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978-0-521-35688-6 - The Population History of England, 1541-1871: A Reconstruction

E. A. Wrigley and R. S. Schofield

Excerpt

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## Introduction

It is a commonplace of the history of all pre-industrial societies that the changing fortunes of a community from year to year tended to be affected by the harvest more than by any other single influence. The land was the source of all food and of most of the raw materials needed by industry. A harvest failure therefore meant distress and depression; an abundant harvest an interlude of comparative plenty. Those who lived in town or who worked outside agriculture were as vulnerable as the husbandmen. And fluctuations in the size of the harvest were unavoidable, though their effects might be mitigated by trade and by the storage of grain from one year to another. They caused an abrupt change in the balance between a population and its economic resources which, if severe, could entail disaster rather than merely distress.

But the balance between a population and its productive resources was also subject to secular change. Underlying the frequent and sometimes violent fluctuations imposed on every society by the harvest cycle, there were slow sea changes at work which continued for many decades, sometimes for more than a century. Thus, almost throughout the sixteenth century the balance between the English population and the resources to which it could gain access with the material technology of the day steadily deteriorated because the growth in numbers outstripped the rise in production. Conversely, between the mid seventeenth and mid eighteenth centuries it improved with the sharp reduction in the rate of population increase. In both periods the underlying trends were temporarily alleviated or aggravated by the short-term effects of good or bad harvests, but in both they displayed a remarkable persistence.

The consequences of short-term alterations in the balance of people and resources brought about by the vagaries of the harvest were plainly apparent to contemporaries and have proved comparatively easy for historians to study both in quantitative terms and for their social and political significance. Secular trends have been harder to grasp. They were little remarked by contemporaries, if noticed at all, and there are few sources which give consistently reliable information about demographic or economic trends over periods of time measured in centuries. Moreover, where they exist they may demand novel analytic techniques for their effective exploitation. Yet long-term changes in the balance between a people and the means of sustenance and economic activity available to them had profound effects both upon individual welfare and on the course of institutional and attitudinal change. And since pre-industrial societies normally experienced great difficulty in achieving a rapid expansion in their capacity to produce goods and services, population was the more dynamic element in the striking of a balance with production. Accordingly, any source that offers the possibility of tracing out demographic change over a period of three centuries deserves close attention.

English parish registers are such a source. In this book we have tried to ensure that they are used to best advantage to provide detailed and continuous information about

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trends in population size and in fertility and mortality from their institution in 1538 until the state assumed responsibility for vital registration 300 years later. This makes it possible for the first time to establish with some precision what changes took place in a pre-industrial population over a period of time long enough to encompass a secular cycle of population development, and to investigate the relationship between demographic and economic change during its course. Since the economic series available for long periods of time are both less representative than the demographic and subject to wider margins of error, some parts of the argument based on the examination of the relationship between population and the economy are necessarily tentative. But much of the dynamic seems clear.

England is exceptionally fortunate in having several thousand parish registers that begin before 1600. A substantial proportion of these early registers are unusable for a variety of reasons, but collectively they form a source which may be unrivalled for its combination of an early start and wide coverage.<sup>1</sup> Indeed, the lack of comparable national information for any other country until the mid eighteenth century proved one of our chief handicaps in attempting to assess the significance of English demographic characteristics in the sixteenth and seventeenth centuries.

Very long runs of data are, paradoxically, just as valuable for the study of short-term variation as for the studies of secular trends. They make it possible to pick out more confidently not only the relationships that are visible in the more spectacular episodes of short-term change, but also the subtler links that obtained both between the demographic variables themselves, and between them and external factors, whether economic, such as price change, or environmental, such as extremes of temperature. Moreover, many of the relationships changed over time, and a data series stretching over three centuries permits the nature and timing of such changes to be investigated.

The realization that English parish registers afforded an exceptional opportunity for the study of the country's population history over a very long period of time is not new. John Rickman was well aware of their value in this regard when planning the first census in 1801. As part of the census he sought to obtain from every Anglican parish minister totals of the number of events recorded in his registers for one year in each decade throughout the first 80 years of the eighteenth century and for every year in its last two decades.<sup>2</sup> Having the advantage of the authority and resources of the state to back his inquiry, he succeeded in obtaining returns from the vast majority of

1. French registers, for example, often suffer from defective burial registration until the late seventeenth century and even beyond. Swedish registers survive in numbers only from the 1680s. In general it appears to be the case that while occasional individual registers may survive from a very early date, it is very difficult to find the combination of characteristics needed for the systematic study of population history covering large regions in continental Europe before the eighteenth century. The same is also true, of course, of Scotland and Ireland. Fleury and Henry, *Nouveau manuel*, pp. 25–6 and Henry and Blayo, 'La population de la France de 1740 à 1860', pp. 87–9; Gaunt, 'Early Swedish parish records'.

Richardman drew attention to this point after having made the exhaustive inventory of English parish registers published in summary in the 1831 census. 'The preservation of parish registers retrospectively is a matter of degree; no person will be surprised that one half of the registers anterior to A.D. 1600 should have disappeared. If any other nation possesses similar registers of that date (a valuable proof of uninterrupted civilisation), a comparison might be instituted, and the preservation of such records through three hundred years would not prove to have been of frequent occurrence.' *1831 Census*, 1, Enumeration abstract, p. xxix.

2. Rickman noted in 1801 that 'The second object of the Population Act was to ascertain the increase or diminution of the population of Great Britain, throughout the last century'. *1801 Census*, Observations, p. 4. The 1801 returns covered every tenth year from 1700 to 1770 and every year from 1780 to 1800 for baptisms and burials; for marriages, however, returns were sought for every year from 1754 to 1800.

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parishes. He added to the store of data acquired in 1801 by prosecuting a further inquiry in 1836 and securing additional information from all those parishes whose registers began before 1600. This second inquiry covered a few widely spaced groups of years reaching back into the sixteenth century.<sup>3</sup> Rickman's labours laid the foundation for most subsequent discussions of English population history in early modern times. Indeed, all scholars have remained primarily dependent on him for their empirical information, but have attempted in various ways to overcome the shortcomings of his data, and to improve upon his techniques of analysis and interpretation.

### The data used: the parish registers and their shortcomings

Rickman's work has been of great value to us as to others, for no other study based on parish registers can hope to rival the scope of his surveys. They afford invaluable checks upon the accuracy of totals obtained from other studies covering only a relatively small percentage of the 10,000 ancient parishes of England. Nor is there any alternative to the parish registers as a source of information about fertility, mortality, and nuptiality before the nineteenth century. But Rickman's data refer only to a few widely scattered points in time before 1700 and to only one year in ten for most of the eighteenth century. In order to address the range of issues outlined above, we have found it necessary, in the manner foreshadowed by Glass, to construct a more comprehensive national series of vital events providing monthly totals from the inception of parochial registration in 1538 through to its supersession by civil registration in 1837 and on to 1871, the closing date for the present study.<sup>4</sup> For the period down to 1837 we have sought to achieve this by using monthly totals of events taken from the registers of a total of 404 parishes; for the later period by making corrections to the material collected by the Registrar General and published in his *Annual Reports*.<sup>5</sup> The construction of such a series was a necessary preliminary to

3. The 1836 returns, which were made the basis of the estimates of population totals by county from the sixteenth century onwards published in the 1841 census, covered the following years: 1569–71, 1599–1601, 1629–31, 1669–71, 1699–1701, 1749–51, and 1800.

4. Glass made the following comment on Rickman's work. 'There are already several sets of estimates of the population of England and Wales in the eighteenth century, and most of them have been derived in one way or another from Rickman's compilation of parish register data. But the returns supplied to Rickman no longer exist and we do not know how accurately those returns were transcribed from the registers, to what extent dissenters were included, or whether the interpolations used by Rickman to fill gaps in the returns were acceptable approximations. Hence any further serious attempt to investigate population growth during the eighteenth century on the basis of parish register material must break away from Rickman's series and begin with a new compilation (no doubt on a sample basis) of accurate year-by-year transcriptions and an equivalent analysis of the records of dissenting groups. But this would represent only the initial step. To work backwards from the first periodic censuses of England and Wales requires a much closer assessment than has so far been undertaken of the changing completeness of ecclesiastical registration; a study of the reliability – in respect both of completeness and of the accuracy of the age data recorded in 1821, 1841 and 1851 – of the early nineteenth century censuses; and new attempts to estimate the volume of net migration from England and Wales in the eighteenth and first half of the nineteenth centuries'. What Glass wrote of work on the eighteenth century is equally applicable to the parish register period as a whole. In the course of assembling and correcting the data on which this book is based we have had occasion to tackle all the issues listed by Glass, and indeed to consider others (such as the problem of detecting periods in individual registers when registration was defective without failing entirely). Glass, 'Introduction', pp. 8–9.

5. The Registrar General's returns did not extend to monthly totals. In his *Annual Reports* he published no national data for units of time shorter than the quarter. For this reason our monthly series of vital events are not continued beyond the end of the parish register period (table A2.4). It may be noted that it was

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bypassing the increasingly sterile debates about the ways in which Rickman's data should be corrected and manipulated in order to derive measures of fertility and mortality in the past.

Our starting date was forced upon us because no suitable source exists to enable the series to be pushed back beyond 1538. The closing date was chosen with three chief considerations in mind. First, in the early years of civil registration coverage of births was seriously incomplete and the shortfall did not shrink to negligible proportions until about 1870. The fertility data derived from the Registrar General's *Annual Reports* cannot therefore be used with any confidence until the last quarter of the nineteenth century. Second, it became increasingly clear in the course of research connected with this book that there was a major discontinuity in the history of both fertility and mortality at about this date. Third, the technique of back projection, which was developed to make the best use of the aggregative data assembled, requires a census with tolerably accurate age information as a starting point. The censuses of 1851 or 1861 would have been equally suitable for this purpose, but the first two considerations both pointed to a date about 1870: so preference was given to 1871.

The totals of events collected by Rickman suffer not only from the fact that few years were covered, but also from another crippling weakness. They are totals of Anglican baptisms, burials, and marriages, and not totals of births, deaths, and marriages. In the sixteenth century the former do not differ very greatly from the latter, but in the course of time the growth of nonconformity, the developing custom of delaying baptisms for weeks or months after the birth of a child (whose early death might then mean that his or her name was never recorded in a register), and the increasing importance of other causes of non-registration, all conspired to make the Anglican registers a less and less satisfactory source for the study of English population history. It was essential to find some way of establishing the scale of these several causes of under-registration in Anglican registers, and to estimate their changing levels over time.

Furthermore, there are other inescapable problems in using Anglican registers as a basic source for the study of population history. It is very rare to find a register in which the recording of events was continuously complete from its beginning until 1837. Breaks in registration, or periods when registration was seriously defective, occur in almost all registers. In cases where a break is prolonged the simplest course is to exclude the parish from the sample used, but a satisfactory method of identifying and dealing with short breaks, and with periods when registration does not break down entirely but is incomplete, had to be devised and implemented systematically. The extent of the necessary correction varies greatly over time, being very large in periods such as the reign of Queen Mary or during the Civil War, when the influence of political or religious crises superimposed upon the continuing background level of under-registration a large special element arising from the disturbances of the day. Again, although all parishes began registration in 1538, the earliest surviving register books may start in any year from 1538 onwards. Few survive from 1538 itself. Since it was desirable to be able to make use of information from those registers that began early rather than to wait until all the registers in the sample had begun registration, it was necessary to devise a method of using data from a growing number of parishes

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occasionally necessary to use data for years beyond 1871 in order to complete series ending in that year. For example, the calculation of fertility and mortality rates for the 5-year period centring on 1871 meant using birth and death totals down to 1873.

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which eliminated that element in the rising totals of events which occurred simply because more and more parishes were coming into observation.

**Aggregative tabulations and local historians**

The problems touched upon so far would have arisen in any project aimed at producing a national series of vital events from the baptisms, burials, and marriages recorded in the Anglican parish registers. But in addition there were certain problems peculiar to the data set assembled by the Cambridge Group to which solutions had to be found. When the first aggregative tabulations were made there was no intention of using them as the prime data source for a major independent project. The tabulations were made as a subsidiary element in another research undertaking. In the middle 1960s it became apparent that the technique of family reconstitution could be applied successfully to certain English parish registers but that the number of suitable registers was very limited.<sup>6</sup> It was important to try to discover how many such registers existed and to identify them. Available lists of registers usually gave only the starting and finishing dates of each register without indicating whether there were breaks in registration, or whether the individual entries in the register contained simply the date of the event and the name of the person concerned or included additional information about relationship to the head of the family, occupation, age, residence, or other types of information necessary or helpful to family reconstitution. Accordingly, lists of registers that appeared *prima facie* suitable were drawn up county by county. Only parishes whose earliest registers began before c.1620 were considered, so that a long sweep of time could be covered, and parishes with a small population were excluded because of a fear that a reconstitution based on the register of a small parish would yield too small a total of events to permit changes in demographic behaviour to be distinguished with confidence from random fluctuations.

The resulting county lists identified registers that might prove suitable for reconstitution but many of them, of course, were sure to fall by the wayside because of breaks in registration or entries too uninformative to allow nominal record linkage to be undertaken with confidence. Both possible reasons for rejection could be checked by having an aggregative tabulation made and a check-list filled in. The former, by revealing the monthly totals of events, would immediately make clear whether there were breaks in registration or periods of defective registration, while the latter, which consisted of questions about the presence or absence of information concerning relationship to head of family, occupation, and so on, covered other aspects of register quality germane to a decision about proceeding to carry out family reconstitution.

An appeal was then made to local historians known to have an interest in parish registers for help in carrying out aggregative tabulations of any register on the county lists. Each volunteer was sent the list for his or her county and invited to choose whatever register or registers were most accessible. At the time it seemed prudent to hope for no more than about 50 completed tabulations. In the event there was an overwhelming response which continues to this day. By the late 1960s it was

6. This is especially true if a starting date earlier than, say, 1650 is sought. But even with a later starting date the choice is restricted. The most widespread problem is the paucity of information given at each entry. Wrigley, 'Some problems of family reconstitution'.

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becoming clear that it was reasonable to expect to receive several hundred tabulations, and that they constituted a store of information of such high value in their own right that careful consideration would have to be given to making the fullest use of this vast mass of information.

The tabulations returned were not a *random* sample. Some counties were over-represented, though in the main the sample was not seriously unrepresentative geographically. But it was badly defective in two respects: large parishes were over-represented, and no London parishes were included in the set. Both defects were the result of the initial object of the survey as an adjunct to reconstitution work. The reason for the exclusion of small parishes has already been noted. London parishes were ruled out because it was thought at the time that the high turnover of population in London parishes precluded successful reconstitution.<sup>7</sup> The under-representation of small parishes could be partially corrected by removing the earlier size restriction when answering new requests for guidance about aggregative tabulations to be carried out. But a bias remained, and establishing its nature and extent in the sample of parishes for which returns were available, and then devising ways of correcting it, entailed much thought and effort. The problem of the omission of London parishes had also to be tackled. Once these issues had been dealt with, moreover, the conversion of the resulting corrected totals of events occurring within the aggregative sample into totals of events intended to represent the national whole, also meant a careful testing of alternative possible strategies.

By 1974 the number of tabulations returned was approaching 550, and the rate of inflow of new tabulations was declining. It seemed an appropriate time to take stock and make up the tally of registers that could be incorporated in the aggregative study. Tabulations arriving later could not be incorporated in the main sample, though they may well prove of great value in later work, for example in the study of regional population trends. Many of the tabulations available in 1974 proved unsuitable for inclusion in the aggregative sample either because they started too late, ended too early, contained serious gaps, or gave evidence of inaccurate compilation, but a total of 404 registers passed the various tests. They provided a total of approximately 3.7 million monthly totals of baptisms, burials, and marriages, which form the basis of almost all the demographic description and analysis presented in this book. It is perhaps unnecessary to add that the formidable size of the data set and the complexity of the operations that were required to be carried out upon it would have represented an insuperable obstacle to its full exploitation at any time before the availability of electronic computers. Their advent is one important reason why it is now possible to progress beyond the point reached by Rickman and his census clerks.

The first half of this book is devoted to a more detailed examination of the problems just adumbrated and to a description of the strategies adopted in an attempt to overcome them. Each step in the conversion of Anglican baptism, burial, and marriage totals drawn from the aggregative sample of 404 parishes into national series of vital events is fully set out. But although the complexity of the problems has meant that much space has had to be allotted to a discussion of their solution, the entire sequence of operations was only a preliminary to the main object of the enterprise, namely the construction of new national demographic series extending over several centuries, and the examination of the relationship between economic and demo-

7. Subsequently Finlay has shown that valuable results can be obtained from London parish registers using a modified form of family reconstitution. Finlay, *Population of London*.

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graphic change. These issues are discussed in the second half of the book, to which those who are prepared to take on trust the accuracy of our estimates of the national totals of births, deaths, and marriages may move directly.

### **The problem of demographic inference from aggregative data**

Aggregative data can be used directly for many purposes. For example, they require no further modifications to be used in the study of seasonality of birth, death, and marriage. And they are also immediately useful for the study of some aspects of short-term variations. If, say, the number of deaths doubles between one year and the next it is safe to assume that a mortality crisis of some sort has occurred. It is unlikely in the extreme that the population has doubled and the mortality rate has remained unchanged. But for other purposes, and especially for the study of secular trends, such data are of limited value when used on their own. If the number of deaths doubles over a century, there can be no initial presumption that mortality has worsened. The numbers at risk may have risen even more than the numbers of deaths. Demographic measurement for all but the simplest purposes depends upon knowing both the number of events of a particular type and the size of the population at risk. Until recently historical population studies of periods earlier than the nineteenth century were greatly handicapped by the fact that although parish registers might provide a fair guide to the numbers of vital events, it was rare to find a satisfactory source of information about the numbers at risk such as national censuses were later to provide. It therefore appeared to be extremely difficult to discover whether, for example, mortality in Elizabethan England was higher or lower than mortality in Georgian England.

In the second half of this book we have tried both to use the best of the old methods of measuring demographic characteristics and change and to develop new techniques of analysis. The most important of the latter we have called back projection. It represents an attempt to provide for aggregative studies the type of solution to the problem of demographic measurement that has already been provided for nominative studies by family reconstitution. In both cases a way has to be found to discover the size of the population producing the events recorded in the registers. Where no censuses exist to provide the necessary data they have to be derived from the flows of vital events themselves. In reconstitution this is achieved by defining the period during which a particular individual may be regarded as being in observation for a particular class of event. Once this has been done the number of years at risk can be set against the number of events occurring (as, for example, live births to a woman in observation during her child-bearing period).

Aggregative back projection takes a different approach, deriving ultimately from a well-known method of population forecasting. If the size and age structure, and the fertility and mortality characteristics, of a population are known, and the population is closed in the sense that there is nil net migration in all age groups, it is possible to forecast future totals of births and deaths as a function of the assumptions made about fertility and mortality trends in the future. However, given the same initial information about the size and age structure of the population the logic of the model can be inverted and changes in the underlying levels of fertility and mortality can be calculated from a knowledge of the flows of births and deaths. Furthermore, information about changes in the size and age structure of the population can also be obtained. This method, which its author Ronald Lee has called inverse projection,

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appeared to be a promising way of extracting demographic information from the birth and death totals that we had estimated for England from the mid sixteenth century.<sup>8</sup>

For inverse projection to be applicable to our English data, however, it seemed essential to overcome two of its limitations. First, the technique assumes population closure, whereas some net migration is likely to have occurred throughout early modern English history and at times migration is known to have been on a large scale. Second, inverse projection runs forward in time and therefore involves creating a fictitious population at the starting point of the data and endowing it with an assumed age structure. Back projection was designed to avoid having to make the assumption of a closed population by enabling the volume of net migration to be estimated throughout the period studied; and, as the name suggests, it moves backwards in time from a date when the size and age structure of the population is known. Like inverse projection it furnishes estimates of the size and age structure of the population, and of summary measures of fertility and mortality. It provides this information every five years from the mid sixteenth century onwards, thus producing substantially longer runs of basic demographic data than are available as yet for any other country.<sup>9</sup> Once such data have been derived, of course, it is then a comparatively simple matter to settle some long-standing points of controversy: to establish, for example, the relative importance of changes in fertility and mortality in causing the rapid acceleration in population growth that occurred during the eighteenth century.

Both in treating secular changes and in analysing short-term fluctuations we have begun by using simple methods of inference and analysis and then moved on to more complex techniques. Where the findings of both the simple and the complex are in agreement, there must be enhanced confidence that the findings themselves are not an artefact of the particular method employed. Comparison with other countries can also be illuminating where the data exist to permit it. For example, for both France and Sweden there is comparable information covering most demographic characteristics after 1750, and scattered data exist from these and other countries for earlier periods. We have made use of such information where it appeared to be valuable in giving a wider setting to the English experience or served to emphasize the diversity to be found in the demographic history of early modern western Europe.

### Demographic structure and environment

To give a new precision and depth to knowledge of English demographic history is a worthwhile objective in its own right, but it is also a necessary first step towards attaining a better understanding of the interplay between population characteristics and the economic, social, and physical environment in which they developed. Throughout the second half of the book, and particularly in the last four chapters, we have sought both to examine certain particular issues (such as the extent to which years of high food prices provoked an increase in the number of deaths) and to look at wider issues related to the functioning of the pre-industrial economy and the changes that occurred in the course of the industrial revolution.

8. Lee, 'Estimating vital rates'.

9. The estimates of expectation of life at birth and of the gross reproduction rate begin in 1541. There is comparable French data from 1740 onwards, and Swedish data from 1750 onwards (see figure 7.13 and its accompanying note on sources). Other Scandinavian countries also possess national demographic series beginning from various dates in the eighteenth century. See, for example, Turpeinen, 'Fertility and mortality in Finland'; Drake, *Population and society in Norway*, pp. 169–84.



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What can be attempted is limited, of course, both by the range of the questions to be addressed and by the paucity of reliable data series stretching back to the sixteenth century. One of the few such series, the index of the price of a basket of consumables compiled by Phelps Brown and Hopkins, proved to be particularly valuable. Used in conjunction with their wage data, it made possible the construction of an annual real wage index covering the whole period.<sup>10</sup> And the consumables index itself could be used to examine the influence of population changes on price movements and vice-versa, both in the short and long term. Some of the relationships revealed were striking. For example, when secular changes in population and price levels were compared, a remarkably strong, almost rigid, relationship between rates of change in the two variables became apparent. Significantly this relationship, after having subsisted unchanged from the mid sixteenth to the end of the eighteenth century, then abruptly disappeared during the early decades of the industrial revolution.

Although the price and real-wage series proved especially useful, as might have been expected, other series also showed their worth. For example, monthly temperature data exist from 1659, and rainfall data from 1697. It was therefore possible to investigate the nature and extent of fluctuations in the weather and their impact on birth, death, and marriage rates. Inter-relationships between movements in the demographic series themselves were, of course, also examined, both for their intrinsic interest and for what they implied about the physical, social, and economic circumstances of the population. Here, as in other contexts, one of the most important advantages of the availability of long runs of data lay in the opportunity they afforded to go beyond the discovery of general relationships between two or more variables to a study of how the relationships changed over time.

There proved to be evidence about the relationship between a sufficient number of economic, social, and demographic variables to justify an attempt to construct a general model of their joint functioning in early modern England, which would also take account of the changes that occurred between Elizabethan and Victorian times. The construction of the model is no more than a *ballon d'essai* and the model itself has no pretensions towards comprehensiveness or rigour. Its purpose is more modest, namely to identify some of the basic features of population and the economy in early modern England, and to draw out the implications of the mutual influences upon each other of economic and demographic change. For example, a simple model of this kind facilitates a juster assessment of the circumstances leading up to the industrial revolution and of the changes occurring once it was in train. It can also help to bring out more fully the significance of some of the substantive findings first reported elsewhere in the book. The virtual absence of the Malthusian positive check from early modern England, for example, and the complementary dominance of the preventive check, carry general implications for the nature of English economy and society that can conveniently be examined in terms of a model of this kind.

### The unit of analysis

It is a major limitation of this volume that it is devoted almost exclusively to England considered as an undivided whole. No examination of the population history of a country can be complete or satisfactory which is restricted to a national level of

10. The price and wage data and the method used to construct a real wage series from them are described in appendix 9.

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aggregation. Lack of change in the national picture may conceal substantial changes of opposite sign in its constituent parts. Equally, a national index may change because of shifts in the relative size of the populations of different constituent groups, whether geographical or socio-economic, even though each group experiences no change. Such dangers are not simply hypothetical. It is probable that the virtual absence of improvement in national mortality between 1820 and 1870 conceals a widespread tendency for mortality rates to fall, which was offset by compositional change in the English population due to the rapid increase in the numbers living in the very unhealthy large manufacturing towns.

To have attempted regional analyses, however, appeared impracticable, both because it would have made an already large book over long and because it would have entailed much additional research. It would have been necessary, for example, not only to have increased the number of registers input and analysed to ensure satisfactory totals of events and parishes in each region, but also to have carried out additional work on matters such as regional nonconformity and registration coverage because the inflation factors used to correct national data would not necessarily have been appropriate for each region.

In the future it may prove possible to calculate regional demographic indices to parallel those published in this book for England as a whole, but in any case we hope to take a first step towards the provision of sub-national data by publishing a volume devoted to the description and analysis of the results obtained from some 20 family reconstitution studies which have been carried out in recent years under the aegis of the Cambridge Group. Indeed, some summary data from a first batch of 12 reconstitutions are reported in this book, because they throw light on demographic characteristics, such as age at marriage and marital fertility, that cannot be directly measured by aggregative techniques.

It should be emphasized that all data and estimates given in this book refer to England only. Scotland did not, of course, share the Anglican system of parochial registration, and its population history has to be approached differently, as in the recent major study by Flinn and his associates.<sup>11</sup> Welsh parish registers are in principle comparable to the English, but in practice they appear to have been more defectively kept, and proportionately far fewer begin at an early date. Monmouth was very Welsh in this respect and was therefore also excluded: unless otherwise stated, any reference to England in this book relates to England less Monmouth.<sup>12</sup>

### The presentation of results

One of the many debts owed to Louis Henry by historical demography lies in his establishment of new standards of scrupulousness in the presentation of evidence, no less than in the devising of new techniques and the refinement of old. Reconstitution monographs in the style of *Crulai*<sup>13</sup> present the original data on which the subsequent tabulations and analysis are based in sufficient detail to make it possible for the reader

11. Flinn, *Scottish population history*.

12. Rickman drew attention to the poorer coverage of Welsh registers, singling out Wentlloog Hundred in Monmouthshire where in the early nineteenth century 'baptisms and burials respectively do not always outnumber marriages, although four births to a marriage is a very moderate calculation, and the mortality cannot be very different from that of adjoining English counties'. *1831 Census*, 1, Enumeration abstract, p. xxxi.

13. Gautier and Henry, *Crulai*.