

## THE STATUS OF QUANTITATIVE RESEARCH ON LATIN AMERICA

*POLITICAL AND SOCIAL STRUCTURES: PART I: AMERICAN COUNTRIES, 1850–1973.*

By TATU VANHANEN. (Tampere, Finland: Institute of Political Science. University of Tampere, 1975. Pp. 326.)

*L'HISTOIRE QUANTITATIVE DU BRÉSIL DE 1800 A 1930: COLLOQUES INTERNATIONAUX DU CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE, PARIS 11–15 OCTUBRE 1971.* (Paris: Centre National de la Recherche Scientifique, 1973. Pp. 488.)

*QUANTITATIVE SOCIAL SCIENCE RESEARCH ON LATIN AMERICA.* Edited by ROBERT S. BYARS and JOSEPH L. LOVE. (Urbana: University of Illinois Press, 1973. Pp. 272. \$8.95.)

*NEW APPROACHES TO LATIN AMERICAN HISTORY.* Edited by RICHARD GRAHAM and PETER H. SMITH. (Austin: University of Texas Press, 1974. Pp. 281. \$8.75.)

*THE ECONOMIC DEVELOPMENT OF THE THIRD WORLD SINCE 1900.* By PAUL BAIROCH. Translated by LADY CYNTHIA POSTAN. (Berkeley and Los Angeles: University of California Press, 1975. Pp. 272.)

Although these five books cannot be taken as fully illustrative of the state of and place in Latin American studies of quantitative research on Latin America by the early 1970s, collectively they do give us some indication of the importance and sophistication of the field.<sup>1</sup> The works by Bairoch and the Centre National de la Recherche Scientifique (CNRS) deal with classificatory (i.e., descriptive) statistics; essays in the book by Byars and Love concern predictive (i.e., inductive) statistics.<sup>2</sup> Research by Vanhanen presents a massive amount of classificatory data (pp. 145–301) that serves as basis for predicting meaning in the interpretive portion of the work (pp. 1–144). The book by Graham and Smith turns away from statistics almost completely.

To begin with the apparent contradiction of the Graham and Smith book, which purports to offer new approaches to Latin American history, it must be noted that the editors did not set out to present a tightly focused work dealing with many new approaches but rather to provide a forum by which their contributors could render homage to Lewis Hanke under whom they studied. Thus the essays are not concerned so much with new methods as with rephrasing traditional historical questions in a new light. Only the essay by Margaret Williams fully treats the issue of methodology as it suggests ways of moving historical analysis into the field of psychohistory. Two scholars who are engaged in quantitative research (Stuart B. Schwartz and Frank Safford) generally eschew the use of data as they otherwise write with much insight about subjects very much suited to statistical analysis (collective biography and bases of political alignment, respectively). If readers were to examine the only table in the book (a single descriptive one on the “frequency of self-references by Gabriel Garcia

Moreno," the uninitiated reader might conclude unfairly that quantitative analysis by historians has little or no place of importance or sophistication in Latin American studies.<sup>3</sup>

Implicitly offsetting the impression of the Graham and Smith volume, the book by Byars and Love attempts to show how six disciplines have developed mainly historical data for *Quantitative Social Science Research on Latin America*. The volume contains chapters entitled "Archaeology" (by Robert C. Hunt), "History" (by Peter H. Smith), "Political Science" (by Clifford Kaufman), "Social Anthropology" (by George L. Cowgill), "Geography" (by Howard L. Gauthier), and "Sociology and the Use of Secondary Data" (by Alejandro Portes). In their introduction, editors Byars and Love see the six essays as constituting a guidebook for quantitative social science research, and they write (pp. 3–5):

The substance of the papers clusters around four related issues—problems of operationalizing concepts, the quality of data concerning Latin America; the appropriateness and utility of Latin America as an analytical unit; and the achievements, opportunities, and perils of quantitative social science analysis in the Latin American area. . . .

Not unexpectedly, all six essays discuss problems growing out of the quality of data on Latin America—for example, the enumeration of phenomena or the appropriateness of classification schemes. Yet Alejandro Portes, for one, argues that reliability and validity of Latin American survey data are *a priori* no lower than for data from the United States or Europe. . . .

Nonetheless, the writers represented here have emphasized the need to take into account inadequacies in the collection of aggregate and survey data on Latin America. One notorious example is related in anthropologist Richard Patch's report on "The La Paz Census of 1970," which estimates an official undercount of some two-sevenths in the population of Bolivia's capital . . . [and which] illustrates that data are no better than the schemes and categories used to order them. Patch, a North American, appears in the 1970 La Paz census as a Bolivian army veteran because the census question on military service did not differentiate by country. Similarly, only 5 of 164 questions on the form were asked by the census-taker. Although Patch asserts his experience is not typical, one wonders whether field observations of census-taking would not yield similar horror stories in other countries. Conflicting totals of presumably hard data from different official sources certainly encourage such speculation. . . .

[Thus], we must recognize that in any country ideology and inconsistencies and irregularities in the collection and publication of data can interact in complex ways to introduce distortion into social science investigation. This caveat does not mean that good quantitative analysis is impossible, or that it requires more methodological sophistication than qualitative interpretation; it does mean that quantitative work requires multiple skills and that it is difficult to do well.

In offering a variety of measurements for the social scientist, the Byars

and Love volume has table titles that range from "Gini Indices of Non-Ejido Land Concentration for Mexican States and Regions, 1960" to "Cannonical Analysis of Temporal Relationships between Nodal Accessibility and Urban Growth [in the São Paulo Economy]." Although the editors have clearly indicated that they are concerned about the quality of classificatory statistics to be manipulated by predictive techniques, it is beyond the scope of their book to examine how the former are researched and synthesized into time-series frameworks.

If Byars and Love emphasize the inductive approach to data, the CNRS volume on *L'Histoire Quantitative du Brésil* treats in serious depth the problem of constructing descriptive time series. In this work, which covers the period from 1750 to 1973 (not 1800 to 1930 as the title claims), the reader can begin to appreciate how alternative data bases must be interpreted in relation to societal issues in order to create meaningful statistics or to fill in gaps within the data through the use of predictive techniques. The twenty-seven essays (originally presented in 1971 as contributions to the CNRS Paris Conference on Brazilian Historical Statistics) are published replete with comments, welcoming speeches, and full paraphernalia of the scholar's diplomatic world. Topics covered include: demography, prices, foreign relations, the colonial era, and the statistical epoch. Presentation of major data series along with methodology leaves little room in the CNRS volume for interpretation.

Synthesis and interpretation of secondary statistics on the grand scale is the mark of Bairoch's book on *The Economic Development of the Third World since 1900*. Indeed, Bairoch aggregates data at the world regional level rather than the national level so that he may compare the course of economic history in Latin America, Asia, the Middle East, and Africa, with some reference to China. As noted at the outset of the English edition, though based on the fourth French edition, it differs in a number of respects, such as the addition of chapters on "Urbanization" and "The Labor Force and Employment," the updating of practically all the figures, and the presentation of certain tables, with the bibliography being specially adapted to the literature of the subject in the English language. Social statistics on urbanization and literacy that are also included date only from 1920 and 1950, respectively, reflecting the difficulty of working in the social sphere wherein the organized gathering of quantitative material by governments and international agencies has come to be seen only recently as vitally important.

In his conclusion, Bairoch points to the interacting complexity of economic and social factors influencing development: On the one hand, economically, he sees painfully slow economic progress between 1900 and 1950 with a slight improvement of per capita GDP in constant prices between 1950 and 1970 tending to cause a slight decrease in the so-called widening gap between the developed and the developing worlds. (But the improvement was not as dramatic for Latin America as for noncommunist Asian countries—p. 184.) According to Bairoch, this situation resulted from the fact that the great expansion of the extractive industries, which appears to have been a good thing, had more unfavorable effects than favorable ones, primarily because the terms of trade of primary against manufactured products declined for the developing world from a posi-

tive index rate of 128 in 1950 to 100 by 1963 (p. 127)—subsequently the index fell to 94 by 1970. If we recalculate Bairoch's own data by averaging the index for the twenty-one year period from 1950 to 1970, however, we see that primary products still outgained manufactured ones by an average of 6 percent per year. Unfortunately the data are not broken down even by region within the Third World, and the effect of the drastic increase in oil prices since 1973 means that the 95 percent of the Third World that is non-oil exporting faces economic disaster, disaster never faced in exploitation by the developed world.

On the other hand, socially, Bairoch argues that the "green revolution" did not fail if initial optimism about it was in fact based upon no more than a normal rise in output due to favorable weather conditions interpreted as a revolution. Rather than attempting to measure increased agricultural output, Bairoch's implicit concern is to measure methods of introducing new techniques to populations with fixed social habits who are largely illiterate.

Vanhanen's work is at once the most interesting and important for data of the five books reviewed here, but at the same time it is limited by hypotheses which state that: (a) Four political variables correlate positively with six social variables; (b) the distribution of power seeks out an equilibrium with the distribution of power resources; and (c) changes in social variables have usually preceded changes in political variables. To generate testable data, Vanhanen conducted an exhaustive search of nearly four hundred national and international sources<sup>4</sup> to construct longitudinal series for roughly ten-year periods from 1850 to 1970 covering four political factors (pp. 18–19, 32): (1) the smaller political parties' share of the votes cast in presidential or parliamentary elections; (2) percentage of actual voter participation in the total population; (3) a combined index<sup>5</sup> factor for items 1 and 2 to indicate power distribution by canceling distorting effect of cases wherein landslide elections are won with high degree of voter participation and/or cases wherein only a small fraction of the adult population is allowed to take part in elections; and (4) a weighted index factor<sup>6</sup> for items 1 and 2 in order to give a higher value to a country where the smaller parties' share or the degree of voter participation is higher than zero. Clearly the categories involve overlap, especially the latter two, but this is advantageous in that it includes internal "checks and balances" within the Vanhanen scheme.

Vanhanen's social variables include: (1) percentage of urban population in cities with 20,000 inhabitants and over; (2) percentage of literate population; (3) number of students in universities and other degree-granting institutions per 100,000 inhabitants; (4) share of family farms of the total agricultural area; (5) percentage of nonagricultural population; and (6) GDP per capita in constant U.S. dollars. Obviously the last three items may confuse economic factors with social ones.

In constructing the descriptive data series Vanhanen has done a unique service and provided an invaluable body of statistics with discussion of comparability from period to period. To fill gaps he has examined alternative sources and extrapolated or interpolated missing data. Problems do not become serious until Vanhanen begins his inductive analysis of 281 observations (pp. 80–90), and some examples of obvious limitations are in order. First, noncomparable

data are treated as if comparable, e.g., literacy over age 7 in some countries and over 15 in others as well as such variance between periods within the same country. Second, the Latin American picture is muddled by the inclusion of three non-Latin American countries (Guyana, Jamaica, and Trinidad and Tobago) that have nothing to do with the history, culture, or intraregional relations in which we are interested. (Vanhanen correctly separates data for Anglo-America—Canada and the United States—for comparative purposes.) Third, data for the non-Latin American countries date only from the 1960s, whereas for the two newest Latin American republics (Cuba and Panama) they date from about 1900. Fourth, GDP figures cover only the period 1950–70. Fifth, data are disparate and skimpy for family-sized farms, with no possibility of filling in the missing data.

The most important limitation, however, is that Vanhanen does not aggregate the data for each country to show how they stand in relation to each other over time. (He shows only—through arithmetic means for each of the ten variables—how the total of all Latin American countries compares to Anglo-America for each period [pp. 55 and 60].) Rather, Vanhanen is interested in correlations that show the stability for instability by period within each country. Thus he concludes (p. 144):

(1) If social conditions and structures change in such a way that power resources become more widely distributed, the emergence of viable democratic systems is very probable and nearly inevitable, and (2) as long as power resources remain strongly concentrated, dictatorship will be the most frequent political system. Considering the fact that nearly all Latin American countries are primarily agricultural countries, the system of land ownership will be the most important structural factor. By retaining the concentration of land ownership it is possible to block the emergence of viable democracy. By destroying the old power structure based on the concentration of land ownership and by redistributing land to independent farmers it is possible to create a natural social basis for the emergence of democracy. Social conditions and structures partly change as if unobserved and regardless of political decisions, but because the system of land ownership specifically depends on political decisions, this means that the direction of changes depends for a large extent on the people and governments themselves.

Despite the blandness of Vanhanen's conclusions (which in any case are not convincingly supported by his calculations), the volume with its data and interesting methodology makes a significant step forward: It does not tell us what we should do (as do many authors) but it sets out actually to do something. In the process, Vanhanen interweaves the use of classificatory and predictive statistics to offer a major compendium of historical statistics that are of interdisciplinary interest.

With the books reviewed here students in Latin American studies have (1) Vanhanen's new source of time-series data for all countries; (2) a detailed treatment from France of the historical statistics of Brazil, the CNRS volume offering an impressive revelation about how much specialized work has been

done for one country and implicitly letting us know what remains to be done; (3) work by Byars and Love giving an interdisciplinary guide for testing, extrapolating, and using descriptive statistics for interpretation through inferential analysis in inductive statistics; and (4) aggregate comparative data presented by Bairoch, which shows Latin America's relatively favorable position in the underdeveloped world. If Bairoch and Vanhanen do not provide a summary view of the Latin American republics as they have stood in relation to each other on the developmental scale through time, they do provide the data and framework, respectively, for the advancement of statistical analysis of the Latin American region.

In sum, discussion of quality of data (treated by Byars and Love and in the CNRS volume) and portrayal of time-series (developed by Vanhanen and the CNRS) show that the status of quantitative research has grown to offer sophisticated analysis of problems and meaning in data. Although it may be too soon to offer with full meaning the Bairoch synthesis of data on the grand scale, his many hypotheses can be tested for individual countries. If hypotheses are not too narrowly constructed, the data can be used in new ways by other investigators, as in the case of the Vanhanen contribution, which will be remembered not for hypotheses so much as for social and economic data made available to us. With realization that quantitative research involves distinction between classificatory and predictive statistics, and that the two categories ultimately may rely upon each other to provide the basic data to be interpreted as well as to fill data gaps, the idea of quantitative research can move beyond the mindless correlation that has characterized some investigation in this relatively new field.

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#### NOTES

1. This review of quantitative literature is intended to update my analysis in *Statistics and National Policy* (Los Angeles: UCLA Latin American Center Publications, 1974), pp. 16–21.
2. For discussion of classificatory statistics (i.e., data organized into standard categories and utilizing such measures as proportion and central tendency) as compared to predictive statistics (i.e., partial—including sample—data examined through correlation, regression, and factor analysis, model building, etc., to predict a “whole” picture), see the discussion in the “Foreword” to my *Quantitative Latin American Studies: Methods and Findings* (Los Angeles: UCLA Latin American Center Publications, 1977).
3. Within two of three goals of the book as stated by Graham and Smith (who sought to present “research style” based upon “systematic doubt, an awareness of the need for conceptual rigor, and a willingness to try new methodologies”), however, the new approaches are often quite stimulating. Titles of papers and authors included are: “State and Society in Colonial Spanish America: An Opportunity for Prosopography,” by Stuart B. Schwartz; “Spanish and American Counterpoint: Problems and Possibilities in Spanish Colonial Administrative History,” by Margaret E. Crahan; “Bases of Political Alignment in Early Republican Spanish America,” by Frank Safford; “Political Power and Landownership in Nineteenth-Century Latin America,” by Richard Graham; “An Approach to Regionalism,” by Joseph L. Love; “Comparative Slave

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Systems in the Americas: A Critical Review," by John V. Lombardi; "Approaches to Immigration History," by Michael M. Hall; "Psychoanalysis and Latin American History," by Margaret Todaro Williams; and "Political Legitimacy in Spanish America," by Peter H. Smith.

4. Cf. data sources listed in the endpapers of James W. Wilkie and Peter Reich, eds., *Statistical Abstract of Latin America* 18 (1977).
5.  $I = xy/100$ .
6.  $WI = xy + x/4 + y/4$ .