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Book Reviews

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Book Reviews

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In response to the interest expressed by many members of TIMS, we shall list working papers by title and author at the end of the Book Reviews Section. Any interested author of a working paper should send a copy of it to the Book Reviews editor. Any working paper which is received by the editor will be listed without comment. It is hoped that this will provide better communication of the kind of work which is in progress and will permit direct contact among various persons who may be pursuing similar directions in their research.

DUESENBERY, JAMES S.; FROMM, GARY; KLEIN, LAWRENCE R.; AND KUH, EDWARD (EDITORS), *The Brookings Model: Some Further Results*. Chicago, Illinois: Rand McNally & Co. (Published outside the United States and Canada by the North-Holland Publishing Co., Amsterdam.) 1969, 540 pp., \$15.00.

The Brookings Model: Some Further Results is a collection of fourteen papers reporting the most recent (1965-1968) results of an important research project. The Brookings Econometric Model of the United States represents one of the most ambitious attempts ever undertaken to build a mathematical model of a national economy. This volume is the third in a series describing the specifications, estimation, solution and simulation of a large scale structural econometric model of the United States.

It is difficult to fully appreciate the present volume without also reading the two earlier books. *The Brookings Quarterly Econometric Model of the United States* (published by Rand McNally and the North-Holland Publishing Company in late 1965) outlines the early history of the model and describes its basic structure. (Unfortunately this volume is currently out of print.) The second volume, *Policy Simulations With an Econometric Model*, (published by the Brookings Institution and North-Holland in early 1968) contains a set of complete model solutions with a condensed version of the system and simulations of fourteen fiscal and monetary policy alternatives.

The three volumes taken together will provide the reader with a broad and rather complete insight into the econometric model building process both from a theoretical and applied point of view. While all three of these books are primarily addressed to economists and econometricians, the management scientist will find much interesting material in the present volume. Michael C. Lovell's paper "Department Store Inventory, Sales, Order Relationships" presents an excellent macro-model of the inventory cycle and new order behavior. Lawrence R. Klein's paper "Econometric Analysis of

the Tax Cut of 1964" and Gary Fromm's paper "An Evaluation of Monetary Policy Instruments" offer two interesting case studies on the use of econometric models for evaluating policy alternatives. *The Brookings Model: Some Further Results* and its two companion volumes should be of interest to any management scientist concerned with the development of large scale macro-models in general and the development of models of the economic environment in particular.

BAIER, KURT, AND RESCHER, NICHOLAS (EDITORS), *Values and the Future—The Impact of Technological Change on American Values*. New York: The Free Press, 1969, 541 pp., \$14.95.

In the last five years, dozens of exciting new books and studies describing man's future and developing new techniques for looking into the future have been published. In September 1964, Rand Corporation Paper P-2982 ("Report on a Long-Range Forecasting Study" by T. J. Gordon and Olaf Helmer) was published and the public was first introduced to the Delphi Method of Forecasting. The establishment of the Commission on the Year 2000 by the American Academy of Arts and Sciences in 1965 contributed much toward establishing the future as a legitimate subject for research. The publication of such books as Bertrand de Jouvenel's *The Art of Conjecture*, Erich Jantsch's *Technological Forecasting in Perspective*, Daniel Bell's *Toward the Year 2000: Work in Progress*, Herman Kahn and Anthony J. Wiener's *The Year 2000, A Framework for Speculation on the Next Thirty-Three Years*, and F. Fraser Darling and John P. Milton's *Future Environments of North America* in 1966 and 1967 stimulated an interest in the area of developing long term projections of the future.

The present volume is an important contribution to this new literature of long-range conjecture. Computers, sex, race relations, biomedicine, the family, the distribution of wealth, power, production, planning, and urban policy are some of the subjects considered in the seventeen essays that make up this study of changing American values from the present to the year 2000. These essays are must reading for anyone who is seriously concerned with developing long-term forecasts of the future economic and social environment of the United States. The editors have succeeded in their objective of producing a major sourcebook on the nature, dimensions, study, and forecasting of values. The seventeen essays are summarized and put into perspective in a highly readable introductory chapter "Value Impact Forecaster—A Profession of the Future" by Alvin Toffler. This introduction is followed by two essays which attempt to answer the questions "What is value?" and "What is value change?" Kurt Baier and Nicholas Rescher do a remarkably good job wrestling with these evasive concepts. The latter essay concludes with five interesting and thought provoking appendixes: (1) Glossary on Value Change, (2) A Tentative Register of American Values, (3) Possible Developments to 2000 A.D. with Major Implications for American Values, (4) Some Possibilities for Future Value Change in America, and (5) The Future as an Object of Research.

The third essay "Technology, Way of Living, and Values in 19th-Century England" by J. B. Schneewind attempts to show how English attitudes toward work and toward centralized government were transformed during the nineteenth century as changing technology produced new problems and conditions of life. The next essay, a second

by Rescher, reports on the results of an experimental questionnaire study of American values by 2000 A.D. This essay is an interesting case study of the use of the Delphi Method of forecasting long-term change. The fifth essay, Theodore J. Gordon's "The Feedback Between Technology and Values," discusses the factors which will determine the direction of research, how these factors are conditioned by the value system of society, and how the research affected by these values results in technological changes in society which, in turn, affect values. In addition to presenting a simple model of this cycle, Gordon concludes his essay with an appendix discussing twenty major future technological developments and their social consequences. The sixth essay "Simulating the Values of the Future" presents a brief description of the design of a simulation workshop in which Olaf Helmer and Theodore J. Gordon attempt to simulate the impact of the twenty technological changes outlined in Gordon's appendix on the value structure of society. This essay is too short, and I am sorry that the results of this simulation exercise are not presented in more detail than the brief discussion in Toffler's introductory chapter.

The first six essays are grouped together under a section titled "Analysis." The next six essays are included in a section titled "Interaction." The first of these, Bertrand de Jouvenel's "Technology as a Means," is a highly thought provoking attack on superficial thinking regarding technological progress. De Jouvenel raises many important questions which should be considered by all long-range planners. The next four essays, "Economic Attitudes in Latin America and the United States" by John P. Powelson, "The Professional Commitment of Educated Women" by Sonia S. Gold, "New Urban Structures" by David Lewis, and "Challenges for Urban Policy" by Leland Hazard are well worth reading just to be informed, but are of little interest from a management science point of view. The final essay in the "Interaction" section is "The Emerging Superculture" by Kenneth E. Boulding. Economist Boulding is one of the most imaginative philosophers in the social sciences. His essay discussing the interplay of technology and values should be must reading for a management scientist.

The last five essays appear in a section titled "Control." This section begins with a short (15-page) essay by John Kenneth Galbraith, "Technology, Planning, and Organization." Galbraith argues that the most strategic "factor of production" is no longer land or capital but rather the structure of organization which combines and includes the technical knowledge, talent, and experience that modern industrial technology requires. This essay is an excellent short summary of many of the essential ideas expressed in the author's *The New Industrial State*. In the next essay "Private Production of Public Goods" David Braybrooke discusses some of the opportunities and problems that arise when we consider the role that might be played by the business sector of the economy as a producer of public goods. This essay is particularly timely today. The third essay in this section should be of special interest to management scientists. "The Framework of Decision for Major Technological Innovation" by Bela Gold presents a detailed analysis of a vital aspect of the management decision process and of the environment within which major corporate decisions are made. The two concluding essays "Motivation Underlying the Brain Drain" (James A. Wilson) and "Economic Consequences of Technological Change" (Martin Bronfenbrenner) are of general interest.

The book concludes with two highly useful bibliographies: (1) a bibliography on technological progress and future-oriented studies, and (2) a bibliography on the theory of value. *Values and the Future* is a book worth reading.

SHARPE, WILLIAM F., *The Economics of Computers*. New York, New York: Columbia University Press, 1969, 581 pp., \$10.00.

In 1951, the Columbia University Press published Professor Joel Dean's now classic study *Capital Budgeting*. Few books published in the last twenty years have had the direct and indirect impact on management thinking as the Dean study. Professor Sharpe's new book will probably have an even greater impact than the Dean book. *The Economics of Computers* is a book that is long overdue. This Rand Corporation study is addressed to two main audiences: (1) managers who manage or set policy for computer installations, and (2) students in programs leading to degrees in computer or information sciences. The book, will also be of value to economists and security analysts with an interest in the computer industry. The author attempts to provide and apply a set of concepts from economic theory that may prove valuable to decision-makers in the selection, financing and use of computers. While Professor Sharpe assumes a reasonably sophisticated audience with a familiarity of mathematics through first-year calculus, no prior knowledge of economic theory is assumed.

The Economics of Computers is really two books in one. The first part is a 180-page elementary introduction to micro-economic theory. The second part is devoted to a series of analyses using the tools developed in Part I.

The five chapters which comprise the first part of the book represent a highly readable introduction to economic analysis "a la Rand." I would recommend these chapters to any management scientist desiring a "fast" rudimentary course in economic analysis. Sharpe begins with a chapter introducing the reader to the basic concepts of micro-economic theory. This is followed by an outline of various concepts of value and demand. The third chapter considers the concepts of revenue and profit from an economist's point of view. Sharpe's discussion of multiple part pricing policies is particularly interesting. The fourth chapter "Time and Risk" represents a very attractive elementary presentation of the trade-off between the current and future value of money and of the principles of discounting an expected return to reflect risks and uncertainty. The final chapter in the economic theory section is concerned with how inputs should be combined to efficiently produce outputs. This chapter considers typical relationships between costs and outputs and extends the previous discussion to include cases of joint products and pricing under conditions of uncertainty.

The seven chapters which comprise Part II consider: (1) a brief economic survey of the computer industry, (2) an analysis of the terms and conditions under which computers are leased or sold, (3) a discussion of the legal constraints and economic issues involved in the sale or rental of computers, (4) cost/effectiveness analyses of computer systems, (5) cost/effectiveness analyses of computer memories, (6) theoretical models for pricing computer services, and (7) brief discussions of leasing companies, the used computer market, the market for computer services, the market for software, personnel costs, communications costs, and computers outside the United States. These chapters are uneven, and the space allocation often appears to reflect the author's interest rather than the importance of the subject. In spite of this weakness, however, they are well worth reading.

I am surprised at the author's limited use of, or reference to, previously published work in the field of computer economics. For example, there is no reference to A. B. Frielink's *Economics of Automatic Data Processing* (North-Holland Publishing Company, 1965) and only a highly limited reference to a wealth of material published in various Association for Computing Machinery publications.

The chief value of this pioneering study is the groundwork it lays. It is the kind of book that is sure to stimulate other authors to build on and expand the concepts presented. Professor Sharpe presents a thought provoking new look at computer economics. Many readers, particularly those associated with computers and the computer industry, will regard much of the material as being too academic, theoretical, and naive, but all will have to agree it is the kind of study that will make you *think*.

All unsigned reviews are written by the Book Reviews editor.