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## FOREWORD

The computer is changing the technology of economic and social research. The ability of the computer to process large bodies of data makes possible new methods of research, employing highly disaggregated, or "micro," data. Not only are such methods more powerful in testing hypotheses, but they make possible entirely new kinds of research applicable to a broadened range of economic and social problems.

With the aim of bringing together social scientists from both North and Latin America who are currently engaged in quantitative research, a conference on the role of the computer in economic and social research in Latin America was held at Cuernavaca, Mexico, October 25-29, 1971. This volume contains some of the papers presented at that conference.

The sponsors and organizers of the conference were the National Bureau of Economic Research, the Colegio de Mexico, the Instituto Brasileiro de Economia of the Fundação Getulio Vargas, and the Instituto Torcuato di Tella, Argentina. The Latin American Social Science Council (CLACSO) also collaborated in the conference. The organizing committee for the conference consisted of Richard Ruggles, chairman; Roberto Cortes Conde, di Tella; Janes de Souza, Vargas; Nancy Ruggles, National Bureau; and Victor Urquidi, Colegio de Mexico. Financial support for the conference was supplied by the IBM World Trade Corporation, the National Science Foundation, and the sponsoring organizations. The conference was one of a new series established by the National Bureau on the role of the computer in economic and social research.

The conference was designed to include both papers dealing with computer methodology and papers reporting on substantive projects making significant use of the computer. A list of all of the papers presented appears at the end of this volume. The conference was organized into nine sessions, as follows:

1. The computer and government statistical systems
2. Data banks and computer centers
3. Computer simulation models
4. Macroeconomic models
5. Round table on the computer and society
6. Demography, manpower, employment, and education
7. International comparisons of income, consumption, and prices
8. International trade problems and commodity markets
9. Summary session on the role of the computer.

The first two sessions, on government statistical systems, data banks, and computer centers, dealt with the impact of the computer on the gathering, processing, maintenance, and use of large data systems. Government statistical offices have altered both their methods of processing information and the types of output which they produce. It is increasingly possible to relate different bodies of information to one another, and the central question now becomes how to organize and integrate the data base so that it is most useful for economic and social research and for policy guidance. Changing computer technology means that new devices

and new techniques are continually becoming available. The first paper in this volume, by Ivan P. Fellegi and Simon Goldberg of Statistics Canada, addresses the problems of the impact of the computer on government statistics. The next two papers describe presently existing data banks—the time-series data bank of the National Bureau of Economic Research and the collection of census samples of the Latin American Center for Demographic Studies (CELADE). The next paper, by Harold Watts, discusses the problems that arose in the collection, processing, and use of a specific microdata set, the Survey of Economic Opportunity.

The next two sessions centered about the use of specific techniques of analysis: simulation and macroeconomic modeling. Simulation of economic and social phenomena as a method of analysis became feasible only with the advent of large-scale computers. The three papers by Okner and Pechman, Schulz, and the Urban Institute team describe microsimulations of specific economic and social problems, and the following paper by Naylor and associates presents a macro-simulation model of Brazil. With the increasing sophistication of macroeconomic modeling, this methodology, too, requires the computer. Growth models, planning models, short-term forecasting models, and dynamic multisectoral models have been constructed for a number of Latin American countries. De Souza's paper presents a summary of several such models constructed for Brazil; those of Beltran del Rio and Klein, Foxley, and Manne each present an individual model for a particular country.

Sessions 6, 7, and 8 each dealt with the application of the computer to problems relating to a particular subject-matter area. The paper by Schiefelbein is an example of the use of the computer for the analysis of a particular educational-planning problem. The next five papers discuss problems arising in handling large data files of material relating to international comparisons as encountered in the UN-Pennsylvania International Comparison Project, the Brookings-ECIEL project, and the European Economic Community. The papers by Balassa and Schydrowsky and the CENDES group deal with international trade problems.

The final session was devoted to an attempt to bring together the methodological conclusions developed in the individual sessions, and to consideration of the information needs for policy formation in developing countries and the role of the computer in meeting them. The final paper by Richard Ruggles summarizes the conference and presents these conclusions.

The work begun at this conference is being continued through a series of workshops to be held over the next five years. The IBM World Trade Corporation has made available a continuing grant for this purpose. Our thanks are due to Ruth Ridler, who prepared the proceedings for press, and to H. Irving Forman for his charting.

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