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The National Bureau of Economic Research, Inc.

Annual Report

of the

Director of Research

February 4, 1924.

1. Publications of the Past Year.

To the Board of Directors:

Business
Cycles and
Unemployment

At the time of our annual meeting last February our report upon Business Cycles and Unemployment was in page proof. You will recall that the report was prepared by our own staff and fifteen outside contributors, at the request of Secretary Hoover for a Committee of the President's Conference on Unemployment, who were under bond to prepare recommendations on methods of mitigating unemployment. The volume could not be published until this committee had come to an agreement upon what recommendations to make - a difficult task. Consequently it was not until April that Business Cycles and Unemployment was published.

The book appeared in two editions. One edition under the imprint of the McGraw-Hill Book Company contained a foreword by Secretary Hoover, the Committee's report and recommendations, and our report. The second edition, published for us by the same house, contained merely our report. The latter is the edition which we have distributed, but to such purchasers as wished we have given a separate pamphlet containing the foreword and recommendations. Our edition makes a handsome volume of slightly over 400 pages.

This piece of work has been well received by the critics and the public. For ourselves we have continued to regret that conditions did not allow us sufficient time to coordinate the various parts more perfectly, to fill some of the gaps, and to provide a broader basis for some of the chapters. But we recognize that the work had to be done quickly, and we believe that the National Bureau rendered a public service in cooperating as it did with the Committee appointed by Secretary Hoover.

Employment
Hours and
Earnings

A second publication, all our own, has come from this connection. In none of the business depressions through which the country has passed have we known how many men were thrown out of employment. The discrepancies among the estimates made of the extent of unemployment while the President's Conference on Unemployment was sitting in 1921 were wide, and no conclusive data were available for deciding between the men who put the limit at 2,100,000 and those who put it at 5,000,000. All that the current statistics showed were the changes in numbers employed in certain lists of factories, or the members of certain unions who were out of work. From these data investigators had been able to construct fairly good indices of relative employment in the country at large. But there was no base of absolute numbers to which these relatives might be hitched. It was part of our task for the President's Conference to fill this gap as well as might be by ascertaining the actual shrinkage in employment after the great crisis of 1920.

This task was undertaken by Dr. King. With the cooperation of the Department of Agriculture, the Bureau of the Census, the Bureau of Railway Economics and of many private organizations and individuals he obtained data from which he was able to make better estimates of the amount of employment in successive quarters than had ever been available for this country. According to his figures the total number of employees on all pay rolls shrank by about one-seventh between the third quarter of 1920 and the third quarter of 1921, while the amount of employment measured in hours shrank about one-sixth.

A summary of Dr. King's findings was included in one of the chapters of the general report. But we thought the full presentation of his methods and results so important that we persuaded the President's Conference Committee to contribute toward the expenses of a separate report upon this one subject. This volume of nearly 150 pages appeared in May, 1921. For it we expected only a limited circulation. We were pleasantly surprised to find the demand much larger than we had anticipated. The first edition of 1,500 copies was soon exhausted and we ordered a second printing.

II

Work on Immigration

While these reports were passing through the press, our staff returned to the two chief topics upon which they had been engaged when Secretary Hoover's call for help came -

namely, business cycles and the revision and continuation of our income studies. But presently we received another request for cooperation of which I should speak before dealing with our main program.

The Committee on Scientific Problems of Human Migration

In 1922, the National Research Council, which includes none of the Social Sciences barring anthropology and psychology, appointed a Committee on Scientific Problems of Human Migration. This Committee under the chairmanship of Dr. Robert M. Yerkes planned a series of investigations, among which was one entitled "The Relation of Migration to Labor Supply." They asked the National Bureau to accept the responsibility for investigating this subject. Our Executive Committee authorized the acceptance of this invitation on condition that the Committee on Scientific Problems of Human Migration should defray the direct expenses which the Bureau would incur in such work, and that the report be submitted to our Directors in our usual fashion.

Dr. Jerome's monograph on Migration and the Business Cycle

To take direct charge of this investigation we borrowed Dr. Harry Jerome from the University of Wisconsin for a year. Since he came to us in August, Dr. Jerome has devoted much of his time to studying the short-period relations between migration and employment in the United States. As a result of this work we hope that he will have finished by next summer a monograph on "Migration and the Business Cycle". This book, promises to make a timely and appropriate addition to our list of publications.

Plans for a
study of
Migration and
the Mechanization
of Industry

In addition to this work, Dr. Jerome has been planning a series of investigations into the long-period effects of immigration upon the development of our economic life. In particular he is concerned to ascertain as definitely as conditions permit the effect of admitting or excluding a large supply of relatively cheap migrant labor upon the mechanization of industry. With this topic he can do no more this year than develop methods of inquiry and perhaps begin to collect the sort of data which will be needed to establish results.

Our future
work in this
field uncertain.

What share we shall take in the future work of the Committee on Scientific Problems of Human Migration is not yet clear. That Committee has secured funds only for the year ending next June. But it plans to ask for a continuation, and perhaps for an increase, of its appropriation. It seems desirable to me that the National Bureau offer to continue its cooperation with Dr. Yerkes' Committee, if the Committee so desires, and is able to meet our direct expenses in its field, as it has done this year. But granted so much, we cannot make definite plans until we know whether the University of Wisconsin will extend Dr. Jerome's leave of absence for another year or grant him half time for research. And we are also uncertain as yet regarding what economic topics in the migration program can best be undertaken by certain other agencies interested in the work. It may well be several weeks before we can draw up a definite program for consideration
own
by our/Executive Committee and by the committee of the National

Research Council. In any case, whatever work we do in this field will not be a charge upon our regular budget, except that it may contribute nothing to our general overhead expense.

III

Work on the National Income.

The task of revising our first estimates of the national income and of bringing them nearer to date has proved more difficult and laborious than we anticipated. The difficulties arise partly from the deterioration of the income-tax statistics and partly from our efforts to improve our methods and results.

The deterioration of the income-tax data and our "Estimate of Income Received."

The income-tax difficulty has forced upon us a radical departure from the procedure followed in our first volumes. Dr. Knauth's estimates of incomes received and Mr. Macaulay's estimates of the distribution of income by income classes rested in large part upon the individual tax returns published by the Internal Revenue. Since the war these data have become progressively less reliable as indications of the incomes of the well-to-do classes, and we no longer dare to use them. Just before leaving us Dr. Knauth made a preliminary estimate of the national income by his former methods and found that to bring the total near the levels of earlier years he would have to add in a staggering estimate for legal and illegal understatements of incomes exceeding \$2,000. This experience prepared us for Secretary Mellon's demonstration of the defects

in the returns. Our distrust has been confirmed by what we have learned from public accountants, officials of trust companies and lawyers regarding the numerous methods resorted to on a grand scale to escape payment of income taxes. It seems clear that the figures for recent years are quite untrustworthy for our purpose.

Our "Estimates by incomes Consumed"

In consequence of this situation, we have been compelled reluctantly to give over the idea of continuing Dr. Knauth's estimates to cover recent years. Instead we have undertaken a study of Income Consumed. The work is being done by Miss Elizabeth W. Putnam under the direction of Dr. King. Miss Putnam is using a wide variety of data, including reports of retail merchants, the manufacture and importation of consumers' goods, passenger fares, amusement receipts, consumption of their own products by farmers, estimates of payments for professional services rendered to persons, and the like. By the end of this month she hopes to have her main results in hand. It is too early^{yet} to pass final judgment upon the results of this difficult investigation. If the figures pass muster they will make a most interesting addition to our tables. In particular they will throw light upon a question which many readers of our first volume have asked - namely, what portion of the national income each year is used up as it is produced?

Probable dropping of tables showing the distribution of incomes among persons.

We are also very doubtful whether it will be proper to include in the/^{new} edition of volume I any tables of the kind which Mr. Macaulay contributed purporting to show the distribution of income-receivers according to the amount of their incomes. We regarded our first ventures of this kind as estimates subject to an especially wide margin of uncertainty, and made that fact clear in our text. At that time doubts about the income-tax data were the least of our worries; indeed we had a better basis for drawing this end of the curve than for drawing any other part of it. Now that the income-tax data have become positively misleading it is highly questionable whether we are justified in publishing any estimates of the sort. I regret the exclusion of these tables, for there is but one problem concerning incomes of greater moment than this problem of distribution among individuals. Yet the fact that a problem is of the gravest consequence affords no excuse for disseminating guesses about it that rest upon no substantial foundation. Mr. Macaulay's destructive criticism of Pareto's law has put the whole problem back into the stage of empirical investigation, and without good empirical data to build upon we cannot make progress. Not until some government collects a representative sample of personal incomes, large and small, by methods which command confidence shall we be able to construct a distribution table which we can trust. May that day come soon!

Improvements
in Dr. King's
estimates.

Aside from these unfortunate effects of the income-tax muddle upon our work, we may expect that our revised figures, which are close to completion, will represent a distinct improvement over our first estimates. Happily Dr. King's studies have made scarcely any use of the individual tax returns and so are scarcely affected by their deterioration. On the other hand Dr. King has been able to profit by a long list of additions to and improvements upon the data which he used three years ago. Among the most interesting features of his new results will be an estimate of income from mercantile pursuits, an estimate of the country's net receipts from foreign investments, a systematic separation of wages and salaries carried through all industries, and estimates of income or loss from changes in the value of property owned by the American people between the beginning and end of each year. This last matter is especially interesting. In addition to these major betterments Dr. King has made a host of minor changes in sources and methods of estimating.

The new
edition of
volume I

As yet we do not know what net effect the revisions will have upon the national totals for the years covered in our first volume upon income, or what totals they will give for recent years. But we hope that by the end of the month the exciting hour will come when we shall get the new totals and put them beside the old ones. After that we shall set about writing the text of a revised edition of volume I.

The new
edition of
volume III

Upon this new edition there should follow hard a new edition of Distribution of Income by States. This monograph

was prepared by Dr. Knauth in 1921 and published in 1922. Since then considerable additions have been made to the data that are useful in studying the geographical distribution of income. Experience has also taught us how to make better use of the criteria, old and new. Acting under a special contract which provides for his compensation out of royalties, Mr. Maurice Leven spent much time last spring and summer in developing formulae by which he could divide up the new national totals among the states as soon as the totals are computed and checked. The latter task taking much longer than had been expected, Mr. Leven has been employed to help Dr. King push the work. Now the time is close at hand when he will have the totals he needs and then Mr. Leven will make up the tables by states as promptly as may be. The new edition should be an improvement upon the first, not only in presenting closer approximations but also in covering more subjects. While the demand for this book comes principally from men who are planning "selling campaigns" or philanthropic "drives," I think that we shall all find much to interest us in the tables which Mr. Leven will present.

IV

The Prospective Studies of Transportation and Farming.

A plan for
utilizing
by-products of
the income studies

When the new editions of volumes I and III are off our hands we hope to let the national income alone for a time, except for making estimates for current years as the data become available. Dr. King will turn to a project which

promises to give us two or more reports upon matters of public moment within a relatively short time.

In compiling our income tables we have had to collect a large amount of statistical data about the great American industries, data which disappeared in the totals or averages of our tables. It will be comparatively easy for Dr. King to work up these data already on hand, together with such supplementary figures as he may find occasion to gather, into studies of the economic development and present position of the railroads, shipping, farming, and so on. These studies will give a comprehensive view of the values consumed and produced by the industries in question, the personnel and their earnings, the investors and their returns, the taxes paid, the service rendered to the public, and such other matters as seem pertinent, important and capable of quantitative treatment.

The projected
report upon
Transportation

So far the Executive Committee has approved the project of a volume of this type upon transportation. If this venture turns out as we expect, it is probable that the Committee will approve a study of farming, and perhaps later on studies of other industries. In the present year the Directors are not likely to be called upon to examine more than the first volume of this series.

V.

Work on Business Cycles.

Our business cycle program has been prosecuted actively during the past year, and in this field also we expect to submit two or three manuscripts to the Directors before 1924 is out.

Migration and the Business Cycle once more.

Dr. Wolman's studies of labor and the business cycle

One of the manuscripts is Dr. Jerome's manuscripts on Migration and the Business Cycle, of which I have already spoken.

Another is the first of Dr. Wolman's studies, which will make a slender volume on Trade Union Membership and the Business Cycle. The chief purpose here is to show the influence which business conditions have exercised upon the numerical strength of labor organizations. For this purpose Dr. Wolman has brought together the most complete array of statistics bearing upon trade union membership which has ever been secured for the United States, and compared the broad results with fluctuations of a similar sort in other countries. The statistical apparatus for this monograph is now nearly complete and Dr. Wolman expects to begin writing his text shortly.

While assembling these data upon Trade Union Membership Dr. Wolman has been preparing for a most important set of studies. What we should like to do is to establish on a quantitative basis the facts concerning

- (1) fluctuations in wage rates and the business cycle;
- (2) fluctuations in the purchasing power of wage earners which involves consideration not only of wage rates but also of employment, over-time, part time, and losses through strikes or lock-outs;
- (3) fluctuations in real wages, which involves a comparison between total wage income and cost of living, and
- (4) fluctuations in cost of labor to the employer, which involves a consideration between wage rates and the efficiency of work.

Upon the second and third of these points Dr. King's income studies throw much light; but for the business cycle program we need data for shorter intervals than a year, and for groups smaller than he handles.

How far Dr. Wolman will be able to carry out this program remains to be seen. By way of experiment he has been working upon the building trades. So far he has brought together a large body of data concerning hourly rates of pay, union scales, hours per week, hiring rates, employment and unemployment earnings, and pay-roll disbursements. Within less than a month Dr. Wolman thinks that the tabulation of all the pertinent data upon these subjects will be completed and the work of analyzing the figures can begin. It is tolerably clear that we shall be able to get a good part of the results we wish for this industry at least. The experience gained in dealing with the building trades can then be used in directing our attack upon other industries.

Cooperation of
the Natl. Industrial
Conference Board

In carrying on these studies of the labor aspects of the business cycle we are benefitting by the cooperation of two other organizations. Mr. Magnus Alexander, Managing Director

and of the
Amalgamated
Clothing
Workers

of the National Industrial Conference Board has promised to make a survey of the number and membership of the so-called "company unions" as of the present time. The results of this study will form an interesting complement of Dr. Wolman's tables of membership in trade unions. Meanwhile the Amalgamated Clothing Workers of America have allowed their statistician, Mr. H. K. Herwitz, to spend much of his time in assisting Dr. Wolman's

researches for us. That both of these organizations, representing opposing interests in the business world, can work with us in trying to establish economic facts is not merely a pleasant recognition of our own standing, but also a promising sign of social progress toward the aims which the National Bureau was created to promote.

Mr. Macaulay's
investigation
of bond yields

Mr. Macaulay's chief work this year has been the prosecution of his studies of interest rates. This is a field in which relatively exact statistics covering a long period can be obtained, but obtained only by much work. In our business-cycle program it is particularly desirable to increase the number of statistical series which run back fifty years or more. By direct compilation from old original records in Philadelphia and New York, Mr. Macaulay and Miss Benjamin have secured material from which they can construct a fairly representative series of bond yields every month since the late 1850's. Of course this series has to be pieced together from quotations for groups of bonds which cover briefer intervals, with generous overlaps at each end of every segment. For the index from 1859 to '67 eight railroad bonds are available. The numbers increase to thirty-five railroad bonds in the years since 1909. In addition, industrial and public utility bonds are being separately dealt with from the period when they begin to be quoted regularly.

Cooperation of
the Metropolitan
Life
Insurance Company
in the clerical
work.

This investigation has required a large amount of patient routine work in making sure of the character of the bonds, copying monthly quotations and computing yields. To the end of last year the table covers 780 months. Over 100 railroad bonds and probably 30 bonds of other classes will enter into the final indexes, and a much larger number had to be examined with care in the course of the work. Fortunately we have had assistance from the Metropolitan Life Insurance Company in carrying this burden, owing to the interest felt in the results by the Company's officials, particularly by their statistician, Dr. Louis I. Dublin. The computation of yields is now completed, the working out of index numbers is under way, and Mr. Macaulay is advancing to the more interesting task of analyzing and interpreting the series.

Other materials
to be included in
the bond-yield
study.

With these bond yields Mr. Macaulay will include monthly statistics of interest rates on short-time loans, and probably a continuous series of wholesale price index numbers by quarters from 1859 to 1900, and by months since the latter date. Such a price series has long been a desideratum. By supplying this lack we shall render a service to many students and business statisticians, and provide an important piece of apparatus for our further studies of business cycles. A number of other statistical series covering a long period of time will also be utilized by Mr. Macaulay in his interpretation of fluctuations in interest rates.

Certainly we shall get from this work a record of interest rates unique in the length of time covered on a monthly basis, in the accuracy of the results, and in the variety of data shown. We believe that the record will have great practical value for all business concerns and individuals who treat their investment problems with care. We hope also that our analysis will constitute a contribution to economic theory. The interest problem has been discussed voluminously, but mainly on a speculative basis. The few investigators who have attempted "inductive verification" of their theories have contented themselves with a slender array of rather dubious data. Everyone concerned with the problem, either in its theoretical or in its practical aspects, should find the much fuller summary of experience which Mr. Macaulay is providing of fundamental importance. We hope that the volume will be ready to submit to the Directors before the year is out.

The plans for
a treatise upon
business cycles:
Mr. Thorp's
statistical
volume

Mr. Willard L. Thorp has been engaged mainly in compiling material for our projected treatise upon business cycles. The plans of this treatise calls for two volumes, one presenting in systematic form a collection of statistical data of all the many kinds which throw light upon the cycle, and another containing a descriptive analysis of the cycle, based mainly upon the statistics of the companion volume. The collection of statistics, upon which Mr. Thorp has made a vigorous beginning, is designed for the use of that already numerous body of men in academic, business and public life who devote much time to the

detailed analysis of business conditions. The analytic volume, which will contain few statistical tables but many charts, is designed for a larger public - the business men and economists who are interested in the results of investigation into business cycles rather than in making researches themselves. To this analytic volume also Mr. Thorp is making many contributions, and he is assuming chief responsibility for the statistical volume.

Mr. Mitchell's
analytic volume

Your Director of Research is endeavoring to write the analytic volume. I cannot make a favorable report upon his rate of progress. He has read with care or re-read all the more important recent contributions to the theory of business cycles, and prepared a review designed to elucidate the working hypotheses suggested by the theorists concerning the causes of fluctuations, so far as these hypotheses seem to merit attention. He plans next to present the statistical concept of business cycles as developed by various scholars, chiefly American, in recent years. This discussion will be supplemented by rather elaborate tables of "business annals" in various countries prepared by Mr. Thorp. Such tables enable us to trace the general course of business cycles far back of the period for which adequate statistics are available - our English and American annals now run back to 1790 - and also to trace the spread of these cycles in recent times to countries for which few statistics can be had - for example, Argentina, Brazil, South Africa, China, India, Japan. Next will come a descriptive

analysis in considerable detail of the phenomena characteristic of prosperity, crises, depressions, and revivals. The general framework of this discussion will be supplied by an analysis of present economic organization. Attention will then be given to the economic and social consequences of business fluctuations and to the various remedies suggested for their ill effects. A concluding chapter will sum up the main results of the whole study as clearly as may be.

Despite the fact that I have covered most of this ground in an earlier book, that I shall profit greatly by the work being done by other members of the staff who are treating special phases of the subject, and that I have Mr. Thorp's invaluable aid, I am not sanguine about finishing the analytic book this year. There is a vast amount of new material and new experience to be worked over, and there are many new ideas to be reckoned with. I am eager to get the work done as rapidly as possible, but I am still more eager to do it as well as I can - and that takes time.

VI

Conclusion.

From this review of our past year's work you will note that for the National Bureau 1923 has been a year of little publishing, but active investigating. We have issued only two volumes and most of the work upon them was accomplished in 1922. As a result, the Directors have been called upon to do but little work.

Probable Calls
upon the Directors
in 1924

This year, I hope the Directors' tasks will be heavier. We should submit to you before very long the new editions of Volume I and III on the national income and its distribution by states. Perhaps Dr. Wolman's monograph upon Trade Union Membership and the Business Cycle will be ready for submission even earlier. Soon after will come Dr. Jerome's book on Migration and the Business Cycle. Then Dr. King may have his volume upon transportation ready and Mr. Macaulay his volume upon interest rates. Perhaps Dr. Wolman will fill out the quota with a second volume, this one upon wages and labor costs in the building trades. Thus we have the prospect of submitting six or seven volumes to your judgment before the year is out.

This prospect may seem threatening. But there is comfort in the fact that the two second editions will be easier to examine than the first editions were, and that of the remaining books all except Mr. Macauley's are likely to prove short - say 150 pages or less. The staff will do its best to facilitate your work by putting its manuscripts into the best physical shape feasible before mailing, and by providing summaries to help in skimming if you desire to skim. Finally, you may recall that we have never yet finished a job as quickly as we expected, with one exception - the report for Secretary Hoover's Committee. Then we stopped on a set date because we had to, not because we were ready to, and ever since we have regretted that we did not keep on working somewhat longer.

Respectfully submitted,

Wesley C. Mitchell.

Director of Research.