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COWLES COMMISSION
FOR RESEARCH IN ECONOMICS

REPORT FOR 1942

THE UNIVERSITY OF CHICAGO

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COWLES COMMISSION
FOR RESEARCH IN ECONOMICS

THE COWLES COMMISSION FOR RESEARCH IN ECONOMICS is a not-for-profit corporation, founded in 1932 for the purpose of conducting and encouraging investigations into economic problems. A function of the COMMISSION is to issue from time to time papers and monographs of an econometric or economic-statistical nature without, however, assuming responsibility for theories or opinions expressed therein. The COMMISSION is affiliated with the ECONOMETRIC SOCIETY, an international society for the advancement of economic theory in its relation to statistics and mathematics.

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INTRODUCTION

HALF of the members of the research staff of the Cowles Commission have been drawn into public service or other work essential to the war effort. The financial resources of the Commission and the energies of the remaining staff members have been devoted, insofar as is possible, to a study of price controls and rationing in order to appraise these means of maintaining stability in our war economy. Research capacities not convertible to war purposes have been used in projects of long-term significance.

SURVEY OF PRICE CONTROL AND RATIONING

EARLY in 1942 plans were initiated by the research staff of the Cowles Commission for a survey of price control and rationing methods. As a natural development from previous collaboration, the Committee on Price Determination, organized under the auspices of the Price Conference of the National Bureau of Economic Research, decided to join in the enterprise. When a request for funds was submitted to the Rockefeller Foundation, its Board made a grant to the University of Chicago for use in the project.

The survey of the impacts of price control on business is being conducted by means of rather exhaustive interviews with sellers and buyers, supplemented by the analysis of the releases of the Office of Price Administration and other publications. Many interviews with manufacturers and retailers have thus far been completed and are in the process of tabu-

lation. From these much is being learned regarding the effectiveness of price regulations, the impact of these controls on business operations, and their resultant effects on the supply of goods and services. The findings will be published in article, in pamphlet, and finally in book form.

During 1942 this survey of price control was directed by Theodore O. Yntema who took an active part in planning the program and in the research work of the project. Leonid Hurwicz was the associate director of the project; during the first half of the year he was actively in charge of its administration, and during the latter part of the year he continued to act as consultant and advisor. In recent months H. Gregg Lewis has aided in guiding the study and Bernice Levenfeld has assumed increased responsibility for the work of the office staff and the interviews. Forrest Danson assisted in revising the questionnaire and conducted many interviews.

It is hoped that this project can be continued to make possible a comparison of the effectiveness of price and rationing regulations and their effects at various stages of conversion to the war effort and at various stages of accumulation of excess funds in the hands of consumers.

OTHER WORK OF THE YEAR

FORREST Danson has been in charge of computational work on various projects and has continued studies of common-stock prices. Since July much of his time has been devoted to interviews for the study of price control.

Harold T. Davis has completed the manuscript (about 500 pages) of *Alexandria, the Golden City,* which empha-

sizes the development of mathematics and science in that center. He has also finished the manuscript of Vol. 3 of his *Tables of the Higher Mathematical Functions*, which is devoted to *The Legendrian and Related Functions* (about 400 pages). He has in progress a study of *The Mathematical Interpretation of History*, a survey of economic data from about 600 B. C. to the present time and an interpretation of their meaning in observed historical movements. In addition he is completing a *Bibliography of Tables of the Elementary Functions*, the report of a subcommittee of the Committee on Mathematical Tables and Aids to Computation of the National Research Council.

Leonid Hurwicz was engaged during the first half of the year in: 1. Problems of business-cycle theory and time series (with Oscar Lange, as described below), and 2. Problems of price determination (as executive secretary of the Committee on Price Determination of the National Bureau of Economic Research).

Oscar Lange's research during 1941 centered around three problems: 1. The statistical testing of recent business-cycle theories, 2. Price flexibility, employment, and economic stability, and 3. Problems of welfare economics. The investigation on the statistical testing of recent business-cycle theories was carried out by Professor Lange and Mr. Hurwicz, under the joint auspices of the Cowles Commission and the Social Science Research Committee of the University of Chicago. This research was chiefly concerned with the statistical evidence for the existence of short cycles and was carried on by means of correlogram analysis and of the harmonic dial. The statistical part of this research has been substantially finished and the investigation is now in the

stage of studying the economic interpretation of the results. The study on price flexibility, employment, and economic stability was concerned with the problem whether and under what conditions flexibility of price of factors of production serves to obtain full employment, and what policies have to be taken in the cases when flexibility of factor prices fails to achieve that result. In welfare economics the work was concerned with giving a systematic mathematical demonstration of the established propositions in this field.

Dickson H. Leavens, in addition to his editorial and administrative work, has continued to study developments affecting silver. He has also been studying price controls in Great Britain in connection with the study of price control.

H. Gregg Lewis has been engaged in the completion of his study of the demand for steel. He (with Mr. Hurwicz) has also been supervising the preparation of a report on the interviews made under the auspices of the Committee on Price Determination in 1941 to ascertain the important factors affecting the pricing policies of business men.

Jacob Marschak has in process a study, "Demand Analysis," based on budget data, market data, and other data relevant to each of the particular commodity groups studied, such as meat, food as a whole, housing, etc. The knowledge of the interrelation between savings and the demand for the various commodity groups at given prices and given distribution of income may, together with the available findings of financial statistics, contribute to an "Econometrics of Taxation," under both wartime and peacetime conditions. As a side line and a prerequisite for the demand studies, a study of the statistical genesis of income-distribution functions has been undertaken. Another study is con-

cerned with "Probabilities in Economics" and analyzes problems of risk and of asset valuation.

Jacob L. Mosak made final revision in his manuscript for Cowles Commission Monograph No. 7, *General-Equilibrium Theory in International Trade,* which is in press for publication in the summer of 1943.

PARTICIPATION IN THE WAR EFFORT

THE Commission and its staff have contributed to the prosecution of the war both by direct participation of individuals in war work and by concentration of Commission resources in the survey of price control.

Joel Dean continued on leave of absence throughout the year to act as director of rationing of gasoline and fuel oil in the Office of Price Administration. Jacob L. Mosak also continued on leave of absence as head of the fiscal and monetary section of the research division of the Office of Price Administration. Leonid Hurwicz, after teaching in the electronics program of the U. S. Army Signal Corps at the Illinois Institute of Technology, joined the faculty of the Institute of Meteorology of the University of Chicago where, in addition to teaching statistics, he is engaged in statistical and other research activities. John H. Smith resigned from the Commission to take a position in the Bureau of Labor Statistics of the United States Department of labor where he is working on problems of price index numbers of war goods. Theodore O. Yntema took leave of absence from the Commission during the spring quarter to act as special consultant in the War Shipping Administration, continuing in this capacity half time during the summer quarter.

OUTSIDE ACTIVITIES OF STAFF MEMBERS

PARTICIPATION of the staff members in the war effort has been described in the preceding section. Other outside activities of staff members are noted below.

Oscar Lange is on leave of absence from the University of Chicago and the Cowles Commission to act as visiting professor in Columbia University during the academic year, 1942-43.

During the winter quarter while on half-time leave of absence from the University, Professor Yntema made an economic study of wages in the steel industry for the Inland Steel Company and an analysis of marginal costs of producing steel for the McLouth Steel Corporation.

CO-OPERATION IN RESEARCH

THE major research project of the Commission, the survey of price control, is being undertaken with the co-operation of the University of Chicago and the Committee on Price Determination organized under the auspices of the Price Conference of the National Bureau of Economic Research. Professor Marschak has been appointed chairman of this Committee on Price Determination; Messrs. Dean and Yntema, the former co-chairmen, will continue as members of the Committee.

The technical problems in the analysis and tabulation of common stocks to appraise their stability as media of investment for insurance companies and savings banks has been explored and a joint project in this field is under consideration by the National Bureau and the Commission.

STAFF CHANGES

ON November 1st Theodore O. Yntema resigned from his position as research director of the Cowles Commission and accepted an appointment as research director of the Committee for Economic Development. In this capacity he will study the conditions conducive to full employment after the war. Professor Yntema is on leave of absence from the Commission and the University; he will remain on the staff of the Commission as a research associate.

Jacob Marschak has accepted appointment as research director of the Cowles Commission and as professor of economics in the University of Chicago, taking up these positions in January, 1943. Professor Marschak was born in Kiev, Russia, and studied at the Technical College at Kiev from 1915 to 1918 and at the University of Berlin in 1919. He received the degree of Ph.D. from the University of Heidelberg in 1922 and the degree of M.A. by decree from the University of Oxford in 1935. He was assistant professor at the University of Heidelberg until 1933; Chichele lecturer in economics at All Souls College, Oxford, 1933-1935; reader in statistics and director of the Institute of Statistics, Oxford University, 1935-1939; professor of economics, Graduate Faculty of Social and Political Science, New York, 1939-1942. He is a fellow of the Econometric Society. He is the author of *Die Lohndiskussion* and *Die Elastizität der Nachfrage,* 1931, and the co-author of *Kapitalbildung* (with W. Lederer, London, 1936) and of "Studies in the Mobility of Labour" (with H. Makower and H. W. Robinson, *Oxford Economic Papers,* 1939-1940); he has also published a number of articles.

Leonid Hurwicz became a research associate of the Commission in January, 1942, as reported in the *Decennial Report, 1932-1941.*

The death on January 17, 1942, of Herbert E. Jones, who had been on the research staff of the Commission since 1936, was also reported in the same place.

John H. Smith resigned from the staff of the Commission in the summer of 1942 to accept a position as statistical consultant in the office of the chief statistician, Bureau of Labor Statistics, United States Department of Labor.

George Katona, Ph.D., University of Göttingen, 1921, joined the staff in January, 1943, as associate director of the study of price control and rationing and assumed the administrative direction of the project. Dr. Katona was associate editor of *Der Deutsche Volkswirt* (The German Economist), Berlin, from 1926 to 1933, as well as German correspondent of the *Wall Street Journal,* New York, from 1929 to 1933, and worked as economic adviser in New York from 1934 to 1938. In 1938 and 1939 he obtained grants-in-aid for psychological research from the Carnegie Corporation of New York. As fellow of the John Simon Guggenheim Foundation from 1940 to 1942 he conducted investigations in war economics. He was connected with the New School for Social Research, New York, from 1935 as a research associate and later as lecturer. He is the author of numerous articles in economic and psychological journals and of the following books: *Zur Psychologie des Vergleichens und der Relationserfassung,* Leipzig, 1934; *Organizing and Memorizing Studies in the Psychology of Learning and Teaching,* New York, 1940; *War Without Inflation, The Psychological Approach to Problems of War Economy,* New York, 1942.

THE ECONOMETRIC SOCIETY IN 1942

THE Cowles Commission offices have continued as the headquarters of the Econometric Society, an international society for the advancement of economic theory in its relation to statistics and mathematics, founded in 1930. Members of the Commission staff holding offices in the Society are Alfred Cowles, Harold T. Davis, Oscar Lange, and Dickson H. Leavens. Mr. Cowles is secretary and treasurer of the Society and business manager of its quarterly journal, *Econometrica,* now beginning its eleventh year. Professor Davis is an associate editor of *Econometrica.* Professor Lange has been elected acting editor to serve while it is impossible to communicate with Professor Ragnar Frisch, of the University of Norway, who has been editor since the foundation of the journal and whose present term expires December 31, 1944. Mr. Leavens is managing editor of the journal.

During 1942 Volume 10 of *Econometrica* was published, consisting of two regular issues and one double issue, totalling 340 pages. The regular mailing list includes 238 subscribers, chiefly libraries, and 721 members of the Society, of whom 158 subscribers and 340 members are in the United States and the remainder in foreign countries. Because of the war, it is impossible to mail copies to many of these countries, but a sufficient quantity is being printed to supply those who may wish to complete their files after the war.

It was planned to hold meetings of the Society in Cleveland and New York, December 29-30, 1942, in connection respectively with the meetings of the Allied Social Science Associations and the American Association for the Advancement of Science, and a program was prepared by Professor

Lange and Mr. Leavens as program committee. At the end of November, however, in order to comply with the request of the Office of Defense Transportation all these meetings were cancelled.

PUBLICATIONS

NO monographs of the Cowles Commission were published during 1942, but Monograph No. 7, *General Equilibrium Theory in International Trade*, by Jacob L. Mosak, is in press for publication in the summer of 1943. This book will give a definitive theory of international trade constructed on the foundations of theoretical economics laid by J. R. Hicks and others during the last decade.

During the year members of the staff have published 20 books, papers, and monographs, and have presented 10 papers before scientific societies, as follows:

HAROLD T. DAVIS

College Algebra, revised and enlarged edition, Prentice-Hall, 1942, xix + 470 pp.

Outline of An Encyclopedia of Mathematical Functions, in 20 Volumes, 49 pp. (Mimeographed).

"Some Problems in Econometrics," presented at Lake Forest College, March 10, 1942.

"Dinner with Archimedes," presented at Crawfordsville, Indiana, April 24, 1942, before the Indiana Section of the Mathematical Association of America (abstract in *American Mathematical Monthly*, Vol. 49, November, 1942, p. 582). Also presented at Chicago, October, 1942, before the Men's Mathematics Club of Chicago.

"A Mathematical Theory of Income and Its Consequences," presented at Crawfordsville, Indiana, April 25, 1942, before the Indiana Section of the Mathematical Association of America (abstract in *American Mathematical Monthly*, Vol. 49, November, 1942, p. 582).

"Luncheon with Euclid," presented at Evanston, October, 1942, before the Women's Mathematics Club of Chicago.

"Dinner with Cleopatra," presented at Chicago, November 17, 1942, before Phi Delta Kappa.

"Mathematical Patterns in History," presented at Evanston, December 2, 1942, as retiring address of the president of the Northwestern University Chapter of Sigma Xi.

JOEL DEAN

"Direct Control of Machinery Prices," *Harvard Business Review*, Vol. 20, Spring, 1942, pp. 277-289.

(With R. Warren James) "The Long-Run Behavior of Costs in a Chain of Shoe Stores: A Statistical Analysis," *The Journal of Business*, Vol. 15, No. 2, Part 2, April, 1942, 54 pp.

(As editor, with E. M. Hoover) *Readings in the Social Control of Industry*, Series of republished articles on economics, Vol. 1, Philadelphia, Blakiston, 1942, 494 pp.

"Department-Store Cost Functions," in Lange, McIntyre, and Yntema, Editors, *Studies in Mathematical Economics and Econometrics, In Memory of Henry Schultz*, Chicago, The University of Chicago Press, 1942, pp. 222-254.

OSCAR LANGE

(As Editor, with Francis McIntyre and Theodore O. Yntema) *Studies in Mathematical Economics and Econometrics, In Memory of Henry Schultz*, Chicago, The University of Chicago Press, 1942, 292 pp.

"Say's Law: A Restatement and Criticism," in *ibid.*, pp. 49-68.

"Theoretical Derivation of Elasticities of Demand and Supply: The Direct Method," *Econometrica*, Vol. 10, July-October, 1942, pp. 193-214.

"The Foundations of Welfare Economics," *Econometrica*, Vol. 10, July-October, 1942, pp. 215-228.

"Planning in the Post-War World," presented at the University of Chicago, July 1, 1942, before Second Annual Conference for Teachers of the Social Sciences in Secondary Schools and Junior Colleges.

"Special Interests Hammer at Price Control: War Savings, Rationing, Can Close 'Inflationary Gap,'" *New Leader*, Vol. 25, No. 24, June 13, 1942 p. 4.

"Taxation, Borrowing, not Wage Freezing, Can Close Inflation Gap," *New Leader*, Vol. 25, No. 25, June 20, 1942, p. 4.

"Total War and Economic Trends," presented at Chicago, August 25, 1942, as a public lecture of the Social Science Division of the University of Chicago.

"Economic Nationalism versus World Organization," presented at New York, October 7, 1942, in conference at the Rand School of Social Sciences.

"Economic Planning, the Market, and Freedom," presented at New York, October 27, 1942, in conference at Institute of World Economics.

DICKSON H. LEAVENS

"Silver [Review of 1941]," *Engineering and Mining Journal*, Vol. 143, February, 1942, pp. 55-56.

"Report of the Chicago Meeting [of the Econometric Society], September 2-4, 1941," *Econometrica*, Vol. 10, January 1942, pp. 84-95.

"Report of the New York Meeting [of the Econometric Society], December 27-30, 1941, and of the Dallas Meeting, December 29-30, 1941." *Econometrica*, Vol. 10, April, 1942, pp. 169-191.

(With John J. Croston) "Gold and Silver," chapter in *The Mineral Industry during 1941*, New York, McGraw-Hill, 1942, pp. 201-271.

JACOB L. MOSAK

"On the Interpretation of the Fundamental Equation of Value Theory," in Lange, McIntyre, and Yntema, Editors, *Studies in Mathematical Economics and Econometrics, In Memory of Henry Schultz*, Chicago, The University of Chicago Press, 1942, pp. 69-74.

JOHN H. SMITH

"Weighted Regressions in the Analysis of Economic Series," in Lange, McIntyre, and Yntema, Editors, *Studies in Mathematical Economics and Econometrics, In Memory of Henry Schultz*, Chicago, The University of Chicago Press, 1942, pp. 151-164.

THEODORE O. YNTEMA

"Henry Schultz: His Contributions to Economics and Statistics," in *ibid.*, pp. 11-17.

(As Editor, with Oscar Lange and Francis McIntyre) *Studies in Mathematical Economics and Econometrics, In Memory of Henry Schultz*, Chicago, The University of Chicago Press, 1942, 292 pp.

"Price Controls," in Chester W. Wright, Editor, *Economic Problems of War and Its Aftermath*," Chicago, the University of Chicago Press, 1942, pp. 112-125.

COWLES COMMISSION MONOGRAPHS

No. 1. DYNAMIC ECONOMICS, by Charles F. Roos, 1934. 275 pages. Price $3.50. This book applies mathematical analysis in the investigation of economic theory, especially by differentiating between theories of static and dynamic economics.

No. 2. NRA ECONOMIC PLANNING, by Charles F. Roos. 1937. 596 pages. Price $5.00. This book describes the policies and working of the NRA and discusses the problem of economic planning.

No. 3. COMMON-STOCK INDEXES, by Alfred Cowles and Associates. Second edition, 1939. 499 pages. Price $6.00. New monthly indexes of (1) stock prices, (2) stock prices adjusted for the reinvestment of cash dividends, and (3) yield expectations; and annual indexes of (4) yields, (5) dividend payments, (6) earnings-price ratios, and (7) earnings; all for 69 industry groups or combinations of groups, and running from 1871 through 1938.

No. 4. SILVER MONEY, by Dickson H. Leavens. 1939. 439 pages. Price $4.00. A sketch of the history of the monetary use of silver, followed by detailed consideration of recent developments.

No. 5. THE VARIATE DIFFERENCE METHOD, by Gerhard Tintner. 1940. 175 pages. Price $2.50. This method emphasizes the role of the random element in the analysis of time series.

No. 6. THE ANALYSIS OF ECONOMIC TIME SERIES, by Harold T. Davis. 1941. 620 pages. Price $6.00. This book reviews the historical development of the subject, describes the methods used, and makes applications to a variety of economic phenomena.

No. 7. GENERAL-EQUILIBRIUM THEORY IN INTERNATIONAL TRADE, by Jacob L. Mosak. To be published in the summer of 1943.

In addition, the Cowles Commission has sponsored the publication of a text book by two members of its staff:

ELEMENTS OF STATISTICS, by Harold T. Davis and W. F. C. Nelson. Second edition, 1937. 434 pages. Price $4.00. The elements of the subject are presented without recourse to calculus, but with as complete mathematical treatment as is thus possible.

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