



MR. HISTORIAN, MEET MR. DEMOGRAPHER

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My comments on “New Directions in Historical Research” will not be in my professional role as sociologist, though it would be tempting to pose some of the unexplored problems of social classes and social mobility as they were affected by the Mexican Revolution, or the applicability of the Barrington Moore Jr. thesis, as elaborated in his book, *Social Origins of Dictatorship and Democracy: Lord and Peasant in the Making of the Modern World*, to the Mexican or the Latin American experience, the world area which he almost completely neglects. Instead, I want try to point out ways in which historians, at least those concerned with economic and social history, can benefit from a better understanding of the demographic perspective and particularly demographic theoretical models.

As a sociologist who works continually with demographic data, sometimes within the historical context of trend analysis, I am often puzzled by the historian’s general orientation to demographic factors as they might help in accounting for social change. With but few exceptions, most historians make little or no effort to introduce population variables and population change as an integral part of their interpretation of social change. It is for me striking how rarely population change, including population redistribution in the form of internal migration and urbanization, is seen as a dynamic force whose causes and consequences are worthy of analysis in their own right. I make this charge of historians generally, not limiting it to those concerned with Latin America, and I would recommend to you a recent article by David Landes who takes European and American historians to task on this point in a recent issue of *Daedalus* devoted entirely to historical demography.¹ This volume, I might point out, provides a good recent overview of the vitality and creativity of historical demography as practiced in Europe, particularly among the English and the French.²

If you will permit me a sweeping generalization, my impression is that historians tend either to ignore demographic data, either through sheer ignorance of available data or in the belief that the

¹ Landes, David, “The Treatment of Population in History Textbooks”, *Daedalus*, 1968, 97:2: 363-384.

² See also the impressive collection edited by D. V. Glass and D. E. C. Eversley, *Population in History: Essays in Historical Demography*. Chicago, Aldine Publishing Company, 1965.

data are unimportant or unreliable or both, or they introduce population data but in a completely uncritical and mechanical fashion. The same historian who is unsparing of himself in spending many days and weeks to track down and verify some fact that may be only tangentially related to his argument, will at the same time accept without hesitation or question population figures that even upon visual inspection appear suspect. Can it be that historians have such complete confidence in the accuracy of anything issued under the aegis of a governmental agency, as for example a census bureau? I doubt it. I think the main reason for the uncritical acceptance of population figures and the often weak and unsatisfactory analyses of these data is due mainly to the fact that historians simply are unfamiliar with demographic procedures and therefore are ill-equipped to evaluate and effectively utilize demographic data. It is highly unlikely that most historians have been exposed to any sort of formal training in demography and they seldom give the reader any evidence of familiarity with the demographic literature.

Let me illustrate these general comments by reference to the case of Mexico. This is a case where the need for the incorporation of demographic factors in the interpretation of Mexican history needs little defense. Surely the interpretation of the entire colonial period can never be made secure until the controversy surrounding the population of pre-conquest Mexico and of New Spain is in one way or another resolved. I have followed for some years the efforts of the "Berkeley Group" (Borah, Cook and Simpson) as reported in *Ibero-Americana* to attack earlier conceptions of population trends during this period. Without pretending to the specialist's knowledge, I find myself in sympathy and general agreement with their effort to radically revise the demographic history of Mexico. Their patient, skillful and dedicated search for archival material bearing on the question I find most impressive. But I am not impressed by their neglect, at least if one is to rely upon citations in their publications, of demographic methodology that could help them better to evaluate and interpret their data.

Since I have criticized an American group, let me not exempt the Mexicans. Just before leaving for this conference there came into my hands a book-length manuscript by Moisés González Navarro entitled, *Historia Demográfica del México Contemporáneo*, and covering the period 1910 to 1964. I had time only to skim the chapter headings and to glance at the bibliography. I have no doubt that this volume will be an important addition to the literature, but again I am struck by the lack of any reference to technical demography sources in the bibliography. Certainly the impact of the Mexican Revolution upon the population of Mexico, particularly between the years of 1910 and 1921, still remains to be written. The demographic

cost of the Revolution both at the national as well as state and regional levels, has been inadequately specified. I say this because we cannot accept at face value the figures of the 1910 census, but most particularly that of the 1921 census. No one doubts that the 1921 census left much to be desired in terms of accuracy—considering the circumstances in which it was undertaken, it is indeed remarkable that any census whatever was carried out—but as yet the problem has not been attacked with the full armory of demographic techniques. Hopefully, someone within the demographic section of *El Colegio de México* sooner or later will address himself to this particular problems.

I know that the reaction of some historians to my remarks will be to the effect that it is unreasonable of me to ask of the historian that he also become a formal demographer, trained and well practiced in advanced statistical and mathematical analysis. I will grant that some corners of demographic theory and methodology are highly technical and that they can be quite intimidating to those without training in advanced mathematics, at least I must report that I am myself intimidated by much of this work. But I am prepared to argue that social and demographic historians will find it of lasting benefit to make rather modest investment in time—a matter of several months at the most—to acquaint themselves with the fundamentals of demographic and methodological perspectives and their logic of analysis. This I believe can be made accessible to the historians with only a minimum of training in statistics or mathematics.

Within the last decade or so there have been a number of significant developments within the fields of demography that warrant the attention of historians. First of all, the fund of reliable census and vital statistics data has enormously increased since World War II, partly as a consequence of the encouragement of international agencies such as the United Nations as well as the conduct of censuses in many countries of the world previously lacking such information. While it is true that these data are for quite recent time periods and therefore not ostensibly of concern to most historians, as I shall try to point out later, this accumulation has made more clear the probably range of demographic behavior. Along with the mounting data, there has been a concomitant concern with the development and elaboration of techniques protesting the accuracy of these demographic data. While some of this material is quite technical and forbidding in nature, there are a number of more elementary discussions that are available to the historian. For example, the book by Barclay, *Techniques of Demographic Analysis*.³ and a number of

³ Barclay, George W., *Techniques of Population Analysis*. New York, John Wiley & Sons, Inc., 1958.

the inexpensive manuals issued by the United Nations⁴ are clear and effective expositions of data evaluation techniques.

The second feature worthy of note is linked to the accumulation of data. The computer has been recently enlisted in the processing of this vast amount of data in a systematic fashion and this has greatly encouraged and facilitated the development of useful comparative and historical surveys. A recent example is the book by Keyfitz and Flieger, *World Population: An Analysis of Vital Data*.⁵ In the words of Philip M. Hauser, "...this volume opens new vistas of opportunity for comparative demographic study. It permits, among other things, more careful examination of population dynamics—the interplay of fertility and mortality over time as it affects population growth and changes in the age structure. It affords a basis for evaluating the accuracy of vital statistics in census data, and the power of diverse techniques of population estimation".

The second point leads into the third significant development in demography which has been a florescence in theory and formal model construction. Deriving mainly from the earlier work of Lotka, stable population theory has developed some of the most powerful and useful models outside of the physical sciences. The fundamental assumption of demographers, whether it be in evaluation of the accuracy of some set of data or in the preparation and use of model life tables in stable populations, is that human demographic behavior within "closed" populations (that is, those not greatly affected by migration) is not unrestricted in its range. If we can have some degree of confidence that the components of population change, fertility and mortality, vary within known and predictable limits, then our chances of correctly "placing" a particular population, even on the basis of fragmentary data, will be greatly enhanced. The analogy of the paleontologist who is able to create a complete skeletal structure from a few surviving bones is perhaps appropriate.

It is precisely this orientation that has guided the authors of a manual recently prepared for a United Nations demographic series and appropriately entitled, *Methods of Estimating Basic Demographic Measures From Incomplete Data*.⁶ Coale and Demeny have also published a much more elaborate set of reference tables entitled,

⁴ *Manual I: Methods of Estimating Total Population for Current Dates*, ST/SOA/Series A/10. Also *Manual II: Methods of Appraisal of Quality of Basic Data for Population Estimates*, ST/SOA/Series A/23. Also *Manual III: Methods for Population Projections by Sex and Age*, ST/SOA/Series A/25.

⁵ Keyfitz, Nathan and Wilhelm Flieger, *World Population: An Analysis of Vital Data*. Chicago, University of Chicago Press, 1968.

⁶ United Nations, *Manual IV: Methods of Estimating Basic Demographic Measures from Incomplete Data*, ST/SOA/Series A/42.

*Regional Model Life Tables and Stable Populations.*⁷ I would recommend the United Nations publication both because an edition is in preparation in Spanish and also because it is inexpensive. In the words of the authors, "there was therefore an apparent need for a manual that would make it possible for a demographer-statistician with only a moderate level of training, perhaps working in isolation in a provincial capital of a less developed country, to derive the maximum of reliable information from data in a census or demographic survey". It is not possible here to take up the range of topics and problems that the authors review.

Let me, however, try to indicate the utility for a historian of the two appendix tables that really represent the heart of their work. First is a series of model life tables by sex which encompasses a range of demographic behavior for all except very exceptional cases. The range of life expectancy for the female varies from a low of 20.00 years at birth to a high of 75.00 and that of males is 18.03 to 71.10. Let us assume that the historian is interested in some given period of colonial Mexico and that he has reason to believe that male life expectancy was quite low but not at the very lowest level. Choosing "level 5" he has a model life table indicating expectancy at birth of 27.67 years. Having selected this table, what can the historian then derive from it? It will provide him with life expectancy for age one and by five-year intervals from five through eighty. He also will have the mortality rates for these particular ages, including the number surviving to these ages from an original hypothetical number or "radix" of 100,000 at birth. For the life table in question, for example, the figure of 100,000 will be reduced to 70,454 by age one. By age 15 little more than one half (53,393) will still be alive. Indeed, the extremely high mortality in the first years accounts for the apparent anomaly that life expectancy at age five (42.05 years) is considerably greater than that at birth. Incidentally, this point relates to the naive error sometimes made by those who, upon seeing an extremely low life expectancy such as 27.67, assume that few people live beyond that age. By use of this model life table, however, one can readily see that once a male reaches age five he then has a one in two chance of surviving to age 50. Mortality takes a terrible toll at all levels, but it is particularly damaging in the first years of life.

If, after selecting a model life table, it can also be assumed that there has been relatively constant fertility and mortality rates for some decades prior to the date in question, then one can turn to the set of model stable populations given in the second appendix

⁷ Coale, Ansley J. and Paul Demeny, *Regional Model Life Tables and Stable Populations*. Princeton, N. J., Princeton University Press, 1966.

table. This will also require us to select an annual rate of increase. For the purposes of argument, let us assume that there is reason to believe that it is positive but low (.005 or 1-½ percent per annum). (The stable population tables contain an annual rate of increase range of .010 to .050.) What can this table add to that of the model life table? It can tell us the age distribution of the population (in categories of under one, one to four, and then by five-year intervals from five to seventy-nine and then eighty and over). It can further provide us with birth and death rates, which in this case respectively are 41 and 36 per thousand. It gives us the average age of this male population, 25.9 years, and the gross reproduction rate.

I have deliberately simplified this exposition. The United Nations manual is filled with cautionary statements and technical suggestions for the adjustment of faulty data. I think it useful for historians to take the trouble to acquaint themselves with this part of the manual and not to limit themselves to the two appendix tables. Doubtless the text may appear forbidding at first glance, but it really requires very little mathematical sophistication. I will say that Coale and Demeny impose more rigorous requirements upon their data than it is likely that a historian working for example with colonial population data would demand. In the end, he may be forced to make some guesstimate of the population "parameters" needed to select the proper model life table and the stationary population tables. I believe that the gains to be derived from such a practice will far outweigh the risks involved. At the very least, these model tables will force the historian to think through some of the implications of his data and his assumptions and this cannot help but strengthen his own argument.

I hope that the plea that I have just made will not fall upon barren soil. Had I been addressing a meeting of demographers, I would have attempted to persuade them that they need much greater familiarity with historical data and historical methodology. We talk a good deal in the social sciences about the need for interdisciplinary investigation. I am convinced that the interplay between the historian and the demographer is one of the most fruitful possible combinations and their respective skills will greatly strengthen and enrich the subject of their common concern; namely, social change.