

This PDF is a selection from a published volume from the National Bureau of Economic Research

Volume Title: Annual Report of the Director of Research to the Board of Directors

Volume Author/Editor: Wesley C. Mitchell

Volume Publisher: NBER

Volume ISBN:

Volume URL: <http://www.nber.org/books/annu21-1>

Conference Date:

Publication Date: February 7, 1921

Chapter Title: Annual Report of the Director of Research to the Board of Directors

Chapter Author(s): Wesley C. Mitchell

Chapter URL: <http://www.nber.org/chapters/c12270>

Chapter pages in book: (p. 1 - 18)

NATIONAL BUREAU OF ECONOMIC RESEARCH, Incorporated

ANNUAL REPORT

of the Director of Research to the

Board of Directors

February 7, 1921

Before the staff of the National Bureau of Economic Research was organized the Executive Committee had chosen the first subject to be investigated — namely the National Income of the American people and its distribution. When Mr. Macaulay and Dr. King reached New York in May the research staff held a series of meetings to plan the work. This preliminary planning was much facilitated by the fact that Dr. King had already worked over the field in his book published in 1915 on the Wealth and Income of the People of the United States, and that Mr. Macaulay had been critically interested in Pareto's law of the distribution of personal incomes.

From the start the staff realized that they could hope to make merely a rough approximation to the actual size of the National Income and of the shares into which it is variously divided. Many of the items, including some of the largest, have to be estimated on the basis of inadequate data. Hence the staff were eager to arrange a series of statistical controls over their work. Whenever possible, they wanted to make two or more estimates based on independent data and to check one estimate against the other. With this end in view, as well as to learn all they could about the way in which the National Income is divided, they planned two separate estimates of

First
topic
of
inves-
tiga-
tion

Plan of
the work

the total, estimates to be made by different hands, from different viewpoints and based on different data — estimates whose agreement or disagreement with each other could not be known until both were completed.

This general plan of making at least two independent estimates has commended itself more and more to our judgment as we have progressed in its execution. Needless to say, the preliminary scheme of work adopted last May has undergone considerable elaboration as we have become more intimately acquainted with the available data and as we have analyzed the National Income in detail. How our plan of work stands now is shown by the MS. on "The Income of the American People and its Distribution" which is submitted with this report. This MS. is a preliminary draft which we hope the Directors will criticise and help us to better. When revised, it may form the introduction to our general report.

The Four
Estimates

As there explained in detail, the staff suggest four ways of estimating the National Income. (1) This income may be regarded as the aggregate of the commodities and services produced by all the extractive, transporting, manufacturing, mercantile, financial, professional and government enterprises of the country working in concert. We call this the Estimate by Sources of Production. (2) The National Income may also be regarded as made up of the contributions of labor, capital, natural resources and business enterprise. An estimate made from this viewpoint would be an Estimate of Factors of Production. (3) The Estimate by Incomes Received includes all personal incomes together with the undistributed incomes

of business and government enterprises. (4) If all the incomes received by individuals plus the undistributed incomes of business and government enterprises are regarded as either consumed in the current support of the population or as invested to increase future income, we get an Estimate by Consumption and Savings.

Of these four estimates, the first and the third --- the Estimate by Sources of Production and the Estimate by Incomes Received --- are the two that can be made for the country as a whole and made for the most part from independent bodies of data. The Estimates by Factors of Production and by Consumption and Savings, on the contrary, cannot be made for the whole country or made from data that yield satisfactory control totals. For example, we cannot really split up the farmer's income into wages, interest, rent, and profits; for it is seldom so split up in practice and the sum of wages for the farmer's labor, rent for his land, interest on his capital and profits for his enterprise, all taken at the prevailing rates, usually exceeds the farmer's total income even after we have counted in the food and fuel which he produces for his own family and the rental value of his house. So, too, with Consumption and Savings. Professor Friday, a member of your Board, has thrown much light on corporate savings; but we have few satisfactory data concerning the savings of small business enterprises and individuals. Hence, we have deferred most of our work upon the Estimates of Factors of Production and by Consumption and Savings until we shall have completed the two estimates for which

better data exist. By using the latter figures as control totals, and by applying the method of sampling, we may be able at a later stage to make useful studies of what shares in the National Income go to labor, capital, natural resources, and business enterprise, and of what part of that Income is currently consumed and what part is saved.

We are, however, preparing one part of the Estimate by Factors of Production. In dealing with the value products of one industry after another, Dr. King has found it feasible to get figures approximating the wages and salaries paid to employees. At the end of his work, he will have an estimate for the share of hired labor in the National Income, but of hired labor only, set over against an estimate of the share of all men working on their own account plus the incomes derived from ownership of all kinds of property. These figures will be of great interest, but, to repeat, they do not show the full share of labor in the National Income, and they tell us nothing about profits, interest and rent.

Our main efforts, then, since last May have been spent on the Estimates by Sources of Production and by Incomes Received. Dr. King has been making the first estimate, utilizing the great variety of sources which throw light upon the value produced by different industries and professions. In general, his procedure is either to start with the aggregate selling value of an industry's output and subtract cost of raw materials, fuel or power, bank interest and other payments for values produced by other industries; or to cast up wages, interest, rent, and profits; or to

The Estimate by Sources of Production

do both and check one estimate against the other. He began with the most difficult part of the field to find out as soon as possible whether this line of work is feasible -- namely the industries which have been omitted from the recent censuses of manufactures. So far, he has prepared tentative reports upon repairing automobiles, sewing machines, typewriters, locks, clocks, jewelry, shoes, and bicycles (a branch of production generally neglected altogether, although the total output runs in the billions); upon custom dressmaking, tailoring, millinery, dyeing, and cleaning; upon blacksmithing, cabinet making, taxidermy, power laundries, custom grist mills and saw mills, private and municipal electric light and power plants, and private building construction. In addition, he has in a more or less advanced stage of preparation, tentative reports upon railroads, street railways, sleeping-car companies, express companies, water transportation, and agriculture.

The Estimate by
Incomes
Received

The Estimate by Incomes Received, as well as the sometimes heavy secretarial work of the Bureau, has been in Dr. Knauth's hands. His task is to subject the statistical returns of the Bureau of Internal Revenue to a searching criticism, to estimate the amount of tax-exempt income, to piece out the income-tax figures in the range below \$2,000, and to estimate undistributed business and government income. Dr. Knauth has already submitted tentative reports upon (1) the total incomes received by persons having an income of less than \$2000. per year, except farmers; (2) the total estimated incomes of farmers; (3) the total estimated income of persons having an income of \$2000. or more per annum; and (4) corporate and government surpluses.

The Tables of Personal Incomes

The most important portion of the Estimate by Incomes Received is the set of tables showing the estimated number of persons receiving incomes of varying size, ranging from less than nothing to more than \$5,000,000 per year. Successful work on this topic demands a full command of mathematical technique. Some twenty-five years ago, the Italian economist, Vilfredo Pareto, demonstrated that when the returns collected by income-tax bureaus of different countries are tabulated on a log-log scale - that is, when both size of income and number of persons receiving incomes of each successive size are plotted on logarithmic scales - the line drawn through the plotted points will be approximately straight. Pareto, himself, recognized that his law cannot hold true of the lower range of incomes. Instead of a straight line there must be a curve with a "summit" or "mode" and a descent in both directions. Mr. Macaulay, who is in charge of this part of our work, has been engaged in an attempt to formulate a mathematical expression which should do for the whole income range what Pareto's straight line had done for the upper range. At present, he is using an hyperbola with a mode somewhat below \$600 in 1917 as the most promising working hypothesis, and is trying to find how accurately this curve fits the data. A first draft of his report has been mimeographed for the use of your Board. You will find this paper more interesting if you take the present occasion to examine some of the numerous charts which have been drawn under Mr. Macaulay's direction.

Mr. Macaulay is testing his working hypothesis first for 1917, because he has on the whole rather better data for that than for any

Years covered by the investigation

other year. We are not confining our work, however, to any single year, but covering the whole decade 1909-1919. The reason for including this range of years is not merely the great interest which attaches to the annual fluctuations which the National Income undergoes, but also that the data on which we build are badly scattered in time. No one year stands out with a statistical record far superior to other years. We desire to utilize all of the well-accredited sources we can, and to do that it is best to make an estimate for every year of the decade. A further advantage is that our figures for successive years constitute in some measure a check upon each other.

Date scheduled for finishing the first draft

We hope to finish the Estimates of the National Income in 1909-1919 by Sources of Production and by Incomes Received -- including the tables of personal income -- early in May. That date is necessarily tentative, for in an investigation such as we are conducting, progress may be hastened by unexpected finds of time-saving material or retarded by illness or unforeseen gaps in the data which require long searching to fill. But we are making our plans with May as the month for completing our first report.

Critical review by the Directors

That prospect makes pressing a question which for some time the Staff have been wishing to put to the Directors. Under the by-laws of the Bureau, reports are to be submitted to the Directors for criticism before they are published. The Staff hope to profit much by your careful consideration of their MSS. But you will find the task of going over a rather long and in part technical report rather laborious. We shall try to write as concisely and as clearly

as possible; but it seems necessary to state our results in such form that the serious student can tell what sources we have used and how we have put our figures together. We cannot make the story a simple and easy one, uncomplicated by qualifications; if we did, it would not be a true story. Do you wish us, then, to send you instalments, or do you prefer to get the report as a whole? If you take instalments as they are finished, you may be left at the end with a somewhat hazy idea of the relations between the several parts of the report, even if you keep the general plan of the investigation in mind and refer back occasionally to the introductory section. If on the other hand, you take the report as a whole, you will have a rather difficult little volume to read all at once.

Need of
prompt
publica-
tion

The Staff wish to consult your convenience in this matter, but they hope that in reaching a decision, you will consider how you can give the most prompt as well as the most thorough consideration to the report. It is highly desirable on financial grounds that the Bureau should get into print as soon as possible. Our usefulness depends in large measure on our revenue, and we believe that it will be far easier to raise money when we have some tangible product of our work to show. The Directors can make a most substantial contribution to the Bureau's progress by reading the MS. report quickly and sending in their criticisms as fast as they read it.

Form of
publica-
tion

Another point which the Directors may care to consider is the form of publication. The Staff recommend strongly that the report, after final revision, be published in full as a pamphlet or book -- that is, published in such fashion that critics may have ample

opportunity to judge the thoroughness of our investigation and the reliability of our results. In addition, we anticipate that the Directors will approve the preparation of a brief statement of the main results, properly guarded against any but wilful or ignorant misuse, and designed to secure wide publicity. There remains a third type of publication. In the course of our investigation, it has proved necessary to prepare two or three relatively brief studies of collateral points in order to get data required for making or interpreting certain estimates. For example, Dr. King has made reports on the population of the United States for intercensal years and on the prices of consumers' goods used by working-class families. Other such reports will doubtless be made from time to time. Expense will be saved to the Bureau if items of this sort are published separately in the technical journals, such as the Quarterly Publication of the American Statistical Association, and merely referred to in our own published report. Of course all cases of this sort would be referred, as they arose, to the Executive Committee of the Board, and due credit would be secured to the Bureau if the Committee approved separate publication.

A final word must be said about the choice of problems to be attacked after the present report is concluded. It is the duty of the Director of Research to make recommendations upon this head, but I can perform this duty much more intelligently after I know just how much ground our report covers and especially after I know just what inquiries this report starts in the minds of the Directors. At present, however, I should like to submit a general suggestion,

The choice
of future
problems

regarding the principle upon which future topics should be chosen. I think we should plan to complete our studies of the National Income, and work outward from that central field. It may be desirable to take up a few incidental inquiries, like Mr. Lewisohn's problem of the hired-manager, which we can manage without serious derangement of our main program; but it would be poor policy to scatter our energy over a considerable number of unrelated topics, however fascinating.

If you approve of the general policy I am suggesting, it would probably mean that after the current report is finished, we should take up for careful study the shares of wages, rent, interest and profits, and the subject of savings versus current consumption -- unless indeed Professor Friday plans to cover the latter field himself. It is quite possible that still other investigations supplementing our first report may seem to be desirable by the time that report is finished.

May I also suggest one topic on which we shall come as soon as we move outward from our central field? Our preliminary figures indicate that the National Income can scarcely be large enough to secure what we consider a decent standard of living for all American families. If the final figures are not much larger than we anticipate, they will lend new emphasis to the call for a greater output of staple commodities. But while all the producing interests may admit the desirability of having more and better food, clothing, and housing for our people, they also point out the difficulty of finding profitable markets for the current output. Here lies, indeed,

the great economic problem of the future -- how to produce and distribute the vast quantities of commodities and services we wish to consume. The Bureau of Economic Research cannot solve that problem, but it can make one modest but serviceable contribution toward a solution. Others have made a bare beginning in studying the relations between supply, demand and market price of a few staples. Yet there exist abundant statistical data for a systematic study of many commodities from this viewpoint. If the Directors think this subject important, they can be assured that work upon it will yield definite results -- and that within a fairly short time.

But, to repeat, these are merely tentative suggestions and in due season, I must submit to your Executive Committee a much more ample statement. In the meanwhile, I append to the present report a brief digest of suggestions for future work which have come from various quarters, and request that the Directors will help us with their own suggestions or comments either at the present time or whenever occasion offers.

Conclu-
sion.

In closing, may I thank the Board on behalf of the Staff for the advice and criticisms they have given whenever appealed to. I hope they will not feel alarmed at the prospect that these appeals will be far more numerous in the year to come than they were while the Staff was finding itself.

Respectfully submitted,

WESLEY C. MITCHELL
Director of Research

Appendices -

Please include material on following sheets under captions given here.

- 1. Reports submitted or in preparation by Dr. W. I. King.**
 - a. Reports submitted (p. 13)**
 - b. Reports in preparation (p. 14)**
- 2. Report submitted by Mr. F. R. Macaulay.**

Personal Distribution of Income in the United States

- 3. Reports submitted by Dr. Oswald W. Knauth (p. 15)**
- 4. Digest of Subjects suggested for Future Research (pp. 16, 17)**

REPORTS SUBMITTED TO THE

DIRECTOR OF RESEARCH

by

R. I. KING

1. The Annual Value Product of American Industry.
2. The Growth of the Automobile Repair Industry.
3. The Repair of Sewing Machines, Typewriters, Locks, Clocks, and Jewelry.
4. The Shoe Repairing Industry.
5. Custom Dress-Making.
6. Bicycle Repairing, Blacksmithing, Cabinet Making and Taxidermy.
7. Custom Tailoring, Millinery, Dyeing, and Cleaning.
8. Power Laundries.
9. Custom Grist Mills.
10. Custom Saw Mills.
11. Private Electric Light and Power Plants.
12. Municipal Electric Light and Power Plants.
13. Private Construction of Buildings, etc.
14. Summary of Minor Industries.
15. Estimate of Population of U. S. for Intercensal Years.
16. Index of Prices of Consumption Goods used by the Working Classes.

REPORTS IN PROCESS OF PREPARATION

by

W. I. KING

1. Private Manufacturing as Reported to Census of 1914.
2. Railways.
3. Street Railways.
4. Pullman Car Companies.
5. Transportation by Water.
6. Express Companies.
7. Agriculture.
8. Telephones.
9. Telegraphs.
10. Unemployment in Different Industries.
11. Index of Average Retail Prices of Articles Purchased
by the Wealthier Classes of the Population.

REPORTS SUBMITTED BY

DR. OSWALD W. KNAUTH

1. Total income received by persons having an income of less than \$2,000 per year (excluding farmers)
 1. From wages
 2. From Investments
 3. Farm laborers
2. Total estimated income of persons having an income of over \$2,000 per year, based on:
 1. Income tax data
 2. Estimated tax exempt income
3. Total estimated income of farmers.
4. Total estimated undistributed government and corporate surplus.

DIGEST OF SUBJECTS SUGGESTED
FOR FUTURE RESEARCH.

1. A Tabulation of
 - a. Labor Expenses - Absolute and Proportional.
 - b. Increase of Labor Expenses.
 - c. Profits of selected industries.
 - d. Comparison of increase of prices and increase of profits in the same period.
2. The study of economic movements after great wars - particularly the Napoleonic Wars - to ascertain how rapidly and in what lines conditions have returned to normal - particularly, in regard to movements of prices, interest rates, exchange rates, gold premiums, wages, and classified government expenditures.
3. A critical survey of the present status of statistics of production, covering the United States in great detail, and other countries, insofar as may be practical
4. An investigation of the total national increase in efficiency and income over a long period of years.
5. A study of costs, profits, wages, and the relations which these bear to each other in certain key industries, such as coal, steel, meat-packing.
6. A study of the extent of easily preventable wastes.
(Examples: The failure to make a practical application of the Torrens law in the City of New York probably amounts to a tax on Real Estate values in the neighborhood of one-tenth of one per cent.)
Also avoidable accident and avoidable illness.
7. A study of elasticity of demand, and the shape of the demand curves for different commodities, showing the correlation between the amount actually sold and price; that is, the different effects upon amount sold of changes of price of different commodities.
8. The relation of interest rates to commodity prices.
9. The relation of money and credit in different countries to the extent of the rise in prices.

10. A survey of the entire cost of the Educational System of the United States, showing the relative costs of primary school, grammar school, high school, colleges, and graduate schools.
11. An investigation into the responsibility for the abnormal high cost of living and profiteering which we have been confronted with for several years, dealing with the subject from base to peak so that an honest finding can be made.
12. An investigation as to why children go to school hungry. What is responsible for this condition?
13. Relation between increase of consumable wealth and population over a long period.
14. Relative importance of the hired-manager and the owner-manager in the United States today, in respect to the number of men who come under the supervision of each.
15. Investigation into the truth of the assertion in a recent newspaper summary that "according to tax returns \$22,700,000,000 was spent on luxuries in this country last year - giving divisions-. If erroneous, how much in fact is spent by the American people for luxuries of the kind given in the newspaper list?
16. Study of the economic effects of the prohibition of alcoholic drink in the United States.
17. Investigation into the effect of the eight hour day upon production in bulk. (Such investigations as have been reported on this subject have been manifestly badly executed, and fragmentary.) Mr. Ingalls can offer suggestions respecting the method of approach on this study.

