

INTRODUCTION

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This section on Historical Statistics is designed as one of the first steps in a process that would make it possible to assemble, for Latin America, a reference work comparable to the *Historical Statistics of the United States*. This volume assumed that its readers would be composed of those with some knowledge of how statistics were compiled and used. It saw itself as fulfilling two functions, collecting and referring. "The *collecting* function consists of assembling, selecting, and arranging data from hundreds of sources and making them available within a single source. The *referring* function consists of text annotations to the data which act as a guide to sources of greater detail. The annotations also define terms used in the tables and include essential qualifying statements."¹ The volume contains abundant statistics on economic, political, and social aspects of the United States, divided into twenty-six categories of data, and makes it easy to test many hypotheses about American historical development. Similarly, a *Historical Statistics of Latin America* would provide the statistical basis for the evaluation of many hypotheses about Latin American history, the evaluation of which currently rests upon qualitative evidence.

One of the purposes of establishing historical statistics is to place qualitative evidence for various regions on a comparable basis, to describe their chief characteristics over time (for example, average, variance, and frequency distribution), and to incorporate this evidence into our interpretation of historic events. Striking comparisons may emerge even without sophisticated manipulation of raw data. For example, a comparison of population figures for people, cattle, sheep and goats, and construction of churches in sixteenth- and seventeenth-century Mexico indicates that whenever the number of livestock rose or the number of churches under construction increased, the human population decreased. This is not merely a chance relationship, or one that is overwhelmingly based on the introduction of new, European diseases to the indigenous population. Rather, it highlights some of the factors underlying the population decline: livestock were owned by the conquerors; people were not. It was more profitable to use land to produce food for cattle than for Indians. The number of cattle increased, that of Indians decreased. Similarly, Indians were forced to leave their lands to construct churches. When they did so, food output fell. In addition, living conditions in their villages were more sanitary than in the urban areas where they lived while building churches. As a result of overcrowding in

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unhealthy conditions, disease spread, and Indians died at alarming rates.

Each of the aspects of the description are available from histories of church construction, changes in land use, and population movements. The establishment of a time series for each of the series makes it easier to present a causal hypothesis about the relationship between these series for the entire nation; such a hypothesis is a useful supplement to the many existing and valuable local descriptions.² A hypothesis that emerges from the study of *both* the time series and contemporary accounts is that only when it was possible to own people, or their labor, either through slavery or debt servitude, were the conquerors of Mexico willing to invest their funds in feeding people instead of livestock.

The chief characteristics of historical data are useful both in establishing the reliability of the data and in testing hypotheses. For example, frequency distributions are used to test the reliability of data. McCaa notes that when ages are listed in censuses as ending in "zero" or "five," we know that the age distribution is at best approximate; when age at death for *all* age groups above thirty does not record persons of ages ending from "5" through "9," we believe that the longevity records are probably distorted. McCaa also explores the possible existence of a class of migrant agricultural labor in nineteenth-century Chile by examining census records for implications of family relationship and occupational status, according to age. He finds that "only thirty-five of 213 agricultural *gañanes* [laborers] were listed in households with no presumptive kin present," and notes that almost half the agricultural laborers were teenagers, who, with marriage and maturity, moved out of the labor class and frequently became farmers, miners, and mule drivers. McCaa rejects the hypothesis that there was a large, rootless class of migrant laborers.³

Simple computation of average characteristics is often helpful in understanding the political dynamics of policymaking. The strong Argentine government aid to agriculture rather than manufacturing in the early twentieth century is largely explained by the fact that the landowners were Argentines who voted while manufacturers were more often immigrants who were not citizens, did not serve in the Army, and did not vote.⁴

The usefulness of measures of variance for historical statistics rests on the fact that an "average" behavior may either indicate behavior that is typical of many people (and therefore has a "low variance"), or behavior that is not "typical" but, instead, lies midway between extremes (and therefore has a "high variance"). For example, in examining the spending patterns of Argentine workers and entrepreneurs in the early twentieth century, it was noted that the workers' marginal propensity to consume had a low variance, as workers clustered in a fairly small income range, while the marginal propensity to consume of entrepreneurs had a high variance, as some self-employed entrepreneurs had incomes lower than those of salaried workers while many others were among the richest people in the nation. Because the marginal propensity to consume of entrepreneurs had such a high variance (many poor entrepreneurs spent their money in the same way as they would have if they had been workers), it was determined that there was no significant difference between spending habits of workers and entrepreneurs. These habits, therefore, could not be advanced as a technical economic reason for income distribution.⁵

In some cases, the availability of quantitative data makes possible a closer estimate of the importance of qualitative information. For example, information on quantitative determinants of economic performance makes it possible to estimate the additional impact of a policy being followed, or of a man being president. Thus, Beltran del Rio finds that private fixed gross investment in Mexico was reduced significantly by presidential transitions and other major political events (after including the effects of private capital stock and present and past changes in gross domestic product), that Mexican sugar exports were significantly increased by United States' suspension of sugar buying from Cuba (after including the effects of United States' industrial production of food and beverages and the ratio of Mexican to Phillipine price of sugar), and that tourism and border exports were significantly increased by the aftereffects of the devaluation of the peso in 1954 (after allowing for the effects of paved roads in Mexico and disposable personal income in the United States).⁶ Randall finds that the presidencies of Alvear and Yrigoyen during the 1920s significantly increased the growth rate, and that of Perón significantly increased the level, of Argentine gross domestic product.⁷ Similar techniques have been used to forecast the effect of religion on voter behavior, and, in general, the effect of particular characteristics of groups or group members on the outcome of events, as well as to estimate their influence in the past.

In all of the examples, the combination of qualitative historical evidence and judgments with quantitative data is particularly rewarding. For this reason, many scholars believe that a volume of historical statistics of Latin America would be a welcome addition to the literature because it would provide the quantitative basis for the testing of hypotheses, some similar to those described, others covering a wide range of subjects. I believe that a *Historical Statistics of Latin America* could well be assembled over the next several years: there are rich archives of manuscript sources, a wide variety of published censuses and special government reports, and many collections of historical and current statistics on a number of topics. Detailed annotations are somewhat harder to find.

The amount of statistical work incorporated in Latin American studies is somewhat less than that incorporated in United States studies when *Historical Statistics of the United States* was published, so that a broader coverage of the topic is required. Thus, this section on historical statistics of Latin America indicates how data are assembled from manuscript sources, and *pari passu* what hypotheses might be tested using the data. Similarly, the difference in social and governmental organization between the United States and Latin America leads to the use of different sources of data. One of the purposes here is to indicate a number of data sources that might not otherwise occur to researchers familiar only with Anglo-Saxon countries. In addition, the form and availability of data currently being assembled for ongoing research is presented in the Research Inventory that appears at the end of this section.

There is, often enough, considerable skepticism about the validity of using numbers as an indication of complex real world conditions. Moreover, when scholars accept the notion that numbers do tell us about the world, they often doubt the accuracy of measurement of the phenomenon whose behavior is

being measured. The first task here is to present a description and analysis of how raw documents are used to yield numbers that summarize the behavior described in them. This task is carried out by the Barmans, who are exploring the power structure of the Brazilian Empire, making use of a collective biography of elites that they have assembled from manuscript materials. They have done this by constructing a machine-readable biography of virtually all individuals of some significance in the Brazilian Empire, using, for example, lists of individuals graduating from the same university, or holding a particular position. Information on their age, place of birth, relatives, children, occupation and economic level, higher education and honors was brought together and collated into a standard format, which can be edited to change codes into an alphabetic format and manipulated to yield all data on a subgroup of the elite. The Barmans' computer program permits the reformatting of data for use in standard programs, such as SPSS or OSIRIS, so that frequency distributions and average characteristics of various groups can be obtained. The cumulative records of individual biographies comprise a group biography that will yield both historical data and statistics and an analysis of the structure of elite groups in the Brazilian Empire.

The Barmans' article indicates how manuscript data can be converted into statistics. The next question that comes to mind is "what sources of data are available to investigators?" Examples of sources are provided in the article by René Salinas Meza, who points out that traditional historians relied upon un-evaluated global estimates of the size and ethnic composition of population. The mid-thirties saw the first use of parochial registers and cemetery records; modern techniques of demographic analysis began to be used in the fifties; in the sixties, a wide range of church and military documents, as well as censuses, were utilized in demographic studies. For the mid-seventeenth to mid-nineteenth century period, documents such as registers of Indians in *encomienda*, local registers of population, and descriptions of various regions yield considerable demographic data. In addition, wills, records of civil and criminal judicial proceedings, and parish registers yield demographic and sociological data, while various censuses, carried out for other purposes such as taxation, yield demographic data as a byproduct. Salinas Meza presents an account of the kinds of data available from each of these sources, and indicates where they are located.

Once data are made available, the question of their accuracy must be examined. Robert McCaa analyzes the methodologies that can be used to evaluate the data and explores the use that social and economic historians can make of the materials and sources indicated by Salinas Meza. McCaa points out, for example, that the census enumerators used shifting boundaries for areas of enumeration and ignored infants, which makes computation of population growth rates hazardous; also, the racial designation of the same person sometimes was changed from one census to the next, which complicates social and demographic analysis. Census figures are sometimes inconsistent with parish records; guesses rather than surveys are indicated by figures rounded to thousands. Thus, cross checking of sources and examination of data indicate the extent to which we can accept data as accurate and incorporate it into historical studies.

McCaa makes a number of ingenious suggestions for transforming demographic information into historical statistics: for example, establishing age and probable kinship relations among members of a household, whose occupation is listed, makes it possible to construct career patterns and presence of migrant laborers. Similarly, information provided in filing marriage banns is used to create estimates of mortality. McCaa also examines the implications of under-enumeration patterns for demographic indicators and argues that careful use of local records is needed before aggregate studies can be undertaken.

The presentation of Chilean sources by Salinas Meza and of methods of establishing their reliability by McCaa paves the way for an introduction to economic historical statistics of Chile by Markos Mamalakis. Mamalakis begins with a survey of sources of Chilean statistics and provides detailed information on national accounts, demography, agriculture, industry and prices, mining, the public sector, money and banking, and trade and balance of payments. Examination of these sources yields information that illuminates our understanding of Chilean economic history; for an example, see his *The Growth and Structure of the Chilean Economy: From Independence to Allende* (New Haven, Conn.: Yale University Press, 1976).

The unexpected wealth of data for nineteenth-century Ecuador is presented by Michael T. Hamerly, who examines the ministry reports and gazettes of Ecuador for the years 1830 to 1900, as well as some twentieth-century retrospective sources dealing with the period. The various issuing bodies, their reports, and the name changes of both are clarified; the locations of the documents are indicated. Hamerly first describes and analyzes the reports; he then focuses on their usefulness for the study of demography, economy, and society. He concludes by indicating the ways in which the data he critiques can be used to investigate the relationship among the population, culture, and environment of Ecuador.

Thomas Schoonover fulfills the objectives of compilation and annotation of historical statistics for Central American trade and navigation in the nineteenth century. Schoonover emphasizes the importance of data for examining statements regarding British, French, and United States economic power in Central America. He describes the location, abundance, reliability, and accuracy of data on Central American trade and navigation in the nineteenth century in sources from Central America, the United States, and Europe. Schoonover has gathered data for over two thousand series of variables for 1840–85 and he discusses their reliability in view of current data gathering practices, the likelihood of bribery and underreporting of trade, the educational level of data collectors, the use of fixed (*aforo*) values, and indirect trade (reexports). He provides error percentages for data and indicates the evidence available to contemporary businessmen. Schoonover then describes sources, the data they contain, and the libraries in which they are found. The analysis presented is of broad interest, as the archives from which Central American data were obtained also contain data for other Latin American nations.

A complex analysis of how to bring historical data to bear on social history is provided by Ponce and Quiroz in their critical analysis of Arequipan historical

demography (1549–1820), which begins by placing Arequipa in historical context. They list and critically analyze the demographic information available and emphasize that the data will be used to improve our understanding of social history. They present a summary of categories of documents and their location and indicate both the time period for which various documents are available and the kinds of information contained in civil and parochial registers, notarial records, *cabildo*, tax, and other documents. The authors first place their study in the context of basic historical/demographic analysis and then provide a detailed study of parish registers and their implications for family and social history. They conclude with an evaluation of the usefulness of already published documents for their study and provide bibliographic references.

Economics is one of the fields for which historical data are particularly useful. Enrique Florescano provides a report on the activities of the Economic History Commission of the Latin American Social Science Council (CLACSO), 1970–75. These include conferences, publications, and cooperation with scholarly groups. Of particular interest are publications on perspectives of quantitative economic history in Latin America and sources for demographic history of Latin America, as well as surveys of particular topics. Moreover, CLACSO has collaborated with CELADE and the SSRC on statistical and bibliographic sources for the economic history of seven Latin American nations. Florescano presents the plans of the Economic History Commission for 1976–80, which include the publication of directories of researchers, inventories of research, bibliographies, and other works. Florescano also proposes the publication of historical statistics of Latin America for 1750–1930.

Randall provides “An Introduction to Some Sources of Historical Statistics of Latin America,” which presents a brief guide to published sources, a description of current activities of selected organizations that gather and analyze historical data of Latin America, and a guide to computer based bibliographic search for historical data of Latin America.

The Research Inventory indicates the wide holdings of quantitative data stored in different data banks and listed in varying degrees of detail. Investigators would benefit if these banks were to agree to a single format for listing data and to designate one of the research centers as the data bank in which a copy of all Latin American data was filed, or listed. This would reduce the cost of information gathering, which now requires the purchase of several data catalogs that, in part, duplicate each other’s information. Similarly, the publication of a research inventory of quantitative studies every year or two would be useful to researchers.

The provision of this information would help to create a *Historical Statistics of Latin America*. Several steps remain to be taken to create this book. The first is the selection of topics to be covered at the national, provincial, or local level. *Historical Statistics of the United States* includes the following topics: population; vital statistics and health and medical care; migration; labor; prices and price indices; national income and wealth; consumer income and expenditures; social statistics; land, water, and climate; agriculture; forestry and fisheries; minerals; construction and housing; manufactures; transportation; communications;

power; distribution and services; foreign trade and other international transactions; business enterprise; productivity and technological development; banking and finance; government; and colonial statistics.

This choice of topics reflects both conceptual decisions and availability of data. A *Historical Statistics of Latin America* might be differently organized and place greater emphasis on certain topics. Thus, it probably would best be divided into three periods: colonial, independence through the end of World War I, and 1918 to date. Within each of these periods, the topics chosen would reflect the prevailing institutions, sources of data, and concepts appropriate to investigation. For example, the difference in importance of the Church, forced labor, and nonmarket systems of economic exchange would require different categories of data in the three time periods.

The essays here indicate that there is a wealth of available material. Yet, technical considerations must be kept in mind when selecting categories to be included, in order to maintain comparability of the data and statistics compiled from various sources. It is relatively easy to find lists of data. It is harder to determine how they were compiled and, in the cases in which the data have been processed into statistics, the formulae used in establishing the statistics. Similarly, the differences among Latin American nations in criteria for establishing a category (How many workers make a place of work a "factory"? What population density is "urban" rather than "rural"?) make careful establishment of categories and annotation of data the most difficult part of the projected *Historical Statistics of Latin America*.

Once this is done it will be possible to follow the suggestion of Wilkie,⁸ Florescano, and other scholars who have called for such a volume to present comparable data for each of the Latin American nations. Comparing the following articles to the proposed historical statistics of Latin America, we note that the essays here are largely "micro-studies"; the data they yield can be processed to provide nation-wide statistics that, in turn, can be used as an element of "macro-studies," in which, for example, the impact of government policy is studied, international comparisons are established, and structural trends are explored. The ways in which historical data can be used have been discussed recently by Graham and Smith, and Byars and Love.⁹

A large amount of the work required has been completed: many Latin American nations have autonomous agencies or university groups that have published historical statistics; contact between United States and Latin American scholars should make it easy to establish a coordinating group to decide many of the issues mentioned above; and the publishing plans both of CLACSO and the *Statistical Abstract of Latin America* make either or both potential publishers of the volumes that would comprise a historical statistics of Latin America. The usefulness of this volume is clear; the ability to produce it is demonstrated, in part, by this section of the *Latin American Research Review*, which has been prepared in the hope that its publication will encourage the financial support needed to underwrite the organization, research, and publication of *Historical Statistics of Latin America*.

NOTES

1. U. S. Department of Commerce, Bureau of the Census, *Historical Statistics of the United States, Colonial Times to 1957* (Washington, D.C., 1960), p. x.
2. The relationship between population movements and church construction is established in George Kubler, "Population Movements in Mexico, 1520–1600," *Hispanic American Historical Review* 22 (1942): 636, 642; also see François Chevalier, *Land and Society in Colonial Mexico, The Great Hacienda* (Berkeley: University of California Press, 1963), p. 68. On the competition between men and livestock, see Lesley Byrd Simpson, *Exploitation of Land in Central Mexico in the Sixteenth Century* (Berkeley: University of California Press, 1952), IberoAmericana Monograph Series, 36. A discussion of the hypotheses is in Laura Randall, *A Comparative Economic History of Latin America, Argentina, Brazil, Mexico, and Peru, 1500–1914. 1: Mexico* (University Microfilms International, 1977), chapter 4.
3. "Chilean Social and Demographic History: Sources, Issues and Methods," *LARR* 13, no. 2, pp. 104–126.
4. Laura Randall, *An Economic History of Argentina in the Twentieth Century* (New York: Columbia University Press, 1977).
5. Randall, *An Economic History*.
6. Abel Beltran del Rio and Lawrence R. Klein, *Macroeconometric Model Building in Latin America: The Mexican Case* (Philadelphia, Pa.: Wharton Econometric Forecasting Associates, 1971).
7. Beltran del Rio and Klein, *Macroeconometric*.
8. Correspondence, 11 February 1977, and James W. Wilkie, *Statistics and National Policy*, Supplement 3 (1974), *UCLA Statistical Abstract of Latin America*.
9. Richard Graham and Peter H. Smith, *New Approaches to Latin American History*, (Austin: University of Texas Press, 1974); Robert S. Byars and Joseph L. Love, *Quantitative Social Science Research on Latin America* (Urbana: University of Illinois Press, 1973).