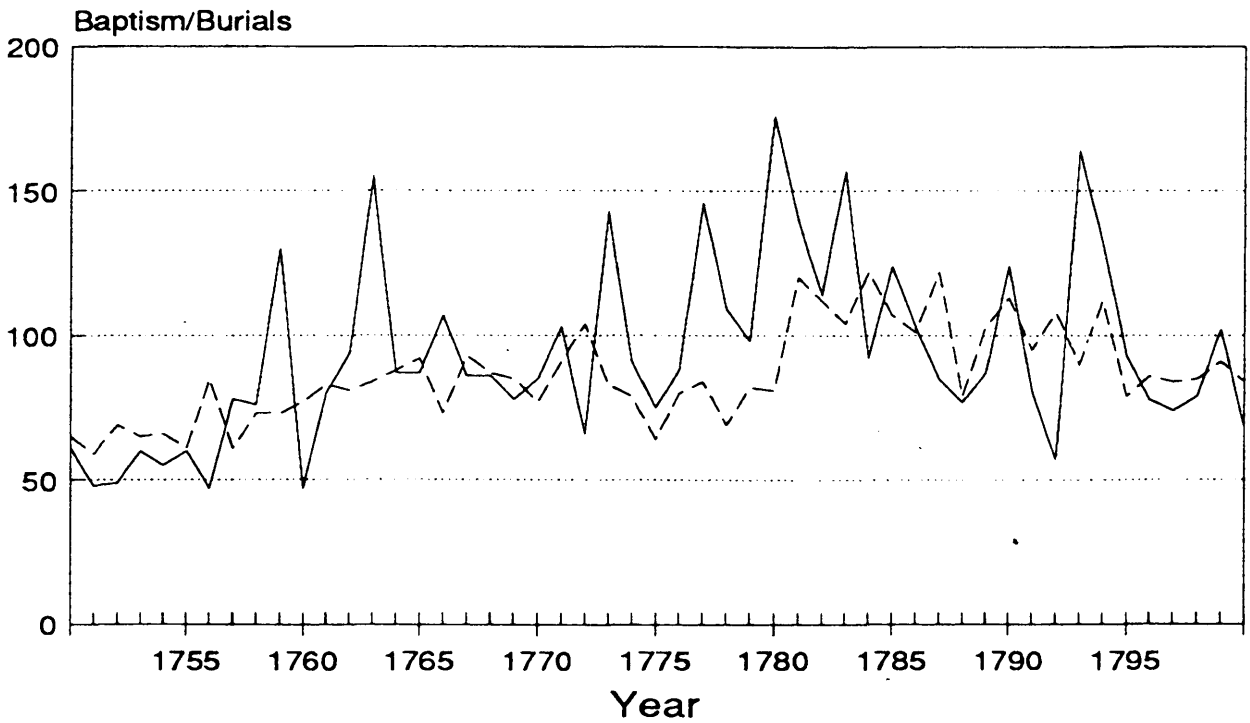
Baptism/Burials

B) Whitby (including townships)
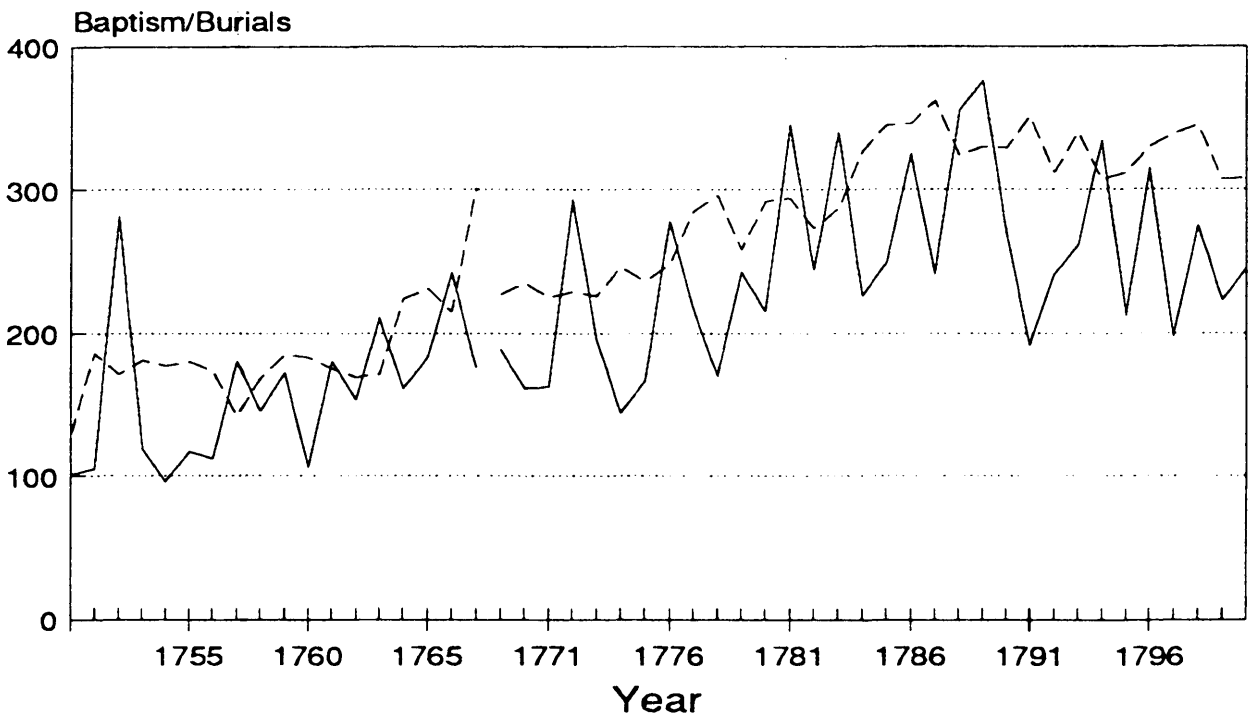
Baptism/Burials

Baptisms = - - - - -   Burials = ———

Source: Parish Registers of Harwich and Dovercourt; Essex Record Office D/P 170 and D/P 174
Transcript of Whitby Parish Registers: **Whitby Literary and Philosophical Society**.
NB: the parish clerk at **Whitby** was renumerated in a quite complex way, but part was by
numbers of burials, so he would have been very anxious to record each one in order to
maintain his income, and that would militate against under-registration of burials.

the merit of using what is a single economic unit, so that the actual size of that unit diminishes in importance. Mortality and fertility are both very much bound up in the concept of economic units, and in any serious crisis, the loss of that unit is just as important as the individual experience. So too is the gain – or overburden – inherent in birth. For example, using the 100 households method, Parish A would have an annual mortality rate of 14 per 100 households and Parish B a rate of 16 per 100 households. Thus a direct contrast of the economic significance of mortality rather than a straightforward crude mortality rate can be gained. Equally, if Parish A also has an annual mean of 17.5 baptisms, and Parish B a mean of 15.78 baptisms, then their baptismal rates per 100 households are 17.5 and 15.78 respectively. Consequently, Parish A can easily be been to be in surplus, and Parish B in deficit. Thus this method does not lose the ability to examine either deficit or surplus. Like all methods based on statistics collected for purposes other than those for which we use them it is imperfect; however, it does seem to bring in the economic element which I feel is very important in any demographic analysis. As a new methodology, I would, of course welcome any comment on its application.

The Datum Line Graph

The normal means of showing the relationship between baptisms and burials on an annual basis is the straightforward line two dimensional graph such as those given in Figure 1. This time-honoured, efficient method gives a clear picture of the changes in any parish over time. The figures which are shown in these graphs can be turned into moving averages and used to show trends over time. There are some in this world who are wont to tangle with regression analyses, but I shall draw a veil over my unhappy attempts to undertake these. Sometimes, however, what is required of the data is a straightforward comparison between two parishes as to their relative healthiness. This can be achieved by examining the surplus of baptism over burial, or the excess of burial over baptism, and the most accessible visual method seems to be the use of a datum line graph. It has the additional merit of being easy to produce on a typewriter or a word-processor, without recourse to graphics.

The datum line represents parity between the annual totals for baptism and for burial; e.g. 17 baptisms:17 burials. If there had been 19 baptisms to 17 burials, then two figures X, or on graph paper, a line across two small squares, would appear to the left of the line, for example:

XX |

while 16 baptisms:26 burials would appear as:

| XXXXXXXXX

To illustrate the time dimension of the distribution the years should be listed down the side of the page.

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Figure 2 An example of datum line graphs from Harwich and Whitby

Harwich

Baptismal Surplus | Burial Surplus

```
1750                           XX |
   1                         XXXX |
   2                    XXXXXXXXXX |
   3                          XXX |
   4                        XXXXX |
   5                            X |
   6          XXXXXXXXXXXXXXXXX |
   7                              | XXXXXXX
   8                              | XX
   9                              | XXXXXXXXXXXXXXXXXXXXXXXXXXX
1760               XXXXXXXXXXXXXX |
   1                           XX |
   2                              | XXXXX
   3                              | XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
   4                            X |
   5                          XXX |
   6                              | XXXXXXXXXXXXXXXX
   7                          XXX |
   8                            X |
   9                         XXXX |
1770                              | XXXXX
   1                              | XXXXXXX
   2            XXXXXXXXXXXXXXXXX |
   3                              | XXXXXXXXXXXXXXXXXXXXXXXXXXXX
   4                              | XXXX
   5                              | XXXXX
   6                              | XXXX
   7                              | XXXXXXXXXXXXXXXXXXXXXXXXX
   8                              | XXXXXXXXXXXXXXXXXX
   9                              | XXXXXXX
1780                              | XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
   1                              | XXXXXXXXX
   2                              | X
   3                              | XXXXXXXXXXXXXXXXXXXXXXXXXX
   4           XXXXXXXXXXXXXX |
   5                              | XXXXXXX
   6                              | X
   7         XXXXXXXXXXXXXXXXXXX |
   8                            X |
   9                    XXXXXXXX |
1790                              | XXXXXX
   1                      XXXXXXX |
   2      XXXXXXXXXXXXXXXXXXXXXXXXXX |
   3                              | XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
   4                              | XXXXXXXXXX
   5                              | XXXXXXX
   6                         XXXX |
   7                        XXXXX |
   8                          XXX |
   9                              | XXXXX
1800                              | XXXXXXX
```

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Figure 2   Cont.

Whitby

Baptismal Surplus   Burials Surplus

```
1750           XXXXXXXXXXXXX |
   1      XXXXXXXXXXXXXXXXXXXXXXXXXX |
   2                              | XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
   3        XXXXXXXXXXXXXXXXXXXXXXXX |
   4        XXXXXXXXXXXXXXXXXXXXXXX |
   5          XXXXXXXXXXXXXXXXXXXXX |
   6          XXXXXXXXXXXXXXXXXXXXX |
   7                              | XXXXXXXXXXXXXXXXXXX
   8              XXXXXXXXXXX |
   9                XXXXX |
1760      XXXXXXXXXXXXXXXXXXXXXXXXX |
   1                              | XXX
   2              XXXXXXXXXXXX |
   3                              | XXXXXXXXXXXXXXXXXXX
   4      XXXXXXXXXXXXXXXXXXXXXXXXXXX |
   5        XXXXXXXXXXXXXXXXXXXXXXX |
   6                              | XXXXXXXXXXXX
   7      XXXXXXXXXXXXXXXXXXXXXXXXXX |
   8                          { | }                           .
   9            XXXXXXXXXXXXX |
1770      XXXXXXXXXXXXXXXXXXXXXXXXXX |
   1      XXXXXXXXXXXXXXXXXXXXXXXXXX |
   2                              | XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
   3            XXXXXXXXXXXXX |
   4      XXXXXXXXXXXXXXXXXXXXXXXXXX |
   5      XXXXXXXXXXXXXXXXXXXXXXXXXX |
   6                              | XXXXXXXXXXXXXXX
   7      XXXXXXXXXXXXXXXXXXXXXXXXX |
   8      XXXXXXXXXXXXXXXXXXXXXXXXX |
   9                XXXXXX |
1780      XXXXXXXXXXXXXXXXXXXXXXXXXX |
   1                              | XXXXXXXXXXXXXXXXXXXXXXX
   2            XXXXXXXXXXXXX |
   3                              | XXXXXXXXXXXXXXXXXXXXX
   4        XXXXXXXXXXXXXXXXXXXXXX |
   5        XXXXXXXXXXXXXXXXXXXXXX |
   6              XXXXXXXXXX |
   7      XXXXXXXXXXXXXXXXXXXXXXXX |
   8                              | XXXXXXXXXXXXX
   9                              | XXXXXXXXXXXXXXXXXXXXX
1790                              | XXXXXXXXXXXXXXXXXXXXXXXXXX
   1      XXXXXXXXXXXXXXXXXXXXXXXX |
   2        XXXXXXXXXXXXXXXXXXXXX |
   3        XXXXXXXXXXXXXXXXXXXX |
   4                              | XXXXXXXXXXXXX
   5      XXXXXXXXXXXXXXXXXXXXXXXXX |
   6              XXXXXXX |
   7      XXXXXXXXXXXXXXXXXXXXXXXX |
   8      XXXXXXXXXXXXXXXXXXXXXXXX |
   9      XXXXXXXXXXXXXXXXXXXXXXXX |
1800      XXXXXXXXXXXXXXXXXXXXXXXXX |
```
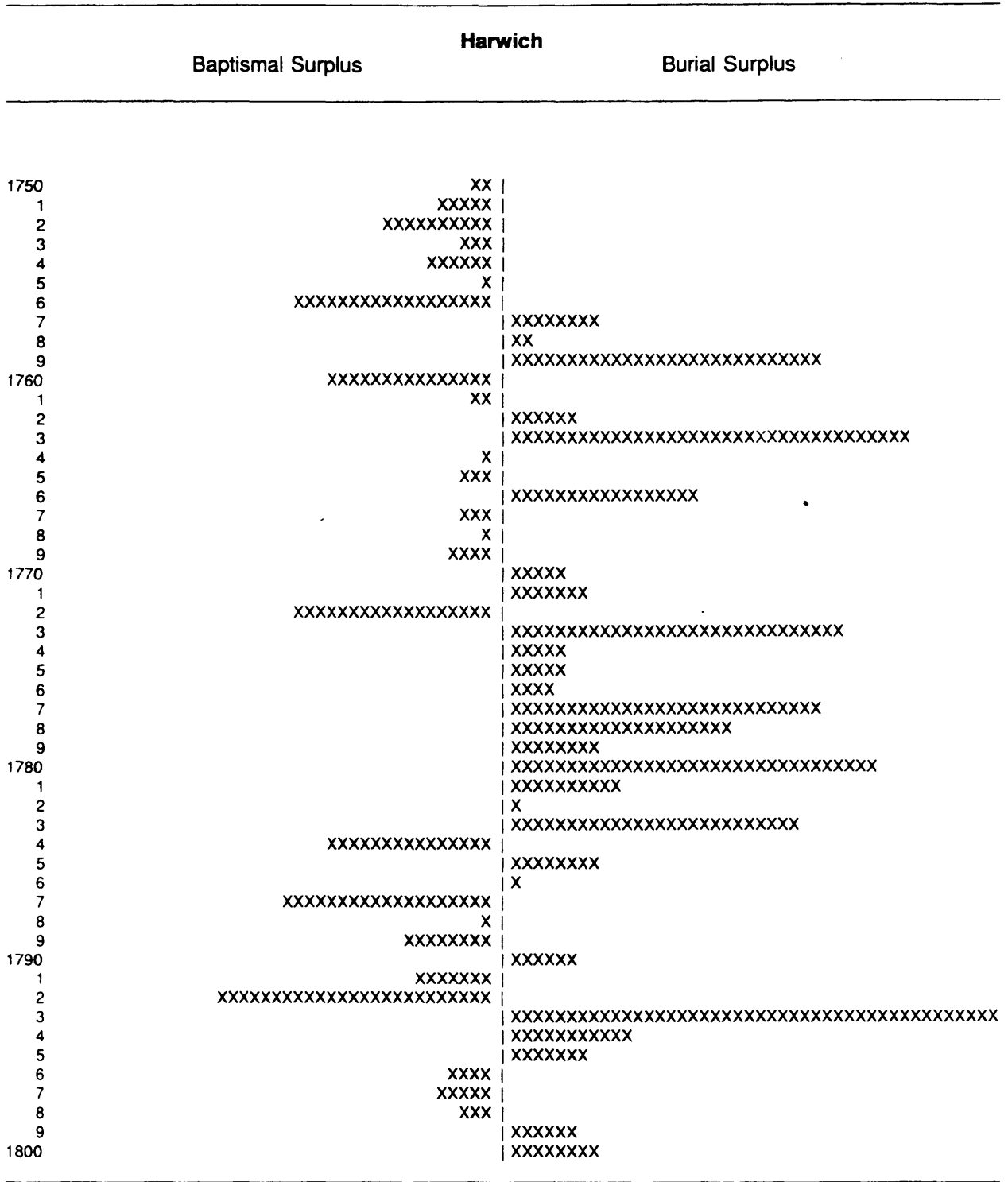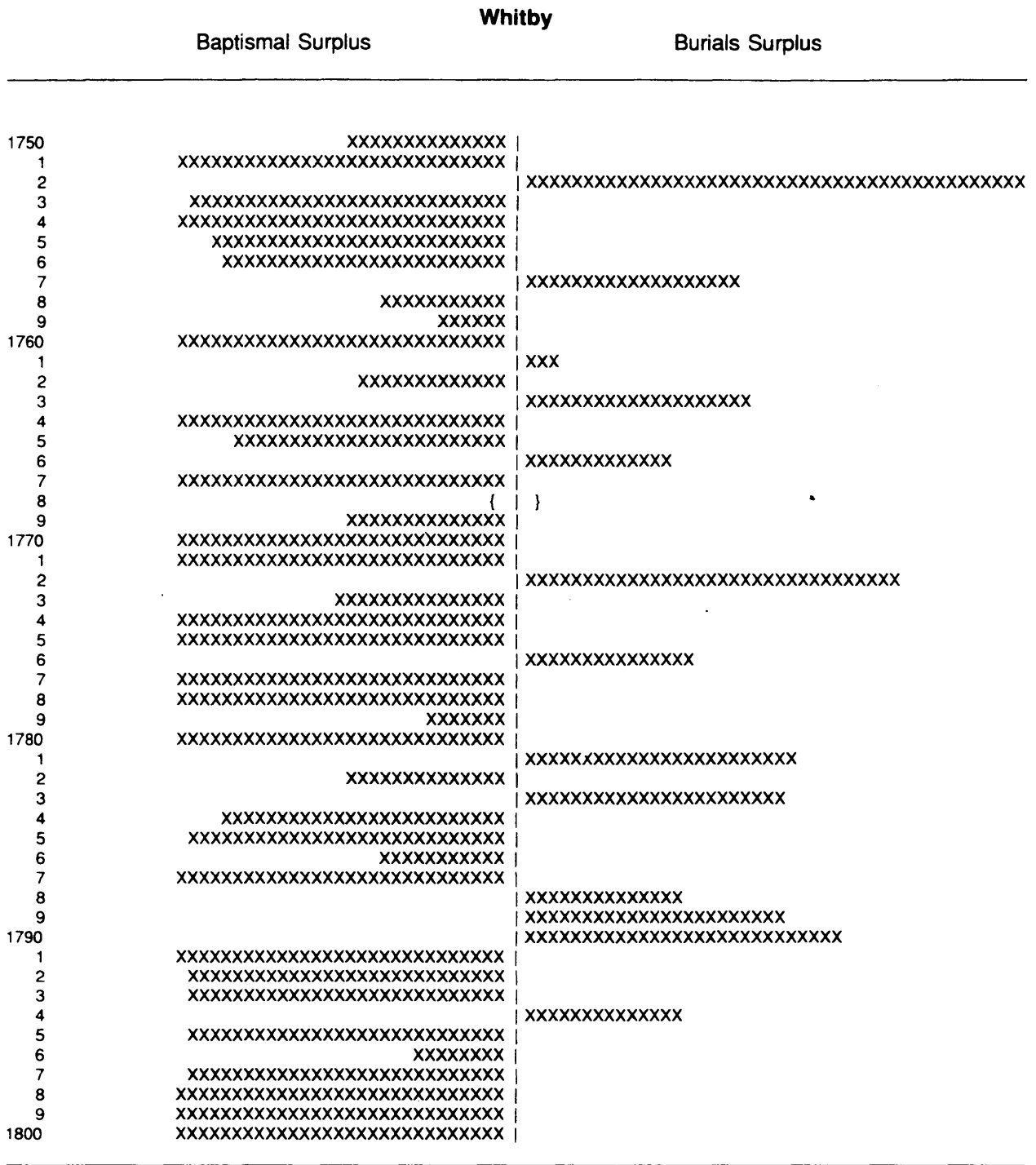
The result is an instant picture of the changing pattern of healthiness and unhealthiness in the commmunity. If a parish is healthy, then all, or most of, the surpluses will be on the left of the line, while in an unhealthy parish the shadow will be on the right. Putting two parishes of contrasting experiences side by side gives an instant impression.

Some way must be found of indicating nil returns, as otherwise they show as par; perhaps brackets could be used to show blanks in the register, or maybe a dashed datum line, for example:

```
| } blank in register.
| }   "    "    "
| }   "    "    "
```

Most of all it is important, as in all series, to include every year so that alignment is possible.

NOTES

1. **Statistical Package for the Social Sciences**, University of Pittsburgh.
2. **A demographic history of a group of contiguous parishes in the Tendring Hundred, Essex, 1538-1838**, Final Report to the SSRC (Grant no.HR5014/2).

Editors' Note

In the opening section of her article Rosalin Barker mentions the potential value of the (now) ESRC Data Archive at the University of Essex and suggests that it would be beneficial for an article detailing the archives' holdings to be published in **LPS**. So as not to disappoint, readers should note that a short piece on the Data Archive is published elsewhere in this issue.