HENRI LERIDON AND LAURENT TOULEMON
Démographie: Approche statistique et dynamique des populations
Paris: Economica, 1997. 440 p. 198 FF (€30.18).

JEAN BOURGEOIS-PICHAT
La dynamique des populations: Populations stables, semi-stables et quasi-stables
Paris: Presses Universitaires de France and INED, 1994. x + 296 p. 170 FF (€25.92).

Two recent books on demographic methods by French authors illustrate the richness of the field of demography in France. If one wished to revive the traditional requirement that all English-speaking demography students should attain at least a reading knowledge of French, these two books would provide a powerful argument. Both contain interesting historical material, clear explanations of demographic methods, and a methodological perspective that deserves consideration by American demographers.

The work by Henri Leridon and Laurent Toulemon is essentially a textbook on demographic methods that assumes knowledge of calculus. After an introduction containing a detailed and fascinating history of the field, the book is organized into five sections: population growth and inertia, formal analysis of vital events, statistical methods, causal analysis of demographic events, and historical patterns of population change. One strength of the Leridon–Toulemon book is its unified treatment of demographic methods and substantive issues. Although there is some specialization of sections and chapters, with some being focused more on methods and others more on substance, a balance between these two perspectives is maintained masterfully throughout. This is mostly a book on demographic methods, but the reader is never left to wonder "So what?" I can imagine that beginning demography students would find the work inspiring, and old pros would find it engaging and challenging as well. If translated into English (and I hope it will be), this book will be the rightful successor to Roland Pressat's *Demographic Analysis*, first published in English in 1972.

What I found most intriguing is that the authors' perspective on quantitative methods is truly demographic. By that I mean it describes techniques for analyzing and presenting quantitative information that are familiar within demography but not elsewhere in the social sciences. In short, these are the tools that define the discipline of demography methodologically. Within American demography, however, these methods have become less popular in recent years. Instead of computing rates and building models of population processes, many demographers have embraced general techniques of data analysis, such as ordinary regression, logistic regression, and hazards models. Bowing to the influence of statistics and econometrics, and to a burgeoning micro-survey industry, traditional demographic analysis and modeling have become less common and, regrettably, less valued within the field.

But what defines demographic methods? Judging by the balance between the sections of the book, Leridon and Toulemon's perspective is that they are defined primarily by the study of life course transitions. The formal analysis of vital events is the longest section, followed by the chapters on the causal analysis of demographic events. These sections contain detailed discussions of demographic rates, including both theoretical concepts and practical concerns, such as how to calcu-

late rates in various substantive contexts using data from different sources. Even the section on "statistical methods" consists mostly of standardization techniques and model tables (for marriage, fertility, and mortality) and contains only two short chapters on logistic regression and event history analysis (or hazards models). Like more traditional demographic methods, logistic regression and event history analysis are methods for analyzing life course transitions. The main difference is that these statistical techniques are designed primarily for use with individual-level data (from surveys or clinical trials), whereas traditional demographic methods have been applied mostly to aggregate data (from censuses and vital statistics).

However, the methodological perspectives of demography on the one hand versus statistics and econometrics on the other differ by more than a simple macro/micro distinction, a point that the authors illustrate well. In Chapter 16, for example, survey data are analyzed as a means of describing differences in mortality by "socio-professional" categories. In the recent American literature on this topic (also based largely on survey data), it is common to present analyses whose end-products are odds ratios or relative rates, thus describing only relative levels of mortality in one social category compared to those of an arbitrarily chosen reference group. Although not discussed by Leridon and Toulemon in great methodological detail, this example reminds us that traditional demographic methods and measures can be used for the analysis of individual as well as aggregate data. Thus, instead of learning merely that the odds ratio or relative risk of death for some category is "significantly" different from that of an arbitrary reference group, we are able to compare actual estimates of life expectancy at age 35 for workers in different occupations.

Of course, it is always important to know whether observed differences may be affected by chance variation in the sample of data being analyzed, but the implicit message conveyed by this example and throughout the book is that a careful description of an empirical pattern should take precedence over an evaluation of its statistical significance or other methodological details (such as correcting for "endogeneity" or unobserved heterogeneity). In addition to this no-nonsense approach to data analysis, the book also illustrates the rich tradition of demographic modeling. For example, the section on causal analysis contains a lucid description and evaluation of biological models of fertility processes (just as one would expect from Leridon, one of the world's leading authorities on this topic). Overall, this book is a treasure trove of the principal methods that define and distinguish the field of demography. It has, to my knowledge, no equivalent in English.

While the book by Leridon and Toulemon may serve as a general introduction to demographic methods, the book by Jean Bourgeois-Pichat is more specialized, covering in an exhaustive manner the theory of stable populations and related topics. Written toward the end of his life and finished posthumously by his former students and associates (led by Henri Leridon), the book is a major work of mathematical and technical demography. As explained in a preface written by Georges Tapinos, after a long and distinguished career as an internationally renowned demographer, Bourgeois-Pichat devoted himself to teaching a small circle of advanced students. This book, essentially a compilation of Bourgeois-Pichat's lecture notes during 11 years in this capacity, illustrates the great seriousness with which he undertook that task.

The treatment of stable population theory in Bourgeois-Pichat's book is prefaced by a detailed discussion of model life tables. One attractive feature of this discussion is its careful attention to the historical development of these methods, surely the most detailed description available. The reader can enjoy glimpses of earlier periods in the field of demography as the author recounts the motivation for developing each set of tables (Ledermann, Coale–Demeny, United Nations, OECD), the methods employed in each case, various criticisms of these tables or the methods used in deriving them, the substantive interest of each set of tables, and so forth.

Bourgeois-Pichat's discussion of stable, semi-stable, and quasi-stable populations is clear yet challenging. *Stable populations* are characterized by fixed birth and death rates, a constant growth rate, and an unchanging age structure. In general, a non-stable population whose birth and death rates become fixed at some moment will converge to stability over a period of several generations.

Semi-stable populations resemble stable ones in that their population age structure is constant, even though their mortality, fertility, and growth rates may change over time. The essential requirement is merely that the population growth rate remains invariant across the age range. In this situation, actual growth rates at all ages equal the intrinsic rate of natural increase (Lotka's r) for that moment of time, the population age structure is constant, and convergence to stability is instantaneous if age-specific birth and death rates stop changing.

Whereas stable and semi-stable populations are mathematical constructs, *quasi-stable populations* are an "experimental concept." Thus, Bourgeois-Pichat explains, when a hypothetical population is constructed based on a constant schedule of age-specific fertility rates and a mortality pattern that varies within a family of model life tables (e.g., Coale–Demeny West tables), the population age structure changes only slightly.

According to Bourgeois-Pichat, semi- and quasi-stable populations come much closer to describing demographic realities than do stable populations. Thus, for purposes of indirect estimation or other modeling exercises, these more flexible constructs are preferable. In the book, each kind of stable population is applied to estimation problems as a means of illustrating their utility. Some readers may question the value of this elaborate mathematical machinery, given that its only practical application seems to be "indirect estimation," a set of techniques that are slowly losing value as the quality of demographic data improves around the world. However, improvements in vital registration and census data are proceeding slowly in many developing countries, hence these techniques are likely to remain useful for many years to come. Furthermore, their potential application to historical population dynamics is still largely unexplored. Overall, Bourgeois-Pichat's last gift to the field of demography is an impressive piece of work. Although its practical applications are not always obvious, the book is highly recommended both for its historical descriptions of the field and for its cogent summary of the mathematical theory of certain fundamental aspects of population dynamics.

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