

NATIONAL BUREAU OF ECONOMIC RESEARCH

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Extending the Frontier of Economic Science

*Report of the Directors of Research
of the
National Bureau of Economic Research
for the Year 1927*

February 6, 1928
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ANNUAL REPORT OF
THE DIRECTORS OF RESEARCH

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February 6, 1928.

Within the year since the last annual meeting of the Board of Directors of the National Bureau of Economic Research, two publications of major significance have been issued by the National Bureau. Dr. Mitchell's first volume on *Business Cycles* appeared last September; and at the close of the year the National Bureau published the first instalment of Dr. Mills' searching examination of prices. The investigation of philanthropic giving in New Haven has been finished and the results, in a brief report, will soon go to the Directors for approval. A report from Dr. King on National Income is expected soon. The studies of the labor market, of mechanization in industry, and of world migration are also due to be submitted to the Directors later in 1928, the two latter probably reaching the stage of publication early in 1929. With the somewhat enlarged working staff now assigned to the research on business cycles and prices, these continued enterprises are to be prosecuted with vigor during the coming year, so that the second volumes should be ready in 1929.

This report will deal with the various activities of the National Bureau in the order of priority of undertaking, as has been customary in previous reports of the Directors of Research, and it will close with a statement concerning a new and interesting enterprise which the National Bureau has recently taken in hand.

I. *Income Studies.* It is with regret that announcement must here be made of the resignation from the staff of the National Bureau of one of its most valued workers. Dr. Willford I. King, who has accepted an invitation from New York University, has been associated with the National Bureau from its foundation. His contribution of painstaking labor and shrewd statistical judgment has been a cardinal factor in developing the work on national income, which from the beginning has been so notable in the Bureau's accomplishment. During the past year, Dr. King prepared for publication in our February Bulletin the preliminary estimates of the national income for recent years, including 1926, which have excited widespread attention. The work of revising the estimates of national income for the years 1909 to 1921 and of continuing the "considered" estimates through 1925 has occupied Dr. King and his staff throughout the year. The statistical tabulations are practically finished, and the accompanying text will be completed by Dr. King as soon as his health permits. He has suffered from a severe illness during recent months, but is now, fortunately, on the road to recovery, and he is anxious to give as

soon as possible the finishing touches to a work which brings down to date his studies of the national income. For the present he continues on part-time with the National Bureau. We wish to add that Dr. King is leaving behind him at the National Bureau a staff of trained workers and a well-ordered collection of material, so that the task of continuing the estimates of national income is facilitated, and may later be resumed when his successor has been appointed.

Dr. King and his assistants have also, during the year, completed, revised, and tabulated the returns from the investigation of receipts and disbursements of New Haven philanthropic organizations. It will be recalled from last year's report that with a grant from the Carnegie Foundation, this study was undertaken to determine approximately, from the analysis of a fair sample, what data may be available to estimate the trend and chief characteristics of charitable giving during the past quarter century. Since some of the more interesting figures from the preliminary report were given to the Directors a year ago, and since the final report will soon be issued, it will suffice here to note appreciatively this further service which Dr. King has rendered during his last year with the National Bureau. To consider whether further study of philanthropic contributions should be undertaken, the Social Science Research Council has appointed a committee of men working in this field. Dr. King is a member of this group. It is possible that after a careful survey of the field

the Committee will recommend a more extensive investigation of the sort we have made in New Haven. In any event, it seems unlikely that the National Bureau will be asked to assume new responsibilities in this direction during the current year.

II. *Business Cycles.* For rather more than the first half of 1927 Dr. Mitchell was occupied with the final revision and proof-reading for his book, *Business Cycles: The Problem and Its Setting*, which, as has been noted, was published and ready for distribution by the beginning of September. The sale of this first volume has been large and it has met with a gratifying reception.

Immediately upon publication of this, the first of the two projected volumes on Business Cycles, Dr. Mitchell set about active preparations for the succeeding volume, and in order to devote himself to it he has taken leave of absence from Columbia University for the current second half-year. He has engaged Dr. Kuznets as his chief assistant to analyze according to a standard plan the statistical material collected by Dr. Thorp and his staff.

This plan involves breaking every time series used into segments corresponding to the duration of business cycles marked out by our volume on *Business Annals*, checked and refined by analysis of statistics. Each cycle segment of each series is reduced to relatives on the basis, average value for the period covered by the cycle in general business equals 100. No further adjustment is made for

secular trends, but those series in which an appreciable and fairly regular seasonal variation appears are reworked to eliminate this element. Then standard tables are drawn up which make it possible to compare different processes with reference to the time sequence of their turning points, amplitude of the fluctuations in both relative and absolute form, duration of the cyclical movements, and standing at eight selected dates in each cycle—revival, recession, and the points which mark off the phases of increasing and declining activity into thirds. The last mentioned treatment promises results of exceptional interest. In a number of highly significant series, thus far analyzed, there is evidence of what may be tentatively called a “mid-prosperity pause”, as well as less consistent evidence of a pause in the middle of depression followed by a renewed decline.

In order to try out this plan of analysis more thoroughly, Dr. Mitchell has enlisted the aid of the students in his Columbia University pre-seminar course in Business Cycles. These volunteer helpers have analyzed, under the careful supervision of Dr. Kuznets, some 20 of our longest series, American, English, German and French. Their work, supplemented by computations of his own, has enabled Dr. Kuznets to make a fairly reliable estimate of the clerical service needed to put all of Dr. Thorp's series in form for use. The required number of computers has been placed at Dr. Mitchell's disposal.

III. *Bond Yields and Interest Rates.* Dr. Macaulay has continued through the year his patient perfecting of the statistical methods necessary for the adequate analysis of such long series as those he has collected on interest rates. A paper which he has read at the recent Washington meeting of the American Statistical Association indicates the most recent refinements he has attained in this highly technical field. The book, which he is now writing, will consist of four parts. The first section, on short time interest rates, will present tables and charts of call money and commercial paper rates in New York City monthly from January 1857 to date, and of time money rates in the same market from January 1890 to date. The second section, to illustrate the movement of long-time interest rates, will utilize the yields from January 1857 monthly to date of American railroad bonds, and from January 1857 to January 1914 of New England municipal bonds. The third part will give American railroad stock prices monthly from January 1857 to date. In part four, Dr. Macaulay plans to examine and compare the various indices and measures of interest rates.

IV. *The Labor Market.* Dr. Wolman's critical statistical inquiry on the American labor market is approaching the end of the stage of material collecting and sifting, a time-consuming process which has been assisted by a grant of \$2,000 for computing assistance, from the Social Science Research Council. The text of Dr. Wolman's book

will analyze the available statistical material and the hitherto inadequately developed problems of method for measuring wage-rates and hours, wage-rates and earnings, labor-cost and productivity, employment and unemployment, and standard of living. As Dr. Wolman plans to follow with his writing, chapter by chapter, closely behind the tabulations as they are completed by his assistants, he believes that his book will be submitted to the Directors before the end of this year.

Related in its field of inquiry to a part of Dr. Wolman's critique of statistical method is Dr. Jerome's field investigation of labor productivity. While teaching part-time at the University of Wisconsin, he has undertaken this work for the National Bureau with a grant running over several years from the Social Science Research Council. Assisted by three field workers, previously trained in his University classes, and by Professor George W. Barnwell of the Wharton School, Dr. Jerome during the past summer has obtained several initial series of figures from flour mills in Missouri and Kansas, from brick and tile plants in Iowa, and from cement plants in Pennsylvania. The result of this first summer's attack upon the problem has revealed, as was to be expected, the serious and numerous complexities, technical, statistical, and personal, which such an investigation must encounter. The experience thus obtained will perhaps be most valuable at this point in guiding the decision as to the future course of the study. The United States Bureau of Labor Statistics has been

making a fairly comprehensive survey of current productivity, with some historical material, for several of the leading industries of the country. Government agencies are of course in a position to prosecute such inquiries on a scale quite out of the reach of private investigators. It may well prove to be the case that the best service which Dr. Jerome and the National Bureau can render in this field will be supplementary and critical, both as to methods and materials.

V. *Problems of Migration.* It will be remembered that Dr. Jerome's study of output-per-hour was a development of the inquiry into Migration and Mechanization of Industry, which was financed by the Migration Committee of the Social Science Research Council, and begun in the fall of 1924, when Dr. Jerome was working directly under the National Bureau. Much of the field work was done at that time, but the completion of the study has been necessarily delayed by Dr. Jerome's return to his academic work, with its diversion of time and energy. Even his assistants have been able to give only part-time to the work. Nevertheless, by concentrating on this report during the coming summer, Dr. Jerome hopes to have it in the hands of the directors before the close of 1928. The chief contribution of the Mechanization study as Dr. Jerome sees it, lies in the coordination of the results of its field work with the evidence from other sources so as to give the basis for a more accurate judgment than has hitherto been available both of the actual extent of application, and of the

possibilities and limitations in the substitution of labor-saving equipment for excluded foreign labor.

Dr. Jerome has submitted a suggestive preliminary report on his Mechanization study, which gives the outlines of selected chapters and some of his tentative conclusions. It is of interest to observe that the extensive industrial surveys he and his fellow-workers have made corroborate the prevailing impression that the coincidence during recent years of an increase of industrial production with a relative decrease in the amount of labor used is largely attributable to the substantial additions of labor-saving equipment, notably of devices for digging, loading, and moving materials rather than those for processing. These careful field studies also emphasize the various factors checking this development. The transformation of industry is gradual, and there still remains much room for the further advance of mechanization.

The other considerable enterprise sponsored by the Migration Committee of the Social Science Research Council and undertaken by Professor Willcox for the National Bureau, the statistical study of world migration, is also nearing its final stages. For the first volume, containing the statistical tables collected by the Migration Section of the International Labor Office at Geneva under its assistant chief Dr. Ferenczi, the material is all in hand and a portion is in print. The second volume, now in preparation, includes Professor Willcox's introductory chapters on the increase in the Earth's population since 1600 A.D., his chapters

on the United States, and a series of chapters contributed by recognized experts from those countries which in recent years have made the largest contributions to international migration. Fourteen of the twenty-one collaborators have already sent their material to Professor Willcox, and he counts upon delivering his completed manuscript in October of this year. He has organized and successfully conducted a notable example of international cooperation.

VI. *The Study of Prices.* In Dr. Mills' first volume on *The Behavior of Prices*, recently published by the National Bureau, utilizing wholesale prices in the United States, he has studied, in unprecedented detail and thoroughness, the characteristics of the prices of individual commodities, and the price structure as a whole. In the second volume upon which he is now at work examination will be made of the most important elements or groups within the price system, and the interrelations among these groups. There will also be a study of the margins between commodity prices, so far as material can be obtained. A history of price movements in the United States since 1890, using the general measures developed in the first volume and the indices of price differentials to be constructed for the second volume, will be supplemented by international comparisons. Dr. Mills' work is clearly a contribution to statistical science which the National Bureau is happy to have initiated. We believe that it will prove both a new point of departure for statistical studies of

technical and economic significance, and a basis for conclusions and estimates of practical importance in the conduct of business.

VII. *Business Cycles Series.* Attention should again be called to the valuable collection of material, brought together by Dr. Thorp and his assistants, for the study of Business Cycles. These series, many of them hitherto unknown or neglected, should be made available to other students of the subject. Dr. Thorp has been preparing a first installment for publication, and we trust that means may be found to enable us to print it this year.

VIII. *A New Undertaking—"Recent Economic Changes".* After this review of the current activities of the staff of the National Bureau, announcement should here be made of a project, likely to be of general interest, proposed to the National Bureau by Secretary Hoover, and authorized by the Executive Committee of the National Bureau. This may be tentatively entitled *A Survey of Recent Economic Changes in the United States*, and considered as the continuation on a somewhat larger scale of the survey entitled *Business Cycles and Unemployment* made by the National Bureau in 1922 for the standing committee of President Harding's Unemployment Conference. A similar general committee is to stand sponsor for the inquiry and to draw its conclusions and practical recommendations from the fact-finding survey made by the National Bureau

in cooperation with the best insight and knowledge of various qualified agencies and individuals.

Government officials, alert business men, and economists, in this and other countries, are aware that economic activity in the United States has followed a very peculiar course since 1923. Despite the depressed condition of agriculture, the difficulties of many of our most important foreign customers, and the milder troubles encountered by certain of our manufacturing industries, we have enjoyed what appears to be on the whole a condition of prosperity which has been maintained over a period of time perhaps unexampled for this country save under the impetus of war demand during the Civil and World Wars. Further, this state of business activity has been maintained without an appreciable rise in the wholesale price level, and in the face of slowly declining employment.

Whether we think in terms of business prosperity or of social welfare, it is of great importance to determine as accurately as possible what factors have cooperated to maintain economic activity at a high level for so long a period. Are the principal factors merely fortuitous circumstances? Are they largely affected by Governmental policies? Are they changes in business organization and practices? Can we hope by wise planning to maintain and strengthen sound economic conditions? It is not the National Bureau's task to discuss problems of policy; but it is our task to present the facts which should guide such discussions.

In our opinion, the proposed investigation possesses a measure of scientific interest and practical significance scarcely matched by any past undertaking of a similar sort. Obviously it deals with economic fundamentals, the great processes by which the country's myriad workers are cooperating to supply each other's wants, and it emphasizes the changes in the organization through which this process is carried on. While necessarily centering upon American conditions, the results of the inquiry must possess large significance for other modern countries.

Mr. Edward Eyre Hunt has been engaged, on part time, to act as General Editor of the survey, under the general supervision of the Directors of Research. The main sub-divisions of the inquiry have been outlined and most of the collaborators have been secured. The time schedule calls for publication in the second quarter of 1929. Obviously a wide-ranging survey of the kind contemplated cannot undertake, though it will doubtless suggest, detailed new investigations. Here and there, on the obscurer points, some sampling is necessary; but in the main the group of collaborating editors will be concerned with arraying and evaluating, on the basis of existing evidence, the chief factors and characteristics of the trends in the economic life of the United States since the Great War, but more particularly since 1923.

IX. *The News Bulletin.* A few words should be said in conclusion concerning the plan for the bulletins of the National Bureau which was dis-

cussed at the last annual meeting. In February a Bulletin was issued giving the preliminary estimates of National income for and including 1926. The Bulletin of March gave an index of railway stock prices. In the Bulletin for April was published Dr. Thorp's Annals for 1926 and the preliminary results of the New Haven study of philanthropic disbursements. And in May the Bulletin carried a table and an article on the geographical variability of interest rates in the United States. It had been the intention in the autumn to resume the monthly issues, each carrying some contribution from the current work of the National Bureau. But the necessity of husbanding resources in order to prevent or diminish the deficit in the year's accounting compelled a cessation of the bulletins for the balance of the year. Your officers feel that the development of the bulletins in the direction indicated by the publications of the earlier months of the year is advisable, and they hope that the financial situation of the National Bureau during the present year may permit the resumption of fairly regular publications.

Respectfully submitted,

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Directors of Research