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Book Reviews

Applied General Statistics. Second Edition. By Frederick E. Croxton and Dudley J. Cowden. Prentice-Hall, Inc., New York. 843 pages. 1955. \$9.00.

NEW STATISTICAL MATERIAL and methods developed during the last 16 years show their influence on most chapters in this new edition. The authors accepted a prodigious task in attempting to duplicate the smoothness and conservative presentation that are familiar to readers of the 1939 edition. The purpose is the same: "To describe the more commonly used statistical methods and to illustrate their application in many fields." The methods are especially applicable to the social sciences from which most of the examples are drawn. The preface further points out that "nearly all of the examples are new." This is a valuable contribution by itself.

It is stated that "the scope is essentially the same as that of the earlier edition." By simply looking at the table of contents, one cannot appreciate the many improvements introduced by skilful revision, as the chapters and subheadings are much alike. The bright style and interesting presentation of the first edition are retained. The book is highly adaptable for introductory or reference purposes. Greater conciseness in some sections will be welcomed by those who found some of the earlier discussion to be unnecessary.

Readers will find more comprehensive time series analysis and correlation, an improved organization of tests of significance and their interrelationships, a handy symbol vocabulary at the beginning of every chapter, and a larger appendix, including six added tables for tests of significance and a guide to rounding of numbers. New material includes nine important examples of index numbers, more extensive use of transformations in non-linear correlation, expanded analysis of arithmetic means, and a more comprehensive section on analysis of variance.

Improved organization and fewer words account for most of the 115 fewer pages. Among the discontinued subjects are the criterion of likelihood, use of moving averages in time series, use

of arithmetic probability paper, some curves with declining absolute growth, a graphic approach to seasonal measurement, methods of forecasting, and various discussions of reliability of statistical measures.

The new edition is no "cookbook" for the novice who is without some mathematical background. The formulas and mechanical adaptations given are no substitute for caution, discretion, and statistical reasoning. Undoubtedly, this book was not intended as a reference guide for determining what constitutes good data, when to use what method of analysis, or how to pursue general computations as given by H. Walker's *Mathematics Essential for Elementary Statistics*. Methods of interpretation based on *a priori* knowledge and comparative analysis are sometimes omitted.

Critical readers may be unhappy about certain minor points that are of interest to those who seek an introduction to advanced methodology. For example, statistical concepts of the sort so clearly explained in Rosander's *Elementary Principles of Statistics* are sometimes obscure, if not absent. The discussion of bias is neither definitive nor helpful in terms of the techniques available in other texts. The need for probability selections is neglected in the discussion of sample types, and the term "statistical method" is confused with the survey method. The chapter on dispersion neglects the concept of degrees of freedom and assumes that we are concerned only with a description of sample variance, even though our prime interest is to estimate the population variance using $(N-1)$ not N . The extrapolation of logistic curves for United States population data will be amusing to those who compare a forecast of 175 million persons for the year 2000 with Census projections that show 336 million.

The first edition is said to have had the widest distribution of any statistical text. The new edition will aid retention of this record. But it is

not a new book. One who owns the old edition should not discard it in favor of the new unless his library is already equipped with such volumes as the third edition of Mills, the third edition of

Waugh, the first edition of Rosander, and others that specialize in the field of statistics directly applicable to the work at hand.

Otto Rauchschalbe

Consumer Behavior, Volume I: The Dynamics of Consumer Reaction. Edited by Lincoln Clark.

New York University Press. 128 pages. 1955. \$5.00.

Consumer Behavior, Volume II: The Life Cycle and Consumer Behavior. Edited by Lincoln Clark.

New York University Press. 125 pages. 1955. \$5.00.

FOR YEARS, social scientists in the universities have conducted research and developed bodies of theory about "human behavior." Often the conclusions were based on small intensive observations adjusted by their personal and ingenious theories of society as a whole. The main purpose of this research is the age-old quest for understanding—knowledge for knowledge's sake.

In another world—the world of business—those interested in the marketing structure have conducted their research and developed theories about "consumer behavior." Often their conclusions are based on large-scale observations adjusted by their own ingenuity and experiences in marketing tangible and intangible products. The main purpose of this research is the age-old quest for bigger markets, efficient marketing practices, and greater profit.

Both worlds talked about interdisciplinary research; and in 1952, at the first meeting of the Committee for Research on Consumer Attitudes and Behavior, one of the first real attempts was made to break through the wall between these identical disciplines. They have similar techniques and needs, but they work separately and are too cloaked in layers of semantics to benefit from each other's accomplishments.

During the three conferences, documented in these two volumes, the theorists paraded their models and their knowledge, while those active in "applied" research presented their research designs and their growing body of theory. As one listened to the papers and the discussions that fol-

lowed, it was evident that both sides were surprised and pleased to find the talent and development of their opposite numbers. Academic research was not just a vague theoretical framework with nonrigorous research in its background. Business research was not simply nose counting at a superficial level.

In the volumes that came out of these conferences, the papers are tied together or to extract a set of principles. But they do make a contribution in preparing for a more definitive handling of these ideas than we had before.

Actually, the papers are based on extremely diverse research projects that vary in scope and in initial objectives, but all of them include some concern with the theme of the individual conference. Unlike the proceedings of most technical conferences, that are characterized by many papers few of which merit an audience, these papers are low in number and high in quality.

For readers who want to learn what is being done about problems of purchase decisions and choice in the research centers, Volume I is recommended for its display of a sampling of good research. Readers interested in viewing consumers in terms of their needs and behavior over the life cycle should read Volume II, which is a compendium of some of the best current thinking of a diversified group of social scientists, each of whom works in a frame of reference that differs slightly from that of any of his colleagues.

Trienab Meyers

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2
The Pricing of Cigarette Tobaccos. By Elmo L. Jackson. University of Florida Press, Gainesville, Fla. 239 pages. 1955. Paper, \$3.75; cloth, \$4.75.

ECONOMISTS have long regarded the pricing of tobacco on the auction markets as a prime example of oligopsony, that is, few buyers and many sellers. In this study, a sequel to Nicholls' major work on *Price Policies in the Cigarette Industry*, Professor Jackson attempts to find out how concentration of purchases in the hands of a few large buyers has affected auction pricing of flue-cured and burley tobaccos. Central questions that the study seeks to answer are: What are the methods or techniques through which prices of cigarette leaf are arrived at? To what extent, if any, have the large buyers used their power to bring about those prices of leaf which maximize their profits?

Jackson begins his task by examining the nature of tobacco grades and grade demand to show that the various qualities or grades are bought in common by the large buyers. With the pricing problem thus defined as oligopsony rather than monopsony (single buyer and many sellers), he then examines price agreements and price leadership as possible explanations, and concludes that neither of these explains market prices of cigarette leaf.

The reason, according to the author, lies in the heterogeneous nature of tobacco leaf, the bewildering diversity of company grades, and the "subjectivity, inconsistency, and disagreement inherent in tobacco grading," which would make a "comprehensive, old-fashioned conspiracy to set the price of each grade of tobacco . . . very difficult to plan," and "price leadership an unreliable procedure to use in the pricing of leaf tobacco."

To explain how initial prices have developed for cigarette leaf on auction markets, the author advances his own hypothesis. According to this hypothesis, "larger buyers met their problem of initial price uncertainty by (1) concentration of initial sales in a few markets; (2) making careful estimates of the size and nature of the crop and

thus reaching rough expectations about opening prices; and (3) resolving the differences in the rough expectations by a process of give and take in the early bidding—a process that may be termed market trial and error." Succeeding chapters consider the effect of the buying policies of the few large buyers on geographical and seasonal price variations, and the extent to which market sharing may have supplemented market trial and error. In examining geographical and seasonal price differences, Jackson found his study complicated by the chief obstacle encountered in tobacco price analysis, which is the multiplicity of, and the range in, tobacco qualities that "add a variable of unknown force to all price data."

The study provides a thorough analysis of an exceedingly complex pricing situation, but the author recognizes its chief limitation. The analysis rests largely on limited detailed price data for the 1930's, before the advent of direct price supports; and on testimony in records of the Government anti-trust suit that was concluded in 1946. He states, "The principal hypothesis, price determination by market trial and error, lacks statistical verification. The hypothesis appears to be consistent with the fragments of available data and the testimony at Lexington, but would this be true if it had been possible to unearth more extensive numerical data?"

Despite the conjectural nature of many of its conclusions, the book is of interest to general students of economics, as well as to those concerned with the tobacco industry. The description of the buying policies of the large buyers of cigarette leaf, although it unavoidably includes much that is surmise and speculation, helps the reader to gain an understanding of the major forces involved in the pricing process.

Seymour M. Sackrin

A FORTUNATE SELECTION of authors who have varying approaches to a central theme has produced in this collection a thought-provoking source book on the economic development of underdeveloped countries. Assignment of chapter themes minimized overlapping and repetition of subjects; the overlapping that remains appears to be desirable because of the variety of approaches. Successive discussions of the roles of natural resources, of demographic patterns, and of other factors in economic development at the end are illustrated by three selected case studies which give point to the purpose of the book.

What are the fundamental considerations, economic and demographic, that should be considered by those charged with the responsibility of carrying forward any project, large or small, looking to the economic development of the so-called underdeveloped countries? What are the chances that a certain line of attack on a problem will or will not work toward the attainment of its objective? Attempting answers to these questions, each in his own way, the 13 authors contribute guideposts, road signs, and danger signals which those who seek to be guided by economic principles would do well to observe.

In his brief introduction, Harold F. Williamson answers a few questions, which are developed by other contributors to the volume. Joseph L. Fisher treats the role of natural resources, with numerous pointed and easily understood illustrations, and offers "an outline of resource development policy and program." In the chapter on Demographic Patterns, Joseph J. Spengler discusses the major population types found in the world, their "evolving characteristics and prospects," and the part which these play in prospective economic developments.

Parts played by the work force, by the formation of capital and technological change, are treated successively by Charles D. Stewart, John A. Buttrick, and Yale Brozen. They bring out

the mutual inter-dependence of the factors of the production that are necessary if a balanced economic development is to be attained.

The discussion of consumption patterns by Joseph P. McKenna treats, among other aspects, of their rigidity in underdeveloped countries in contrast with their greater mobility in economically developed countries where improvement of living standards is reflected in diversity of tastes. In a chapter dealing with the migration of capital, people, and technology, Joseph N. Froomkin summarizes the potentials and limitations of "foreign aid" in assisting economic development. A comparison of Chinese and Western attitudes and reactions to economic impetus, in Francis L. K. Hsu's discussion of cultural factors, leads to a broader understanding of why peoples behave as they do. The role of government in economic development is handled in succinct and positive fashion by Herman Finer.

The case study "Population Growth" by Irene B. Taeuber, illustrated by historical and statistical treatment of economic developments in Japan and Korea, raises questions regarding the possibilities of further industrial expansion in Korea and other underdeveloped countries. In the case study of India, Helen B. Lamb brings out the stark realities of raising standards of living in countries of large population and limited natural resources. On the brighter side, the tale of rapid growth in Mexico in the face of cultural and political obstacles, as told by Henry G. Aubrey, points the way to possibilities when resources, capital, and work force are brought into concerted effort, even though inadequately synchronized.

The role of the editors must not be overlooked. The overall plan is excellent. Though the editors decry any attempt to shape the analyses and conclusions of the authors of the different chapters, such differences as one finds among the contributors appear to be more in emphasis than in principle.

Joseph A. Becker

The State of Food and Agriculture 1955. Food and Agriculture Organization of the United Nations, Rome. 236 pages. 1955. \$2.50.

TO MARK the 10th anniversary of its foundation, the Food and Agriculture Organization presents in its annual report for 1955 a statistical and analytical panorama of the decade of agricultural recovery and expansion following the end of World War II.

The first part of the report examines trends of production, consumption and trade in agriculture, fisheries and forestry, and some of the main technological and institutional influences. The report points to a 20-percent increase in production since prewar, the failure of consumption to keep pace with production, the failure to adjust output to shifts in demand, the "stagnation" of world trade in agricultural products, and the consequent accumulation of surpluses. The emergence of these surpluses is taken as one of the two main problems lying ahead; the other is the continued low level of farm income in relation to nonfarm income.

The second part of the report discusses postwar developments and the future outlook for individual commodities.

This report will prove to be a valuable tool for researchers and for those charged with charting future agricultural policies and programs. It may be regarded as the technical counterpart to *The Story of FAO* by Gove Hambidge. The wealth of statistical material relates not only to commodities but to progress in the use and control of water and other physical resources and in the utilization of machinery, improved seed, and other agricultural requisites. Tables and charts generally compare 1954-55 with the prewar (1934-38) and immediate postwar (1946-47) periods, as well as with the years when agricultural production first exceeded the prewar levels. Because of the abnormally low levels of production at the begin-

ning of the postwar decade, the 25-percent increase in output during the intervening 10 years does not constitute a precedent for future growth. Even so, the implicit possibilities for future production increases will give little comfort to the neo-Malthusians.

Technicians may find fault with some aspects of the report. Some may question the practice of measuring progress from 1934-38 when United States data were unusable because of very low production, or from 1946-47 when the world production was even lower than in the selected prewar period. Conclusions with respect to some areas are drawn from data known to be fragmentary or unreliable. Reliance on lower production costs as a major means of stimulating increased consumption and raising farm income is an oversimplification. Then again, the emphasis on present surpluses may seem myopic to countries that are still striving for agricultural development. But on the whole the report is a well-balanced and competent presentation which recognizes that the relief of hunger is a matter of logistics and purchasing power as well as productive effort.

In helping to solve the world's agricultural problems, the Food and Agriculture Organization has accepted as its major role the providing of information and technical assistance. This approach may seem pedestrian to those who still favor ambitious supra-national organizations like the proposed World Food Board or the International Commodity Clearing House. The present Director-General of FAO, P. V. Cardon, having participated in international discussions of such schemes, knows the inherent problems of sovereignty, finance, and administration which make their adoption unlikely.

Doris Detre Rafler

The Flood Control Controversy. By Luna B. Leopold and Thomas Maddox, Jr. The Ronald Press Company, New York. 278 pages. \$5.00.

WITH THE RECENT ENACTMENT of the Hope-Aiken Watershed Bill and the current interest in programs for upstream water development, *The Flood Control Controversy*

is timely and important to many agricultural workers. This book is concerned with the conflicts between two phases of the Nation's flood-control program. It is the first book to deal com-

prehensively with the question, and it raises serious questions about the upstream approach to flood problems.

The authors are critical of the conventional down-stream approach too, but their primary pre-occupation appears to be that of analyzing the conceptual and scientific basis for the land-treatment and upstream engineering approach to the flood problem. Technical procedures of the Corps of Engineers in developing flood-control plans for major flood plains receive scant attention, even though this phase of the Nation's flood-control program is much larger than the "watershed program."

This observation should not detract from the essentially solid achievement of the authors and the sponsoring Conservation Foundation. The volume has much to recommend it to anyone interested in flood control. The physical and engineering aspects are particularly illuminating to the nontechnical reader. The chapter entitled "Engineering Measures" will be of real value to agricultural economists whose major interests are in land and water resources. This chapter provides an excellent simplified discussion of the more important hydrologic relationships in flood control.

Fortunately the authors give a rather convincing demonstration that generally the two approaches to flood control are not physical substitutes for each other. If widely read, *The Flood Control Controversy* can do much to dispel, particularly in rural areas, this currently held belief.

The principal shortcomings of the book probably stem from the clear-cut but questionable impression that the major flood-control issue is the conflict between "the proponents of little dams and proponents of big dams." Despite the seemingly false premise, the authors give explicit recognition to such basic questions as the identification and measurement of the public interest, methods of project evaluation, and cost sharing. Unfortunately, only scant attention is given to institutional obstacles to maximum economic use or control of water. Consequently, with the exception of the Federal organizations, no attention is given to the institutional adjustments that are needed.

The "benefit-cost ratio" is not given prominence in the book, but the authors' viewpoint will interest agricultural economists. They hold that "the benefit-cost ratio is not a measure of the rela-

tive desirability of the project, for there is inadequate comparison with other projects for which federal funds might be expended." They point out also that a favorable ratio does not assure that the most economical combination of techniques has been chosen for reducing flood damage. Finally, the authors hold that "more adequate criteria are needed for the evaluation and selection of projects." With respect to establishment of priorities according to economic criteria, they hold that "The suggestion that projects be selected on the basis of a benefit-cost ratio is emphatically rejected. To do so would result in the inflation of benefits and the under-estimation of costs by both agencies." They further explain their position by stating, "our present benefit-cost analyses do not reflect actual and practical values."

As a substitute for benefit-cost evaluation, the authors endorse the wording of a recent House Public Works Committee report as follows: "A more practical measure of the worthiness of an undertaking is the willingness of the immediate beneficiaries to participate in the work by the contribution of funds proportionate to local benefits."

In summarizing their position, Mr. Leopold and Mr. Maddox present a challenge to resource economists. "We are now in position where our ability to design and construct wonderfully complex works of great magnitude far exceeds our ability to evaluate the worth of these works either to individuals, the community, the state, or the nation." Because of this situation, the authors visualize the multiple-purpose approach to water-resource planning as "becoming a hydra-headed monster under whose weight the whole federal program may collapse."

The concluding chapter is entitled "Road Blocks to Progress." In these 16 pages, the authors set forth their solution to the dilemma. They propose that the Congress provide more funds to collect and interpret basic data; that it reexamine and redefine the Federal interest in resource development; and that requirements for local participation in water-resource projects be increased. With respect to organizational adjustments within the Federal Government, the book is essentially negative. Like many others who have struggled with the problem, the authors show considerable frustration. Apparently they believe that modification in the Federal organization would be futile, if not harmful.

This reviewer agrees that many resource problems would not be solved by organizational changes. But certainly some organizational adjustments would permit technicians to gain the comprehensive perspective that is essential for objective evaluation of diverse elements of multiple-purpose projects. The present organization neither provides for nor permits this type of perspective except in isolated interagency committee work.

The basis for many of the conclusions reached is not adequately developed in the body of the book. The emphasis in the basic analysis is on hydrology, engineering, and other physical problems. In contrast, the conclusions and proposed solutions deal principally with complex problems of economics, politics, and institutional arrangements. The lack of supporting analysis in these areas probably constitutes the book's most serious shortcoming.

William A. Green

The Agricultural Regions of the United States. By Ladd Haystead and Gilbert C. Fite. University of Oklahoma Press, Norman, Okla. 228 pages. 1955. \$4.00.

NOTHING IS SO TYPICAL of American agriculture as its diversity; nothing so constant as its change. This theme finds realistic presentation in *The Agricultural Regions* as the authors describe an agriculture of today, explore its past, and speculate upon its future growth and direction.

These authors divide the United States into 10 agricultural regions, for the most part groupings of States. They experience the usual difficulties in delineating functional regions of the country along State boundaries—in fact, the title is misleading. The authors do not consistently follow established economic or geographic regions, nor do they seriously attempt to establish more meaningful regions. But the reader does not suffer. More frequently than not, the authors cross their regional lines to follow the geography of major commodity areas. Actually, the generalized groupings of States serve principally as a backdrop as, first from a national and then from a regional perspective, the major shifts in farm size, population, production, and marketing are related to the pressures that brought them about.

The book describes the process of progress and change in agriculture as related to technology and growth in the economy generally. It shows how modern transportation and shifts in consumer demand have altered the competitive positions of regions, how mechanization and a host of other innovations have affected farm size and efficiency, and how farmers have adjusted to these changes.

For statistical reference the book draws heavily on data from the 1950 Census of Agriculture, supplemented by more recent data when available.

Results of recent research in the United States Department of Agriculture find ample application. In itself, the collection of data will prove helpful to those interested in regional differences and changes. But the authors have not permitted their data to outweigh their text or to detract from its well-written continuity. Numerous examples and true-life experiences serve to illustrate points and to heighten reader interest.

Some possible conflict of philosophies between the authors may be suspected by those who fail to reconcile the eulogy to agriculture and the strong current of agricultural fundamentalism noticeable in some passages, with the hard facts of economic reality so well presented in others. Description of the lost opportunity and lack of employment alternatives in some of the less prosperous regions of the country appear to contradict such passages as “. . . faithful love affair with the soil . . .”, “. . . fulfilment in life only by marriage to the soil . . .”, and “. . . no man farms because he has to. . .” The reader may or may not be in accord with the heavy emphasis placed on conservation of physical resources. With full recognition of the importance, this reviewer cannot agree that it is America's No. 1 agricultural problem.

As the book is nontechnical, specialists may feel that details of their particular fields should have received fuller coverage. But most readers, we believe, will agree with this reviewer in regarding it as worth while for its general coverage of a range of agricultural problems and interests.

Jackson V. McElveen