medieval England by M. M. Postan and long exerted a powerful appeal until they were exposed as incapable of withstanding systematic historical scrutiny. It is therefore disconcerting to find them being resurrected on the opposite side of the Atlantic.

Could it be that Donahue’s real purpose is to demonstrate that land-abundant colonial Concord is the exception that proves the rule; that in the long run organic farming systems trended toward nutrient depletion, environmental degradation, and economic and demographic crisis. If so, a more subtle and complex diagnosis of the roots of crisis is required than that offered here. For instance, the fourteenth-century crisis arose much more from forces exogenous than endogenous to agriculture, because they included war and its accompanying taxation, trade recession, and physical and biological shocks on a global scale. Is it that environmental historians are intrinsically prejudiced against agriculture with its massive manipulation of natural resources toward essentially economic ends? Are they predisposed toward narratives that climax in ecological nemesis? In contrast, maybe economic historians are too preoccupied with “progress,” too inclined to look favorably upon the workings of Adam Smith’s “invisible hand of the market,” and too ready to believe that market growth is a “good thing.”

What is clear from this book and its conspicuous strengths and shortcomings is that there is a need for much closer dialogue between environmental and economic historians. Until this occurs, no truly balanced verdict can be returned on farmers and the land in colonial Concord, medieval England, or anywhere else.

REFERENCE


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Life under Pressure
An Appreciation and Appraisal

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This rich, detailed book extends a long tradition of close integration between historical demography and population studies, noteworthy for works by Louis Henry (1980) using parish registers as well as the various Princeton books on the fertility transition in Europe (e.g., Coale and Watkins 1986). Like these projects, Life under Pressure (hereinafter LUP) involves extensive data collection and analysis, but from a new source, continuous population registers (mainly from the nineteenth century), which provide a common database depicting household composition and the survival of individual members over time. The number of countries (five on two continents) and communities represented (20), the number of individuals followed over time in the database (1,392,283 person-years of observations), and the complexities of coding and analyzing these registers testify to an effort of vision, organization, and persistence that is truly impressive. Unlike its major predecessors, this effort has broader inspiration within the social sciences in general and economics in particular. The combination of longitudinal microdata, more advanced statistical methods, and the estimation and testing of behavioral relationships delivers remarkable new insights into household demographic decisionmaking and the standard of living across Europe and Asia.

The book opens with quotes from Malthus, describing a process of oscillation that balances population size using positive and preventive checks. Such a mechanism “subjects the lower classes of society to distress,” which is a
major topic of investigation in the book. Malthus goes on to describe the data needed for a scientific study of the balancing process, including accurate registers of births, deaths, and marriages plus data on wages and food prices. The authors gather these data and espouse a neglected aspect of the standard of living: the ability of household members to survive or otherwise adapt to short-term economic and demographic shocks. The articles attempt to measure behavioral relationships by analytically exploiting the institutional differences in family organization and government policy across 20 communities in Sweden, Belgium, Italy, China, and Japan under the influence of changing food prices and parental mortality. One might expect that the families in the individualistic West were more exposed or had higher mortality from shocks than in the East, where extended household structure and poor relief were protective. Son preference and greater status of elders in Asia might also moderate the mortality of these groups when the household was stressed.

At the outset, we note that the Malthusian mechanism concerns feedback and population equilibrium, not just microbehavior. The microdata assembled for the book are very interesting and useful but are not suited to studying Malthusian oscillations, in which population size interacts with wages. The population registers provide information on the positive check, and the next book planned by the authors will focus on the preventive check (fertility). Together, these books will illuminate one side of the mechanism of oscillation.

Among the interesting findings are that the extended family system in China, Japan, and Italy did not offer more survival protection against adversity than the nuclear format; there were Chayanovian effects of the household dependency ratio on mortality; sex differences in survival existed for children under variation in prices and the demographic composition of the household; adult men were more vulnerable to stress than adult women; in Asia, girls were more vulnerable than boys; government policies rather than household structure helped protect Asian populations against food price variations.

LUP is organized around a series of village studies that use common variables and statistical models. The authors employ hazard models with time-varying covariates, but we remain somewhat unsure of the details because the methods are neither fully described nor are the equations given. Nevertheless, the book is chock-full of very detailed regressions and results, and it is a daunting task to extract the larger story. Historians are often understandably reluctant to generalize across particular local areas, yet sometimes broader relationships may escape notice if we do not attempt to pool or average the results in one way or another. In what follows, we extract some patterns based on various kinds of reaggregation of the details. We start by aggregating up to the level of the country within which each set of villages is located, averaging across sex, age, and village. Our goal is to derive crude estimates of the responsiveness (elasticity) of mortality to grain prices in the five countries and then to compare these results with findings from an earlier literature that is based on aggregate time-series data. The elasticity of mortality tells us the degree to which mortality changes when the price of grain changes. Expressing the sensitivity of response in this way abstracts from the scale of the measures of deaths or prices. In this book, results are typically reported as the proportional effect on mortality of a 10 percent rise in prices.

There is a long tradition in aggregate time-series analysis of studying mortality in relation to grain prices, against which comparisons with the present work are instructive. Some qualifications are in order. In the microdata, the parameter estimates refer to a zero lag, and from them we calculate separate elasticities by sex and age category. To form elasticities for the population as a whole, we then weight these estimates by the share of deaths occurring in these groups within a stable population and then sum across groups to calculate the weighted average. To calculate comparable elasticities from the literature on aggregate time-series analysis, we sum the estimated values at lags of zero and one year, because if a one-year lag is omitted in the estimation as in the microstudies, then the zero-lag coefficient will absorb some of its effect. Obviously, there is some fuzziness in the procedure because of a lack of synchronization in the harvest and calendar years. Graphical presentation of results facilitates comparisons and improves readability, as is shown in the following discussion.

The data in figure 1 are reassuring, in that the estimates found in LUP generally agree with the aggregate time-series estimates for European populations, despite the contrasting statistical methods and differing demographic data. Thus, the LUP estimates add rich detail to the existing aggregate analysis rather than contradicting it. The reviewers calculated all figures from the data in this book. In future work, it would be helpful to begin by reporting these elasticities from aggregated village data and thereafter turn to the microdata.

Aggregation leads to different conclusions about adaptation to stress in the East and the West. LUP reports that responses were "much more pronounced in our Western communities than our Eastern ones" (70). This is an important result linked to government policies regarding famine and poor relief. The conclusion is sensitive, however, to methods of calculating the elasticity. Weighting age-specific responses by the share of deaths occurring at those ages gives a large weight to older ages, giving Sart (Belgium) a zero response, like China's. In contrast, if the ages are weighted equally, then Sart is more responsive to stress.

Casual observation suggests a regularity if not a law of research: the more complex and complete the explanatory model, the less transparent are the substantive implications of the results. In this book, it is easy to get lost in the detail. Consider how the household dependency ratio affects mor-
The effects on mortality (by age and sex) of adding a working-age adult to the household are shown in table 5.1 (113). This table reports 46 ratio estimates, of which 19 exceed 1.0, and 27 are less than 1.0. Seven out of 46 coefficients are significantly different from zero at the 0.05 level, and 10 are significant at the 0.10 level. Table 5.2 (114) presents the effects on mortality of adding children aged 0–15 to the household. There are 46 estimates, with 21 exceeding 1.0 and indicating increased mortality. Four are significantly different from zero at the 0.05 level, and 7 are significant at the 0.10 level.

What methods would help establish the broad patterns that one should absorb from this monumental effort? We would like to have seen some type of pooled regression with main effects and tests for interactions, but modest variations across communities in the way variables were measured apparently make this difficult or impossible. In any event, by calculating average effects, one can crudely approximate findings that would follow from such an approach. Our goals in reworking the results presented in the book are to clarify them and make them more easily digestible. We include all microestimates, regardless of $p$ values, because the significance level is irrelevant in this context; estimated zeros are just as important as other values. For our purposes we wish the authors had reported standard errors of the estimated coefficients. Our general strategy will be to consider one dimension at a time (region or community; socioeconomic class, age, and sex) regarding sensitivity to price shocks, while averaging across all other dimensions.

**Region**

Figure 2 shows the strength of response by area, in which the elasticities at the country level are tabulated from estimates at the microlevel without weights by age and sex; the absence of weighting distinguishes figure 2 from figure 1. Note that the elasticity for Belgium exceeds that for China (which is near zero) but approximately equals that for Japan. These calculations suggest that it is difficult to generalize about the strength of the response in Asia versus Europe. The problem is small sample size (too few locations) and considerable variation within regions.

**Social Class**

The sensitivity of adult mortality to food prices follows an expected pattern. Figure 3 shows that the landless laborers, absent a means to produce food (land) and generally
lacking assets with which to purchase provisions, were the most vulnerable. They had a strikingly high elasticity, greater than two. The magnitudes of differences were rather large, with the landless laborers about three times as sensitive as artisans.

**Age**

The elasticities presented in figure 4 show the sensitivity of various age groups to changing food prices. We found that the individual estimates are noisy, and it is difficult to detect true regional and sex differences. A clear pattern emerges on average. Surprisingly, the young and the old were least vulnerable, suggesting that they must have been protected. However, it must be kept in mind that the young and old had the highest levels of mortality, and therefore even a small proportional response could have been absolutely greater than the response of a prime age adult. It would be interesting to know more about interaction effects. Were the old and the young more or less vulnerable among artisans? Or landless laborers? And how did Asia compare with Europe in this regard?
Sex

Overall, with regard to sex, the responses were similar, equaling 0.45 for males and 0.42 for females. At ages 2–15, the elasticity for females slightly exceeded that for males but was slightly lower at other ages.

Household Composition

For numerous reasons, one might expect household composition to have influenced patterns of survival, but prominent among them is the household dependency ratio. The addition of children or elderly increased the number of dependents without increasing the number of producers, meaning less for each to eat. The process of resource distribution may also have been influenced by the expected duration of a crisis. If thought to be short run or relatively unsevere, household decisionmakers might have pursued an egalitarian strategy because enough resources were thought to be available to pull everyone through. As the magnitude of more severe crises was revealed, however, priorities may have changed within the household. Thus, one would expect to find in the data the net effects on survival of biological as well as behavioral influences that could have changed during the course of an extended crisis.

Figures 5, 6, and 7 reveal three interesting patterns. On the one hand, the addition of a working-age adult increased the mortality of elderly adults (fig. 5), and the addition of an elderly adult to the household was protective for children but, surprisingly, increased the mortality of the elderly themselves (fig. 6). The behavioral process through which this last effect would have happened is unclear, but one possibility is that the elders devoted time and perhaps some of their food to the children, whereas the presence of an additional old person in the household raised the dependency ratio and reduced consumption per head. On the other hand, if the elderly person was capable of work or otherwise contributed to household production, one would expect mortality to have fallen. The fact that it fell for children suggests that their net contribution was positive and that the additional resources the elderly produced were allocated to the young. But why would adult mortality increase? Possibly it was simply the by-product of selectivity, in which elders...
selectively entered households if one or more adults was already sick and less able to care for children. A more refined analysis is required to test this hypothesis.

The results presented in figure 7 enhance confidence in the methods. In agreement with other historical studies, it was found that the death of a parent was bad for infants, the more so if it was the mother who perished and if the infant was a girl.

We caution readers about modeling issues. Some explanatory variables are endogenous, which complicates the interpretation of results. For example, regressions estimate the effect on mortality of adding a child to the family. Such a family may also have had lower mortality in previous years (for unknown reasons). If the reasons persist, it may appear that adding a dependent child reduces mortality. Lack of more detailed data and consequent limits on modeling make this sort of problem common in the social sciences. In the present context, we wonder whether family fixed effects models would be helpful with these rich longitudinal data.

Finally, we also offer some suggestions on statistical analysis and the presentation of results. First, it would be helpful to provide standard errors in addition to p values. The latter tell us whether an estimated coefficient is significantly different from zero but are not useful for comparing estimated coefficients across countries. Of course, one can calculate standard errors from p values, but this is a lot of work for a major effort such as LUP. Second, the chapters inundate readers with hundreds and hundreds of coefficients—a case of the trees obscuring the forest. The book would be more widely read, and its grand themes absorbed and appreciated, if the authors used some charts and graphs to distill essential results. Third, we suggest an approach whereby main effects can be estimated for all communities so the researchers can see whether deviations from the effects were statistically significant.

In sum, this book gives full expression to detailed aspects of local variations in survival under pressure, a key aspect of the standard of living. In many places, however, the enormous detail makes it difficult to discern patterns and interpret their meaning. The book is amazingly rich and fascinating and represents a major advance in historical demography in data collection, theory, and methods. We congratulate the authors and look forward to reading their next major comparative study on fertility.

NOTE

1. Alexander Chayanov (1888–1939) was a Russian agricultural economist who argued that peasants would produce only as much food as necessary for family members to survive.

REFERENCES


Replenishing Comparative Historical Analysis

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This is the most significant volume of work on comparative historical analysis to appear in a long time, especially because it comes after a period of uncertainty and attack on the theoretical and methodological underpinnings of this field. Not so long ago, Edgar Kiser and Michael Hechter (1991) critiqued the field's theoretical aspirations; Charles Tilly (1997) declared the comparative method, especially of the Millian style, simply inadequate; and William Sewell (1996, 2005) further specified the ways in which the comparativists were lacking in methodological sophistication. This volume provides an awaited retort, demonstrating the degree to which comparative historical scholarship has furthered our theoretical, analytical, and historical understanding of important social outcomes. The volume explicates the various ways in which comparativists have developed their methodological