

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Economic Research and The Needs Of The Times

Volume Author/Editor:

Volume Publisher: Mitchell, Wesley

Volume URL: <http://www.nber.org/books/mitc44-1>

Publication Date: 1944

Chapter Title: A Record Of 1943 And Plans For 1944

Chapter Author: Various

Chapter URL: <http://www.nber.org/chapters/c2926>

Chapter pages in book: (p. 43 - 61)

## INCOME AND CAPITAL FORMATION

### NATIONAL PRODUCT IN WARTIME

The comparison of national income in World Wars I and II was delayed because of conceptual difficulties encountered in defining national income in wartime and in adjusting its components for price changes and differentials. The resolution of these difficulties meant in turn refining the statistical analysis already completed. The results of this work are summarized in National Product, War and Prewar, *Occasional Paper 17*, and Treatment of War Outlay in National Product, to be presented at the April meeting of the Income Conference.

The estimates bearing upon a comparison of national income in the two wars have now been revised, and the statistical analysis is rapidly nearing completion. It may be submitted for publication either as an *Occasional Paper* or as part of a short monograph on National Product in Wartime, which might include in addition the two papers mentioned above.

### SHIFTS IN THE DISTRIBUTION OF INCOME PAYMENTS BY TYPE

A preliminary manuscript awaits final review before being submitted for publication as a *Technical Paper*.

### INCOMES FROM PROFESSIONAL PRACTICE

Changes have been made in this manuscript to clarify the points that have caused critical comments by some Directors. Publication waits upon a review of these changes.

### BASIC WORK ON COMMODITY FLOW

William H. Shaw's manuscript on *Finished Output since 1869* has been sent to the Directors for their approval.

### NATIONAL PRODUCT AND CAPITAL FORMATION BACK TO 1879

Detailed work on the decade estimates covering this period has been completed, and the basic tables and footnotes organized. The manuscript awaits the preparation of the first part, a summary of the evidence on both the longer term changes revealed

by the decade estimates back to 1879 and the shorter term changes shown by the annual estimates back to 1919.

SIMON KUZNETS

#### CONFERENCE ON RESEARCH IN INCOME AND WEALTH

The annual meeting of the Conference on Research in Income and Wealth was not held in 1943. A meeting is planned for April 1944, at which three main topics will be discussed: (1) Differences in concept and method of income measurement in different countries and problems involved in international comparisons of income estimates; (2) The special problems of estimating income brought out by a major war effort and their significance for postwar measurements; (3) The work and postwar plans of several agencies in the field of the distribution of personal incomes by size.

*Studies in Income and Wealth*, Volume Six, a series of papers presented to the Conference, appeared in February. Horst Menndershausen's *Changes in Income Distribution during the Great Depression* will be published as Volume Seven. *Analysis of Minnesota Incomes*, an analytical study based on the survey of Minnesota incomes in 1938-39 by the Minnesota Income Project, is in press (University of Minnesota Press). Volume II of the Delaware Income Studies covering 1936, 1937, and 1938 is available in manuscript form.

The Rockefeller Foundation made a grant of \$7,500 to facilitate work on the Compendium of National Income in Various Countries by Paul Studenski and Julius Wyler. An analytical study of Wisconsin incomes, based on the survey of incomes in 1936 and prior years by the Wisconsin Income Project, is nearly completed. A. G. Hart has had to postpone temporarily the *Epitome of Income*, a critical summary of the present status of our knowledge.

MORRIS A. COPELAND  
Chairman

#### PRODUCTION AND PRODUCTIVITY

The American economy entered the decade of the '40's with a pattern of employment reflecting, in addition to the usual cyclical situation, long term trends going back at least to the open-

ing of the century. During the war extraordinary changes occurred in the industrial distribution of employment. The shift of the working population to the production of weapons radically altered the kind of work done by our people.

It is plain that the wartime distribution of employment will not persist. When peace finally comes, the deep-seated influences that revealed themselves in the trends characteristic of the last few decades will begin to reassert themselves. Modified by the new forces that have entered the scene, they will help to set the basic pattern of postwar employment.

With the factors underlying prewar trends a significant consideration in interpreting the future employment situation, it is desirable to review what we have learned about them in the National Bureau's production and productivity studies. One task to be undertaken during the coming year, therefore, is to summarize the analysis of employment, production, and productivity trends presented in the four volumes already published (two on manufacturing, one on agriculture, and one on mining), including also a preview of the results of the studies now in progress (transportation, communication, power and light, the service industries).

Present plans are to present this review as soon as possible, probably in an *Occasional Paper*. It is hoped to follow this report with another describing developments during the war itself.

SOLOMON FABRICANT

#### NONMANUFACTURING INDUSTRIES

*The Mining Industries, 1899-1939, A Study of Output, Employment and Productivity*, by myself and Sam H. Schurr, was published in March.

A manuscript dealing with output, employment, and productivity in the transportation industries has reached an advanced stage. Among the industries considered are steam and electric railways, buses, motor trucks, pipe lines, and waterways. In response to requests, results of the study were communicated in preliminary form to the Departments of Commerce and of Labor, the Office of Defense Transportation, the Interstate Commerce Commission, and the Board of Investigation and Research. Completion of the study will be delayed by my induction into the Army.

Considerable progress has been made in the study of production and productivity in the electric light and power and manufactured gas industries. Jacob M. Gould, who has been responsible for various phases of this work in the past, hopes in my absence to make further progress towards its completion.

HAROLD BARGER

#### SERVICE INDUSTRIES

I am studying trends in employment since 1900 in the so-called service industries (excluding transportation). Although there is apparently no satisfactory analytical criterion of services in contrast to manufacturing or mining, for example, the size and variety of the component service industries are suggested by a partial enumeration: trade; finance; domestic, personal, and professional services; and government. These otherwise very heterogeneous industries usually have in common the challenging characteristics of rapid growth and execrable data.

My work falls into three parts of very different degrees of comprehensiveness. The first task is to measure employment—and often, as a poor substitute, ‘gainfully employed’—in each service category. This is the basic task and even rough figures will not be fully assembled for a considerable time. Second, an attempt is being made to explain employment trends in large service industries. At present it is planned to prepare reports on domestic service, trade, and education; other categories may be added later. Third, the meaning of labor productivity in service industries is being examined and problems of measurement will be explored.

GEORGE J. STIGLER

#### PRICES

During the year we completed a study dealing with price and wage relations in the war economy and with recent shifts in the terms on which goods are exchanged among major groups of producers. These shifts were treated with reference to parallel changes in employment, production, and productivity. The results of the study appeared in *Prices in a War Economy*, one of the papers in *Our Economy in War* series. We took the opportunity to publish in this *Occasional Paper* a complete set of the monthly wholesale price indexes of the National Bureau of

Economic Research for various commodity groups 1927-43. These have been used in our own work and been made available to various federal agencies, but had not been published in full for recent years.

In our investigation of prices in business cycles we have concentrated during the year on the behavior of related price, quantity, and value series for selected individual commodities. Comparable measurements of all aspects of cyclical behavior for a representative group of commodities have been subjected to intensive analysis.

Our chief concern in 1944 will be to complete a monograph on prices in business cycles on which J. E. Morton of Knox College is collaborating with us.

For the past several years the National Bureau has been participating in an advisory way with the United States Bureau of Labor Statistics in the supervision of a WPA study of commodity prices. The results of this study have now been turned over to us by the Bureau of Labor Statistics. We have received checked and authenticated materials, including 5,326 monthly wholesale price series covering varying periods from 1890 to date. For each series we have actual price quotations by months in dollars and cents. Relative prices on the 1939 base are given for a considerable number of commodities.

The Bureau of Labor Statistics now has in its possession charts of the more important series covered in this compilation. The original charts will be lent to us when we are prepared to use them, and for our permanent records we shall have microfilm reproductions. These materials will be used in the study of cyclical price behavior, with particular reference to the timing of price changes in revival and recession and to the amplitude of commodity price cycles.

FREDERICK C. MILLS

#### CONFERENCE ON PRICE RESEARCH

The Conference on Price Research holds an annual meeting and in addition functions through standing committees, three of which are now in operation: the Committee on Price Control and Rationing—Chairman, Jacob Marschak; on Governmental Price Control—Chairman, Waldo Fisher; and on Postwar Price Problems—Chairman, Clair Wilcox.

The 1943 annual meeting, held at Hillside on April 30 and May 1, was devoted to a discussion of certain contemporary price problems. Papers were presented by Clair Wilcox, Office of Price Administration, on The Future of Prices; by Phillip Coombs, Office of Strategic Services, on Some Problems of Retail Price Control; by Lester Kellogg, Bureau of Labor Statistics, on The Construction of Price Indexes of Armament Items; and by Theodore Yntema, University of Chicago, on Postwar Price Problems. Reports were received from two standing committees, and George Katona of the Cowles Commission for Research in Economics led a discussion on price and rationing problems in the Chicago area. The papers and a condensation of the discussion were mimeographed for distribution to Conference members.

The Committee on Price Control and Rationing, organized jointly by the Conference on Price Research and the Cowles Commission for Research in Economics, and financed by grants from the Conference, the Cowles Commission, and the Rockefeller Foundation, has been conducting field studies on the impact of price and rationing controls in the Chicago area. During the year the Committee has circulated in mimeographed form four interim reports to governmental and business officials and others interested in price problems: The Impact of Price Control on the Retail Trade in the Fields of Apparel and House Furnishings; Survey of Retailers of Apparel and House Furnishings: Attitudes Toward Price Control, Quality Deterioration; Survey of Manufacturers and Wholesalers of Apparel and House Furnishings: Price Fluctuations during Price Control, Informal Rationing, The Position of the Wholesale Trade; Survey of the Grocery Business: The Effect of Price Control and Rationing on Wholesale and Retail Grocers. Mr. Katona has prepared a more general study, Price Control 1942-1943, an Appraisal, based on the investigation of the Committee, and intended for publication in the National Bureau series, *Our Economy in War*.

It is expected that the work of the Committee on Price Control and Rationing will be completed during 1944, with the preparation for publication of a volume summarizing its work.

The Committee on Governmental Price Control will probably complete its study of the experience of price control in the bituminous coal industry this year.

The Committee on Postwar Price Problems is now in process of organization. Its first task will be to survey the field for purposes of discussion at the next annual conference, after which it is expected that a research problem of manageable scope will have been defined.

The Price Conference on occasion appoints *ad hoc* committees to advise governmental agencies and research organizations on price problems. During the past year such a committee has been functioning in an advisory capacity to the Bureau of Labor Statistics in its compilation of new price indices.

*Cost Behavior and Price Policy*, the work of the Committee on Price Determination, under the chairmanship of Edward S. Mason, was published in 1943.

EDWARD S. MASON  
*Chairman*

#### FINANCIAL RESEARCH PROGRAM

The active research work of the Financial Research Program is divided into four areas: war financing, business financing, investment credit, and consumer financing. Besides carrying on current work and planning new activities in these areas, the Program's Central Staff and its Committee on Research in Finance conduct explorations from time to time in other areas of financial problems.

#### WAR FINANCING

Studies in war financing have been the principal activity in 1942-43 and will continue to occupy much of the staff's attention in 1944. Seventeen studies have been planned, of which 15 have been undertaken; all are being published in the special series of National Bureau *Occasional Papers, Our Economy in War*. The studies are grouped into four divisions: (1) War Finance and Banking; (2) The Effect of War on the Business Financial Structure; (3) The Effect of War on Foreign Banking Systems; and (4) Postwar Problems in the Reconstruction of International Money Markets. The studies in (2) are being carried out with a grant from the Carnegie Corporation; those in the other three sections, with grants from the Association of Reserve City Bankers and the Rockefeller Foundation.

Under the first division two papers by C. R. Whittlesey (Uni-

versity of Pennsylvania) have been published: 'The Banking System and War Finance and The Effect of War on Currency and Deposits. Mr. Whittlesey is currently engaged in a study of bank liquidity in wartime. Anna Youngman (editorial staff, *Washington Post*) is studying the Effect of War on the Federal Reserve System. These four studies analyze how war financing developments have affected the functioning of the underlying and central banking system; two others deal with the wider impact of war financing developments. The first, War Finance and the Pattern of Interest Rates, is by W. Braddock Hickman (formerly Financial Research Staff, now United States Navy); the second, Wartime Changes in the Federal Debt, by Willis J. Winn (Financial Research Staff).

Under the second division a study of the experience of manufacturing and trade concerns in World War I, by Charles A. Schmidt (formerly Financial Research Staff, now United States Army) and Ralph A. Young (University of Pennsylvania), was published in late autumn 1943. A companion study, by Friedrich Lutz (Princeton University), was prompted by finding a large wartime increase in business ownership of bank deposits in the Federal Reserve Survey of Deposit Ownership, and analyzes the behavior of corporate cash balances in peace and war. Developed from the extensive corporate financial records prepared by the Program in its Business Financing Studies, it is being conducted in cooperation with the economics staff of the Institute for Advanced Study, of which Mr. Lutz is a member, 1943-44. A third study of the financing problems of business during World War II is being carried on with the collaboration of Wilson F. Payne (Babson Institute), and consideration is being given to a fourth, which would compare the structure of business debt, 1943 and 1939, for incorporated and unincorporated manufacturing and trade enterprise.

Under the third division three studies are in process and one is projected. Benjamin H. Higgins (McGill University) has prepared a report on Canada's financial system in war, and is engaged on a companion study of England's financial system in war. Tibor Scitovsky (Institute for Reconstruction, Oxford University) collaborated on the latter study until called into military service. A third report, by Otto Nathan (Vassar College), examines Nazi methods of war finance with respect to

their effects on the German financial system. A comparative study of wartime expansion of deposits and currency in Canada, Great Britain, and the United States, World Wars I and II, has been planned.

Under the fourth division J. H. Riddle (Bankers Trust Company of New York and Consultant to the Committee on Research in Finance) prepared a paper comparing the British and American plans for postwar currency stabilization (published January 1944). A second study, examining the processes of postwar inflation after World War I in continental European countries, is in preparation by Michael Heilperin (Hamilton College). Wolfgang Stolper (Swarthmore College) is exploring the nature of exchange equilibrium and disequilibrium under inconvertible currency conditions, with the object of determining what quantitative indices are applicable to the problem of exchange equalization.

#### BUSINESS FINANCING

This series comprises two groups of studies, one dealing with the quantitative measurement of changes in the financial structure of business enterprise since 1900; the other with contemporary relations of enterprise to financial institutions. A general analysis of business financing tendencies and the emerging problems of commercial banking, to be based on the technical studies in the two groups and to integrate their findings, is the capstone monograph planned for the series.

In the first group, *The Financing of Large Corporations, 1920-39*, by Albert R. Koch (formerly Financial Research Staff, now United States Army Air Force) was published in June. The analysis by Walter A. Chudson (formerly Financial Research Staff, now State Department) of the pattern of financial structure in manufacturing and trade has been revised and prepared for submission to the Directors. The study by Sidney S. Alexander (formerly Financial Research Staff, now Office of Strategic Services) of long term changes in the financial structure of enterprise, 1900-40, has been circulated in mimeographed form for criticism.

*Accounts Receivable Financing*, by Neil H. Jacoby and R. J. Saulnier, was cited in the Supreme Court decision of the *Corn Exchange National Bank vs. Quaker City Sheet Metal Com-*

pany. Jacoby and Saulnier have written two other reports on contemporary financing methods: *Financing Inventory on Field Warehouse Receipts* and *Financing Equipment for Commercial and Industrial Enterprise*. In early autumn final arrangements for them to begin work on the capstone study were made. They plan to show (a) the position of commercial banks as suppliers of business credit at the outbreak of the war; (b) changes in bank lending to business since 1900; (c) changes in the supply side of the credit market; (d) economic forces shaping changes in demand for and supply of business credit; and (e) the effect of World War II on the business credit market. A final section is to be concerned with the problems confronting the commercial system in the light of these developments.

#### INVESTMENT CREDIT

Despite the difficulties of the war period, the staff of the Corporate Bond Project completed the various technical memoranda essential for the use of data compiled under it. These memoranda, now being mimeographed, will be distributed to all agencies cooperating in the project. A complete set, together with the three volumes of primary statistics of corporate bond offerings, 1900-38, are to be deposited with the libraries of universities cooperating with the National Bureau. The complete set of documents prepared under the project are:

#### CORPORATE BOND STATISTICS

##### Volume

- I Statistics of Offerings
- II Statistics of Issue and Extinguishment.
- III Statistics of Defaulted Issues

#### ORGANIZATION AND METHODS

##### Part

- I Organization and Administration of the Corporate Bond Project, by Harold G. Fraine (Securities and Exchange Commission) and Melvin W. Brethouwer (War Production Board)
- II The Record of Offerings of Corporate Bonds, 1900-38, by Elizabeth T. Simpson (Financial Research Staff)
- III The Record of Issue and Extinguishment Characteristics.

- by George P. Hitchings (Federal Reserve Bank of New York)
- IV The Default Record of Corporate Bonds, 1900-38, by George P. Hitchings (Federal Reserve Bank of New York)
- V The Periodic, Annual, and Monthly Records of Corporate Bond Experience, 1900-40, by W. Braddock Hickman (United States Navy)

Analytical studies based on the corporate bond materials have so far been carried out by the National Bureau in cooperation with the Institute for Advanced Study. The Term Structure of Interest Rates, by W. Braddock Hickman, referred to in last year's report as in circulation for criticism, was scheduled for revision and publication this year, but had to be postponed when Mr. Hickman accepted a commission in the United States Navy.

#### CONSUMER INSTALMENT FINANCING

*Operating Experience of Consumer Instalment Financing Agencies and Commercial Banks, 1940-41*, by Ernst A. Dauer (formerly Research Staff, Federal Deposit Insurance Corporation, now United States Navy), will be released soon. Revision of the summary study in this series, *The Business of Consumer Instalment Financing*, has been indefinitely postponed by the war.

RALPH A. YOUNG, *Director*  
*Financial Research Program*

#### CONFERENCE ON RESEARCH IN FISCAL POLICY

Late in 1942 the Conference had authorized Project E, a study of the tax treatment of capital gains and losses; and preliminary operations were begun before the year closed and continued in the early weeks of 1943. Conduct of the project was entrusted to a Directing Committee: Lawrence H. Seltzer, Chairman; M. Slade Kendrick and Selma F. Goldsmith.

Substantial progress was made during the summer and autumn in assembling and coordinating statistical data, and the analysis and interpretation started. The study is being continued on a part-time basis by the members of the Committee. It is expected that one or more preliminary reports of sections will be circulated among Conference members in the spring and summer,

and that the complete report will be ready by the close of the year.

In January 1943 the Conference authorized Project F, a preliminary survey of the fiscal problems of reconstruction and peace, and operations were begun in February under the direction of the Chairman. Progress was recorded in interim reports in May, September, and December. The first two were devoted mainly to the expenditures side of the postwar budget; and the third, while revising and improving the expenditures estimates, was concerned mainly with the receipts side. Throughout the study the Chairman derived great assistance through correspondence and interviews from Conference members, Directors of the National Bureau, and numerous other specialists. The first report was the topic of discussion at a round table meeting in May, and the second was similarly examined at a general meeting of the Conference and guests in September. The third interim report records the completion of Project F, which was confined to a preliminary survey of the postwar budget problem; but the Conference is considering plans for a further project which would give continuing study to the whole problem or intensive attention to one or more of its many important aspects. It is considering also the advisability of preparing for publication a report on the findings of the preliminary survey.

Work on Project A, a comparison of the definitions of income for tax and for business purposes, has continued during the year; but the expectation that a manuscript would be completed has not been realized. The same difficulties, of obtaining the hoped-for volume of sustained attention to the project from personnel mainly engaged in other duties which are chiefly on war account and are increasing, have obstructed progress this year as at early stages.

Two specialists were added to the Conference in 1943: William A. Berridge, of the Metropolitan Life Insurance Company, and Walter Lichtenstein of the First National Bank of Chicago. At its general meeting on September 17, 1943 the Conference added W. J. Carson and Lawrence Seltzer to the Executive Committee (theretofore made up of the Chairman and Roy Blough, A. H. Hansen, Jacob Viner, and R. W. Warren), and elected Mr. Seltzer Vice-Chairman of the Conference and of the Executive Committee.

W. L. CRUM  
*Chairman*

## BUSINESS CYCLES

The manuscript on *Measuring Business Cycles* was finally put in a form justifying its submission to the Board of Directors. It has been approved by the Board and will go to press soon.

I expect to return to the study of investment cycles, with special reference to the construction industry, in the near future.

ARTHUR F. BURNS

## *War Cycles*

### AMERICAN EXPERIENCE

Production of Industrial Materials in World Wars I and II was published in March as *Occasional Paper 18*. From this study it appears that industrial materials output increased at a somewhat similar percentage rate in the first three years of both wars, i.e., about 32 per cent 1914-17 and 35 per cent 1939-42. This similarity is due partly to similarities in the rates of growth of individual commodities, partly to compensating differences. Outstanding among the latter are the rise in the output of construction materials in this war and its decline in the preceding, and the decline in the output of products derived from imported materials in this war and its rise in the preceding.

Most of the increase in materials output was achieved in the first two years of each war. In 1916 and in 1941, before the United States declared war, the rate of increase dropped sharply, owing to the slackening rate of growth or actual decline evidenced by the great majority of individual materials. It seems unlikely that the total production of industrial materials will, in the near future, rise appreciably above the level reached in 1942; production and employment in many basic industries have already fallen from peak levels.

Some consideration is given to the problem of measuring total industrial production in wartime, but no conclusions are drawn concerning the behavior of the total in the two wars. Because the differences in the kinds of goods produced in peace and war are so extensive it is difficult either to obtain an adequate sample of data on the output of finished goods or to combine such data into a meaningful index of total output. Although in peacetime short-period changes in industrial materials output and total industrial production are rather closely cor-

related, it is hard to say how close the relation is when a comparison of peace and war years is involved.

GEOFFREY H. MOORE

WARTIME PRODUCTION AND EMPLOYMENT, GREAT BRITAIN AND GERMANY

At the beginning of the year we completed an analysis of the labor supply in Germany in World War II, and began a revision of an earlier study, prepared at the suggestion of the War Production Board Planning Committee, of production and employment in Germany and England, World War I. The revision was carried through and embodied in a detailed report. Only minor changes, now being made, are required to make this report suitable for publication as an *Occasional Paper*.

The tentative conclusions reached in the earlier study were reinforced. The analysis of the German experience in particular was extended. The drastic decline in German industrial output from the prewar peak in 1913 to the end of the war in 1918 was confirmed by three more or less independent lines of evidence:

a) An index we have constructed covering the output of minerals and metals declined. A decline in this sector of industry is a good *a fortiori* argument for comprehensive decline, for one would expect the ratio of an index of the output of minerals and metals to an index of total output to rise in time of war.

b) Total industrial employment, a comprehensive figure covering employment in finished munitions as well as in finished civilian goods industries, shows a sizable decline.

c) Another aggregate comprehending almost as large a sector of industry as total employment, namely, tonnage of railroad freight originated, also declines. Further, an index of tonnage originated, weighted by unit labor requirements, falls, and indeed falls slightly more than the unweighted index.

The last two lines of inference rest on the assumptions that: (1) the average unit labor requirements were not reduced so substantially as to compensate for the decline in employment, and (2) the ratio of commodities shipped to commodities produced did not decline so decisively as to compensate for the decline in total freight originated. There is some evidence that both these ratios moved upward, that is, in the direction favorable to our inference. In the mineral extractive and metals pro-

ducing industries, both freight originated per unit of output and average unit labor requirements increased 1913-18.

ALBERT WOHLSTETTER

### *Transportation and Communication*

During 1943 we investigated cyclical variations in railway costs and profits in considerable detail. In general, we found that profits not only rise and fall with the volume of traffic but fluctuate more than revenues. In expansion a growing percentage, in contraction a declining percentage of the dollars received remain as operating profits. This greater variability results in part, however, from the inclusion of depreciation charges, computed on a time basis, in operating expense. When they are excluded from the accounts the difference is not so consistent.

Profits before depreciation are affected partly by the relation between the volume of traffic on the one hand and the amounts of labor and materials used on the other, and partly by the relation between freight and passenger rates on the one hand and prices of materials and wage rates on the other. We are endeavoring to disentangle the contribution of these two factors. Our studies indicate that manhours of labor are less variable than traffic. The evidence on quantities of materials is less clear. Prices paid for materials are apparently more variable than charges for railway services. In periods of violent price disturbance, therefore, unit profits may vary inversely with volume, while in periods of quiescent prices they may vary directly with it.

Although the general tendency is for unit profits to rise in expansion and fall in contraction, it does not follow that the change is uniform throughout a phase. Many writers have asserted that unit costs tend to rise faster than prices in the later stages of expansion, and that they are 'brought into line' in late contraction. We are endeavoring to ascertain whether this is true in the railroad industry. The work to date suggests that if the change in unit profits is not reversed toward the end of a phase it is at least retarded.

We also studied, among other subjects, changes in railroad stocks of locomotives and cars. In this field a campaign to eliminate car shortages, improvements in railroad technique, and failure of traffic at comparable stages of a cycle to regain former levels seem to have been more important influences, since 1920,

than cyclical variations in traffic. Under certain circumstances a moderate increase in traffic may reduce the number of locomotives or cars needed. The amount of equipment in unserviceable condition tends to rise in contraction and fall in expansion. Nevertheless, the amount of serviceable equipment becomes larger relatively to the traffic at hand in contraction and smaller in expansion. Turning points in the supply of equipment are likely to lag behind those in traffic.

The study of the war expansion in traffic was completed and, after review, was brought up to date by the addition of data through August 1943. It appeared as *Occasional Paper 15, Railway Traffic and Use of Resources in World War II*. The more important results of our study of passenger traffic in past cycles were published in *Occasional Paper 13, Railroad Travel and the State of Business*.

During 1943 we made considerable additions to our German material. In 1944 I plan to enrich and exploit further our collection of data on foreign transport, meanwhile pushing toward completion a manuscript, suitable for a monograph, on cyclical variations in the major aspects of American railroad activities.

THOR HULTGREN

#### *Inventories*

During the past year I completed a second draft of the *Cyclical Behavior of Manufacturers' Inventories*. Although I shall be unable to put further work into improving the manuscript, Mr. Burns expects to prepare a draft for submission to the Directors.

MOSES ABRAMOVITZ

#### *Incorporation of Business Enterprises*

Early last June President Bowman asked me to take charge of the Army's Area and Language Training Program on the Johns Hopkins campus. Since the curriculum for the program was new and had to be worked out, my time and thought were completely absorbed by the task. I had to suspend work on the study of Business Incorporations until about two months ago, when the University placed at my disposal a small sum in order that I might employ a part-time research assistant. The progress of the study was thereupon resumed.

G. HEBERTON EVANS, JR.  
*Johns Hopkins University*

### *The Consumption and Production of Consumer Goods*

Because of the paucity and inadequacy of time series dealing with income and expenditure of consumers, it has seemed advisable to explore the field by concentrating on one commodity for which information is ample. Shoes meet this requirement.

By focusing on the patterns of consumption of footwear and its relation to changes in consumer income, and on the production of footwear and its relation to changing consumption, we accomplish two things: set down the story for one reasonably important commodity; learn what questions to ask concerning consumption in general and where to seek answers to those questions.

The first part of the study is in first draft. It explores trend, cycle, and other patterns in the sale of shoes and the relation of changing sales to changes in consumer income. For the most part, the correspondence between changes in dollar sales of shoes and income is striking, although short abortive movements in the sales-income ratio have taken place. Some of these, such as those occurring in the early part of 1931, in the middle of 1933, and again in the beginning of 1934, seem to have been associated also with changes in the proportion of total income derived from industrial payrolls. Pair sales, on the other hand, virtually cease to rise or fall some months before dollar sales or income. On a more refined level of analysis, we find differences in the proportion of income spent on shoes as income rises and as it falls. This relationship has a very interesting bearing on the role of consumption in business cycles. Unfortunately there are no data with which it can be analyzed for total consumption, except for one cycle when the ratio of consumption to income payments falls more slowly during recovery than it rises during recession.

Consumer goods can play an active role in the business cycle process not only because of cyclical patterns in the way in which income that has been paid to individuals is reintroduced into the productive flow through the purchase of commodities and services. Fluctuations in consumers' purchases may cause amplified, anticipatory, or lagging fluctuations in production with accompanying changes in inventories and even in orders for durable capital goods. This set of problems is explored in the second part of the study.

The many series that have been assembled on the production,

deliveries, inventories, and prices of hides, leather, and shoes, as well as on retail shoe sales, exhibit considerable similarity in the timing of troughs and peaks. This is surprising in view of the rather considerable time interval that must elapse between the first appearance of hides on the market and the final sale of a pair of shoes to which a piece of that hide forms the sole. One series, however, seems persistently to lead the process at business turns: the ratio of retailers' sales to stocks of shoes. This sequence grows less surprising, though not less interesting, as one studies the business objectives, techniques, and buyer-seller relationships that cause the figures to move as they do.

RUTH P. MACK

### *International Financial Transactions*

A thoroughly revised manuscript, summing up the study of the cyclical behavior of short term interest rates and exchange is in the last phases of completion. It was necessary to study interest rate differentials in much greater detail, paying attention in particular to their maxima, their ranges, their relation to long term differentials, etc. The long term rates will be examined in another manuscript, especially in connection with long term capital movements.

The above mentioned statistics of interest rates and exchange rates will be subjected in an experimental way to a different kind of analysis by making use of some recent methods of mathematical statistics in the hope that thereby new interrelations may be revealed.

We have studied in detail the entire cycle containing the crisis of 1907 and collected an almost complete chronology. This case study will be compared with a similar one for the postwar cycles of the United States, Britain, France, and Germany, culminating in the various crises of 1929 and 1931. We hope to be able to abstract information and perhaps methods of research, not available in the various studies mentioned above, which make use of long monthly series, usually going back to the 1870's.

A paper, *On the International Spread of Business Cycles*, discussing general principles and methods, was published in the *Journal of Political Economy*, August 1943.

OSKAR MORGENSTERN

deliveries, inventories, and prices of hides, leather, and shoes, as well as on retail shoe sales, exhibit considerable similarity in the timing of troughs and peaks. This is surprising in view of the rather considerable time interval that must elapse between the first appearance of hides on the market and the final sale of a pair of shoes to which a piece of that hide forms the sole. One series, however, seems persistently to lead the process at business turns: the ratio of retailers' sales to stocks of shoes. This sequence grows less surprising, though not less interesting, as one studies the business objectives, techniques, and buyer-seller relationships that cause the figures to move as they do.

RUTH P. MACK

### *International Financial Transactions*

A thoroughly revised manuscript, summing up the study of the cyclical behavior of short term interest rates and exchange is in the last phases of completion. It was necessary to study interest rate differentials in much greater detail, paying attention in particular to their maxima, their ranges, their relation to long term differentials, etc. The long term rates will be examined in another manuscript, especially in connection with long term capital movements.

The above mentioned statistics of interest rates and exchange rates will be subjected in an experimental way to a different kind of analysis by making use of some recent methods of mathematical statistics in the hope that thereby new interrelations may be revealed.

We have studied in detail the entire cycle containing the crisis of 1907 and collected an almost complete chronology. This case study will be compared with a similar one for the postwar cycles of the United States, Britain, France, and Germany, culminating in the various crises of 1929 and 1931. We hope to be able to abstract information and perhaps methods of research, not available in the various studies mentioned above, which make use of long monthly series, usually going back to the 1870's.

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