STAFF REPORTS

1 National Income and Capital Formation

CAPITAL REQUIREMENTS OF THE AMERICAN ECONOMY

Research on this project, made possible by a grant from the Life Insurance Association of America, was begun in the middle of the year. The investigation is concerned with three general questions: (a) What have been the long-term changes in real capital formation, volume of capital funds provided, relative amounts of equity and outside financing, etc.? (b) What major factors appear to have determined these changes? (c) Were the changes and factors under (a) and (b) persistent enough to serve as a basis for prognosis?

In analyzing the main factors, those in force today and likely to remain active in the foreseeable future will be stressed. Particular attention is thus to be devoted to locational, technological, financial, and other currently operative factors whose effects will continue to be manifest in the longer run. In general, the study will concentrate upon analysis rather than collection of new data and construction of estimates; efforts will be made to utilize already available estimates and studies. We shall attempt to gather data for and analyze detailed industry, product, and institutional categories; area subdivisions within the country in order to take account of location factors; and size of business classes. Coverage will extend back to 1900 at least and, if possible, to 1870; but for the most part data at wide intervals, adequate to permit observation of longer-term trends, will be used.

In view of its wide scope, the study has been planned in such a way that various parts, each a major undertaking in itself, can be done separately, then integrated in a final report. A brief description of the studies initiated so far follows.

One group of studies deals with the demand for real capital and for capital funds in the chief sectors of the economy in which the demand originates. The first, on agriculture, is being carried on jointly with the

Department of Agriculture, Bureau of Agricultural Economics, and is under the direction of Alvin S. Tostlebe. Mr. Tostlebe's work has progressed sufficiently to indicate that real capital in agriculture can be estimated by states for census years back to 1870. This will permit an analysis of the relation between capital stock and the character of farming, as far as farms in different states differ with respect to product, size, etc. Analysis of the sources from which capital accumulation in agriculture has been financed cannot be carried as far back or in as much detail, but there is hope that an adequate analysis for the last four decades can be made.

Daniel Creamer is in charge of the second study—on manufacturing and mining. His tests have demonstrated that the census data on capital, available by census years since 1869, yield satisfactory comparisons with data on capital derived from *Statistics of Income* for 1919; hence capital accumulation in these industries can be analyzed for some eight decades. Here again, information on sources of funds does not extend as far back but can be obtained for a long enough period to reveal recent trends and permit analysis of the factors determining them.

Melville J. Ulmer of American University is directing the third study —on transportation and public utilities. Work started only last October, but rapid progress is being made in accumulating data.

The fourth study, dealing with capital and capital formation in residential and related housing, is a joint undertaking with the Institute for Urban Land Use and Housing Studies of Columbia University, and is under the direction of Leo Grebler. An initial task, undertaken in cooperation with the Bureau of Labor Statistics, was to tabulate an existing collection of building permits data that would extend the record of nonfarm residential and other construction, on a nationwide basis, back of the second decade of this century. Other studies now under way include explorations of trends in the ratio of new to existing dwelling units; in costs and terms of residential financing; and in the flow of mortgage funds.

Morris A. Copeland of Cornell University is directing the fifth study —on capital formation in government. How the federal debt has been financed and the factors that affected its formation are being explored as far back as possible but with special attention to developments since 1916. The large absorption of capital funds via this channel seemed to warrant initial emphasis on it; naturally, other channels whereby capital funds are absorbed by government will be studied, and the factors that determine the demand via these channels analyzed.

Solomon Fabricant has the sixth study—demand for capital from

abroad—in hand. Work has been started along three lines: assembling data for the United States since 1869, with special emphasis on long-term investments classified by industry; reviewing the foreign literature on international investment, with special attention to the factors suggested as determining international investment flows; assembling and reviewing estimates of future foreign capital 'requirements' or 'needs'.

Studies that range over the whole economy form a second group. A study by Raymond W. Goldsmith of financial intermediaries will analyze shifts in the relative importance of different financial agencies, including ultimate savers, as sources of external financing. This work should link the investigations of the different capital-using sectors with the Life Insurance Association of America's study of the volume and flow of savings which Mr. Goldsmith has directed. For the present, he can devote only part time to our investigation since he is endeavoring to complete the study of savings. But explorations into gross flows of funds for recent years are going on and should be completed by the end of the year; intensive research on net flows should begin by autumn.

Other general studies deal with population and national product and its components. Preliminary work on population disclosed an important complex of problems to be studied and a sizable body of data to be handled, bearing directly upon the other studies, and important for the final synthesis. Dorothy S. Thomas of the University of Pennsylvania is investigating regional population shifts and internal migration, and preparing annual estimates of population since 1869.

The work on national product and its components is under my direction. The first task, approaching completion, was to prepare annual approximations of the national product, in current and constant prices, since the 1870's. These and other estimates should serve primarily for reference in other studies as well as in the final synthesis.

In addition to these general studies, we expect to draw upon the results of three conferences in fields closely related to our inquiry: a conference on technological change held under the auspices of the Social Science Research Council in April; one on long-term projections of national product and its major components to be held in May; and one on short-term projections in September. The latter two conferences are being arranged by the Conference on Research in Income and Wealth (see below).

Simon Kuznets

OTHER STUDIES

Simon Kuznets' book, "Shares of Upper Income Groups in Income and Savings", and Morris A. Copeland's "A Study of Moneyflows in the United States" are being reviewed by the Directors. For other studies of income and investment, see especially Section 4; also Creamer's, Klein's, and Hultgren's reports in Section 3, and Miss Hartland's report in Section 6.

CONFERENCE ON RESEARCH IN INCOME AND WEALTH

Volume Twelve of *Studies in Income and Wealth,* containing papers on the measurement of national wealth, was published in 1950, and *Volume Thirteen,* which deals with the size distribution of income, in April 1951. *Volume Fourteen,* comprising the papers on wealth presented at the April 1950 meeting of the Conference, is being edited by Martin R. Gainsbrugh and E. T. Bonnell; and *Volume Fifteen,* containing the papers on the size distribution of income and related magnitudes presented at the special June 1950 meeting held by the Conference at the University of Illinois, is being edited by Dorothy Durand.

Except for a few final touches to take account of revisions in the statistics, Irwin Friend's manuscript on individual savings is ready for review by the Conference's advisory committee.

To speed publication, the Studenski-Wyler manuscript on national income in various countries has been split into two parts. The first, containing the general discussion and a summary of the estimates, as well as the chapters on the English-speaking countries, is being pushed towards completion as rapidly as possible. The second part, to which the chapters on all other individual countries have been relegated, will then be assembled.

Two meetings of the Conference are planned for 1951. One, to be held in May, will be devoted to long-term projections of national product and its major components; the organizing committee consists of Simon Kuznets, *Chairman,* Gerhard Colm, and Edgar M. Hoover. The other, to be held in September, will be on short-term projections; the program has been arranged by a committee made up of Irwin Friend, *Chairman,* Homer Jones, Lawrence Klein, and Franco Modigliani.

The Illinois meeting was our first away from the distractions of New York or Washington. Its success led us to hope that the meeting on short-term projections could also be held in the quiet atmosphere of a college campus; we were therefore happy to accept the invitation of the University of Michigan and the conference will be at Ann Arbor.

Solomon Fabricant, *Chairman*

THE SUPPLY OF LABOR

I am revising my manuscript, "The Supply of Labor", for submission to the Directors. Because of the growing concern over manpower shortages, I am summarizing here some findings concerning the behavior of the labor force in the United States, Great Britain, Canada, and Germany during World War II.

Of the four countries, Britain at war peak had the largest labor force in relation to population, but this was because its proportion was high in peacetime; its wartime inflows were about the same percentage as the United States'. Both accumulated an extra 6 per cent of working-age population or, in relation to normal high employment labor force, 10 and 12 per cent respectively. In the United States the labor force was 6.5 million larger than normal (standardized for age and sex); in Britain 2.4 million larger. Canada's expansion was the smallest of the three English-speaking allies. Germany, on the other hand, even with no deduction for war casualties, actually lost some of its native labor force. With the dubious addition, by 1943, of 6 million foreigners and prisoners of war, the German labor force can be said to have expanded, but its accretions minus war casualties were only 4.5 million, smaller than those of the United States from its nationals.

The United States and Great Britain added mainly girls and women —about six-tenths of the reinforcements in the United States and almost eight-tenths of those in Great Britain. To every 100 females who would have worked gainfully under high employment conditions, the United States added 28 girls and women, Britain 26, Canada 13, and Germany lost 1. To every 100 males, this country and Canada added 7, Britain roughly 3, and Germany 0.3.[1]

Wartime extras replenished the civilian labor force to the extent of almost exactly half the men it lost to the armed forces in Great Britain and over half in the United States and Canada, though the latter's high replacement was due to the mobilization of a small armed force, not of a large labor force. Germany's accomplishment depends upon how one accounts for war losses and prisoners. If one deducts the first and ignores the second (on the ground that productivity of captive labor was probably not high), the Germans not only failed to make up

[1] These data are for the labor force mobilized from the native population. Deducting war losses, the German figure for males would be —6 instead of 0.3. Deducting war losses and adding prisoners of war and foreign slave labor, the additions would be 9 females and 12 males.

for any inductions into their armed forces but actually lost a sixth of their labor force, even counting the military.

Unable to compensate fully for conscriptions, the civilian labor forces of all four countries sank to levels substantially below normal: the United States and Great Britain, roughly 10 per cent; Canada, 6 per cent; and Germany, even when foreigners are counted as workers, 14 per cent. But the fact must not be lost sight of that *employment* expanded in some countries. In the United States, since unemployment declined 8 million and the labor force increased 12 million (3 million from the growth in population, 7 million from war additions, and 2 million from economic recovery), 20 million new workers flowed into civilian and military employments during 1939-45—a roughly 45 per cent expansion in the number actually at work. Partly by increasing supply and partly by utilizing it more fully, this country could divert over a fifth of its normal labor force into the military and still expand its civilian employment 14 per cent. (Owing to the increase in overtime, its expansion of employment was, of course, greater still when measured in manhours.) In Canada civilian employment rose about 10 per cent, in some degree because of additions to the labor force but mainly because of large unemployed reserves, rapid population growth, and relatively small military inductions. Civilian and military employment together increased roughly 20 per cent, a substantial increase but less than half that of this country.

The two other nations were less fortunate. The British, who had a slower population growth and less prewar unemployment to draw on, added only about 15 per cent to total employment; their civilian employment declined about 3 per cent below that of 1939. They enlarged their war industries only by severely curtailing domestic services, construction, and the manufacture of clothing, food, and beverages. German civilian employed fell 7 per cent below 1939 despite a small decline of the unemployed, an increment to the population that contributed 1 million to the work force, and the inclusion of 6 or more million foreigners and war prisoners. Not counting foreigners, it declined 23 per cent.

Recruitments to the labor force were closely associated with those of the armed forces. Until the latter expanded, the labor force grew only slightly and by the time most of the armed forces had been demobilized, had shrunk to normal levels for a period of high employment demand for labor.

Clarence D. Long

In the 36 years since 1914 both money and real wage rates in the United States have increased more than in any known period of similar length. The effects of two wars and the postwar booms that followed them far overshadowed the pressure to reduce wages which operated during the depressions of 1920 and 1929. Straight-time hourly earnings in manufacturing, perhaps the best available measure of this movement, show that money wage rates of factory employees rose, 1914 to October 1950, from 22 cents to $1.44, or more than sixfold; the real wage rate rose something less than threefold.

It was during the wars and the postwar booms that money wages advanced most. But real wages, as the table shows, increased almost as much during the recovery, 1922-30, and substantially more from 1933 to 1939.

	PERCENTAGE INCREASE IN HOURLY WAGES	
	Money	Real
July 1914 to October 1920	147	25
July 1922 to April 1930	25	23
June 1933 to September 1939	58	51
September 1939 to October 1950	129	31

During the severe depressions which began in 1920 and 1929, the money wage rates of factory labor were sharply reduced and real rates of pay, as shown below, just about held their own.

	PERCENTAGE CHANGE IN HOURLY WAGES	
	Money	Real
October 1920 to July 1922	−22	−7
April 1930 to June 1933	−24	+1

The business recessions of 1937-38 and 1948-49 did no more than halt the upward trend of factory wages. Between October 1948 and November 1949, when wages began to turn up again, hourly earnings in manufacturing moved within a narrow orbit, from $1.39 to $1.40. In several other industries, however, wage rates proved more sensitive, particularly to falling prices. Thus, the hourly wages of lead and zinc miners dropped 15 cents from January to August 1949, and the wages of copper miners 10 cents an hour in roughly the same period. The wages of farm labor reacted similarly to declining farm prices, the largest recorded decreases in wage rates per hour, October 1948 to October 1949, amounting to 11 cents in New England and 9 cents on the Pacific Coast.

The relation between wage changes and employment and payrolls will be the subject of an *Occasional Paper*.

Gerhard Bry has concluded his study of German wages under varying business conditions, 1871-1945, and has submitted a manuscript.

Leo Wolman

GOVERNMENT EMPLOYMENT AND PRODUCTIVITY

A draft of "The Trend of Government Activity in the United States since 1900" has been submitted.

The chapter headings may serve to indicate its contents:

1 Resources Absorbed in Government Activity
2 Share of Federal, State, and Local Governments in Resource Input
3 Functional Distribution of Input
4 Productivity in Government
5 Government's Services
6 Interstate Differences in Government Activity
7 Factors Affecting the Trend of Government Activity

In addition there are several appendices containing basic tables and a critical review of the available statistics.

Solomon Fabricant

EMPLOYMENT AND PRODUCTIVITY IN TRADE

A manuscript, "Productivity and the Cost of Distribution since 1869", has been prepared. My estimates for the gross distributive margin as a percentage of the retail value of all finished goods are as follows:

1869	*1879*	*1889*	*1899*	*1909*	*1919*	*1929*	*1939*	*1947*
33	34	35	36	37	37	37	37	38

These figures equal the sum of retail and (where applicable) wholesale 'value added' expressed as a percentage of the retail price. They do not include manufacturers' selling costs or transportation charges between producer and distributor.

We tend to assume that productivity has advanced much more rapidly in the commodity-producing industries, i.e., in mining, manufacturing, and agriculture, than in wholesale and retail trade. The best, though necessarily crude, estimates of the volume of goods produced and distributed, and of persons engaged in production and distribution respectively, support this belief. Yet the fraction of the consumer's dollar absorbed by distribution has scarcely increased. The above figures imply that, at least since 1909, unit costs of production have not declined appreciably relative to unit costs of distribution. Output and labor force data suggest a differential growth of output per worker of about 20 per cent per decade in favor of the commodity-producing industries; a corresponding figure computed from the margin data quoted above would be only 3 per cent per decade.

Is there a real conflict of evidence here? The large collection of data on hours of work in retailing assembled by my assistant, Roselyn Sil-

verman, indicate that the work week fell more rapidly in trade than in the commodity-producing industries. Such a differential trend in hours accounts for a significant part of the discrepancy. We are also examining other factors in the situation: the possibility that the physical volume of goods distributed may be a poor measure of the net output of distribution; and differential trends, if any, in hourly earnings and capital per worker.

Harold Barger

GROWTH OF THE SERVICE INDUSTRIES

I have been seeking explanations for the relatively rapid growth of employment in the service industries. As one approach, several experiments were made in 'predicting' past consumption trends by the use of budgetary expenditure patterns. The results ranged from mediocre to miserable. It is a plausible conjecture that only if budgetary data for fairly homogeneous classes (such as families of a certain size in a certain size of city) can be matched with time series will the method yield good predictions. At present such classification cannot be carried far because time series on population and income cannot be finely classified, and the procedure becomes extremely laborious.

Another approach is therefore being tried. Certain changes in the structure of the population, such as increased urbanization and declining family size—which are of course related to rising income—are being studied for their effects on the consumption patterns of American consumers. A very simple illustration will suggest the magnitude of the effects of such changes. The accompanying table, which assumes that

AVERAGE FAMILY EXPENDITURE BY TYPE OF COMMUNITY, 1935-1936
(FOR FIXED INCOME DISTRIBUTION)

	FARM	RURAL NONFARM	URBAN
Food and tobacco	$577	$469	$513
Clothing	135	159	160
Personal care	20	31	33
Housing	165	213	301
Household operation	143	225	222
Medical care	59	70	71
Transportation	124	150	132
Recreation	36	57	62
Education	15	20	13
Total expenditure	1,280	1,406	1,517

all families were urban, rural nonfarm, or farm and that the distribution of income was the same in each case, indicates that urbanization increases most the demand for personal care, housing, household opera-

tion, and recreation—all to some extent supplied by the service industries. Of course this is only a short first step in an analysis of the effects of urbanization, and ignores such important questions as price variations by community size, the extent to which food is grown at home, and the demands for governmental services. Such complications are being investigated, and on the whole do not diminish confidence in the importance of changes in population structure in explaining trends in consumption.

Yet the 'cross-sectional' analyses yield many ambiguities and some downright anomalies—such as that the larger the proportion of housewives in the labor force, the *smaller* the per capita sales of restaurants. It is highly desirable to check such analyses against developments through time. I am exploring a combination of approaches; e.g., comparing state changes between 1920 and 1940 in service industry employment with state changes in income and other variables.

George J. Stigler

TRENDS IN EMPLOYMENT AND PRODUCTIVITY

In our studies of production and productivity we have attempted to improve available estimates of labor input for 1899-1949, utilized newly available census materials for 1939-47, and investigated the part played by interindustrial employment shifts as factors in productivity changes in the economy at large.

As is well known, industries differ substantially in their average value of product per man or manhour. Differences in 'value productivity', reflecting market valuations, as well as variations in power utilized, in effectiveness of capital equipment employed, and in other factors affecting productive operations, are of considerable economic importance. Like biological variations in the process of evolution, they provide one of the instruments of progress. For the overall productivity of the economy may be enhanced by the mere shifting of resources from sectors of low value productivity to sectors of higher value productivity without any technological or organizational changes.

Such shifts are, of course, always occurring. If we let the percentage distribution of persons engaged in production in a given year serve as a standard of comparison for the following year, we may measure the structural changes in employment from year to year. The magnitude of interindustry shifts, as thus measured, is shown by the accompanying figures on the shifts among 68 industry groups recognized in national income accounts. The figures reflect the movement from a peacetime to a wartime economy, and the movement back. The movement back was, of course, more concentrated in time than was the shift from

peace to war. Almost 9 million persons shifted among industrial groups between 1945 and 1946. In the few less disturbed years shown, aggregate shifts averaged about a million persons.

YEARS COMPARED	NUMBER OF PERSONS SHIFTING*	YEARS COMPARED	NUMBER OF PERSONS SHIFTING*
1939-40	892,000	1944-45	1,669,000
1940-41	2,379,000	1945-46	8,751,000
1941-42	3,923,000	1946-47	2,541,000
1942-43	6,352,000	1947-48	990,000
1943-44	2,360,000	1948-49	1,075,000

* Each figure is the aggregate of intergroup shifts among 68 industrial groups. For each industrial group the number shifting (in or out) is the difference between the number actually employed in the second of the two years compared and the number who would have been employed in that year had the distribution of persons engaged in production been the same as in the first year. The aggregate number shifting is, of course, a function of the number of industrial groups set up, since intragroup shifts are not counted. In this case there are 68 such groups. The number shifting would be greater if the number of industrial groups were larger.

Those moving into an industrial group may be assumed to swell the aggregate income originating in that group; those moving away reduce the aggregate. We cannot determine with accuracy the income changes resulting from these shifts. On the basis of the provisional calculations we have made, however, it appears that a part of our productivity gains in recent decades may be attributed, not to technological or organizational improvements, but merely to the shift of productive resources to areas of higher value productivity.

Frederick C. Mills

OTHER STUDIES

Harold Barger's book, *The Transportation Industries, 1889-1946: A Study of Output, Employment, and Productivity,* was published in February 1951.

Daniel Creamer reports on a study of personal incomes in the next Section, and Ernest Rubin on immigration and the labor force in Section 6.

PERSONAL INCOMES

A manuscript on the behavior of personal incomes during business cycles will soon be ready for review by the Board. The analysis is concerned as much with the types of personal income as with the aggregate. In each instance we attempt to establish the timing and amplitude patterns of income flows during business cycles, including the contraction of 1948-49. Whenever possible we supplemented the Department of Commerce monthly estimates of personal income and its components with other monthly series or with annual data.

Our analysis of timing behavior supports the following conclusions:

1) Cyclical turning points in aggregate personal income and aggregate labor income coincide with or lag by a few months the cyclical turns in business activity.

2) Wages originating in commodity-producing industries tend also to have turning points that are coincident with or shortly follow business cycle turns, whereas wages originating in other industries tend to lag at the turns. The lags are longer for wages disbursed by the service industries than for wages disbursed by the distributive industries.

3) Lags characterized also salaries paid by manufacturing industries.

4) Dividend disbursements over more than 60 years have consistently lagged behind business cycle turns, though the duration of the lag since 1900 seems to have been less than the duration before 1900.

5) Interest payments and, presumably, net rents do not trace short cycles.

6) During the decade of the 1930's the net income of unincorporated enterprises in retail trade lagged at the peaks in business activity but had coincident turns at the troughs; this pattern was not evident in the 1948-49 recession.

With respect to amplitude of cyclical movement, we find that:

1) The relative amplitudes of expansions and contractions in salaries are less than the comparable movements in earnings of wage earners.

2) The net income of proprietors undergoes relatively larger upswings and downswings than do wages.

3) This is true also of dividend disbursements to individuals, except in periods of rapid and substantial changes in wage rates.

The implications of these findings for cyclical changes in the size distribution of personal income were developed by the use of Simon Kuznets' estimates of income by income size classes and by type of income. We analyzed also the effectiveness of unemployment compensation as an offset to the loss of labor income in contractions and investigated the

importance of net capital gains (or losses) in personal income and the character of their cyclical variations.

Daniel Creamer

CONSUMPTION AND PRODUCTION OF CONSUMER GOODS

A manuscript, "Consumption and Business Cycles; A Case Study: The Shoe-Leather-Hide Industry", has been submitted to the Director of Research.

Space does not permit a summary of critical findings. Suffice it to say that the industry appears to have been subject to briefer fluctuations in addition to those associated with business cycles, though for the most part the extra movements were less serious than the others. Taking all fluctuations in sequence, their average duration in the period studied was 15 months. Although these short cycles are prominent in the shoe-leather-hide industry they are not peculiar to it, and in fact are found in numerous other activities.

The study provides an explanation of the dynamics of these fluctuations in the shoe-leather-hide industry. Further, the practices and conditions on which they are found to depend could not possibly be peculiar to a single industry. On the basis of the analysis of process, we suggest their role in other fields and their relationship to the phenomenon of cyclical fluctuation as a whole.

Ruth Mack

CONSUMER EXPENDITURES AND SAVINGS PATTERNS

My study of household spending and saving behavior, jointly sponsored by the National Bureau and the University of Michigan Survey Research Center, was devoted largely to analysis of data gathered in the 1948 and 1949 Surveys of Consumer Finances. These Surveys, conducted by the Center for the Board of Governors of the Federal Reserve System, contain a wealth of hitherto unavailable material on the expenditures, savings, and assets of individual families. I have learned that the early months were well spent in trying to familiarize myself with the concepts, scope, and technical details of the Surveys. Before these data can be properly analyzed, one must understand thoroughly the questionnaire, sampling scheme, interviewing technique, and the coding-editing process. Above all, the investigator must refer constantly to the written interviews.

In attempting to establish statistical estimates of patterns of saving, spending, and asset-holding behavior of American households, I found that the supposedly straightforward procedure of estimating relation-

ships between savings, on the one hand, and income, liquid assets, debts, income change, family size, age of family head, and similar variables, on the other, is not satisfactory because the residual variance grows as income and assets grow. The results are better if the basic pattern being estimated is a linear equation relating the percentage of income saved to the logarithm of income, the liquid-asset income ratio, the percentage change in income, and age. In accounting for differences in the behavior of individual urban spending units, the logarithm of income and the liquid-asset income ratio appear to be the most strategic variables influencing the savings-income ratio, the former having a positive and the latter a negative effect. Income decreases show a definite relation to savings and, at the same time, intensify the effect of liquid assets. That is, the larger the decline in income from the preceding year the smaller the savings and the more influential the liquid asset position. Some of the effect of age on savings is seen to work through liquid assets, and this aspect will be further studied when asset-holding behavior is more fully treated.

Experimental calculations do not show any reliable influence of the debt-income ratio on savings. The savings relations have been studied separately for home owners and for renters in order to take account in a simple way of nonliquid assets in the form of residential real estate and to isolate the effect of not explicitly considering imputed rental income or depreciation on owner-occupied houses in the survey material with which I worked. The only significant difference in the savings patterns for the two groups is in the level of savings for similarly situated spending units, the level being higher for owner-occupants.

The difference between the actual savings ratio and the savings ratio estimated from my equations has been calculated for each spending unit. The residual variables show definite departure from a normal distribution, being excessively peaked. The calculated residuals have been studied in relation to several additional variables, many of which cannot be assigned numerical values, and I find some systematic, nonrandom patterns left in them. When income is 'expected' to decline, actual saving tends to exceed estimated saving, especially when the expected decline is realized. Moreover, realized declines not expected to be reversed into future increases are associated with positive residuals while realized declines that are expected to be reversed are associated with negative residuals. Realized increases of either type, i.e., permanent or temporary in the mind of the recipient, are associated with practically zero residuals. Hypotheses with respect to income change that will be further investigated are (1) that income decreases have different effects on savings depending on whether the decrease is considered 'perma-

nent' or 'temporary', while increases have much less effect, (2) that 'permanent' income change is negatively related to savings and 'temporary' income change positively related to savings. These investigations show the possibilities of introducing psychological or attitudinal variables into the economic analysis.

Similarly, demographic variables such as race, education, and changes in family composition were studied in relation to the residuals, though without significant result as yet. In future work rural-urban differences will be considered.

Relations between 24 months' saving, 24 months' income, and liquid assets at the middle of the 2-year period show more variance than the corresponding patterns estimated from 12 months' data. An alternative calculation in which the preceding year's savings ratio was used together with the logarithm of income, liquid-asset income ratio, and age to explain the variation in the current savings ratio failed to show that the influence of past saving on present saving could be reliably estimated.

Preliminary studies of durable goods expenditures show that the liquid-asset income ratio and age definitely influence the percentage of income spent for durables. A complicating fact in connection with durable goods expenditures is that nearly half the sample did not make any such purchases during the year. The use of 24 months' data or the preceding year's expenditures with 12 months' data may improve these estimated equations. It is planned to study the same set of attitudinal and demographic variables in the durable goods equation, and in addition another psychological variable, namely, expressed buying intentions.

Estimates of similar relations in independent samples from the 1950 Survey of Consumer Finances are planned; components of savings and durable goods expenditures too will be studied.

Lawrence R. Klein

COSTS AND PROFITS

Our findings about the varying breadth of participation in rising (or falling) profits at various stages of the cycle were published in "Cyclical Diversities in the Fortunes of Industrial Corporations", *Occasional Paper 32*. Are the early declines and early rises in the quarterly profits of some companies, described in this paper, accompanied by corresponding changes in the value the stock market places on the equity interest in those companies? A pilot study, based on the few companies for which profit data are available, 1920-23, explored the problems of technique and compilation that an attempt to answer this question

must encounter. To provide background for the study, we examined the cyclical variations in the Cowles and the Moody earnings-price and dividends-price ratios for manufacturing corporations. They show that earnings on stocks tend to be high relative to the market value of stocks in prosperity, low in depression. This, however, is not true of dividends. The ratio of dividends to market values fluctuates too, but not in any systematic relation to business cycles.

We arranged figures from Kuznets' and the Department of Commerce national income estimates to form a consolidated profit and loss account for the United States business economy, by years, 1919-49. As might be expected, the ratio of profit to consolidated net sales rises and falls in positive conformity with the business cycle chronology. The tendency is suggestively associated with two others. The ratio of new physical investment by business to sales conforms positively, like the profit ratio. On the other hand, pecuniary saving by business (accumulation of cash, purchase of government bonds, repayment of debt, etc.) is positive, or negative but small relative to sales, in depression, when profits are low; it is negative and large relative to sales in prosperity, when profits are high.

Differences among industries with respect to the amplitude of fluctuations in their profits were investigated. Among other questions, we asked: do industries that enjoy unusually large increases in profit during a business expansion suffer unusually large declines in the following contraction? Between the two broad groups, producers of durables and producers of nondurables, there is a clear-cut difference. The durables group is likely to have a higher rate of return on net worth than the nondurables group in a year when business is at a peak, a lower rate of return in a trough year. When we compare individual industries within each broad group with each other, however, we do not find a similar interchange of positions over the cycle. Indeed it would be more nearly true to say that industries whose earnings are high in comparison with those of other industries in prosperity have comparatively high earnings in depression also. But there is some tendency for the spread to widen in expansion and narrow in contraction. At least in some cycles, industries with a large *rise* in their profits during expansion tend to have a large fall in contraction.

In 1951 I plan to write a paper on the relation of cost and profit to fluctuations in the physical scale of operations, using material described in previous annual reports. If the outcome of the pilot study on stock prices is promising, the work should be extended to cover later cycles and more companies. The study of differences in profit variability from industry to industry should be extended, and an effort should be made

to relate the differences to the degree of leadership assumed by the various industries in the several cycles.

Thor Hultgren

FEDERAL REVENUES

This study attempts to determine the relations between general business activity and the federal government's income. The major components of the federal revenue—customs, income tax, and miscellaneous internal revenue—as well as their total are being analyzed monthly since 1880. For the period through 1938, the series move with business cycles but tend to lead by 1 or 2 months at both peaks and troughs—with the exception of the income tax series which lags by 3 to 6 months. Since the introduction of the withholding tax, however, this lag has probably been reduced. Income tax receipts have three to four times the cyclical amplitude demonstrated by the other series. When compared with Mitchell's summaries of average business cycle amplitude of 794 economic series, income tax receipts would be in the topmost decile whereas the other major components of federal revenue and the total would be near the median.

A more detailed analysis is being made of the receipts from the various excise taxes and other miscellaneous internal revenues. Not only the receipts themselves but also the tax bases and the rates of taxation applied to them are being studied. It is hoped that this approach will not only show what cyclical variation has taken place in the receipts from internal revenue sources but will help to explain the causes of the variation. The results should be of value in federal tax policy formulation with respect to the business cycle by showing the sensitivity of the various taxes to the cycle, which taxes may act as deterrents to recovery, and so forth. A study will be made of the change in consumption habits with respect to different tobacco products as a result of price and tax differentials. If the technique proves successful, the study will be broadened to cover receipts from sources other than miscellaneous internal revenue.

John M. Firestone

MONEY AND BANKING

Unfortunately, little progress has been made this year on our broad study of the cyclical behavior of monetary and banking phenomena, due to the pressure of other demands on my time. Work has continued along the lines described in last year's report, but as yet there is little to be added to the tentative conclusions summarized in that report.

Anna Schwartz has prepared a draft manuscript on her call date estimates of demand and time deposits in all banks in the United States since 1917. It is expected that the corresponding monthly series will be completed shortly and that a report on both the call date and monthly series will be submitted before the middle of the year.

Milton Friedman

TRANSPORTATION

A manuscript on transport in Britain, consisting of chapters on cyclical fluctuations in traffic, utilization of equipment, maintenance work, utilization of labor and fuel, and financial returns, together with a discussion of war and postwar developments, and a comparison of our findings for Britain with those for the United States, has been submitted for review. Some of these topics were first explored during the year. We describe our new findings below.

Do businessmen cut maintenance work severely in contraction and make up for it in expansion? The answer may help to explain how expansions and contractions cumulate. For British railways, we conclude that fluctuations in the physical volume of track maintenance corresponded to but were somewhat smaller, percentagewise, than fluctuations in traffic, while fluctuations in maintenance of equipment were about the same size as those in traffic.

Whether costs of doing business tend to rise in expansion and fall in contraction, as often supposed, is partly a matter of the relation between labor requirements and output. We find that traffic fluctuated somewhat more than the number of railway employees. Most workers, if they worked at all, and if they were available for work throughout a week, were guaranteed a full week's wages. Hence as far as straight-time work is concerned, the number of workers, rather than the number of manhours, is the important figure for the study of costs. Labor expense per traffic unit, then, tends (disregarding changes in wage rates) to vary inversely with traffic. We also traced the history of railway wage rates, 1919-38. After 1922 they were remarkably stable; changes in them therefore had little effect on cost.

Except in inflationary periods total railway expenditure per dollar of revenue fell in expansions and rose in contractions. More tentatively, we find that, with the same exception, expense per unit of physical output followed a similar course. These conclusions, like the conclusion on unit labor requirements, are unavoidably based on annual figures. Monthly data might disclose a rise in cost toward the end of an expansion or a fall toward the end of contraction.

We added a description of events since 1938, the last British business

trough so far dated in the NBER chronology. Goods traffic expanded from its own trough in that year to a peak in 1944, contracted to a trough early in 1947, and has since been rising. Passenger travel continued to decline into 1940, rose to a peak early in 1945, declined to a trough that we tentatively place in August 1948. The long contraction in railway travel during what was undoubtedly a period of business expansion is explained partly by the gradual decline in homeward journeys of persons demobilized from the armed forces and partly by increased availability of motor fuel for highway travel.

The wartime growth of traffic was substantial: for goods, 50 per cent from the year 1938 to the year 1944; for passengers, 42 per cent from 1940 to 1945. Except locally and temporarily, aerial warfare clearly did not disrupt the functioning of Britain's railways. The swollen traffic was handled with little or no increase in equipment and a sharp reduction in the quantities of ballast, sleepers, and rails laid in maintenance.

Thor Hultgren

ANALYSIS OF TIME SERIES

Much of the time of the business cycle computing unit was devoted to checking the factual content of Wesley Mitchell's *Progress Report.* Revisions of the specific-cycle analyses of some 70 series in the United States collection were also completed, thus narrowing further the list of series which require reanalysis in line with amendments of the National Bureau's standard technique. In addition, analyses were made of several new series, of which the most important are four compiled by Ilse Mintz on domestic and foreign security issues in the United States, 1920-30; seven dealing with currency holdings both within and outside the United States Treasury, 1878 to date; six Bureau of Labor Statistics series on labor turnover, 1919 to date; and twelve series developed by W. Braddock Hickman on offerings, extinguishments, and net change in volume outstanding of corporate bonds, 1900 to date.

Millard Hastay

OTHER STUDIES

What Happens during Business Cycles: A Progress Report, by Wesley C. Mitchell, was published in April 1951. The proceedings of the Conference on Business Cycles, held in November 1949, are in press. Oskar Morgenstern's "International Financial Transactions and Business Cycles" has been submitted to the Director of Research. See also Wolman's report (Sec. 2), Hickman's (Sec. 4), Fabricant's (Sec. 6), and the close of Section 5.

URBAN REAL ESTATE FINANCE

Two studies made under the Urban Real Estate Finance Project were published last year: *The Impact of Government on Real Estate Finance in the United States* by Miles L. Colean and my own *Urban Mortgage Lending by Life Insurance Companies.* Ernest M. Fisher's *Urban Real Estate Markets: Characteristics and Financing* is in press, and C. Lowell Harriss' *History and Policies of the Home Owners' Loan Corporation* will soon follow.

Other studies in this series were also brought appreciably closer to publication. The manuscript, "Commercial Bank Activities in Urban Mortgage Financing", which is being prepared by Carl F. Behrens of the Federal Deposit Insurance Corporation staff under a cooperative agreement between the Corporation and the National Bureau, was thoroughly revised after being circulated in mimeographed form for criticism and comment, and has been submitted to the Directors. Edward E. Edwards finished his "Urban Real Estate Financing by Savings and Loan Associations" and the manuscript is being reviewed by the staff. When these are published, our projected descriptions of the chief types of institutions financing real estate on mortgage security will be complete. A summary study, "Comparative Markets and Risk Experience of Mortgage Lenders", by J. E. Morton, will draw cross-institutional comparisons with respect to the types of markets served by the chief real estate financing agencies and their experience as investors in the real estate market.

Wolfgang Stolper made considerable progress on his analysis of "Economic Fluctuations and Urban Real Estate Finance" but since it was the last investigation to be started and depends for factual materials in large part on the several institutional studies, it will not be ready for first circulation before late 1951.

The importance of empirical studies in this area was underlined anew by the efforts of the federal government, stimulated by the outbreak of the Korean war in June and the subsequent intensification of our defense program, to curb real estate credit expansion. By contributing to a better understanding of urban real estate financing practices, the several studies of the Urban Real Estate Finance Project, including

those not yet published, made possible a more equitable and effective program of credit regulation in this area than would have been formulated on a less adequate informational basis. Also important was the technical assistance rendered by four of the Project's senior investigators who were called upon to participate in the development of mortgage credit regulations.

R. J. Saulnier

AGRICULTURAL FINANCE

One of the principal studies of the Agricultural Finance Project has been circulated for criticism: "Mortgage Lending Risks in Agriculture", by Lawrence A. Jones, of the Bureau of Agricultural Economics, and David Durand. Conducted under a cooperative agreement between the BAE and the National Bureau, the study is devoted largely to the period between World Wars I and II, during which farm mortgage foreclosures and farm financial distress in other forms were conspicuous features of our agricultural economy.

The authors trace the geographical distribution of farm financial distress and attempt to determine the relationship between the degree of financial difficulty experienced in different areas and their respective physical and economic characteristics. Part II analyzes the factors that influence the debt-carrying capacity of farm enterprises. The conclusion is reached that farm financial distress was caused by a number of factors, including the protracted low prices of agricultural products during the twenties and thirties, the unique problems associated with the settlement of new areas, such as the Great Plains and the Northern Lake states, natural hazards such as weather and insect pests, the previous inflation of land values, technological changes, and the common difficulty of differentiating sufficiently between good and poor land.

Howard Diesslin's study, "Agricultural Equipment Financing", was revised and will soon be submitted to the Directors. Donald C. Horton has revised his manuscript, "The Pattern of Farm Financial Structure", and E. Fred Koller drafted a report on his study, "Financing Farmers' Cooperatives". These two studies should be ready for informal circulation in mimeographed form this year.

Plans for a summary study, on which I shall collaborate with R. J. Saulnier, are being carried forward. However, work must be integrated with that on the projected study of governmental financing operations, reported on below. This investigation will necessarily deal in detail with the activities of various government agencies in extending financial aid, in one form or another, to the agricultural economy.

F. F. Hill

GOVERNMENTAL FINANCING ACTIVITIES

Plans have been laid for an extensive study of governmental financing activities including direct lending, loan insurance, and loan guarantees. Work on a full-scale basis will begin this year under a generous grant from the Association of Reserve City Bankers.

The study will be organized under five main headings: the present magnitude of governmental financing activities; their growth; the nature of the financial services provided by governmental agencies; the credit experience of federal financing agencies; and the impact of the operations of these agencies on the financial system in particular and the economic system in general.

The investigation will cover primarily the activities of governmental financing agencies in business, agriculture, home finance, foreign trade, and shipping. Research on each of these segments will be carried forward concurrently and a final report will give an integrated account of governmental financing activities as a whole.

R. J. Saulnier

CORPORATE BOND RESEARCH

Work on all the basic statistical tabulations planned by the Corporate Bond Research Project has been completed. The contents of the three studies in which these tabulations, together with certain analytical findings, are to be presented were described briefly in the Annual Report for 1949. A rough draft of the first study, "The Volume of Corporate Bond Financing, 1900-1943", is being revised on the basis of comments by staff members. The supporting tables for the second study, "The Changing Pattern of Bond Financing, 1900-1943", are ready for the printer, and some of the analytical work has been done. It is hoped that a draft of this study and of the third and final study, "Statistical Measures of Corporate Bond Experience, 1900-1943", can be circulated this year.

A main finding of the first study is that bond offerings (including refundings) run counter to, and that bond extinguishments (also including refundings) run with, cycles in general business activity. *A fortiori,* the net change in outstandings, that is, the difference between offerings and extinguishments, runs counter to business cycles. Bond financing complements stock financing during the business cycle, in the sense that stock offerings are high when the net volume of bond financing is low, and conversely. There is, moreover, some evidence of a lag in the response of bond to stock financing during business expansions. The net volume of bond financing appears to be related to the ratio of stock to bond prices, rather than to the absolute price level of corporate bonds.

The general conclusion to be drawn from this is that the corporate bond market typically performs a contracyclic function, supplying external funds to business corporations when stock prices are low and absorbing funds from the corporate sector when stock prices are high. When the bond market fails to perform its normal contracyclic function, as it did in the early thirties, a virtual credit blockage may develop and contribute materially to the severity of the ensuing depression.

W. B. Hickman

CORPORATE SECURITY VALUES AND CAPITAL STRUCTURE

I have been exploring plans for a possible study of the relation between corporate security values and capital structure. A preliminary statement of the conceptual problem was contained in "Costs of Debt and Equity Funds for Business, Trends and Problems of Measurement", a paper presented at the Conference on Research in Business Finance in June 1950; and a more advanced mathematical formulation was presented before the Econometric Society in December 1950.

As is well known, the security markets will not willingly accept issues that do not meet certain recognized standards. One often hears, for example, that the debt of an industrial corporation should not exceed its net working capital and that fixed charges should be earned at least three times. But within such accepted limits, the question of optimum capital structure is open. Many corporation executives, recalling the difficult days of the thirties, seem to feel that the optimum capital structure contains little debt in general and no long-term bonded debt in particular. Some security analysts, on the other hand, believe that a permanent bonded debt is desirable, even for industrial corporations, provided it is kept within reasonable bounds. In the case of utilities and railroads, bonded debt is taken for granted, but even here the optimum debt load remains one of the most contentious problems both in the market and in rate regulation cases.

It therefore seems appropriate to investigate by statistical analysis of security prices whether the security markets give any evidence of preferring one capital structure to another. If such a preference can be shown to exist, two important questions immediately arise. Can corporate executives reduce the costs of raising funds by taking account of this market preference? What bearing does all this have on the long-term demand for and supply of capital?

David Durand

INVESTMENT PRACTICES OF INDIVIDUALS

Basic research into the investment practices of individuals was started last March under a joint project between the National Bureau and the University of Wisconsin. The study will attempt to describe the types of investment held by the household sector of the economy, and will examine relationships between the characteristics of individuals and the income-earning portfolio assets they hold.

Since Wisconsin taxpayers are required to itemize specific sources of interest and dividend income, a fairly complete picture of the types and value of portfolios has been obtained from a sample of some 4,500 state income tax returns for 1949. A stratified sample of individuals reporting interest and dividend receipts—classified by amount and source of income as well as sex, marital status, occupation, size of city of residence, number of dependents, and estimated age—was taken in each of the four regional offices of the Wisconsin Department of Taxation. Approximately 45,000 punch cards summarizing the economic characteristics of the sampled individuals and their investment holdings are being tabulated and analyzed with the assistance of the Computing Service of the University of Wisconsin.

Each reported asset was valued on the basis of income yield, and assets were classified by type—savings accounts, bonds, stock, etc.—and by type of receipt—interest or dividends—to which they gave rise. Stocks and bonds were further classified by type of industry and size of corporation; location of major operations; whether marketed on principal exchanges, over-the-counter, or closely held; risk rating; high and low price for 1949; and total dividends paid per share, or interest payment per bond, during 1949. Assets sold during the year were classified by sale price and length of time held.

The study will, it is hoped, shed some light on such matters as the effect of income distribution upon sources of investment capital, the propensity of different groups to hold stocks and bonds of varying degrees of risk, and the effect of an individual's age upon the quality of securities he holds. On a more technical level the data may show, by inference, the actual and potential sources of funds within the household sector, and may allow the testing of some of the basic theorems of the capital market such as the theory that a stock split leads to widened ownership.

Data showing differential market activity by income groups, the relation of the estimated debt of individuals to their portfolios and market activity, and the average turnover of stocks and bonds should also be of interest. Finally, the total holdings of various types of financial assets by Wisconsin individuals will be estimated by applying the

results of this sample to a distribution of interest and dividend income for 1949 obtained from another survey conducted by the University of Wisconsin. Although many of the data will be applicable strictly to Wisconsin alone, it is hoped that the general tendencies shown may hold in other areas also.

Thomas R. Atkinson

OTHER STUDIES

Sergei Dobrovolsky's *Corporate Income Retention, 1915-43* will soon be in press, and Avram Kisselgoff's analysis of factors affecting the demand for instalment sales credit will shortly be ready for review by the Directors. Howard Greenbaum has extended his explorations of the feasibility of analyzing the gross flow of funds through financial institutions to cover mutual savings banks, savings and loan associations, life insurance companies, and commercial banks. This work will contribute to the investigation directed by Simon Kuznets of the capital requirements of the American economy (see Sec. 1). Wilson Payne continued the revision of his manuscript on methodological problems in tracing the flow of funds through the economy.

The Conference on Research in Business Finance, held in June 1950, is briefly reported in Part 2. Other studies of banking and investment are reported by Kuznets (Sec. 1), Friedman, Klein, and Hultgren (Sec. 3), and Miss Hartland (Sec. 6).

5 Fiscal Studies

FEDERAL EXPENDITURES FOR 150 YEARS

The aggregate and the major components of federal expenditures have been examined from 1794 through 1949. The first task was to endeavor to improve the consistency of the official statistics in the later years of the period. The civil expenditures of the War Department, the cost of maintaining the Panama Canal, tax refunds, and trust fund expenditures have been treated variously during that interval. It seemed necessary, for comparative purposes, to make certain that the treatment of each of these items was consistent from year to year.

The data have been expressed in three forms: in current dollars, in dollars deflated by the BLS index of wholesale prices, and finally in per capita, deflated amounts. All three disclose the great increases in federal expenditures that followed each of the four major wars (War of 1812, Civil War, World Wars I and II), and the smaller increases that succeeded the two minor ones (Mexican and Spanish-American

Wars). Expenditures during the war periods were analyzed in detail, especially the changes that emerged in the early portion of the ensuing years of peace. When viewed against the background of postwar experience, federal expenditures in 1948 and 1949 did not appear to be out of line with what might have been expected.

When adjustments are made for price changes and for the growth of population, federal expenditures have not increased continuously throughout our history. During four periods, aggregating 86 years and therefore including more than half the life of the nation, they were stationary or declining. It is interesting to speculate on their probable course had there been no wars and no depression in the thirties.

A draft of the study has been completed.

M. Slade Kendrick

THE INDIVIDUAL INCOME TAX

My study of the personal income tax began as a simple quantitative history. To that end we have assembled a considerable body of tables that summarize the available information in useful form. But, as I had hoped and expected, the assembling of the materials opened up different ways of combining them to portray significant facts and developments. These can be presented in several *Occasional Papers* which may later be combined in a book.

The first will be on the revenue structure of the personal income tax. The most outstanding development in federal taxation during the past decade has been the tremendous increase in the revenue derived from the individual income tax, from less than $1 billion in 1940 to $18 billion in 1949. Already in 1940, the individual income tax was the largest component of internal revenue, accounting for 22 per cent of the total. By 1949, the personal income tax yielded close to half of total internal revenue collections, which had themselves increased eightfold.

Although sharp increases in the tax rates in the middle and upper income brackets contributed materially to the phenomenal growth in individual income tax revenues, the major causes were the great rise in total personal income and in the proportion of it that has become subject to the income tax. Total personal income rose from $72.6 billion in 1939 to $191.0 in 1947, or 163 per cent. Net income subject to income tax, reflecting the influence of reduced exemptions and credits as well as changes in the aggregate amount and distribution of personal income, rose from $8.7 billion in 1939 to $75.9 billion in 1947, or 777 per cent.

Lawrence H. Seltzer

THE CORPORATE INCOME TAX

This study is based primarily on data reported in *Statistics of Income* since 1909, when the corporate income tax was first imposed. Since more detailed information by industry, asset, and net income classes is given beginning in 1931, the main part of the study is concerned with the period 1931 to 1945, the latest year for which complete data have been published. I am dealing chiefly with the following aspects of corporate taxation: variations in the effective tax rate in different industries and size classes; relative importance of corporate taxes in the corporate budget (tax liability compared with cash balances, various current liabilities, depreciation accruals, net retained earnings); rates of return on corporate net worth before and after taxes.

One interesting aspect of the subject is the effect of corporate income and excess profit taxes on the size distribution of corporate profits. The income tax rates have been proportional rather than progressive, except in the case of very small companies. The excess profit tax imposed during the war was designed to tax heavily the increases in corporate profits over prewar levels. Progressive excess profit tax rates were in effect in 1940 and 1941, while very high flat rates were imposed in 1942-44. When considered in relation to corporate net profit rates in a given year, the excess profit tax and the total tax (the EPT and the income tax combined) were progressive: the companies with higher profit rates were subject to higher effective tax rates. I am attempting to measure the effect of these taxes in reducing the range of differences in corporate profitability during the war years.

Sergei Dobrovolsky

TAXATION OF CORPORATE EARNINGS VIEWED AS PERSONAL INCOME

My study starts from the point of view either explicit or implicit in many statements about the corporation income tax, namely, that all corporate earnings, both distributed and undistributed, should be considered a component of stockholders' incomes for tax purposes. The incidence of corporation income taxes is assumed to be on stockholders; the taxpaying population is divided into shareholders (dividend receivers) and nonshareholders; and for each year 1935-47, calculations, utilizing *Statistics of Income* data and designed to provide an answer to the following two questions, are undertaken.

1) How heavily and progressively have net corporate earnings been taxed relative to the other sources of property income?

2) When net corporate earnings and corporate income taxes are fully imputed to individuals, how heavy and how progressive are the

effective tax rates on total income compared with those of the personal income tax alone?

With respect to question (1), at all except the very highest level of incomes of which they were a component, and in every year examined, net corporate earnings were subject to a heavier rate of tax than the other sources of property income (see accompanying table). In general, this differential, measured either absolutely or relatively, was smallest at the top of the income range and greatest at the lower incomes. In a few years, notably after World War II, the net corporate earnings component of very large incomes was subject to a lower rate of tax than other types of property income.

ESTIMATED EFFECTIVE RATE OF TAX (%) ON COMPONENTS OF PERSONAL INCOME

Adjusted Gross Income Level[a]	1939		1944		1947	
	Net corporate earnings component	Other property income component[b]	Net corporate earnings component	Other property income component[b]	Net corporate earnings component	Other property income component[b]
	(1)	(2)	(1)	(2)	(1)	(2)
$3,000	26	1	61	10	39	9
10,000	28	3	63	22	40	18
50,000	37	15	66	48	44	41
500,000	62	48	72	69	50	57

[a] For column (1) income is defined to include net corporate earnings; for column (2) income is defined as under the personal income tax.

[b] Excludes capital gains and other sources of property income subject to special tax provisions.

With respect to question (2), in all the years investigated and at all except the very high income levels in a few years, the taxes levied on stockholders' incomes defined to include their pro rata share of net corporate earnings, were heavier than those levied on stockholders' incomes of the same size but reached by the personal income tax alone. In a few years, most noticeably after the war, at the top of the income range the differential turned in favor of taxable incomes defined to include net corporate earnings. For example, in 1939 stockholders with $10,000 of adjusted gross income defined to include net corporate earnings were subject, on average, to an effective rate of 10 per cent, while the average rate of personal income tax was 3 per cent on an income of this size. In 1944 the rates were 39 and 22 per cent respectively; in 1947, 25 and 18 per cent. At the $50,000 level in 1939, the effective rates ran at 25 per cent on adjusted gross income defined to include net corporate earnings and 15 per cent on its personal income tax counterpart. By 1944 the spread had narrowed—the effective rates being 54 and 48 per cent respectively. And, in 1947, the combined cor-

porate-personal income tax rate at this level of income was 3 percentage points lower than that of the personal income tax alone—39 per cent as against 42 per cent.

It should be pointed out that numerous special characteristics and definitional features of our measures affect the results cited above and qualify their use. Future work in addition to analyzing and interpreting the measures obtained so far should be primarily concerned with ascertaining how greatly our results would be affected by varying some of the assumptions, using alternative methods, and other sources of data. One of the most important problems entails an analysis of the effect of using different assumptions about the incidence of the corporate income tax.

Daniel Holland

TAX EXEMPTION OF GOVERNMENT SECURITIES

A preliminary draft of this study traces the evolution of federal policy with respect to the exemption of government securities from income tax and analyzes the effects of exemption on the investment policies of government agencies, the principal classes of investment institutions, and individuals. Estimates have been made of the holdings of tax-exempt securities since 1913 by government agencies, commercial banks, mutual savings banks, life insurance companies, fire, marine, and casualty insurance companies, benevolent societies, other tax-exempt institutions, and individuals. The series include not only state and local issues but also securities of the federal farm loan bank system and direct and guaranteed issues of the United States government.

In general, changes in the ownership of tax-exempt securities responded as might be expected to changes in the federal income tax structure. For example, the moderate individual and corporate tax changes of the late 1920's were accompanied by a fairly stable distribution of ownership of state and local securities among the principal investment institutions. However, increases in corporate tax rates of the 1930's and early 1940's were marked by an increasing concentration of tax-exempt securities in the hands of taxable corporations and a sharp decline in holdings by tax-exempt institutions. Commercial banks accounted for the largest expansion in institutional demand; since the 1920's their share of total private holdings had increased from about 15 to over 35 per cent.

Perhaps the most significant trend was a relative decline in individual holdings—from an average of about 62 per cent of total private holdings during the 1920's to about 50 per cent since 1941. This shift took place in the face of the greatly increased individual surtax rates

since 1932 which made such securities all the more valuable to individual investors.

Analysis of estate tax returns disclosed a distinct cycle in the ownership of wholly tax-exempt securities between the 1920's and 1940's. After rising from about 6.0 per cent of gross estates in the decade 1921-31 to a peak of 14.6 per cent in 1939, the proportion declined to around 8.0 per cent in 1945. In general, tax-exempt securities did not displace equity securities, but they found increasing favor with larger estates and diminishing favor with smaller estates; compensatory changes were noted with respect to ownership of equity securities. The implications of these shifts for the supply of equity capital are not entirely clear. While investment in tax-exempt securities has long been regarded as a threat to the supply of equity capital, particularly from the highest income groups, it seems likely that the source of equity capital has been greatly broadened during the last decade or two, rather than attenuated.

George E. Lent

OTHER STUDIES

Lawrence Seltzer's *The Nature and Tax Treatment of Capital Gains and Losses* is in page proof. James Maxwell's "Federal Grants-in-Aid and Business Cycles" has been revised and will soon be submitted to the Board for review. Other studies of governmental activities are reported by Kuznets (Sec. 1), Fabricant (Sec. 2), Firestone (Sec. 3), and Saulnier (Sec. 4).

6 International Economic Relations

FOREIGN TRADE

We have been engaged in the rather laborious task of classifying United States exports and imports into commodity groups comparable with those for which production data are available, then calculating the ratios of exports to domestic production and imports to domestic consumption. Data for decennial census years back through 1869 have so far been arranged in this way. It is too early to be able to report what these statistics have to tell. However, our first inspection sustains the hope that they will prove useful in our study of the place occupied by foreign trade in the American economy, both in the analysis of trends, the primary interest of the present study, and in the study of foreign trade cycles that Ilse Mintz will begin soon.

Solomon Fabricant

IMMIGRATION AND THE LABOR FORCE

As stated in the Annual Report for 1949, we have been arranging in orderly form the census enumerations of the foreign-born white and the available statistics on their migration and mortality for 1870-1940, and studying the consistency of these data.

Draft reports have been written for each decade. For 1900-40 it was possible, for the most part, to utilize the recorded migration data and the mortality statistics of the foreign-born white. As data on mortality and emigration before 1900 are incomplete or entirely lacking, it was necessary to estimate these components for these years. In estimating the foreign-born white at census intervals, we start with a census enumeration as base and estimate the effect of migration and mortality on specific age and sex groups during the next ten years.

Within the limitations imposed by the data and the method, the census counts of the foreign-born white were found to be generally consistent with the migration and mortality data; and estimates of the sex ratio and median ages derived from the latter varied only slightly from the values derived from the census data. For 1880-90, however, the difference between our estimate and the census count was considerable.

Our results, a description of the methods, and an analysis of the migration, mortality, and census data are being summarized in a single comprehensive report, to be submitted for publication as a *Technical Paper*. A statistical appendix will also be prepared.

Ernest Rubin

THE DEVELOPMENT OF AN UNDEVELOPED ECONOMY: A CASE STUDY

Although we speak of an economy as being 'developed' or otherwise, the concept of economic development is equivocal and ill defined. We have an intuitive understanding of the relative degree of development in extreme cases, but to be able to judge, for example, that the economy of France is more or less 'developed' than that of Canada, the concept must be given more precision. Indeed the term 'underdeveloped countries', which has recently come into use, implies the existence of some norm, presumably relative to time and place.

Useful, if not essential, in the formulation of a well rounded theory of economic development would be the collection and examination of the historical facts relative to any recently industrialized region. With this goal in mind, the history of Canada since 1868, the year of confederation, was chosen. An attempt is being made to construct a balance of payments for each year to determine the volume and direction of capital movements as well as changes in the composition of the current

account. Estimates of national income, its sources and disposition may be attempted, and we shall examine the relationships, internally and internationally, between the factor equipment of the country, the level of income and its industrial composition, the volume of international trade and lending, and the volume of domestic saving and capital formation.

Penelope Hartland

OTHER STUDIES

Ilse Mintz' *Deterioration in the Quality of Foreign Bonds Issued in the United States, 1920-1930* was published in April 1951. Other studies in the international field are reported in Section 1 and at the end of Section 3.