PART III

Staff Reports

1. ECONOMIC GROWTH

PRODUCTIVITY TRENDS

Productivity Trends in the United States, published in September 1961, carried data through 1957. Extensions through 1960, together with some minor revisions for 1953-57, are presented in Table 2. The new and revised estimates, which relate to the private domestic economy and some of its industrial divisions, were initially prepared by Maude Pech and me as part of a background paper for the Commission on Money and Credit.

The over-all estimates confirm the impression that, following an acceleration of productivity advance in the early postwar years, the average rates of change in recent years have fallen back closer to the long-run trend rates. Thus, total factor productivity in the private domestic economy increased at an average annual rate of 2.7 per cent between 1948 and 1953, 1.7 per cent in 1953-57, and 2.0 per cent in 1957-60. This compares with a secular rate of increase of 2.1 per cent between 1919 and 1960.

Of the several industrial segments for which we were able to prepare estimates of output per unit of labor input, agriculture and mining showed mild decreases in rates of productivity advance in the period 1953-60 compared with 1948-53, while railroads and manufacturing showed increases. All of the manufacturing industry groups showed some increase, with the exception of the metals and machinery groups, lumber and wood products, and stone, clay, and glass products.

The degree of dispersion of industry rates of productivity change about their mean does not appear to be significantly different from that in earlier periods.

JOHN W. KENDRICK

TABLE 2

Output, Input, and Productivity Ratios, Selected Segments of the Economy, 1953-60

(Index numbers, 1929 = 100)

	1953	1954	1955	1956	1957	1958	1959	1960
Output								
Private domestic economy (real gross product)	202.9	199.5	216.8	221.3	225.5	221.4	237.1	244.0
Agriculture (net output[a])	121.7	126.8	133.0	130.5	128.4	131.7	130.8	136.8
Mining	138.4	131.7	147.3	156.0	155.6	140.0	144.7	149.0
Manufacturing	243.4	228.2	257.2	264.7	266.0	245.8	280.1	287.8
Railroads	131.6	119.5	134.0	138.5	132.0	117.8	122.1	121.1
Input								
Man-hours								
Private domestic economy	106.3	102.1	106.2	108.1	106.9	102.5	106.4	107.2
Agriculture	55.9	54.3	55.4	53.1	48.8	45.4	45.4	44.5
Mining	74.2	66.4	70.4	74.1	72.1	62.4	61.9	60.3
Manufacturing	148.5	135.4	142.4	144.3	142.1	129.3	138.7	137.6
Railroads	61.4	54.7	55.8	54.9	51.8	44.2	43.1	41.0
Labor input								
Private domestic economy	117.2	112.2	116.9	119.4	118.4	113.1	117.8	118.5
Mining	72.6	64.6	68.5	72.0	70.1	60.2	59.4	57.8
Manufacturing	155.8	142.3	149.9	152.2	150.1	136.5	146.3	145.1
Capital input								
Private domestic economy	139.6	143.6	148.0	153.2	158.0	161.6	165.3	169.7
Total input								
Private domestic economy	121.9	118.8	123.4	126.5	126.7	123.2	127.7	129.1
Productivity								
Output per man-hour								
Private domestic economy	190.9	195.4	204.1	204.7	210.9	216.0	222.8	227.6
Agriculture (net output[a])	217.7	233.5	240.1	245.8	263.1	290.1	288.1	307.4
Mining	186.5	198.3	209.2	210.5	215.8	224.4	233.8	247.1
Manufacturing	163.9	168.5	180.6	183.4	187.2	190.1	201.9	209.2
Railroads	214.3	218.5	240.1	252.3	254.8	266.5	283.3	295.4
Output per unit of labor input								
Private domestic economy	173.1	177.8	185.5	185.3	190.5	195.8	201.3	205.9
Mining	190.6	203.9	215.0	216.7	222.0	232.6	243.6	257.8
Manufacturing	156.2	160.4	171.6	173.9	177.2	180.1	191.5	198.3
Output per unit of capital input								
Private domestic economy	145.3	138.9	146.5	144.5	142.7	137.0	143.4	143.8
Total factor productivity								
Private domestic economy	166.4	167.9	175.7	174.9	178.0	179.7	185.7	189.0

NOTE: The estimates have been revised and extended, based on the sources and methods described in *Productivity Trends in the United States.* See Tables A-XXII, B-1, C-II, D-II, and G-III.

[a]Net farm output is net of intermediate products but gross of capital consumption.

TAX POLICIES FOR ECONOMIC GROWTH

In recent years, the emphasis of makers of public policy on accelerating the nation's growth has drawn attention to the use of tax policy to further this objective. The National Bureau has consequently undertaken a broad study aimed at strengthening the empirical foundation for analysis of the influence of the present tax structure on economic growth and evaluation of proposals for tax changes.

Organization of the study, under the direction of Norman B. Ture, began in March 1961. Financial support for research projects dealing with the effects of corporate income taxation and various other features of the taxation of business income has been provided by a grant from the Rockefeller Brothers Fund. The Life Insurance Association of America has provided a grant for research on the effects of personal income taxation on incentives to earn, to save, and to invest.

The study will benefit from the guidance of an advisory committee, which held its first meeting last September. The following have agreed to serve:

Carl S. Shoup (chairman), Columbia University
Julian D. Anthony, Hartford Life Insurance Co.
Walter J. Blum, Law School, University of Chicago
George T. Conklin, Jr., Guardian Life Insurance Company of America
Richard B. Goode, Brookings Institution
C. H. Greenewalt, E. I. du Pont de Nemours and Company
Albert J. Hettinger, Jr., Lazard Frères and Co.
E. Gordon Keith, University of Pennsylvania
Wesley Lindow, Irving Trust Company
Stacy May, Rockefeller Brothers Fund
Maurice Moonitz, American Institute of Certified Public Accountants
Richard A. Musgrave, Johns Hopkins University
James J. O'Leary, Life Insurance Association of America
Joseph A. Pechman, Brookings Institution
Maurice E. Peloubet, New York City
George B. Roberts, Larchmont, N. Y.
Lawrence H. Seltzer, Wayne State University
Dan T. Smith, Harvard Graduate School of Business Administration
Stanley S. Surrey, U.S. Treasury
George Terborgh, Machinery and Allied Products Institute
William C. Warren, Columbia University

Four studies are already under way: (1) an investigation of effects of business income taxation on capital outlays, saving, and technological innovation; (2) a case study of the textile manufacturing industry, with particular reference to tax influences on investment and innovation in the industry; (3) a study of the uses made of alternative depreciation methods offered by the Internal Revenue Code of 1954 and the factors determining these uses; and (4) an exploration of experience in Germany with regard to depreciation and related tax provisions and their influence on private capital formation in that country. Reports on work to date on the first three studies mentioned are given below. A brief manuscript on the fourth study is in preparation by Jan Tumlir of Yale University.

Plans are being drawn up for a study of the effects of changes in depreciation policy on capital outlays and financial policies, if access can be obtained to a continuous sample of identical companies for the years 1949-59. The aims of this study are discussed below.

In our plans for studies of the effects of personal income taxation on incentives to earn, save, and invest, three major aspects will be investigated. The first of these will consider the impact of the individual income tax on the amount and character of productive effort. We hope to begin by determining the actual level of tax rates and the extent of progression in tax liabilities of certain groups of individuals who are generally regarded as playing a key role in the process of economic growth and who are most likely to be adversely affected by high marginal tax rates. Attempts will be made to ascertain how significantly the actual tax burdens borne by these individuals impinge on their incentives and on the amount and quality of their effort.

The second study will be concerned with the effects of the tax treatment of capital gains and losses on personal saving and investment patterns. The basic questions to be considered are: (1) Does this treatment encourage a higher rate of personal saving by virtue of a greater disposition to save out of capital gains than out of ordinary income? (2) Does it encourage individuals to invest in companies with relatively high saving rates, i.e., relatively low dividend distribution rates? (3) Does it encourage the allocation of personal saving to relatively risky investment outlets, or is this effect significantly offset by the limitation on the deductibility of capital losses? (4) Does the current taxability of gains seriously impede capital transfers by individuals? To investigate these questions, we have made arrangements to use data derived from a continuous sample of identical individuals' income tax returns to the state of Wisconsin, now being developed at the University of Wisconsin. It should be possible to obtain data concerning income, assets, and taxes for each of a substantial number of individuals for a period as long as fourteen years. Interviews and questionnaires may also be used to investigate the questions listed above.

The third project in this group will deal with the influence of the present tax provisions in regard to income fluctuations. Many types of economic activity deemed to be particularly important in the process of economic growth involve relatively great risk and instability of income over time. A graduated income tax with inadequate provision for averaging fluctuating income and offsetting losses discriminates against such growth-generating activities. To investigate the impact of the present loss-offset provisions in the income tax, it would be desirable to develop a continuous sample of tax returns of identical sole proprietors, partners, and small corporations for the purpose of tracing the time shape of their income and losses and the effect of the loss-offset and carry-over provisions. In addition to these data, interviews and questionnaires would be useful in an investigation of the importance attached to the loss-offset provisions and the specific ways in which these provisions and the lack of an averaging device for positive income fluctuations modify attitudes toward risk assumption.

Detailed plans for these three studies are being prepared by Daniel M. Holland, M.I.T.; Roger P. Miller, University of Wisconsin; and C. Harry Kahn, Rutgers University, respectively.

We are also undertaking a more extended investigation of the experience of several European countries with depreciation and related tax provisions and their effects on capital formation. This investigation, which will include both the preparation of country monographs and a conference, is being sponsored jointly by the National Bureau and the Brookings Institution and will be financed in part by funds provided by Brookings under a recommendation of the National Committee on Government Finance. The further planning of this project is entrusted to a committee composed of E. Gordon Keith (chairman), Norman B. Ture, Joseph A. Pechman, Carl S. Shoup, and Dan T. Smith.

Depreciation Studies

Use of depreciation methods offered by the 1954 internal revenue code

The Internal Revenue Code of 1954 explicitly authorized the use of two new methods, the double declining balance and the sum-of-the-years-digits, for computing annual depreciation charges. Both of these afford a considerable acceleration of depreciation allowances compared with the straight-line method. Their use serves both to increase the net rate of return which may be realized upon investment in depreciable facilities and, during the early years following acquisition of these facilities, to increase the cash flow from tax write-offs. Both of these effects of the accelerated depreciation methods might be expected to contribute to a higher rate of outlays for depreciable facilities than would be forthcoming if only straight-line depreciation were permitted, other things being equal.

As a first step in analyzing the impact of these provisions on private investment, it is necessary to provide some aggregate measures of the use which business has made of these and other depreciation methods permitted since 1954. The Statistics Division of the Internal Revenue Service has just completed tabulating a substantial volume of depreciation data drawn from corporate tax returns filed for the taxable year 1959. These tabulations, together with the data from the Treasury's Depreciation Survey, based on a sample of large corporations, provide the basis for a detailed examination of the amounts of depreciable facilities, acquired both before and after 1954, being depreciated under each depreciation method. They also permit analysis of the extent to which the relative use of the various methods has changed each year since 1954 and whether the use of various methods is associated with particular types of property, the length of useful life of the facilities, the taxpayer's industry, or size of the company. Although these tabulations include data only for assets still on the taxpayers' books in the taxable year 1959 (except to the extent that it was possible to get information on fully depreciated facilities), they nevertheless permit some rough measures of the extent to which useful lives of the depreciable facilities acquired each year over an extended period of time have changed and possibly some inference concerning the extent to which changes since 1954 are associated with the use of particular depreciation methods.

Since the data referred to above became available only at the beginning of 1962, it is not yet possible to draw any conclusions, even of a preliminary nature. Limited examination suggests, however, that substantial amounts of new facilities acquired since 1954 continue to be depreciated under the straight-line method, and that there has been no consistent year-to-year increase in the relative use of the accelerated methods since they became available in 1954. An early line of investigation will seek to determine whether the facilities for which straight-line depreciation is used are concentrated in particular industries or in particular property classes, and whether year-to-year variations in the proportions of new acquisitions being written off under the straight-line and accelerated methods are caused primarily by changes in the industry or asset-type composition of total capital expenditures in each year. This project is being undertaken with the assistance of Katherine Dolfis.

IDENTICAL SAMPLE STUDY OF CHANGES IN DEPRECIATION POLICY AND CAPITAL OUTLAYS

Plans are being developed for a second depreciation project, contingent upon obtaining data for a continuous sample of identical companies for the years 1948-59. The principal aim of this study will be to determine whether companies using accelerated depreciation for a relatively large proportion of their assets acquired since 1954 have grown faster than those that have relied more heavily on straight-line depreciation.

Theoretically, the former group of companies should have grown faster, since, other things equal, total gross assets of a company that uses the fast-write-off methods for its depreciable facilities will be greater at the end of a year than those of an otherwise identical company using the slower methods for the same facilities.

But whether this greater rate of expansion continues depends on how the fast-write-off company uses the increased flow of internal funds. There are, of course, numerous uses which may be made of an augmented flow of internal funds—to increase liquidity, to build up inventories, to increase financial investment, to pay more liberal dividends, and so on. Moreover, an increase in internal funds may be offset, in whole or in part, by reduced reliance on external financing, so that the changes in the tax value of depreciation allowances cannot be taken as a measure of the net change in resource claims of the company. Accordingly, the growth potential in the use of accelerated depreciation methods may be realized in varying degree. The purpose of this study, which may be regarded as an analysis of sources

and uses of funds, is to determine whether there is a consistent relation between the rate of business growth and the rate at which depreciation allowances generate internal funds.

NORMAN B. TURE

CORPORATE PROFITS TAXATION AND ECONOMIC GROWTH

Corporate policies for survival and growth presumably have been modified by the substantial advance in taxation of profits that has occurred in the past generation. The implications of this accommodation for corporate and economic growth constitute the objectives of this project. To bring the scope and complexity of the subject into feasible relation with the limited resources available for research, emphasis is being placed on a limited number of key issues. Primary attention is devoted to the impact of corporate taxation on management decisions in large companies to undertake plant and equipment investment, to engage in research and development activities, and to promote and develop new products, processes, and markets. These activities occur as an integral part of corporate development and must be interpreted in the context of general corporate policy for survival and growth, including dividend decisions and other aspects of financial policy, pricing policy, and related fields of management concern. Some attention will also be given to consequences of changes in the corporate tax structure for growth-oriented activities.

Evidence on many of these critical issues is not readily available in published sources. Much of the material relevant to growth decisions will be gathered through interviews with company executives and supplemented with questionnaires and available published information. Plans for this phase of the project are being prepared, and field interviews will commence early in 1962. Findings from these sources may be supplemented by or checked with available studies or existing information in some areas—as in capital outlays, internal and external financing, and price policy.

Detailed analysis of existing quantitative information is being confined to two aspects of the growth problem. One question concerns the effect of corporate taxation on the resources potentially available for capital accumulation. Available information on corporate and private saving behavior and saving statistics is being employed to derive numerical estimates of the possible consequences of the tax for saving and potential capital formation. This analysis involves quantitative comparisons of actual private saving at actual income levels, at various times in the past, with the amount of estimated saving that would have existed with alternative taxes yielding the same revenue as the corporate taxes actually imposed.

Another problem requiring detailed analysis concerns the extent to which profits taxation has altered relations between product prices and factor costs. A draft memorandum has been prepared outlining methodology and preliminary results of a project to measure this tax impact on wage and property shares of gross income originating in manufacturing. The implications of alternative assumptions about short-run price and cost impacts of the tax for output, capital's gross productivity, and total wage and profit income in manufacturing for the years 1919-59 are drawn and compared with known or derivable characteristics of the sector. Estimated output, productivity, and factor shares were derived from a production relation between output deflated for technical change and real capital input per man-hour that had been derived from a specific assumption about the short-run shifting of the tax. Two alternatives to the traditional postulate that the tax does not alter short-run equilibrium combinations of resources were examined. One assumed that the tax reduced wages; the other hypothesized a sales tax effect. Output was deflated for technical change by a method, originally developed by Robert M. Solow, that assigned annual changes in output per man-hour either to technical progress or to changes in capital per man-hour. Since the assignment attributable to capital's productivity was affected by the assumed influence of profits taxation in

generating observed profits before tax, different estimates of output, productivity, and factor shares were produced by the shifting hypotheses. Tax-shifting assumptions accounted for all differences in estimates, since procedures and basic data used were the same in all cases.

Evaluation of output and inferred productivity corresponding to the alternative assumptions indicates that the result depends in large measure on the nature of technical progress. If technical change was on balance neutral over the period—in the sense that it altered the productivities of labor and capital in the same proportion—corporate profits taxation did not noticeably distort short-run relations between wages and profits, or product prices and factor costs. The available test for neutrality of technical progress was satisfied in all cases examined, but the criterion is not infallible. If technical change was, in fact, nonneutral, and if this nonneutrality reduced the productivity of capital relative to that of labor during roughly the last half of the whole period, the evidence appears to indicate that the heavier profits tax burden of the nineteen-forties and fifties was directly shifted to the extent of such nonneutrality. There are no persuasive grounds indicating the nature of direct shifting, but the sales tax variant appears to be slightly more consistent.

CHALLIS A. HALL, JR.

TAX INFLUENCES ON INVESTMENT AND INNOVATIONS: A CASE STUDY IN THE TEXTILE INDUSTRY

The general objective of this project is to understand the nature and extent of tax influences on the invention-innovation process. Knowledge of the process itself is still in an early stage of development, and my major preoccupation to date has been to develop a mode of investigation which has some promise of providing evidence on the presence, or absence, of tax influences.

A preliminary analysis relating Kendrick's data on rates of change in factor productivity (which includes the effects of economies of scale as well as invention-innovation) to variations in effective corporate profits tax rates was undertaken. The changing average annual rates of increase in total factor productivity for the private domestic nonfarm sector of the economy for the period 1919-57 were compared with the pattern of change in corporate profits tax rates over that period. No evidence of a generalized response to changes in tax rates was revealed.

In a cross-section type of analysis, variation in rates of productivity among industry groups was compared with the variation among these groups in effective corporate profits tax rates.[1] Again the results were inconclusive. There is no apparent tendency for productivity to increase either less or more rapidly in industries which are more heavily taxed than in those more lightly taxed.

There are special impediments to both approaches. The pattern of tax rate changes for peacetime periods displays very little variation other than a strong uptrend, which greatly limits the possibilities of isolating tax influences on technical advance by aggregative time series analysis. With a cross-section analysis, the spillover of the benefits of productivity-increasing activity from firm to firm and industry to industry greatly limits the possibilities of establishing covariation of taxation and rates of technical advance among industries. The conclusion appears justified that further study can most usefully proceed at the level of the individual firm, perhaps giving special attention to specific innovations.

The recent Treasury ruling permitting a shorter service life designation for depreciation of textile equipment has as its stated major objective the stimulation of modernization out-

[1] For effective rates by industry groups the computations used were those presented by Harberger in Table II of his paper "The Corporation Income Tax" in the *Tax Revision Compendium* of the Committee on Ways and Means, November 1959. These computations express the corporate profits tax paid by a given industry classification as a percentage of the total return to capital of all types invested in the industry.

lays by the textile industry. I intend to examine the experience of a representative group of textile manufacturing companies with respect to the response of their capital outlays to this and to prior changes in depreciation provisions. In addition, I will attempt to trace the diffusion of a selected group of textile manufacturing equipment innovations through the industry and to determine the nature and weight of tax influences on the speed with which such innovations were adopted by various firms. In pursuing this inquiry, I hope to use interviews and questionnaires.

An investigation may also be undertaken of the responsiveness of research and development expenditures to present preferential tax treatment. For this investigation companies from various industries which have engaged heavily in research and development on their own or under government sponsorship would be selected for comparative study.

MELVIN I. WHITE

LONG SWINGS IN ECONOMIC GROWTH IN THE UNITED STATES

During 1961 I was able to advance that part of my work on long swings in United States economic development which is concerned with waves in capital formation. The central purpose of this part of the investigation is to determine the scope and characteristics of the fifteen- to twenty-year waves in investment by raising and, so far as possible, answering such questions as these: Are the long swings previously observed in residential building and railroad construction also to be found in other kinds of construction? Are the waves sufficiently congruent so that they form waves of similar duration in aggregate construction activity? Can such waves be found in the period before as well as after the Civil War? Do the local waves in urban residential and nonresidential building and the regional movements in railroad construction run together, or do the national waves in these sectors represent the impact of pronounced movements in only some communities or regions? Are the long swings in the construction of fixed plant matched by similar swings in the production of machinery and equipment? If long swings are found in several branches of real investment activity, do they move together to form general long waves in capital formation?

I have completed a portion of my report dealing with the existence of long swings in aggregate construction activity and with the degree to which the major branches of construction reveal long swings of similar character and timing in the period since the Civil War. The study is based on an examination of thirty-eight series representing aggregate construction and its major components: total urban building, nonfarm residential building, private nonresidential building, farm building, construction by railroads and other public utilities, construction by public authorities, and shipbuilding. In a number of these categories, I have studied several different measures or indexes. Examination of these series and a variety of measures based on them lead to the following conclusions, which, with minor modifications, are taken from the draft report:

> Since the Civil War, there were a succession of long swings in aggregate construction activity with a duration between fifteen and twenty years. Considering the weaknesses in the records of construction activity before World War I, we cannot say with assurance that the long waves in aggregate construction in every case took the form of long upswings followed by protracted declines. On two occasions—in the nineties and in the period before World War I—it appears, according to the records, that the declines were mild. Conceivably the real movements they represent were no more than retardations in growth. One can, however, say with assurance that there were a succession of long swings in aggregate construction activity in which very large and protracted upsurges were followed by extended periods of decline or pronounced retardation in growth. Further, if we view the long swings in aggregate construction as fluctuations in rates of growth, we can again say with assurance that there were a succession of such swings with a duration between fifteen and twenty years and that fluctuations in growth rates were very wide. Finally, in each of the swings,

there was an extended period in which the rate of growth became either clearly negative or very low.

The long swings in aggregate construction, it appears, reflect more than the familiar fluctuations of housebuilding or railroad construction. They emerge in the records of all the major branches of the construction industry. The reality of these movements is attested by comparisons of the durations and amplitudes of the putative long swings with those of the shorter (specific) cycles in the same series and still better by the marked differences in the character of specific cycles when classified by phase of long swings. With the exception of shipbuilding (if that industry is, indeed, properly a branch of construction), the long swings in all the major sectors of construction shared in the long swings of aggregate construction, as these were identified in a reference chronology of long swings in the level of total construction. Upsurges in the level of aggregate construction were invariably accompanied by upswings in all the major branches of the industry. Long-swing declines were accompanied on each occasion by declines in most branches and by retardations in virtually all branches. Viewed as fluctuations in rates of growth, the conformity of the individual sectors to swings in aggregate construction was well-nigh perfect. Subject to the possible exception of nonresidential building in the period before World War I, the growth of all the major branches not only exhibited retardation; their rates of growth became very low or even negative for extended intervals during each of the periods we identify as declines in the level of aggregate construction activity. This permits us to say that, since the Civil War, there were a succession of long swings in aggregate construction activity, consisting of upsurges followed either by protracted declines or pronounced retardations in which all the major sectors of the industry participated usually if not invariably. The widespread participation of the major sectors is a finding important in its own right and also as confirmation of the long-swing behavior of aggregate construction.

Participation, needless to say, does not imply uniformity. Individual sectors skipped one or more declines in the level of activity in which most other sectors shared, and there was an "extra" movement in a few individual series. The several sectors also reached peaks and troughs in somewhat different years, and the patterns made by the pace of advance and decline varied from sector to sector. With all this diversity, however, there was also an impressive degree of similarity. Peaks and troughs tended to cluster in distinct bands of years. All the sectors experienced long upswings during the great surges of general construction activity; most of them shared in the declines, and those that did not actually decline experienced retardation; indeed, with virtual unanimity, their rates of growth became very low for extended periods.

The part of my work just completed does not lead to a theory of long waves in aggregate construction, but it may be of interest to summarize the point of view from which the study is proceeding. I consider that the existence, at least in the past, of waves longer than business cycles in aggregate construction activity reflects in part certain factors peculiar to structures, to the construction industry, and to the real estate market which cause supply to adjust relatively slowly to conditions of excess demand or excess supply. These factors include the length of period required for planning, decision, and construction and the difficulty of expanding capacity in the industry as well as the durability of structures. Sluggish responses, however, would not be sufficient to account for the fact that building in different communities and regions and in different sectors of industry tends to run together to a significant degree. This partial concurrence is caused in part by direct connections between demand in one branch of construction and that in others, as demands for housing, commercial facilities, and certain types of community facilities are connected. Partial concurrence is also owing to the fact that construction activity in its several branches and its many localities and regions is subject to a set of common influences. The important disturbances caused by the great wars and the backlogs of demand stemming from them account for a great deal. In addition, however, the historical movements in construction are to be viewed as only one manifestation of a more general phenomenon in our economic development. This has involved long swings in immigration and, therefore, in those age groups in the population

which contribute most to labor force growth and housing demand; in transport development and the geographical expansion and redistribution of agriculture, commerce, industry; and in the current balance of payments, capital imports, specie flows, and the growth of the money supply. Economic development in the United States has also involved alternations between periods of relatively rapid growth of output, accompanied by short and mild recessions, and times of relatively slow growth in output, when business contractions were relatively long or deep and unemployment was unusually severe. The conditions created by these more general fluctuations presumably have a widespread influence which helps bind together the various parts of the construction industry, while the occurrence of the general wave itself represents a complex interaction between construction and the rest of the economy.

Whether the forces which in the past produced general long swings both in growth and in aggregate construction activity are continuing to operate at the present time is a moot point of obvious interest. At least five general changes in our economic structure may be cited which suggest that long waves in the future are likely to have a character different from those of the past. First, construction itself is now a smaller component of total capital formation than it used to be. Second, railroad construction, which in the past moved in long waves of large amplitude, is now of very minor importance. Third, immigration has lost its old importance, and this source of waves in the demand for residential housing is much reduced. Fourth, international capital movements have a different relation to changes in domestic economic developments, and the connection between such movements and the growth of our money supply has also altered. Fifth, in a variety of ways, the economy has been rendered less sensitive to changes in demand and less prone to monetary disturbances. It follows that some of the influences which in the past have helped to produce large fluctuations in one or more branches of construction are weaker, and so are some of the influences which have acted to keep the various branches of construction approximately in phase with one another.

Work is proceeding on other questions posed in the first part of this report, including an intensive investigation by Manuel Gottlieb, of records of construction activity in Ohio. Gottlieb is also studying fluctuations in urban building in foreign countries, and reports on this work below.

MOSES ABRAMOVITZ

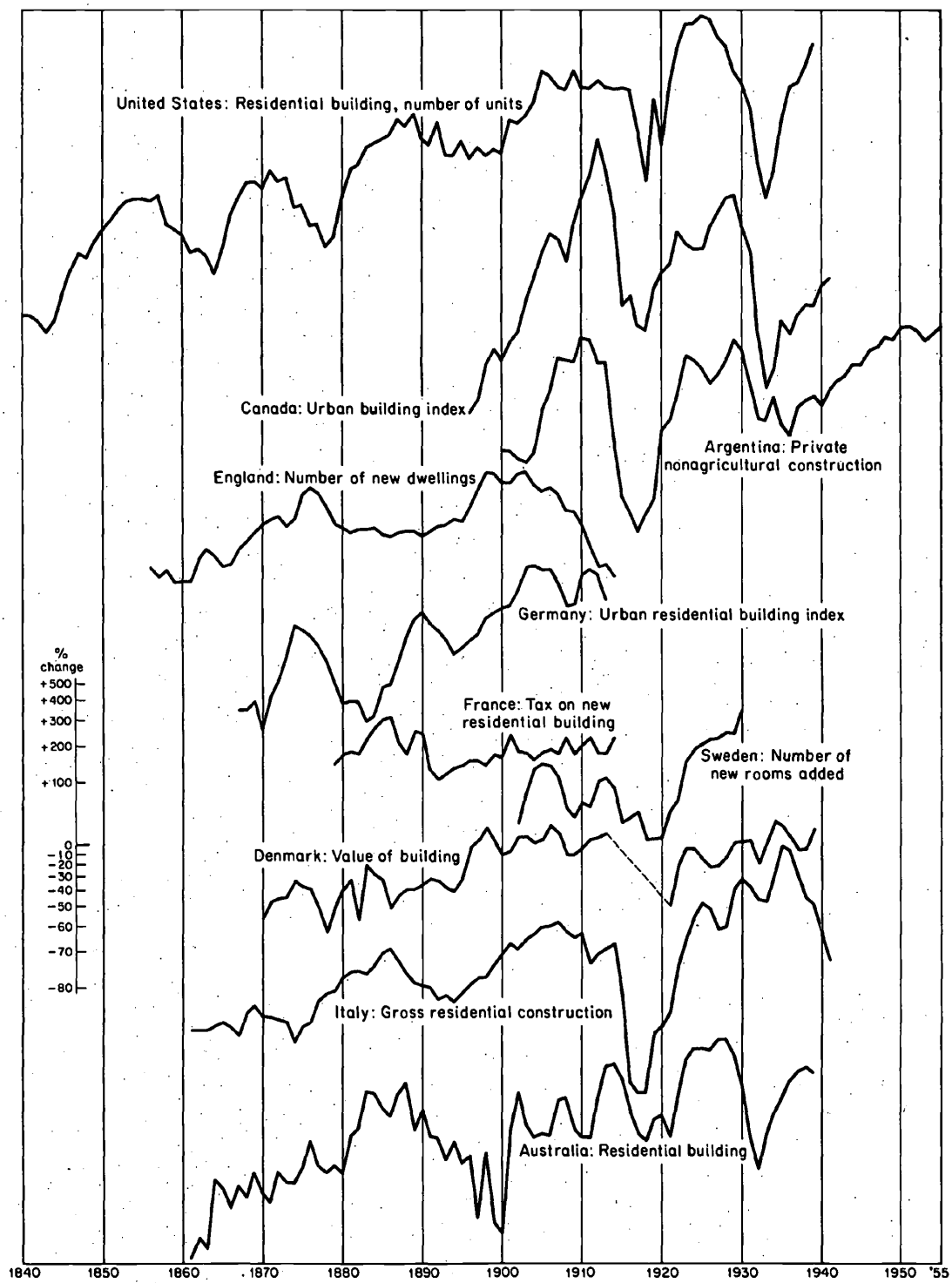
LONG SWINGS IN URBAN BUILDING

The ultimate aim of this research is development of a comprehensive review and analysis of the historic tendency in the developing countries of the western world to long swings in urban building and real estate market activity. Our immediate purpose is to complete an empirical survey which has come to involve 242 long time series involving eleven countries and more than twenty major urban areas. Most of the series stretch over two or more long cycles under uninterrupted peacetime conditions during which residential markets and building activity responded primarily to the play of market forces. Nearly half were newly developed during the research. Most of these refer to the state of Ohio, for which a set of statistical series—covering deed and mortgage recordings, new buildings, and marriages between 1857 and 1920—was discovered and processed with the aid of a financial grant to the author from the Rockefeller Foundation. Besides statewide totals the Ohio tabulations separately detail developments for five groups of urban counties and three of the largest cities.

In addition to these matched local series, aggregate national series for residential or urban building are being analyzed for ten countries: the United States, Great Britain, Germany, France, Sweden, Denmark, Italy, Canada, Australia, Argentina. For three of these countries—United States, Germany, and France—national measures of residential building were devised in the research. Measures for

CHART 6

Residential or Building Construction, Ten Countries, 1840-1955



the other countries were, happily, contrived by other research students. These measures of aggregate nationwide building are set forth in Chart 6, which brings together the building patterns of the leading countries of the western world over the span of a century. Some of our aggregate measures were stopped in 1914; others in 1939; still others were carried through to 1950. In the main the series were stopped at or near the time the influence of governmental action or of the catastrophe of war—and the accompanying shortages and controls—became a predominant influence in housing markets.

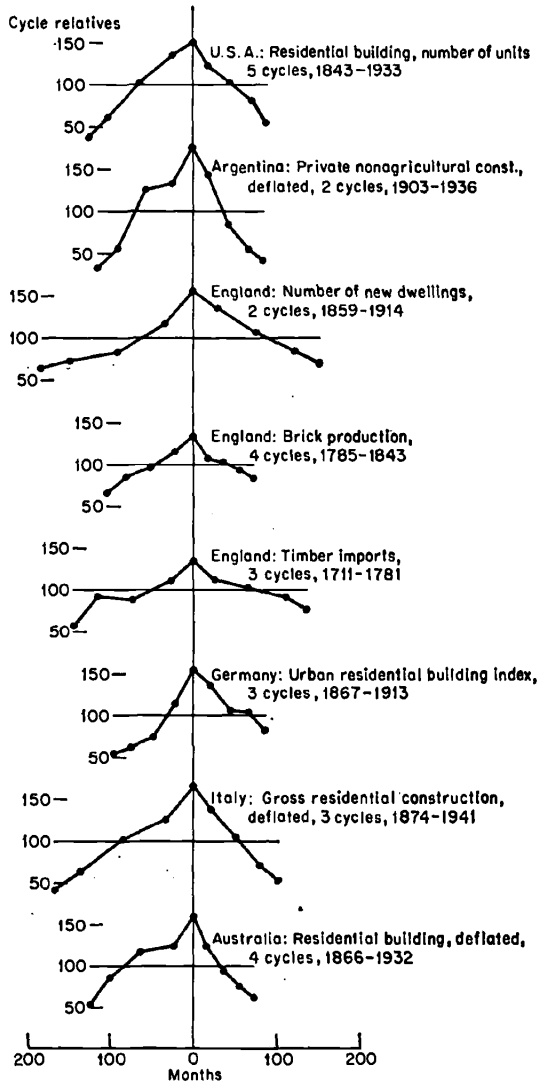
Chart 7 sets forth average nine-stage patterns of long cycles distilled from the historical experience depicted in Chart 6. In the derivations of these patterns, extensive use was made of the electronic computer programs for cyclical analysis and correlation described in Section 3 below. Since the spacing allotted for an index relative is equal to that allotted to one month of cycle duration, a 45-degree slope in the patterns denotes a rate of change of 1 per cent per month. These patterns and the time series from which they are derived indicate that the tendency is nearly universal for urban building, under relatively free market conditions, to run its course in long swings with an average duration ranging from fifteen to twenty-six years and an amplitude of movement that spans nearly 100 index relatives of the average cycle base. Only the Danish and French long building series are free from perceptible long swings, which, however, emerge in rates of growth of the same series. In the Swedish pattern these swings have relatively short duration and mild amplitude. Swings for other countries are both stronger and last longer. Nor do they show any regular tendency, over the studied period, to become milder as industrial capitalism outgrew its earliest crude urban habitat and achieved a more stable industrial base and a more diversified urban milieu.

The first fruits of the research will be a presentation of its major empirical findings grouped under four major headings:

1. Preparation of a new set of estimates of the number of permanent, private housekeeping residential units annually built in America, 1840-1939. The estimates have been completed, and a variety of tests indicate that they conform more closely than present competing

CHART 7

Average Patterns of Specific Long Cycles, Six Countries, Residential or Other Construction, 1711-1941



measures, so far as long-swing patterns are concerned, to probable national experience.

2. Study of empirical characteristics of local building cycles as experienced in some eighteen urban areas in Europe and America over a long stretch of peacetime years with regard to such features as duration, amplitude, secular trend, cyclical timing, and correlation with real estate market activity.

3. Study of interrelation of local waves within a country and their relation to the national aggregate in the United States, Great Britain, Germany, Sweden, and Australia.

4. Characteristics of long waves in nationwide aggregates of residential or urban building for Great Britain, Germany, France, Italy, Sweden, Australia, and other countries.

MANUEL GOTTLIEB

LONG SWINGS IN THE GROWTH OF POPULATION AND LABOR FORCE

The results of the original study, which investigates the nature and causes of swings in the long-term growth and movement of American population and labor force, are being presented in three reports: *The American Baby Boom in Historical Perspective,* Occasional Paper 79; "Influences in European Overseas Emigration before World War I," published in *Economic Development and Cultural Change,* April 1961; and "Long Swings in American Labor Force Growth," now being revised to take advantage of the staff committee's comments and more refined calculations.

In addition, work has started on a short study of the longer-term aspects of labor force growth since 1940. When compared with previous experience, two features of this growth stand out particularly—the disproportionately high contribution of participation rate change to the total increase, and the marked acceleration in the rate of growth of labor force participation rates of women over 35. The point of view being explored grows directly out of the original study. In each successive decade since the twenties there was a decline in additions to the labor force from demographic sources, that is, in the natural increase of the population of working age. However, the demand for labor generated by the long-term growth of the economy continued to expand, except during the thirties. Such a protracted divergence between the direction of growth in demand for labor and that of supply attributable to demographic forces is unprecedented. Along with this, since the twenties there have been restrictions on free immigration. In the last two decades, it is believed, these circumstances created exceptional pressures on those usually outside the labor force to enter.

The response of the various marginal groups —youths, younger and older women, older men—to these pressures varied substantially. One possible explanation lies in the differences between the age-sex composition of labor force additions desired by employers because of industrial and occupational changes, on the one hand, and the age-sex composition provided by demographic processes, on the other. The composition of demand in recent decades particularly favored occupations in which women are employed—clerical, sales, and service work—and disfavored certain typically male occupations, such as unskilled labor, farm and nonfarm. Since the entry of younger women was curtailed by their high marriage and fertility rates, the impact of this change in demand centered on older women and produced an exceptional rise in their labor force participation.

This interpretation has implications for the future. Recently the Bureau of Labor Statistics has been preparing labor force projections which rest almost entirely on the experience of the last two decades. However, one of the dominant features of this period—the decline of additions to the labor force through demographic processes—is being reversed. Indeed, over the next decade the reversal will be drastic: the prospective labor force growth owing to demographic sources in the sixties will just about double that of the fifties and

actually exceed the growth from all sources in that decade. This high rate of additions may lead to a reduction in additions due to participation rate change—just as the reverse may have been true in the forties and fifties. Yet the Bureau of Labor Statistics, by largely extrapolating the participation rate changes of the last two decades, projects high additions owing to this factor at the same time that additions will be high for demographic reasons. If our tentative interpretation of the 1940-60 period proves consistent with the evidence, we hope to use it to appraise these projections.

In the past few months we have been assembling data and performing basic calculations for this undertaking. It is hoped that a preliminary report on the findings can be prepared by the end of the summer.

RICHARD A. EASTERLIN

AGRICULTURAL PRODUCTIVITY

My recent efforts have been devoted mainly to the search for and assembly of data on the amount of education embodied in the agricultural labor force at different points in time and in different regions, and on the cost of and returns to this educational investment. Once the data are assembled in final form—and I am close to it now—I hope to investigate the relation between changes in education and productivity changes, and to measure the contribution of improvements in education to the growth in aggregate productivity of agriculture.

When this work is completed, the next task will be to assess the existing evidence on economies of scale in agriculture and to attempt to measure the past and possible future contribution to growth of increases in the average size of the operating unit in agriculture.

ZVI GRILICHES

TRADE UNION MEMBERSHIP

The late Leo Wolman's monographs on unionism (*The Growth of American Trade Unions, 1880-1923,* and *Ebb and Flow in Trade Unionism*) included annual figures on total union membership, 1897-1934. An extension of this series to 1960, prepared under his supervision, will appear in a report to be completed shortly.

Total membership of American trade unions (including Canadian members) multiplied more than fivefold from the nadir of 3 million in the depression year of 1933 to a peak of 17.7 million in 1957, then fell to 16.6 million in 1960 (Table 3). After deducting Canadian members, the 1960 figure is 15.5 million (Table 4). This is 22 per cent of the total labor force and nearly 29 per cent of total nonfarm employment.

TABLE 3

TOTAL MEMBERSHIP OF AMERICAN TRADE UNIONS, 1935-60

(Thousands)

Year	Membership[a]	Year	Membership[a]
1935	3,753	1948	15,020
1936	4,107	1949	14,695
1937	5,780	1950	14,829
1938	6,080	1951	15,772
1939	6,556	1952	16,310
1940	7,282	1953	17,316
1941	8,698	1954	16,612
1942	10,200	1955	16,990
1943	11,812	1956	17,383
1944	12,628	1957	17,687
1945	12,562	1958	16,902
1946	13,263	1959	16,507
1947	14,595	1960	16,607

[a] Canadian members are included.

The report will include figures on individual organizations by affiliation and estimates of the extent of organization among major industrial groups. Detailed notes on the sources and methods of constructing the estimates will

TABLE 4

UNION MEMBERSHIP AND EXTENT OF ORGANIZATION, UNITED STATES, SELECTED YEARS, 1933-60

Year	Membership[a] (thousands)	*Membership as Percentage of* Labor Force[b]	*Membership as Percentage of* Non-agricultural Employment[b]
1933	2,805	5.4	11.8
1939	6,339	11.5	20.7
1945	12,088	22.4	29.9
1950	14,096	22.3	31.2
1953	16,404	25.7	32.7
1960	15,539	22.0	28.6

[a] Excluding Canadian membership, as reported by by U.S. Bureau of Labor Statistics, *BLS 60-2402*, February 1960, updated to 1960.

[b] Labor force and employment figures from U.S. Bureau of Labor Statistics, *Employment and Earnings*, Annual Supplement Issue, Vol. 8, No. 5, November 1961, Tables A-1 and B-1.

be provided. Wherever possible, membership has been computed on a dues-paying basis. The passage of the Labor-Management Reporting Act of 1959 made it possible to obtain access to financial reports of most unions back to 1948. As a result, the proportion of membership computed from dues receipts has increased from about 45 per cent in 1940 to 90 per cent in 1960. For this and other reasons the figures shown in Tables 3 and 4 differ slightly from those published in *Distribution of Union Membership among the States, 1939 and 1953*, Occasional Paper 56 (1957).

LEO TROY

ECONOMIC GROWTH OF THE SOVIET UNION

The object of the study, begun in 1954 under a grant from the Rockefeller Foundation, is to set forth and analyze the evidence bearing on the question of the rate of growth of the Soviet economy. The work was undertaken in full recognition of the inherent difficulty of arriving at an answer and of the special difficulties in securing reliable information.

The status of the work on individual sectors of the Soviet economy is given below, including a separate report on agriculture by D. Gale Johnson. A summary report is now being drafted, combining the major findings for individual sectors and discussing such other matters as population, employment, construction, and standard of living.

INDUSTRIAL PRODUCTION AND TRANSPORTATION

Several of the studies of particular sectors are now in press and will shortly be issued. They include a volume on *Freight Transportation in the Soviet Union* by Ernest W. Williams, Jr., an Occasional Paper on *Small-Scale Industry in the Soviet Union* by Adam Kaufman, and my book on *Growth of Industrial Production in the Soviet Union*. The content of this latter study is indicated by the chapter and appendix headings, which are as follows:

1. Introduction
2. The Data: Knowns and Unknowns
3. The Product Mix: Composition, Quality, and Variety
4. Growth Trends: A Sample of Industries
5. Aggregative Growth Trends: Measurement
6. Aggregative Growth Trends: Analysis
7. Some Details of Growth
8. Industrial Growth: A Comparison with the United States
9. Summary

Appendixes

- A. Technical Notes
- B. Output Series
- C. Employment, Value, and Population Data
- D. Production Indexes and Weights
- E. Output Data for the United States
- F. Official Soviet Data on Industrial Production

An earlier study in this series was *Soviet Statistics of Physical Output of Industrial Commodities: Their Compilation and Quality* by Gregory Grossman, published in 1960.

G. WARREN NUTTER

AGRICULTURE: INPUTS AND PRODUCTIVITY

Substantial progress has been made in completing the estimates of the basic statistical series required for evaluation of the economic performance of Soviet agriculture. The only agricultural output series published officially is a measure of gross agricultural output, which involves double counting of feed and seed. For some of the purposes of the study, especially the comparison of changes in output per unit of input and analysis of changes in the real income of the farm population, a measure of the output available for sale and home consumption is required. As is sometimes the case, it was found that after making all of the necessary adjustments and deductions, the index of output available for sale and home consumption is very similar to a gross output index.

The results indicate that there have been two major sources for the increase of about 80 per cent in agricultural output since 1928. One has been the expansion of sown area, including the area acquired by territorial expansion. Between 1928 and 1960 the total sown area increased by 90 million hectares, or about 80 per cent; the sown area of the acquired territory was about 14 million hectares. The other major source has been the substitution of mechanical for animal power. In 1928 about a third of the total feed supply was required for draft power; at the present approximately 10 per cent is so used. I estimate that approximately 40 per cent of the increase in livestock output since 1928 has been based on the feed released by the reduction in animal power.

One of the by-products of this study is an estimate of the value of agricultural output in the acquired territories, based upon the major agricultural handbook published by the Soviet Union in 1960. As measured by gross value, output in the acquired territory was 14.3 per cent of the 1940 output in the total present territory (Table 5).

TABLE 5

GROSS VALUE OF AGRICULTURAL OUTPUT IN ACQUIRED TERRITORIES, 1940

(Billion rubles, 1958 prices)

	Territory of September 17, 1939	Acquired Territory	Total Present Territory
Crops	121.3	16.5	137.8
Livestock	84.4	17.7	102.1
Total	205.7	34.2	239.9

D. GALE JOHNSON

OTHER STUDIES

A conference on Components and Sources of Output Growth, 1840-1920, is being arranged. For additional reports concerned with aspects of economic growth, see Part II and Section 2 of this Part.

2. NATIONAL INCOME, CONSUMPTION, AND CAPITAL FORMATION

CONSUMER PURCHASE PLANS

A draft manuscript, "Consumer Anticipations and Durable Goods Purchases," is now being revised to take account of comments by the staff reading committee. The draft contains three major sections. In the first, a model for the interpretation of survey data on intentions to buy durable goods is developed. The model assumes that the population of households can be arrayed according to the likelihood that

they will purchase (subjective purchase probability), and that those who report intentions to buy are at one end of this array. Some general characteristics of this probability distribution can be inferred because the data contain several different measures of intention to buy that vary as to both certainty specifications and length of the planning period. Thus we can observe the proportion of households located in smaller or larger segments of the high-probability region of the distribution; the proportion purchasing provides an estimate of average probability in these various segments, from which we can tell something about the shape of the entire distribution. It is not possible to specify the exact characteristics of the distribution or even to say whether it can be described by few or only by many parameters.

One conclusion drawn from the model is that surveys of intentions should be designed to facilitate an estimate of the average probability in the population, i.e., of the mean of the probability distribution. The existing surveys of intentions typically measure the proportion of households in the population above some unknown but relatively high probability level, that is, the proportion in the tail of the distribution. It is by no means evident that mean probability will vary directly with this proportion; in addition, the sampling errors involved in estimating this proportion are relatively large. It follows that surveys should concentrate more on attempting to estimate the probability distribution in the region of the mean. Survey designs to accomplish this objective are examined in the study, including the obvious one of simply asking respondents for a direct estimate of subjective probability —perhaps by asking whether the odds on their purchasing during the next year are one in a hundred, one in ten, and so on.

The second section of the manuscript compares aggregated buying intentions with aggregated durable goods purchases, after allowing for the effect of certain other variables such as normal and transitory income, demographic status, income change, and several measures of consumer sentiment or attitudes. The probability model implies that intentions should be a much better predictor of purchases (i.e., should explain relatively more of the variance) than any of the others. The model also implies that the influence of other variables depends on the definition of what constitutes a buying intention, i.e., on the probability cutoff that distinguishes intenders from nonintenders.

Specifically, the model suggests that variables measuring financial conditions or general consumer sentiment should be more closely associated with purchases for those not reporting buying intentions, especially when intenders are so defined that only households with relatively high probabilities are included. The reason is as follows. Subjective purchase probability is presumably the most precise discriminator of whether or not a given household is likely to buy. If intenders are defined to include only those households with very high probabilities, variables such as income or attitudes will not help to identify households with relatively high probabilities among the (comparatively homogeneous) intenders, but are likely to be useful in identifying such households among the (comparatively heterogeneous) nonintenders. And the more restrictive the definition of intender, the more heterogeneous are the nonintenders.

The empirical results show that differences in buying intentions are considerably more powerful than any of the other variables tested in explaining differences in purchases among households. The evidence on the differential importance of financial or attitudinal variables, depending on the definition of buying intentions, is less clear, although the results provide some support for the model.

The third section contains an extensive multivariate analysis, within life cycle groups, of the relation between durable goods purchases and a large number of explanatory variables that measure financial and demographic status, buying intentions, attitudes, and expectations. Only six of twenty-one variables show a consistent and statistically significant net relation to purchases in these regressions— normal income, transitory income, intentions to buy durables, contingent (less certain or

longer-range) intentions to buy durables, the interaction of the last two, and short-range financial position. Three other variables—the number of durable goods (subjectively) in need of replacement and the differential influences of financial position and of replacement needs on the behavior of intenders and non-intenders—were somewhat less consistent than the above six but superior to the remainder.

The study of consumer purchase plans has been supported by grants from the Relm Foundation and Consumers Union of U.S., Inc., as well as by other funds of the National Bureau.

F. THOMAS JUSTER

INVESTMENT IN EDUCATION

This study, financed by two grants from the Carnegie Corporation of New York, has moved ahead on several fronts during the past year. I have continued revision of my manuscript and expect to distribute a complete draft to the reading committee within the next few months. The manuscript will contain chapters dealing with the theory of investment in education and other human capital, and with empirical estimates of costs of and returns on high-school and college education in the United States.

Funds from the Carnegie Corporation also helped finance an exploratory Conference on Capital Investment in Human Beings held in December 1961 in New York under the auspices of the Universities-National Bureau Committee for Economic Research. Three members of the National Bureau staff prepared papers for the conference. Jacob Mincer estimated expenditures for on-the-job investment in the United States. He found that investment in on-the-job training is an important component of total educational investment, and that its magnitude is higher, the higher the level of schooling of the worker. George Stigler prepared a paper on information in the labor market, in which he sought to explain the dispersion of wage rates in terms of the costs of and returns from the search by workers for jobs and by employers for workers. I prepared a rather long paper presenting my results on the theory of investment in human capital. Other papers dealt with education, health, and migration. It is expected that these papers will be published as a conference report.

We are now formulating plans to expand our study. One problem being given serious attention is the derivation of basic historical series showing trends in both expenditures on education—nationally and perhaps regionally—and the distribution of the population by years of school completed. These series would be extremely useful in much of the rapidly expanding literature on the economics of education. We also hope to do more work on assessing the contribution of education to economic growth.

GARY S. BECKER

THE CHANGING POSITION OF PHILANTHROPY IN THE AMERICAN ECONOMY

The search for data during 1961 on our broad concept of philanthropy has filled in many gaps, but has not materially altered the two general conclusions indicated in our report one year ago; namely, that public philanthropy, unlike private philanthropy, has rapidly increased relative to gross national product since 1929, and that the total of public and private philanthropic giving in 1959 equaled about one-tenth of GNP. In this sense, the economy now tithes. It did not in 1929. These will be among the highlights of our three-year study of philanthropy, financed by a grant from the Russell Sage Foundation. We also helped organize and participated in the Conference on Philanthropy described in Part II.

The conclusions above rest, of course, on a definition of philanthropy that seems reasonable. But some people might feel it to be too broad and others might think it too narrow. We expect to provide the data in detail, to meet various concepts of philanthropy and thus make our report of maximum usefulness to the public.

Political responses to sweeping social and economic changes during the past three decades account for the rapid expansion in public philanthropy. For example, the Great Depression, which destroyed the savings of older workers, and mortality reductions, which increased the number living on into old age, contributed to the passage of the Social Security Act of 1935. Other factors forcing changes in philanthropy in this and other respects were migration to the cities and away from self-employment, with increasing dependence on employment for wages. World War II and the cold war have had many effects, not least of which is a program of foreign aid which is a puzzling mixture of defense policy and philanthropic motives. Some changes, however, were in the direction of relatively less philanthropy; for example, the hospital became more of a business and less of a philanthropic institution.

The report and the data will be organized around our basic research design, the four "quadrants": (I) private domestic philanthropy, (II) private foreign philanthropy, (III) public domestic philanthropy, and (IV) public foreign philanthropy. Since an unbounded quadrant has no area, equality of size is not implied. The first and third quadrants will be featured, with least attention given to the second.

Students of private philanthropy usually develop estimates of giving from tax returns which are disturbingly higher than their estimates of the amount received by philanthropic institutions. In our study the givers or the sources of private philanthropic income are gifts from living donors, charitable bequests, corporate gifts, foundation and nonfoundation income from endowment. To these five sources a rough estimate for person-to-person giving (support payments) will be added to provide the grand totals of Quadrant I—but support payments will, of course, be shown separately so that our figures can be used by persons who wish to exclude them from their estimates of private philanthropy. The recipient institutions are religious organizations, parochial schools, higher education, health, welfare (not covered under religious organizations), and miscellaneous groups. Ralph L. Nelson's supplementary report below deals with the problem of reconciling the amounts given and received, and provides some other comments on the estimates for private domestic philanthropy.

The propensity of the American people to give is also manifested in their gifts to persons and private institutions abroad. Quadrant II, private foreign philanthropy, has averaged about 0.2 per cent of GNP. It is the smallest of the four.

Before the period on which we are concentrating, 1929 to the present, old-age assistance, aid to the blind, aid to dependent children, and general assistance were provided by a complex of local private and local and state public philanthropic agencies. These agencies in New Haven were carefully examined by W. I. King in *Trends in Philanthropy* (1928)—the first study of philanthropy by the National Bureau. Now almost all of this support comes from federal and federal-state-local programs. Hence many of the present forms of public domestic philanthropy have their roots in the period before 1929.

In her compilations of social welfare expenditures under public programs published in the *Social Security Bulletin,* Ida C. Merriam includes many items in addition to public assistance. The largest item is Old-Age, Survivors, and Disability Insurance. Since the windfall portion of OASDI benefits (i.e., not theoretically prepaid by the recipient or his employer) has averaged about 95 per cent, we shall include only that proportion under public domestic philanthropy. Others might include 100 per cent, a lower percentage, or none. On the other hand, we shall include all social welfare expenditures for public assistance. Other reductions will be made in the Merriam totals in measuring public domestic philanthropy; for example, more than one-third of the amounts classified as Veterans Welfare will be excluded as an aftercost of war. If no exclusions are made, the totals for Quadrant III alone equal 10.7 per cent of GNP in fiscal 1959.

Public foreign philanthropy was negligible between 1929 and 1940. During the nineteen

years since 1940, total foreign aid, not including loans, was roughly $101 billion net. From this total we shall exclude the purely military aid of $48 billion. Since we cannot know what, if any, fraction of the hard and soft currency loans to foreign countries was originally thought of as philanthropic, and since in any case we cannot know now what proportion of the loans made during our period will eventually not be repaid, these loans will be entirely excluded in our tables. In the text discussion, however, it will be noted that, to the extent that these loans do contain a philanthropic element, their exclusion causes the amount of public foreign philanthropy to be understated.

The manuscript, tables, and technical appendixes are scheduled for completion in the summer of 1962. The introduction, the contents of which indicate the scope of view of the study as a whole, will include a brief historical sketch of the intermingling of public and private philanthropy since the Protestant Reformation, some impacts of World War I, and the interrelations of public and private charity, welfare, and philanthropy. The continuity of the basic idea of generosity will be examined in relation to the four quadrants. The broader term, philanthropy, which came into common use in the twentieth century, includes more than charity—for example, funds for research, education, the fine arts—and welfare partly overlaps philanthropy. A contrast of the amount of philanthropy in New Haven, Connecticut, in 1959 with that in 1925, the last year in King's study, will be roughly indicated. The introductory chapter will also consider the necessity for a broad concept of philanthropy—giving money away to persons and institutions outside the family without a definite or immediate *quid pro quo* for purposes traditionally considered philanthropic. Thus the basic test of whether an activity should be considered philanthropic is not the source of the funds so much as it is whether the activity has traditionally been considered philanthropic.

The chapters on domestic private philanthropy, Quadrant I, will consider, first, contributions for philanthropic purposes, and, second, receipts by philanthropic institutions. Quadrant II, private foreign philanthropy, will require only one chapter. Private giving abroad has played a significant role in philanthropy over the decades, and restricting the subject of philanthropy to the continental boundaries of the United States would prevent a full-scale treatment of the subject. The chapters on large Quadrant III will cover Veterans Welfare, OASDI, and finally the remaining forms of public domestic philanthropy. There will be a chapter on foreign aid, and one of summary and conclusions.

FRANK G. DICKINSON

ESTIMATES OF PRIVATE GIVING

I have been making the estimates of private philanthropic giving needed in the broader report on philanthropy in the American economy that Dickinson is preparing. The technical problems encountered in making these estimates and the character of the results are suggested by the following comparison of sums given by with sums received from private donors.

In 1956 the amount of giving from nongovernmental sources to organizations supported in part or in full by such giving was estimated to be of the order of $7.5 to $9 billion (Table 6). This does not include the substantial value of the services of the buildings, laboratories, libraries, and other physical assets acquired through donations. Were a rental value for these assets to be included, the volume of philanthropic income flow might be increased by another billion dollars.

The divergence in the totals for donors and recipients reflects the basic problem of estimation confronting the study. These two types of estimates are based on different sources of data and to some extent differences in concept. For these reasons an effort is being made to reconcile the two estimates. In an experimental casting-up of accounts, the components of existing estimates were reviewed in detail and, where the several estimates for a given component differed in value, each was examined to determine which was probably the most

TABLE 6

THE COMPOSITION OF PRIVATE GIVING, 1956, DONORS AND RECIPIENTS, PRELIMINARY ESTIMATE

(Dollar values in millions)

Sources (Donors)	Amount	Per Cent	Uses (Recipients)	Amount	Per Cent
Living donors (persons and families)	$7,317	82.3	Religious organizations[a]	$3,569	47.9
Bequests	534	6.0	Private primary and secondary schools	802	10.8
Corporations	418	4.7	Higher education	929	12.5
Foundation endowment income	407	4.6	Secular health	808	10.8
Other endowment income	220	2.5	Secular welfare	1,015	13.6
			Miscellaneous	335	4.5
	$8,896	100.0		$7,458	100.0

[a]Includes church-supported health and welfare, and excludes parochial schools.

complete and accurate. These "best estimates" were assembled, updated where later data were not presented, and the totals compared (Table 7).

The discrepancy between estimates based on donor and recipient sources varies considerably over the period 1930-56. The largest discrepancies are observed in 1940 and 1945, when data from recipient institutions produced a total only three-fourths of that from donors. Examination of its composition suggests that the most important factor in these two large differences may be an understatement in the income of religious organizations, the largest single object of private giving. In 1940 and 1945 religion's share of the total estimated income of recipients was only 39.2 and 45.3 per cent, respectively, whereas both before and after it was larger (in 1935, 50.7, and in 1950, 48.7 per cent).

Because of the importance of religious giving in the total and because data on religious giving are fragmentary and of uncertain accuracy, a considerable amount of effort is being devoted to making independent estimates of its magnitude.

TABLE 7

ESTIMATES OF TOTAL PRIVATE GIVING TO ORGANIZATIONS, 1930-56

(Dollar values in millions)

Year	Based on Data from: Donors (1)	Recipients (2)	Ratio, Col. (2) to Col. (1) (3)
1930	$1,404	$1,530	1.09
1935	1,110	1,018	0.93
1940	1,623	1,235	0.76
1945	3,482	2,625	0.75
1950	5,295	4,344	0.82
1956	8,896	7,458	0.84

For Protestant churches, for example, it probably will be possible to present an annual series from 1929 through 1960, building on data for contributions reported to the National Council of Churches. The NCC reporting group has grown in size and in coverage of major denominations. Even in the later years, however, the direct data are far from all-

inclusive. As late as 1956 the NCC reported a total of $2.04 billion; our preliminary estimate for total Protestant giving for that year is $2.83 billion, or 39 per cent higher.

For Roman Catholic giving, there are no comprehensive direct data on contributions on which to build estimates of totals. The approach has therefore been to estimate how much it would have cost to support the Church's religious and educational program, utilizing the *Official Catholic Directory's* detailed statistics on numbers of clergy, teachers, members, students, parishes, schools, and so forth. By use of fragmentary budget and salary data, and parallel cost data on public schools, it has been possible to construct what appear to be reasonable estimates. In 1956, for example, it was estimated that contributions were probably about $1,378 million, distributed as follows: church and diocese current operating expenses, $401 million; church construction, $175 million; church support of parochial schools, $802 million, of which $460 million went for current operations and $342 million for construction. Higher education and hospital support, not commonly supported from parish revenues, were counted elsewhere in the private-giving sector.

On the donor's side, work has continued on the analysis of the reliability of estimates based on tax return data. Personal or family giving is the largest source of philanthropic giving (see Table 5), and it is increasingly being reported on tax returns as a nonbusiness deduction. In 1948 less than half of what Kahn[1] estimated as total personal giving (48.3 per cent) appeared on tax returns as an itemized deduction. By 1958, using Kahn's procedures, more than seven-tenths (70.5 per cent) of the estimated total appeared on tax returns. This rise probably reflects the growth in home-ownership, in which large mortgage interest and property tax payments have made it worthwhile to itemize deductions, and the rise in incomes, which has enlarged the number of families required to file tax returns.

These materials are presently being written up in a form suitable for publication as a technical paper.

Work is also continuing on cross-sectional and historical analyses of socioeconomic patterns in personal giving and on a similar analysis of corporate giving. Some attention has been paid to the treatment of private giving in the national accounts. It is hoped that these materials may be incorporated into the report on basic estimates and patterns detailed above.

RALPH L. NELSON

THE IMPACT OF PUBLIC AND PRIVATE PENSION SYSTEMS ON SAVING AND INVESTMENT

The major segments of this study of the economics of pensions, directed by Roger F. Murray, have now been substantially completed. There remains the task of writing up certain portions of the research and drafting a comprehensive report on the findings. We plan to publish two volumes of moderate size: one giving a systematic presentation of the results and the second containing the principal study papers in complete form. The research has been supported by a major grant from the Maurice and Laura Falk Foundation and by a supplemental grant from the Life Insurance Association of America.

We have had the benefit of many helpful suggestions from members of our advisory committee. The members are:

Solomon Fabricant (chairman), National Bureau of Economic Research

Robert M. Ball, U.S. Department of Health, Education, and Welfare

Dorrance C. Bronson, The Wyatt Company

J. Douglas Brown, Princeton University

George B. Buck, Jr., Actuarial Consultant

Arthur L. Coburn, Jr., Old Colony Trust Comany

John J. Corson, McKinsey & Company

[1] C. Harry Kahn, *Personal Deductions in the Federal Income Tax,* Princeton University Press for National Bureau of Economic Research, 1960, Table 17.

Frank G. Dickinson, National Bureau of Economic Research

F. F. Fauri, University of Michigan

Milton Friedman, University of Chicago

George Garvy, Federal Reserve Bank of New York

William C. Greenough, Teachers Insurance and Annuity Association

Challis A. Hall, Jr., Yale University

Ralph W. Hemminger, Bankers Trust Company

Albert J. Hettinger, Jr., Lazard Frères & Company

R. A. Hohaus, Metropolitan Life Insurance Co.

Charles L. Jacobson, Jr., State of Wisconsin Investment Board

E. Gordon Keith, University of Pennsylvania

Benjamin B. Kendrick, Life Insurance Association of America

Murray W. Latimer, Actuarial Consultant

J. D. Lockton, General Electric Company

Dan M. McGill, University of Pennsylvania

Ida C. Merriam, U.S. Department of Health, Education, and Welfare

Robert J. Myers, U.S. Department of Health, Education, and Welfare

Vito Natrella, Securities and Exchange Commission

James J. O'Leary, Life Insurance Association of America

Joseph A. Pechman, Brookings Institution

Ray M. Peterson, Equitable Life Assurance Society

Rene L. Rothschild, State of California Department of Finance

Lawrence H. Seltzer, Wayne State University

Pension Plans of Nonprofit Organizations

As a part of our detailed study of the pension structure, Elizabeth Simpson has gathered information from many sources regarding pension coverage and asset accumulations for the approximately 2.2 million employees of nonprofit organizations. Coverage under the Federal Old-Age, Survivors, and Disability Insurance Program has probably increased to about 80 per cent of this employee group and continues to grow.

The oldest and best-known pension plans are those established for Protestant ministers. Over 70 per cent of the 175,000 full-time ministers belong to denominations with formal retirement plans. The majority are enrolled in seventeen well-established plans which conform to sound actuarial principles and which hold diversified investment portfolios reflecting professional management. Most of the churches also have plans for full-time lay workers, but coverage is not large.

Religious priests, brothers, and sisters belonging to orders in the Roman Catholic Church, who total some 200,000 individuals, are taken care of by their orders when they are no longer able to perform their duties. In a real sense, provision is made for their retirement, although no specific financial arrangements are involved. In the case of the 31,000 active diocesan priests, retirement provisions vary widely among the 111 dioceses and 26 archdioceses. In the majority of cases, the provisions are similar to those for the religious priests in that a sustaining income is provided for life. However, in a number of dioceses, formal insured or self-administered plans are being studied and some have already been established.

Several associations, including approximately 1,600 rabbis from all branches of Jewish religious observance, have established insured pension plans. Coverage is believed to be about 60 per cent for this group. Some 2,400 other active rabbis not affiliated with these larger associations may be covered to some extent, but information is not available on a comprehensive basis.

Pension coverage in the field of education has long been extensive. Of the 283,000 faculty members in nonpublic and nonproprietary schools and colleges, some 110,000 are members of religious orders. About 95 per cent of the 114,000 junior- and senior-college teachers

are employed by institutions with pension plans, and 30 per cent of the 59,000 primary- and secondary-school teachers are so employed. These plans are typically insured and carry full vesting rights. Most of the plans include administrative officers, and about one-half cover nonacademic employees.

Less complete data are available on hospitals, museums, and nonprofit membership organizations other than churches. A few of the larger membership organizations have substantial self-administered funds; most of the others have insured plans. Museums and hospitals have been somewhat slower to establish plans.

At the end of 1959, the total assets of self-administered pension funds of nonprofit organizations amounted to approximately $1 billion, and the reserves of life insurance companies under insured plans for such groups were estimated at only slightly less than this amount.

ROGER F. MURRAY

UNION AND JOINTLY ADMINISTERED MULTIEMPLOYER PENSION PLANS

One of the most rapidly growing segments of the private pension structure has been the group of noninsured plans administered by joint boards of union and employer representatives. These multiemployer plans, together with the older funds handled by the unions alone, differ from the typical single-company plan in that the employers contract for specific payments to the funds, and the trustees, with actuarial advice, determine from time to time the amounts of the benefits which will be promised employees. Because the pension contributions are often accompanied by substantial payments for other welfare plans, the size of the retirement funds has often been greatly exaggerated.

Using the reports filed under state disclosure laws, and particularly information filed with the U.S. Department of Labor under the Welfare and Pension Plans Disclosure Act, H. Robert Bartell compiled a comprehensive picture of the assets and growth rates of some 567 major funded plans which had aggregate assets in excess of $1,248 million at the end of their 1959 fiscal years. While there are some problems in determining which funds may properly be included, this total represents substantially complete coverage of multiemployer funds (except for 82 insured plans). The growth rate from the preceding fiscal year-end was an impressive 24 per cent, indicating that these funds will be of increasing importance in the years ahead.

Excluding certain large union funds which were not broadly diversified, the composite diversification of 558 noninsured funds was as follows:

	Percentage of total
Government bonds	25.5
Other bonds	38.3
Mortgages	4.8
Preferred stocks	2.3
Common stocks	17.1
Other investments	1.7
Cash and deposits	7.3
Other assets	3.0
	100.0

The indicated investment policy of these funds is somewhat more favorable to holding U.S. Treasury obligations and less favorable to equity investment than the typical single-company pension fund. Greater interest in equity investments has been evidenced in recent years, and some funds are prepared to go further in real estate mortgage lending. A striking aspect of the portfolios is the predominance of general market securities of high quality.

The multiemployer funded plans which we have studied covered 2.9 million employees in 1959. The 82 insured plans covered an estimated 300,000 employees. Union plans covered another 1.3 million employees. Eliminating duplications, we examined data on plans covering a combined total of 4.2 million. The relatively small amount of assets per employee indicates both the newness of the plans and the very substantial growth which lies ahead.

This is, of course, only one element in the total pension structure. Below, Daniel M. Holland indicates the broad outlines of the growth picture which emerges for the projections he is making for pension plan assets in the more distant future, and Phillip Cagan reports on another major study paper that leads to the important conclusion that the development of the pension system tends to increase aggregate national saving.

ROGER F. MURRAY

PROJECTION OF ASSET ACCUMULATION

We have now completed the collecting and processing of data for our analysis of the characteristics of private pension plans based on a constant sample of the plans of 124 large companies. Certain of the trends identified in this sample have helped us to make estimates of the level of private industrial pension-plan assets over the next two decades. Such estimates are at best highly conjectural, but some ways of proceeding are better than others. In our judgment, better and more informative results would ensue from estimating each of the fiscal operations of pension plans separately. Thus each of the fiscal flows associated with pension plan operations—contributions, earnings, and benefit payments—was estimated, and fund accumulations were computed as the net resultant of the three.

Moreover, our interest is not in the level of pension funds *per se,* but in the annual changes in that level, for this is the measure of the importance of pension funds as suppliers of net new finance. (This is true in a proximate capital market sense, even if no net new saving is associated with pension fund accumulations; it is true in a deeper sense, of course, if there is additional saving on this score.) Since insured and trusteed funds have different portfolios, i.e., seek different kinds of financial instruments, our projections break down these categories separately.

As to the method, without going into detail, we estimated the following items for the period 1960-80 with respect to the operations of corporate pension plans:

1. Beneficiaries and payments per beneficiary to arrive at total benefits.
2. Number of covered employees and contributions per covered worker to arrive at total contributions.
3. Fund earnings on the alternative assumptions that earnings rates are 3.5 per cent and 4 per cent. Given reserves at the start of the period and estimates of contributions and benefits, fund earnings for each year were estimated iteratively.

To elaborate a little, we made a single set of estimates of benefit payments, because a test with the 1950-59 data suggested our projection of beneficiaries would be quite accurate. To estimate coverage, we used three alternative assumptions concerning the saturation point in coverage and when it would be reached. And, as noted, we used two different earning-rate assumptions. Thus we had, in all, six estimates of reserves and annual changes therein. But they were not far apart. The highest of the estimates of fund accumulations exceeded the lowest by 8 per cent for 1970 and by 21 per cent for 1980.

At this stage, the estimates are still subject to careful review, but they do suggest certain tentative conclusions. As expected, pension funds will continue to accumulate assets over the next twenty years and, more than that, each year's accumulation will exceed that of the year before. There is, however, a hint that the annual first differences will start to tail off by the middle 1980's. Accumulation will still take place, but the absolute annual differences will tend to become smaller.

We are seeking to improve our estimates for private industrial pension-plan assets, and are extending our purview to the funds maintained in connection with plans for state and local government employees.

DANIEL M. HOLLAND

THE IMPACT ON AGGREGATE SAVING

The final draft of this study is now being circulated for criticism and suggestions, with a

view to publication as one of the study papers. The results reported in the 41st Annual Report (p. 53) have been confirmed by further testing and analysis. The annual growth in public and private pension funds appears to represent an equivalent increase in personal savings. Since possible reductions in saving by business and government are probably only a small offset to this increase, we conclude that the development of retirement programs has significantly enlarged the rate of national saving over what it would have been in the absence of pensions.

PHILLIP CAGAN

THE MOBILITY OF CAPITAL IN MANUFACTURING INDUSTRIES

The monograph "Capital and Rates of Return in Manufacturing Industries" was revised in light of the review by the reading committee, and is now being reviewed by the Directors.

As mentioned in Gary Becker's report, I contributed a paper on "Information in the Labor Market" to the Universities-National Bureau Committee Conference on Capital Investment in Human Beings.

GEORGE J. STIGLER

NATIONAL WEALTH AND NATIONAL BALANCE SHEETS

THE NATIONAL WEALTH OF THE UNITED STATES IN THE POSTWAR PERIOD

This study is now in press, and copies are expected in the spring of 1962. The original manuscript was enlarged by a voluminous Appendix B, comprising about 180 tables, which provides detailed information on the derivation of the estimates of the different components of national wealth. This appendix had previously been envisaged as part of the document on "Statistics of National Balance Sheets and Fund Flows."

STUDIES IN THE NATIONAL BALANCE SHEET

This manuscript, of which Robert Lipsey is coauthor, was submitted to the Board near the end of the year. This study, the content of which is indicated by the chapter headings listed below, has been supported in part by a grant from the Research and Educational Trust Fund of the Mortgage Bankers Association.

Part I. The National Balance Sheet of the United States During the Postwar Period

1. Main Features of National Balance Sheets
2. The National Balance Sheet of the U.S. During the Postwar Period

Part II. Housing in the National Balance Sheet

1. Housing as a Component of National Wealth
2. Residential Mortgages as Financial Assets and Liabilities
3. Home Ownership and Mortgage Debt in Relation to Family Characteristics

Appendix A. Estimate of the Value of Housing from Census and Survey Data

Appendix B. Distribution of Nonfarm Residential Mortgage Debt Between Owner-Occupied and Rental Housing

Appendix C. Data on Gross Flows of Mortgage Funds

Part III. The Influence of Price Changes on Net Worth

1. Summary and Significance of Findings
2. Problems in the Measurement of the Net Worth of Groups of Economic Units
3. Net Worth Changes and Price Level Changes
4. Asset Prices and the General Price Level
5. Leverage Ratios

The extensive tables underlying this study and the summary volume of the Postwar Capital Markets Study (see Section 4) have been assembled in a separate volume which is intended to be published as Volume II of "Studies in the National Balance Sheet of the United States." The tables consist essentially of annual balance sheets and flow-of-funds statements for seven main sectors and for about two dozen subsectors of the financial sector for the years 1945-58, and show holdings and fund flows for about forty categories of assets and liabilities. The tables are sufficiently annotated to enable users to trace the estimates back to the original sources. They are somewhat more detailed, particularly for tangible assets, than the Federal Reserve Board's flow-of-funds statistics, and differ in many details, but are basically comparable to them.

RAYMOND W. GOLDSMITH

OTHER STUDIES

Conference reports on "Income Shares," "Capital Investment in Human Beings," and "Models of Income Determination" are being prepared for press; see Part II.

3. BUSINESS CYCLES

STATISTICAL INDICATORS

The list of twenty-six indicators of cyclical revivals and recessions published last year in *Business Cycle Indicators* (Vol. I, pp. 55 ff.) is a revision of the list of twenty-one published in 1950. The revised list was based upon the performance of the series through the business cycle contraction that ended in April 1958. Their performance at the business cycle peak of May 1960 and trough of February 1961 therefore constitutes an independent test, and brings the record up to date. The results are shown in Table 8. The timing of the leading group was affected by the steel strike in the second half of 1959. Most of the series in this group reached highs in the first half, declined during the strike, and did not recover their previous highs after the strike was settled.

Business Cycle Indicators also contained a supplementary list of indicators that had proved useful (Vol. I, pp. 672 ff.). Current data for nearly all of these, together with some recent additions, a number of diffusion indexes, and various analytical measures of cyclical performance, are being published each month in the Department of Commerce report *Business Cycle Developments*. The history of the construction and testing of this report since 1957 is described by Julius Shiskin in *Signals of Recession and Recovery: An Experiment with Monthly Reporting,* Occasional Paper 77, published in October.

GEOFFREY H. MOORE

MONEY AND BANKING

The manuscript of the first volume of the study of the role of money in the American economy, by Anna Schwartz and myself, has been submitted to the Board of Directors. This manuscript, "The United States Money Stock, 1867-1960," presents an analytical narrative of changes in the stock of money, based on new estimates of money that we have constructed.

Over the ninety-three-year period covered by the study, money multiplied 157-fold, or at an annual rate of 5.4 per cent, and the U.S. population quintupled. Hence money per capita

TABLE 8

TIMING OF 26 BUSINESS CYCLE INDICATORS: AVERAGE THROUGH 1958 AND AT 1960-61 TURNING POINTS[a]

(Leads and lags in months)

Indicator	No. of Timing Comparisons Through 1958 at Business Cycle Peaks	No. of Timing Comparisons Through 1958 at Business Cycle Troughs	Median Lead (−) or Lag (+) Through 1958 at Business Cycle Peak	Median Lead (−) or Lag (+) Through 1958 at Business Cycle Trough	Lead (−) or Lag (+) at May 1960 Peak	Lead (−) or Lag (+) at Feb. 1961 Trough
LEADING GROUP						
Sensitive employment indicators						
1. Average workweek, mfg.	7	8	− 5	− 4.5	−12	− 2
2. Gross accession rate, mfg.	9	10	−10	− 4	−14[b]	− 2
3. Layoff rate, mfg., inverted	9	9	− 9	− 7	−12[b]	0
New investment commitments						
4. New orders, durable goods	7	8	− 6	− 2	−11	− 1
5. Housing starts	8	8	−14	− 5	−17	− 2
6. Commercial and industrial building contracts	7	8	− 9	− 1.5	[c]	[c]
7. Net change in number of businesses (Q)	20	22	− 3	− 5	0	− 3
Profits, business failures, and stock prices						
8. Business failures, liabilities, inverted	17	18	− 7	− 7	−12	− 8
9. Corp. profits after taxes (Q)	8	9	− 4	− 2	−12	0
10. Common stock price index	19	19	− 4	− 5	−10	− 4
Inventory investment and sensitive commodity prices						
11. Change in bus. inventories (Q)	4	4	−17.5	− 5.5	−12	0
12. Industrial materials spot market price index	8	9	− 7.5	0	− 6	− 2
ROUGHLY COINCIDING GROUP						
Employment and unemployment						
13. Nonagricultural employment	16	16	0	0	− 1	0
14. Unemployment rate, inverted	5	6	− 4	+1.5	− 3	+3
Production						
15. Industrial production index	17	17	0	− 1	− 4	0
16. Gross national product, current prices (Q)	6	7	+0.5	− 1	0	0
17. Gross national product, constant prices (Q)	3	3	0	− 3	0	0
Income and trade						
18. Bank debits outside N.Y.C.	16	17	+1.5	− 3	[c]	[c]
19. Personal income	8	9	+1	− 2	+5	0
20. Sales by retail stores	6	6	+2.5	− 0.5	− 1	− 1
Wholesale prices						
21. Wholesale prices, excl. farm products and foods	6	7	+1	+1	−10	+8[d]
LAGGING GROUP						
22. Plant and equipment expenditures (Q)	9	9	+1	+2	0	+3
23. Wage and salary cost per unit of output, mfg.	6	7	+6.5	+9	+10	+6[d]
24. Manufacturers' inventories, book value, end of mo.	7	7	+1.5	+3.5	+1.5	+1.5
25. Consumer instal. debt, end of mo.	4	4	+5.5	+3.5	+7.5	+5.5
26. Bank interest rates on business loans, last mo. of quarter	8	9	+5	+5	− 5	+10[d]

NOTES TO TABLE 8

[a] List of indicators and median leads and lags are taken from *Business Cycle Indicators,* Vol. I, pp. 679-680, except that series 1-5, 21, and 23 have been revised. The timing in 1960-61 is based on the data in Bureau of the Census, *Business Cycle Developments.* In order to carry timing comparisons back as far as possible, data for a closely related series have sometimes been used for cycles prior to the initial date covered by the series used currently. The principal cases of this sort are: series 5—prior to 1939, residential building contracts, floor space; series 7—prior to 1945, number of new incorporations; series 13—prior to 1929, employment in manufacturing only; series 15—prior to 1919, Babson's index of business activity; series 18—prior to 1919, bank clearings outside N.Y.C.; series 20—prior to 1935, department store sales; series 22—prior to 1947, manufacturing industries only; series 23—prior to 1946, production worker wage cost only.

[b] The extreme values reached in December 1959 (accessions) and January 1960 (layoffs) owing to settlement of the steel strike were ignored in marking the cyclical turns.

[c] No contraction.

[d] Based on lowest value reached in data shown in *Business Cycle Developments,* March 1962.

increased 33 times, or by 3.7 per cent annually. About half of this rise was matched by a rise in output per capita, and about a quarter by a rise in prices. The rest reflected a rise in the public's money holdings from a sum equal to less than three months' income in 1867 to more than seven months' income in 1960.

To show how these developments came about, we discuss successively the greenback period after the Civil War, the controversy about the role of silver that reached its peak with William Jennings Bryan's defeat in the presidential campaign of 1896, gold inflation and the movement for banking reform before World War I, the introduction of the Federal Reserve System, the 1929-33 depression, changes brought about by the New Deal, monetary aspects of the two world wars, and post-World War II monetary developments. In each case, there is a close relation among changes in money, money income, and prices over both business cycles and longer periods.

The stock of money has generally risen during both expansions and contractions in general business, but at an appreciably higher rate during expansions. In some contractions, the money stock has fallen absolutely and not merely slowed its rate of rise. This has been true in every unusually severe contraction.

The 1929-33 contraction receives especially detailed analysis. We conclude that the decline by one-third in the stock of money during this contraction, and the accompanying failure of thousands of banks, was the result of mistakes in monetary management. If the money stock had not fallen, the contraction might still have been relatively severe by historical standards. But it is inconceivable that money income could have declined by over one-half and prices by over one-third in the course of four years if there had been no decline in the stock of money and no widespread bank failures.

We find a complex connection between money and long-term economic growth. Four periods display a relatively high degree of economic stability: 1882-93, 1902-13, 1923-29, and 1948-60. Although these periods demonstrated much the same rate of growth in real income and a high degree of stability in year-to-year changes in money stock, money income, and prices, they were marked by quite different rates of growth in the stock of money. The different rates of monetary growth, in turn, were reflected in different behavior of prices: in one period, prices fell; in one, they were roughly constant; and in two, they rose.

Apparently, the forces that determine the long-run rate of growth of real income are largely independent of the long-run growth rate in the money stock, so long as both proceed smoothly. But marked instability in money is accompanied by instability in economic growth.

The striking thing about the relations between monetary and economic change is that they have remained much the same for nearly a century, despite radical changes in our monetary arrangements. External forces affecting the behavior of money have altered, but the connections between changes in money and other economic magnitudes have been highly stable.

Monetary changes have often been independent rather than immediate or necessary consequences of contemporaneous changes in business conditions, though there are also influences running from economic activity to money. Changes in the money stock are therefore a consequence as well as an independent source of change in money income and prices, though once they occur, they produce in their turn still further effects on income and prices. We conclude that money has been the senior partner in longer-run movements and major cyclical movements, and more nearly an equal partner with money income and prices in shorter-run and milder movements.

The revision of Volume Two, "Trends and Cycles in the Stock of Money in the United States, 1867-1960," a statistical analysis, is now under way. We hope to submit the manuscript to the Board of Directors later this year.

MILTON FRIEDMAN

DETERMINANTS OF THE MONEY STOCK

My manuscript, "Determinants and Effects of Changes in the Money Stock," a companion volume to the study by Friedman and Schwartz, has been reviewed by the staff and I am revising it. A summary chapter has been completed for limited circulation, and *The Demand for Currency Relative to Total Money Supply,* Occasional Paper 62, has been completely revised and will be incorporated in the new manuscript as part of Chapter IV, "The Currency Ratio." A draft of all chapters and appendixes should be ready for circulation to the Directors in the second half of 1962.

PHILLIP CAGAN

COSTS AND PROFITS

The manuscript "Cost, Prices, and Profits: Their Cyclical Relations" has been revised and amplified and will shortly be completed. Current data that have accumulated since it was written made it possible to include an analysis of the 1958-60 business upswing and of the corresponding upswings in the sales of the individual industries studied. Consideration was previously focused on the frequency of rises and falls in profit margins and related variables at various stages of cycles; figures on their average size have been added. The analysis previously ended with the profit margin; now fluctuations in aggregate profits are also discussed.

LABOR COST

The previous treatment of fluctuations in manufacturing labor cost at the individual "major" industry level was supplemented by analyzing separately the hours-per-unit and hourly earnings components of cost. This discussion was necessarily confined to "production" labor, since data on the earnings of "nonproduction" workers are not available for the industries severally. It shows that hours per unit of goods sold fell in 96 per cent of the upswings in quantity sold, rose in 57 per cent of the downswings. Hourly earnings rose in all of the expansions, but also in 96 per cent of the contractions. The net result was that production labor cost per unit rose in 33 per cent of the expansions and 76 per cent of the contractions. It was inversely related to volume.

Man-hours of all workers, including nonproduction workers, were estimated for each industry on the assumption that the other employees work the same number of hours per week as the production employees. Hours per unit, including these other workers, fell in the same percentage of expansions, 96, as hours per unit excluding them, but rose in a larger percentage of contractions, 67. The average change in expansions was a fall of 11.9 per cent, the average change in contractions a rise of 3.5 per cent.

We combined our data on quantity sold and on man-hours for all the manufacturing industries covered. During 1947-60, composite quantity had three expansions and three contractions, roughly corresponding to those in business at large. Composite hours per unit,

however, fell not only in the upswings but in the downswings, whereas in most of the observations for individual industries hours per unit rose in the downswings. The difference is largely explained by the smaller declines in quantity during the composite contractions. The average decline in the individual downswings was 13.1 per cent; in the three composite contractions it was only 7.2 per cent. Technological progress tends to lower hours per unit in contractions as well as expansions; in the individual contractions, its influence was not sufficient to offset the influence of declining volume, but in the composite contractions it was more than sufficient.

Although labor cost per unit, including nonproduction workers, is not available for individual industries, it can be estimated for the composite. It rose both in the three expansions and in the three contractions, whereas it fell in most individual expansions. In this case the parts differ from the whole in the upswings rather than the downswings, but the explanation is similar. The average change in quantity sold during the individual upswings was a rise of 28.7 per cent; during the three composite upswings it was only 21.8 per cent. Correspondingly, the average change in hours per unit, which was –11.9 per cent in the individual upswings, was only –6.7 per cent in the composite expansions. These declines tended to reduce labor cost. Hourly earnings, however, rose in expansions, and rates of pay for other workers rose also; these changes tended to raise cost. In individual upswings, the influence of declining hours per unit prevailed; in the composite, the influence of rising rates of pay prevailed.

In expansions, profits can rise even if profit margins decline, because sales can rise faster than the ratio of profits to sales declines. The new data show that rises in aggregate profits are in fact more frequent than rises in profit margins.

Although available data on unit costs (including materials and overhead as well as labor) are imperfect, they indicate numerous rises in cost during the postwar period both in expansions and in contractions. Input of labor per unit of product declines during expansions, however, and it is unlikely that other inputs rise very much. Increases in cost during upswings in quantity are therefore caused primarily by higher prices and wages rather than by rising input per unit. In contractions, however, the latter factor is important.

The quantity of goods supplied in expansions does not rise fast enough to keep margins from rising, especially in the earlier stages. Several possible explanations may be noted. One is that as demand rises, higher-cost supplies may be drawn into the market. A wider spread in cost should be accompanied by a rising average profit margin. Another possibility is that it is physically impossible to expand supply as fast as demand rises. A third explanation, in some instances, might be price collusion.

It has sometimes been supposed that as more and more new plants and equipment begin to operate during an expansion, a flood of products eventually gluts the markets, breaks prices, makes further investment appear unprofitable, and ushers in a recession. But in the postwar period, prices received by manufacturers for products sold rose more often in the last stages of upswings in quantity sold than at any other time. Capacity may have become "excessive" and additional investment unprofitable, but the excess did not show itself in the form of a price-breaking superabundance of products.

THOR HULTGREN

CHANGES IN OWNERSHIP OF PURCHASED MATERIALS

A preliminary report on my investigation in this area has been published in the compendium *Inventory Fluctuations and Economic Stabilization,* prepared for the Joint Economic Committee, December 1961. A final report intended for publication as an Occasional Paper is now in preparation.

Ownership of materials is defined as the sum of stocks of purchased materials of manufacturers (or stock in trade of distributors)

and orders for these materials that have not yet been received by the purchaser—purchase orders outstanding. The preliminary report sketches practices in individual businesses, and their reflection in the economy at large, which suggest the usefulness of this concept.

Cyclical patterns in the change of ownership and in each of its two major parts are examined for department stores and manufacturers in durable goods industries over the period 1947-60. Peaks and troughs in changes in ownership regularly precede those in total stocks or stocks of purchased materials. There appear also to be evidences in the time series of influences, such as changes in raw materials prices and delivery periods, which the analysis suggests would cause changes in the number of weeks' supply carried on hand and on order.

In the Occasional Paper, I expect to reexamine some of these findings by means of revisions and adjustments in the time series and also analyze the cyclical behavior of the series on ownership as distinct from its rate of change.

RUTH P. MACK

ORDERS AND PRODUCTION IN MANUFACTURING INDUSTRIES: A CYCLICAL ANALYSIS

I spent the summer of 1961 at the National Bureau to advance the preparation of this monograph, which proceeded slowly the year before because of other commitments. The manuscript has been revised and brought up to date, and a final draft will be ready this year.

Some of the principal findings of the study have been summarized in recent annual reports and in an essay, "The Timing of Manufacturers' Orders During Business Cycles," published as Chapter 14 of Geoffrey H. Moore (ed.), *Business Cycle Indicators*. The list of chapters and appendixes provides an indication of what the monograph will offer:

1. Introduction: Background and Scope of the Study
2. The Role of Orders in the Process of Industrial Production
3. Size and Frequency of Fluctuations in New Orders, Output, and Related Processes
4. The Relation Between New Orders and Shipments: Timing and Regression Analysis
5. Cyclical Changes in Quantities Ordered, Produced, and Shipped, by Groups of Industries
6. Unfilled Orders, Delivery Periods, and Price Changes
7. Manufacturers' Orders and Investment Expenditures

8, 9. Manufacturers' New and Unfilled Orders During Business Cycles: Conformity, Amplitude, and Timing

10. Cyclical Diffusion of Orders and Related Activities
11. Summary of Findings and Their Implications

A. Sources and Descriptions of Orders Data

B. Correction of Orders Series for Changes in Prices

C. Selected Data on Manufacturers' Orders

A proposed Occasional Paper, "Unfilled Orders, Price Changes, and Business Fluctuations," has been reviewed by a staff reading committee and will shortly be submitted to the Board. It deals with types of short-run reactions of manufacturers to fluctuations in demand, and finds that variations in unfilled order backlogs and in delivery periods as means of effecting such adjustments were very important in the post-World War II period for several major industries, both absolutely and relative to other forms of adjustment, such as changes in product inventories, in current output, or in prices. These matters receive full treatment in the monograph, particularly in Chapters 2, 3, and 6.

VICTOR ZARNOWITZ

APPLICATION OF ELECTRONIC COMPUTERS

Our activities in the field of computer applications are receiving continued support from the National Science Foundation and the In-

ternational Business Machines Corporation. During part of the year, C-E-I-R Inc., provided machine time on the IBM 7090.

Basic Programs

The following programs for the IBM-704 and 709/7090 form the mainstay of our operations:

1. Seasonal Analysis
2. Cyclical Analysis
3. Recession and Recovery Analysis
4. Charting on the IBM-709/7090
5. Correlation and Regression Analysis
6. Computation of Residuals (Supplement to Regression Analysis)
7. Distribution Analysis of Ungrouped Data
8. Frequency Distribution Analysis

These programs, some of which were recently completed or enlarged, are described in the following sections. Detailed descriptions and instructions for users are available in mimeographed form.

Time Series Charting Program

Charts of monthly time series can now be prepared on the IBM-709 and 7090 under a program written by Richard Kilgore. The charts differ in several respects from those prepared by hand: the horizontal time scale is fixed at about one-sixth of an inch per month, not more than two series can be superimposed on each other, and the points (marked by zeros or X's) are not connected. However, connection is frequently unnecessary, especially if only one series is plotted, and in any case the lines can be quickly drawn in by hand.

The program offers several advantages over others already in existence. One is that we can plot on arithmetic and on standardized semilogarithmic scales. One half-cycle and one, two, or three full-cycle scales can be specified or selected by the program on the basis of the data submitted. Scales are selected by the program under a rule that disregards isolated extreme values but prints their levels if they cannot be plotted.

In general, this electronic charting program is recommended only in conjunction with other electronic operations, such as seasonal adjustment or business cycle analysis. Otherwise it may not be worthwhile to punch the input. However, if other operations are performed that either require punching for input purposes or result in output that can be used as input for the charting program, the charting operation is useful and inexpensive. The charting program is also integrated into our seasonal adjustment program.

Seasonal Program

We have made several additions to the seasonal program.

1. Working-day adjustment computations are now operative. This feature can be used to feed Easter and similar holiday adjustments into the decomposition process.

2. The program can now deseasonalize series of less than seven but more than four years' length, using stable seasonal factors.

3. The mean, variance, and standard deviation of the irregular component is provided.

4. The program provides time series decomposition for series which (a) need no seasonal adjustment; (b) are available only in adjusted form; (c) have been deseasonalized already and are available in adjusted and unadjusted form.

5. The program can provide punched card output that can be used as input for other programs, such as the NBER business cycle analysis.

6. The program provides a set of charts, not only of the original and finally adjusted series but also of moving averages, ratios of original data to these averages, moving seasonal index curves, and other intermediate products. This permits an evaluation of the seasonal

adjustments and facilitates updating of the adjustments.

We are just completing a program for seasonal adjustment of "additive" seasonality.

Correlation Program

We have programmed certain additions to a standard program for correlation analysis. The additions permit the computation of "calculated" values and of "residuals" derived by subtracting calculated from actual values. For models which require residuals derived by division rather than by subtraction, we can modify the program. We have also incorporated a test for serial correlation of the residuals in the Residual Program.

Distribution Analysis

We have completed two programs for distribution analysis—one for ungrouped and one for grouped data.

The analysis for ungrouped data, originally written by Louis de Groot, is now operative for the IBM-709 and 7090. It is limited to 200 observations per distribution, but can, of course, handle distributions arranged in time, spatial, or other sequences, without upper limit. The program permits ready analysis of variations in the structure of distributions—a task that used to be extremely laborious. The descriptive measures computed include practically all measures of central tendency, dispersion, skewness, and kurtosis that are commonly found in statistics texts; the output permits comparison of all major positional and arithmetically computed measures. The program also ranks, arrays, and cumulates the data (in absolute and percentage terms); it provides most analytic measures that might be desired by the user.

Another program, written by Juanita Johnson, provides the most comprehensive frequency distribution analysis that we know of. If required, the program can begin with ungrouped data and set up a frequency distribution on the basis of user-specified or program-derived classes. Class averages (and further measures based on them) may be computed optionally as averages of class limits, as unweighted averages of the raw data contained in the class (if provided), or as user-specified central tendencies within each class. Special options exist for users who wish to employ the program mainly for income distribution analysis.

Apart from the commonly used descriptive measures of distributions, the program provides percentile band measures, with cumulations in absolute and relative form; it also provides different measures of skewness and several inequality measures (Gini Delta and Pareto Alpha). We believe that the program has wide applicability wherever distribution analysis is used.

We plan to add a few more measures. One group is a set of measures based on the logarithms of the distribution. Another will provide a standardized distribution in which the abscissa values are given in terms of standard deviations and the ordinate values as percentages of total frequencies. We plan to add standard error measures for the mean, the variance, and possibly for other summary values. Finally, we intend to program for shifting class limits of income distributions; this will facilitate the derivation of reasonable class limits when income distributions have to be adjusted for price changes, taxes, and so forth.

Service Function

As heretofore, one aspect of our work was to assist staff members and others in the use of electronic data processing for economic analysis. In this context, we processed large groups of data for Gottlieb's project on long cycles in building construction (mainly business cycle and some correlation analysis). For Burns' and Moore's work on changing characteristics of business cycles we carried out seasonal adjustments and business cycle analyses. For

Conard's and Brown's interest rate study some series were deseasonalized and several correlation analyses were performed. There were, of course, many other occasional uses of standard and other programs.

Publications and Related Activities

Publications relating to the use and application of electronic computers during the year included Julius Shiskin, *Signals of Recession and Recovery,* Occasional Paper 77; an article by Gerhard Bry, "Electronic Data Processing for Research in Economics and Marketing," in *Current Business Studies,* No. 36 (1961); and one on electronic computer use in forecasting in the October 1961 issue of *Sales Management.* Lectures were also given on electronic computer use in economic analysis before the National Association of Business Economists and at meetings arranged by the National Industrial Conference Board.

Gerhard Bry
Charlotte Boschan

SOURCE BOOK OF MONTHLY AND QUARTERLY SERIES RELATING TO INVESTMENT

Because monthly or quarterly statistics are required for analysis of short-term economic fluctuations, the National Bureau, over a period of several decades, has assembled an extensive collection of these series with certain analytical measures, such as seasonal adjustment factors, cyclical leads and lags, and so on. In order to make this valuable resource available to scholars, the Bureau has undertaken, with the aid of a grant from the National Science Foundation, to prepare for publication that part of its collection which consists of series relating to investment. It is hoped that it will be possible to publish other sections of the Bureau's collection later.

The first stage of this project has been the compilation of an inventory of available data on investment. Information has been collected, with the assistance of Sheila J. Lerner, on the availability of original data, seasonal corrections, and punch cards for series on construction contracts, building permits, housing starts, and construction put in place. Work has also begun on an inventory of other types of data relevant to investment, such as durable goods production, new orders, and investment anticipations.

It appears certain that this collection will have to be confined to series on tangible investment; the addition of financial data, such as mortgage lending or corporate security issues, would require a much greater effort than our resources could cover.

Robert E. Lipsey

OTHER STUDIES

A manuscript by Milton Friedman, "Notes on the Interpolation of Time Series by Related Series," has been submitted to a staff reading committee for comment. Though this paper grew out of the problems that arose in estimating the money series in the study of the United States money stock, the issues it deals with and the techniques it describes are relevant to a wide range of economic time series.

For other reports on work in the area of business cycles, published or in process, see Parts I and II and also Sections 4 and 5 below.

4. FINANCIAL INSTITUTIONS AND PROCESSES

CONSUMER CREDIT

The broad objective of this study, which began in 1959 and is being supported by a general grant from several finance companies, is to assess the role of consumer credit in the functioning of the economy of the United States.

Attention is centered on analysis of consumer behavior, the level and structure of finance rates and costs, the credit markets and the economic and legislative forces affecting them. The study, which is under the direction of Robert P. Shay, has reached a stage where reports on research findings are imminent. Preliminary reports are planned for this year in the form of Occasional Papers, while the final research results from several of the studies are expected to become available next year. The results of the entire study will be incorporated in a summary report, whose preparation will commence in mid-1962.

Limitations in available data, time, and budget have necessitated narrowing the scope of some planned research projects. The scope of the study of the rate structure in consumer credit was limited to automobile finance when it became apparent that sample data concerning the costs of financing other durable goods would be difficult to obtain and beyond present resources. In the study of the cost structure of consumer credit, the goal of building representative estimates from a sufficiently large sample of commercial banks became impractical when the diversity of accounting procedures encountered forced us to limit the sample to a small number of institutions whose records could be subjected to close scrutiny and comparative analysis.

The other projects have proceeded along the general plan outlined in preceding annual reports. A brief statement of progress on each project follows.

The Rate Structure in Automobile Finance

Computation of finance rates for new and used automobiles has recently been completed and the preparation of a manuscript is under way. An Occasional Paper is planned that will present estimates of new and used automobile finance rate levels, dealer participation in the finance rate, and changes in rates between selected years, 1935-59. During the past year estimates of used-car finance rate levels and dealer participation were obtained from a sample supplied by four large sales finance companies for 1958 and 1959. These estimates provide data comparable to used-car finance rate levels in 1936-38, available from the Federal Trade Commission's *Report on Motor Vehicle Industry* (1939). In general, the level of used-car finance rates has been considerably lowered since the earlier period, in much the same way as new-car rates. Among factors affecting the structure of used-car finance rates, age of car is clearly dominant. Other variables considered in connection with used-car finance rate levels are region, dealer participation by type of plan, state legal rate ceilings, and length of contract.

Robert P. Shay

Cost of Providing Consumer Credit

This study has compiled and analyzed data on the average cost of consumer credit outstanding from various financial institutions. It is in its final stages and a full report should shortly be available in draft form. It will present information for the years 1949-59 on the principal components of operating and other costs from small samples of consumer finance and sales finance companies and for all federal credit unions. Similar information will be included for a small sample of commercial banks for the period 1955-59.

The study documents striking variations in the average cost of consumer credit provided by different types of financial institutions and suggests that some of the cost differentials can be traced to the type of lending services provided, and that others stem from the institutional framework within which the companies operate. A downward movement in the average cost of consumer credit at finance companies and, to a lesser extent, at federal credit unions during the 1950's is also indicated, and light is shed on the internal adjustments that were necessary to make this cost reduction possible in the face of increasing wage rates and interest costs.

An initial report on some of the results of the study was presented at the December 1961 meetings of the American Finance Association, and a revision will be submitted to the Board for publication as an Occasional Paper.

PAUL SMITH

ECONOMIC ASPECTS OF STATE REGULATION AFFECTING CONSUMER CREDIT

A proposed Occasional Paper on rate quotation and computation has been revised and will shortly be submitted to the Board. An appendix on certain technical aspects of prepayment, refinancing, extension, and delinquency has also been revised. The paper is based on data collected by the National Bureau and other sources, and covers the following topics: methods of computing and quoting finance charges, consumer awareness and possible uses of finance charge information, alternative ways of quoting finance charges, rate quotation and competition.

Major findings are: (1) many consumers are not specifically aware of finance rates, (2) there is evidence that rate competition exists to some extent in spite of lack of specific awareness of rates, and (3) lack of uniformity in quotation tends to reduce the effectiveness of rate competition.

Preliminary work has been done in analyzing the effect of legal ceilings on finance rates. This work forms the basis of several chapters which should be completed later this year.

WALLACE P. MORS

CONSUMER FINANCES

Most of the work on this project during 1961 was devoted to the preparation, in collaboration with Robert P. Shay, of a draft manuscript, "Consumer Finance Rate Knowledge, Rate Sensitivity, and Investment in Durable Goods." The manuscript is proposed as an Occasional Paper and has been circulated to a staff reading committee. In the first section, we attempt to measure the extent and accuracy of consumer information about finance rates, i.e., the annual effective rate on the unpaid balance in instalment contracts. We find that the consumers in our sample appeared to know that loan size and finance rate are inversely related, but that, within a given loan size class, they did not know whether their own credit purchase carried a relatively high or relatively low rate. We interpret this as evidence of a rather vague kind of institutional knowledge—for example, that small loans are typically more costly than large ones. We also find evidence from survey data that explicit provision of knowledge on finance rates would probably increase the sensitivity of consumers to differences in rates, although the nature of the data are such that quantitative inferences are not justified.

In the second section, we examine the role of finance rates in decisions to invest in consumer durable assets. We develop a model for analysis of the decisions, starting with the assumption of perfect capital markets and moving toward more realistic assumptions about capital market constraints on consumer borrowing. The basic constraint, in our view, is that most consumer borrowing for the purchase of durable assets is subject to an upper limit because loan maturities on instalment contracts are generally much shorter than the service life of the asset; hence consumers are forced to build equity whether they wish to or not. The model predicts that consumers subject to this kind of constraint (rationed consumers) will be unresponsive to changes in finance rates because they are unable to borrow enough to equate returns from investment in durables with market borrowing rates. On the other hand, consumers not subject to these restraints (unrationed consumers) should be relatively responsive to changes in finance rates because they are free to equate the investment returns with market borrowing costs.

Using experimental survey data, we then attempt to measure response to changes in finance rates for rationed and unrationed consumers. In ten of twelve cases involving a comparison of responses to difference in

finance rates alone, the degree of response was lower for rationed than for unrationed consumers. In twenty-three of twenty-four cases involving a comparison of responses to a simultaneous change in finance rates and contract maturity, the evidence indicated that rationed consumers were less responsive to rates and more responsive to changes in contract maturity than unrationed consumers. Hence the evidence strongly suggests that rationed consumers are much less responsive to rate changes than unrationed ones, as predicted by the model; further, the data are not inconsistent with the proposition that rationed consumers are completely unresponsive to changes in finance rates.

The last section deals with a special problem in analysis of the relations between consumer knowledge, finance rates, and decisions to invest in durable assets. If both goods and credit are obtainable through a single seller, the price of the product may be correlated with the finance rate, and the "true" price of credit may be different from the nominal or contract price. In the automobile market, for example, both goods and credit may be sold jointly by the dealer. In this case the dealer receives net income by sharing the finance charge with the institution (sales finance company or bank) that actually makes the credit available to the borrower. In other cases the borrower will obtain credit directly from a commercial bank, typically at a lower rate than that involved in credit transactions with the dealer acting as intermediary. But if the goods price were lower on joint sales via the dealer by an amount sufficient to offset the dealer's net income from finance charge participation, the "true" price of credit would be the same whether obtained directly from the bank or indirectly via the dealer.

In a perfectly competitive market this would necessarily be the outcome unless there were a systematic difference in the risks associated with direct vs. indirect credit contracts. Empirical evidence provides some, though not consistent, support for the proposition that dealer finance income is partly or wholly returned to the customer by granting lower prices on products being financed. In these cases the true price of credit obtained from dealers is lower than the nominal price.

F. THOMAS JUSTER

CONSUMER CREDIT AND THE FLOW OF FUNDS

Substantial progress was made during the year in two different directions. Data from the seventy firms in the National Bureau's sample of finance companies were extended to 1960 and prepared for punch-card processing. Analysis of this substantial body of data, which covers both sales finance and personal loan companies of all sizes during 1946-60, will constitute a major part of the planned monograph "Consumer Credit and the Flow of Funds." I expect to complete a first draft by October 1962.

The second area of progress relates to the commercial paper market, an important source of finance company funds and an interesting part of the American financial system in its own right. A number of changes have taken place in this market since the 1920's, including the steady trend toward finance companies as the dominant borrowers and nonfinancial corporations as the dominant lenders, the short-circuiting of commercial paper dealers by large finance companies that sell their paper directly, the decline in the number of borrowers, the substitution of commercial paper borrowings for bank debt, the tailoring of maturities to satisfy lenders' preferences, and the increased emphasis on very short-term paper. I have been able to examine these and other changes on the basis of several sorts of information: data from National Bureau finance-company sample firms; monthly data from most of the direct paper sellers on amounts outstanding, distribution of outstandings by holder and maturity classes, bank debt, and credit lines at banks; classifications of borrowers by industry and size of net worth, furnished by the National Credit Office, Inc.; and a miscellany of facts and impressions obtained from individuals with experience in the commercial paper market.

Much of this material will be incorporated in the monograph mentioned above. However, since not all of it is directly relevant to the topics that will be treated there, I have prepared a short report on the commercial paper market for publication as an Occasional Paper. An earlier version of this study was delivered at the December 1961 meetings of the American Finance Association, entitled "Trends and Cycles in the Finance-Company Paper Market."

RICHARD T. SELDEN

THE PATTERN OF CREDIT AND EXPENDITURE ADJUSTMENT TO UNEMPLOYMENT

This study is based on more than 1,800 questionnaire interviews, conducted by the Bureau of Employment Security and its associates in six states, with persons applying for unemployment compensation. The nature of the questions included in the surveys and the techniques which have been employed in analyzing the data have been detailed in previous annual reports.

A revision of the manuscript is nearing completion and some earlier findings have been modified. The priority attached to each of nine major techniques of adjusting to unemployment is virtually unaltered by subsequent investigation except that liquidating life insurance is less important than it first appeared. Decreasing savings and checking accounts, borrowing money, and decreasing food expenditure continue to be far and away the most important types of adjustment made to unemployment.

This priority pattern is of interest not only for its own sake but also because the techniques listed are representative of the three main avenues down which adjustment to reduced income can proceed. If families hit by unemployment do not draw upon liquid assets, they must either incur debt or reduce consumption expenditures. This enables us to calculate a very rough estimate of the total change in expenditure made during the survey year by each family, and to analyze it in terms of duration of unemployment and magnitude of family debt prior to the survey year. Variations in expenditure by different income and demographic subgroups have also been considered.

TABLE 9

ESTIMATED AVERAGE CHANGE IN TOTAL EXPENDITURES DURING SURVEY YEAR, BY LEVEL OF NET FAMILY INCOME PRIOR TO UNEMPLOYMENT, SAMPLE OF 1,836 UNEMPLOYED PERSONS, 1954-59

Level of Net Family Income Prior to Unemployment	*Average Estimated Change in Total Expenditures*		
	Families With Liquid Assets	Families Without Liquid Assets	All Families
Under $2,000	$193	$– 78	$ 43
2,000-2,999	– 23	–194	–110
3,000-3,999	– 66	–309	–176
4,000-4,999	– 84	–234	–148
5,000-5,999	79	–148	– 12
6,000 and over	80	–293	– 42

Table 9 shows the estimated changes, by income group, in total expenditure for those families which had liquid assets and for those which did not. The overriding fact that emerges from the table is that the reduction in expenditure was invariably larger for the groups without liquid assets. This is true of all income groups, though the difference is perhaps sharper in the upper brackets. Indeed, both the highest- and lowest-income groups with liquid assets actually managed to increase their expenditures somewhat despite unemployment.

The impact of liquid assets on the pattern of adjustment has been considered as fully as possible because these holdings clearly affect the pattern more than any other factor. The presence of liquid assets also influences the expenditure pattern indirectly; holders of these assets are frequently in a position to acquire loans which those without such holdings could not obtain. Thus the analysis demonstrates that holdings of liquid assets have a stabilizing effect by helping to maintain current purchasing power, both because they can be drawn down and because they assist the family in acquiring debt, the other alternative to expenditure reduction. There is evidence that the techniques of adjustment involving both liquid assets and debt become somewhat less significant as the period of unemployment lengthens, and that the adjustments then revolve more significantly about various expenditure reductions.

Thus the implication of the study may well be that recent United States recessions have been less disrupting to the economy than they might have been had the unemployed not been able to maintain their pre-unemployment expenditure pattern, and that they were enabled to do so in part because of accumulated liquid assets. One might argue that the destabilizing consequences of unemployment via expenditure reductions are both more immediate and more far-reaching than those which flow from either drawing down liquid assets or incurring debt. Hence the destabilizing consequences of an unemployment rate of, say, 7 per cent of the labor force might be considerably greater in an economy in which liquid asset holdings had been used up than they have been in our economy with liquid holdings of considerable magnitude.

PHILIP A. KLEIN

INTEREST RATES

1. GENERAL OUTLINE

The objective of this study, undertaken with the aid of grants from the Life Insurance Association of America, is to learn what we can about the behavior and determinants of the yields on financial assets. We shall begin with examination of the factors influencing the movements of yields on specific types of assets, and the factors determining the spread between them. The primary emphasis will be upon the behavior of yields in the United States since the Treasury-Federal Reserve Accord of March 1951, but, when longer coverage can contribute toward an understanding of forces influencing interest rates, exploration will be extended as far back as data permit. The study may also consider rates in other countries in particular instances. It is hoped that the major work will be done by the autumn of 1963.

The study will consist of four parts. One, the analysis of mortgage yields, will be directed by Jack Guttentag, Chief of Domestic Research at the Federal Reserve Bank of New York. Guttentag has made several studies of residential construction and mortgage markets, including his doctoral dissertation, a monograph to be published shortly for the Commission on Money and Credit, and a number of journal articles.

The second major part of the study will be an analysis of direct placement yields. This will be conducted by Avery Cohan, professor of finance, University of North Carolina. Cohan has already published one study of direct placements, but this was based only on the seriously inadequate data publicly available. A major purpose of the present study will be to obtain more adequate basic data on direct placements and to build an analysis on these data.

The cyclical behavior of interest rates, though requiring attention in all other parts of the study as well, is the particular subject for an analysis being carried on by Reuben Kessel, University of Chicago, and constituting part three of the study. It is too early to determine all facets of this exploration, but attention is first being directed to the cyclical behavior of yield curves as a means of testing more general hypotheses about determinants of the term structure of interest rates.

The fourth part of the study is an examination of the structures of interest rates in many dimensions, and the degree of linkage within the capital markets as revealed by these structures and their changes over time. The dimensions in which rate relations will be studied include type of asset, risk, new vs. seasoned issues, coupon rate, call features, term to maturity, and miscellaneous special characteristics, such as tax status. The first characteristic, type of asset, includes at least two major breakdowns: (1) mortgages, bonds, obligations of financial intermediaries, and shares; (2) debt of the United States government, of state and local governments, and of various kinds of corporations. Miscellaneous other studies will be included, where required, in order to permit effective analysis of interest rate behavior. Examples are the studies of the seasonal behavior of interest rates and of the spread between yields on new issues and those on outstandings, preliminary findings of which are given below.

We are benefiting from the advice and assistance of an advisory committee consisting of the following:

W. Braddock Hickman (chairman), Federal Reserve Bank of Cleveland

Julian D. Anthony, Hartford Life Insurance Co.

Daniel H. Brill, Board of Governors of the Federal Reserve System

Lester V. Chandler, Princeton University

W. A. Clarke, W. A. Clarke Mortgage Company

George T. Conklin, Jr., The Guardian Life Insurance Company of America

Milton Friedman, University of Chicago

Raymond W. Goldsmith, National Bureau of Economic Research

Sidney Homer, Salomon Brothers & Hutzler

Norris Johnson, First National City Bank of New York

Robert G. Link, Federal Reserve Bank of New York

Roger F. Murray, National Bureau of Economic Research

James J. O'Leary, Life Insurance Association of America

Roy L. Reierson, Bankers Trust Company

Eli Shapiro, Harvard University

Henry C. Wallich, Yale University

C. Richard Youngdahl, Aubrey G. Lanston & Co., Inc.

During the past year we have benefited especially from the time-consuming effort and advice provided by Messrs. Clarke, Conklin, Homer, and O'Leary. In the mortgage market study we have been greatly helped also by Peter Samuelson of the Prudential Insurance Company and Saul Klaman of the National Association of Mutual Savings Banks.

Details on the plans and findings of individual analyses thus far carried out are given below.

JOSEPH W. CONARD
WILLIAM H. BROWN, JR.

2. STUDY OF THE MORTGAGE MARKET

The first part of the mortgage market study will be a cross-section analysis intended to throw light on the influence of variables significantly affecting mortgage yields. The second part, and far the larger, will be the compilation and interpretation of a time series of mortgage yields since 1951, with spot checks going back farther. Various breakdowns of the time series will be provided according to major factors influencing yields. This work should well complement that of an interagency governmental group which is now beginning to collect data systematically to provide a regular yield series on conventional mortgages.

The decision of government agencies to provide a continuing series will greatly increase the usefulness of our own. Correspondingly, our study will shed light on the kind of information that should be collected in the government series, and on its interpretation in terms of the previous history of yields in this market.

The cross-section study of the mortgage market is now well under way. In it we are utilizing data provided by the Federal National Mortgage Association and by the Federal Reserve Bank of Chicago. The purpose is to learn what we can about the factors most significantly influencing mortgage yields. This is important in its own right and also as a means of determining what data must be collected and what breakdowns provided in our time series.

One question requiring early study is the influence of mortgage discounts on their yield. We have felt it important to explore this question, not only because any study of the influences on mortgage yields must consider this variable, but also because it is important to find whether FHA and VA mortgages can be lumped in a statistical analysis where the market in one or both may be thin. It might be superficially presumed that, if yields are calculated to include capital gains, they should be equal for essentially homogeneous mortgages where the only difference is that in some a lower contract rate is compensated by a lower market price. A contrary hypothesis is that the widespread dislike of taking discount mortgages could well force sellers to offer a higher yield in order to find a market. Second, it is entirely possible that the yield advantage on discount mortgages may rise progressively as the discount increases. On the other hand, the yield advantage associated with any given discount may have declined over time as sensitivity toward taking discounts diminished. Study of FNMA data indicates that all three of these hypotheses may be true. It appears, therefore, that we must not lose track of contract rates when converting price quotations on FHA and VA mortgages into effective yields, and FHA mortgages must not be lumped with VA's when their contract rates differ.

Other yield-determining variables that we have begun to examine, using data provided by the Federal Reserve Bank of Chicago, are maturity, loan-value ratio, size of loan, loan-income ratio, mortgage payments-income ratio, and new vs. existing housing. We find, for example, that on conventional mortgages the new vs. existing classification has no apparent bearing on yield when maturity and loan-value ratio are held constant. When maturity is held constant, the loan-value ratio has a pronounced influence on yield in the expected direction; i.e., mortgages with high ratios carry high yields. On the other hand, when loan-value ratio is held constant, the yield is related inversely to maturity rather than directly as on other debt instruments. This is not entirely explained by age of property (older properties, perhaps of a riskier nature, often carry short maturities), since the relation holds also for mortgages on new properties. The loan maturity is, however, correlated with other yield-determining variables, particularly the loan-income ratio and monthly payment-income ratio. It is possible that when these variables are taken into account, the aforementioned relation of maturity to yield will be reversed. This underscores the substantial degree of intercorrelation that appears to exist among all the yield-determining variables.

JACK GUTTENTAG

3. THE STUDY OF DIRECT PLACEMENTS

The ultimate objective of the direct placement study is to explore the determinants of direct placements yields and their movement over time. One by-product of that work, however, should be a major contribution in itself: the compilation of a time series of direct placement yields, broken down according to the major variables revealed to be important in yield determination. First priority will be devoted to securing data on a quarterly or, if possible, monthly basis for the period 1951-61. So far as data permit, it is planned to provide several time series classified according to major yield-determining characteristics. In addition we

hope to construct an over-all time series indicating the general movement of direct placement yields by eliminating, to the greatest possible extent, the effects of changes in composition of the series with respect to variables affecting yields. We plan to analyze the reasons for the movements of yields over time, and the factors explaining the spreads between the different components of the over-all series.

A preliminary step is the identification of major yield-determining characteristics and the study of means by which these can be quantified. A key problem is that of providing quality ratings for direct placements, and that study is now under way. A second step is the actual collection of raw data from about thirty major lending institutions, chiefly life insurance companies and pension funds. We are now making arrangements for the collection of these data. A third step is to carry out some form of multivariate analysis in order to find a satisfactory system of classification for the time series.

It is our hope to begin data collection early in 1962 from four or five companies. Timing depends primarily upon the completion of our study of methods for making quality ratings.

AVERY COHAN

4. CYCLICAL BEHAVIOR OF INTEREST RATES

This study is designed to find out how interest rates behave cyclically, and why they behave as they do. Since the end of World War II, there have been four complete business cycles. During these cycles, there have been some obvious uniformities in the behavior of yields on government issues of varying maturities. In general, the dispersion of yields has been high around business cycle troughs and small around peaks. The coincidence of peaks and troughs in specific cycles of various interest rates series and business cycle peaks and troughs has been striking. For the latest three cycles, the specific cycle peaks and troughs of four series of governments were, on the average, about two months away from business cycle peaks and troughs.

For government issues, the variance in yields over the business cycle is generally larger, the shorter the term to maturity of the security. However, this relationship is not monotonic. The variance in nine- to twelve-month issues has been greater than the variance in three-month Treasury bills. Both have more cyclical variability than three- to five-year issues or twenty-year governments. The yield differential between three-month bills and nine- to twelve-month governments has a cyclical pattern. It is smallest at troughs and widest at peaks. In contrast, the yield differential between three-month bills and long-term governments is largest at business cycle troughs and smallest at peaks.

Still to be determined is the cyclical behavior of agency issues and corporates of varying degrees of quality. Do the peaks and troughs in the yield series of these issues match the peaks and troughs in business cycles as well as government yield series? Do the yield spreads of different maturities of agency and corporate securities also have a cyclical pattern? Are there important differences between the cyclical behavior of interest rates during the prewar and postwar business cycles? If so, are these differences greatest at peaks or troughs?

Expectations and liquidity-preference theories of the term structure of interest rates are being investigated in an effort to determine whether they can further our understanding of the cyclical behavior of rates. The implications of these theories for the cyclical variation of rates are being used as a guide for the collection of data on their cyclical behavior. These data are being used to evaluate the empirical validity of these theories.

It appears that the expectations hypothesis has relevance for explaining the greater stability of long relative to short rates. Since short rates encompass a period of time short relative to the length of the business cycle, they are dominated by forces specific to particular phases of the business cycle. As a consequence they reflect the sharply varying conditions found in different phases of the cycle. In contrast, long rates encompass a period of time long relative to the length of the business

cycle, and hence reflect an average of cyclical conditions and not just conditions during specific phases of a cycle. Thus the yields on short maturities reflect cyclical variations that are averaged out in long rates. To use a language made famous through Friedman's work on the consumption function, the long rate can be viewed as a normal or permanent rate, and the short rate, when the economy is at a cyclical peak or trough, as having a large transitory component. This component is typically negative at troughs and positive at peaks.

The foregoing does not explain the greater cyclical stability of bill yields relative to yields on nine- to twelve-month governments. The liquidity-preference theory, which has implications for the term structure of interest rates, is being explored as a possible explanation of this phenomenon. It is fairly clear that bills are better money substitutes than one-year governments. Hence, so far as this consideration dominates returns, the yields on bills ought to be generally lower and a yield spread ought to exist that reflects the differential advantages of bills over one-year governments as money substitutes. This yield spread has a cyclical pattern. Because interest rates rise from business cycle troughs to peaks, the opportunity costs of holding money also rise. The closer a security is to money, the more its opportunity costs should rise with that of money. Insofar as bills are better substitutes for money than one-year governments, the opportunity costs of holding bills relative to one-year governments should be expected to rise. Hence the yield spread between bills and one-year governments should widen as an economy moves from trough to peak. The greater the rise in interest rates, the greater the increase in the yield spread between bills and one-year governments.

The foregoing explanations, in contrast to the factual statements, are highly tentative and may either be modified or completely rejected when confronted with additional evidence. The next stage of the investigation is to collect the evidence relevant for a thorough test of the power of these explanations.

REUBEN KESSEL

5. SEASONAL ADJUSTMENT OF INTEREST RATE SERIES

An investigation into the seasonal analysis of interest rates is well advanced. A large group of series were subjected to the Shiskin technique of seasonal adjustment. To test further for the existence of a seasonal, variance analysis was applied to the monthly ratios of the original interest rate series to its twelve-month moving average. The "F" test applied for the fifties showed significant results at the 1 per cent level for Treasury bills, corporate Baa bonds, and bankers' acceptances. It showed significance at the 5 per cent level for state and local issues and commercial paper. The null hypothesis that there exists no significant difference among the monthly means was indicated for long-term U.S. governments and Aaa corporate securities.

The normal seasonal pattern in bill yields indicates a falling off from a seasonal high in December to a temporary low in March, followed by a rise in April and May, and then a fall to a low in July. Rates then rise to a temporary high in September and fall back somewhat before reaching their peak in December.

The time pattern for state and local issues and other long-term issues is quite different. Here yields reach a seasonal peak in the early fall, and the seasonal low is reached in the early spring.

The seasonal adjustment of these series does cause some shifts in cyclical turning points. In the fifties the upper turning point for bills was changed by a few months at each peak, and the lower turning points were unchanged. For state and local issues a change in the upper turning points occurred in Moody's Aaa series, but not in the Standard and Poor's High Grade Municipal series.

In identifying the causes of the seasonal variation in the bill market, a major explanatory variable appears to be variation in the supply of government securities of less than one-year maturity held by the public. Part of these supply changes reflect the seasonal fluctuation of Treasury receipts and expenditures.

Causation on the demand side is suggested by the existence of a definite seasonal pattern in the volume of short-term government securities held by the public. Statistical evidence seems to support the presumption that a partial explanation is to be found in the concurrent movement of tax liabilities of nonfinancial corporations and their bill holdings. The seasonal in the state and local market may also be partially explained by seasonal differences in the volume of new issues and the resulting change in dealer inventories. Examination of causes of the seasonal patterns of interest rates where they appear to be statistically significant is continuing.

WILLIAM H. BROWN, JR.

6. NEW-ISSUE YIELDS

It is generally recognized that, at least during the postwar period, the yields on new issues have usually exceeded those on outstandings. Studies of monthly averages suggest that this spread has often been quite substantial. Moody data indicate that new Aa corporates yielded 33 basis points more on the average from 1956 through 1960 than did comparable seasoned issues. In every month from April 1956 through December 1957 the yields on new Aa securities were even higher than the yields on A outstandings, and this spread favored the new Aa's by an average of 55 basis points throughout 1957. In June 1957 the buyer of corporate Aa's could have increased his yield by one-quarter if he had purchased new issues instead of seasoned ones.

Dates chosen for these citations exaggerate the spread between new and seasoned yields, but monthly averages indicate at least some favorable spread in the overwhelming majority of months since the data became available in January 1951. A similar spread is also revealed in series for other rating groups. We have been exploring the causes of this relationship.

The most important fact revealed thus far is demonstrated by study of a series provided by Sidney Homer for Salomon Brothers & Hutzler, and extended back to 1951 for the benefit of this study. Homer's series are broken down by coupon as well as industrial classification and rating. This breakdown shows a substantial, though variable, advantage in yield on par or premium securities as contrasted with those selling at a discount. This yield differential may be partly explained by tax considerations favoring discount securities, but it appears to be much more largely attributable to the fact that price increases can readily occur on discount securities but not on par or premium issues where call features are present. This means that yields to dates short of maturity can appreciably exceed calculated yields on discounts, but not on callable par or premium securities.

In the postwar period interest rates were subject to a strong upward trend, with the consequence that, especially during periods of sharply rising rates, outstandings were generally selling at a discount. This suggests that the higher yields on new issues might be caused primarily by the fact that they were usually selling at or above par, whereas seasoned issues were mostly at discount. We have, therefor, calculated the yield for each month on a hypothetical Aa seasoned utility of coupon corresponding to that of new issues, and compared this yield with that of the new Aa utilities. This procedure seems to reduce the spread between new and seasoned utilities by almost two-thirds. The general character of the spread and its timing is not greatly changed, and a number of other explanatory variables have been studied. But this exploration would suggest that if homogeneity on coupon is attained, the spread between new and outstanding issues is greatly reduced. The market is much more perfect than might have been supposed.

Space is too limited to describe other explanatory variables, but the indication is that the following factors influence spread, their importance probably being in about the order listed: (1) increases in yields on securities generally, (2) tightness of the money market, (3) the absolute level of long-term yields, (4) the volume of new issues, and (5) the volume of anticipated new issues. Our reason for uncertainty in the ranking of these variables is that we have not yet completed multiple corre-

lations that include the average discount as a variable. Excluding this variable, all the determinants listed above, except anticipated new issues, seem to have statistical significance in relation to Moody's Aa corporates.

JOSEPH W. CONARD

THE QUALITY OF CREDIT IN BOOMS AND DEPRESSIONS

These studies, financed in large part by a grant from the Merrill Foundation for the Advancement of Financial Knowledge, have investigated credit quality problems in a wide range of types of instruments and markets. During 1961, progress was most notable in four areas: bank business loans, trade credit, corporate securities, and residential mortgages. Separate reports on the trade credit, corporate securities, and residential mortgage studies appear below. Albert Wojnilower's study of the quality of bank loans to business, based upon Federal Reserve examination reports (see 41st Annual Report, pp. 62-63), was revised during the year and has been submitted to the Board. Analysis of the lending experience of Federal Land Banks on farm mortgage loans of differing characteristics is still in process. To date it has not been possible to secure information on the quality of postwar state and municipal securities beyond that reported in the 41st Annual Report (pp. 63-65). The draft manuscript on consumer credit quality by Geoffrey Moore and Philip Klein is being revised.

Some progress has been made in drafting a summary volume that will bring together the findings of all the studies in systematic fashion. Since, however, several of the underlying studies are not complete, it is planned to prepare a shorter summary of some major features of the research for earlier publication as an Occasional Paper.

JAMES S. EARLEY

POSTWAR CHANGES IN CORPORATE BOND QUALITY

In the sixteen years since the end of World War II the volume of new corporate bond offerings has substantially exceeded the total volume of offerings from 1900 through 1943, the population that formed the basis for Hickman's pathbreaking work on the quality of corporate bonds.[1] Because the economic climate since the end of World War II has been extremely favorable, there has been no stringent test of the quality of these bonds, which have become an important element in the assets of many financial institutions.

For these reasons it was decided to apply as many of Hickman's quality tests as possible to postwar bond offerings, with a view to establishing some impression of the trend of quality in this type of credit. Most of the year 1961 has been devoted to the collection of data; analysis and drafting are now under way.

The basic data for the study were obtained from two sources. Characteristics of publicly offered issues were obtained from the periodic descriptions of new issues published by Moody's and Standard and Poor's. Data on issues placed privately were obtained from the *Investment Dealer's Digest* and supplementary data provided by the National Association of Life Insurance Commissioners. While the totals fall short of those of the Securities and Exchange Commission, they constitute all those issues on which a public record could be found and make up a sufficiently high proportion of the total volume of new issues to assure reasonable accuracy in detecting major shifts in quality.

As presently constituted the study devotes separate sections to postwar levels and trends in defaults, agency ratings, earnings coverage, lien position, and market ratings as indicators of quality. In addition, separate chapters are devoted to the quality characteristics of private placements and convertible bonds, both conspicuous elements in post-World War II corporate financing. The chief differences in treatment from that provided by Hickman are that in the postwar study minimum effort has been made to assess the quality of issues outstand-

[1] W. Braddock Hickman, *Corporate Bond Quality and Investor Experience*, Princeton University Press for National Bureau of Economic Research, 1958.

TABLE 10

POSTWAR DEFAULTS OF "STRAIGHT" DOMESTIC CORPORATE BONDS, 1944-60

(Amounts in $ millions)

Amount by Year of Default[a]		Amount by Year of Original Offering		Amount by Industry	
1944	$ 30.5	Before 1900	$ 63.7	Industrials	$ 4.8
1945	19.8				
1946	.6	1901-10	120.7	Utilities	38.9
1947	13.3				
1948	5.5	1911-20	72.4	Rail and other transportation	285.9
1949	88.6				
1950	1.6	1921-30	64.5	Total	$329.6
1951	3.2				
1952	.3	1931-40	6.2		
1953	.5				
1954	30.4	1941-50	.6		
1955	134.9				
1958	.4	1951-60	1.5		
Total	$329.6	Total	$329.6		

NOTE: Excludes serial issues, issues without definite maturity, and income bonds. The classification follows that in Hickman's studies.

SOURCE: NBER tabulations of Moody's Listings of Bonds in Default.

[a]There were no defaults in 1956 and 1957.

ing at any one time (instead, only the quality of the new issue flow is studied), and no attempt has been made to relate quality and yield to obtain realized investment experience.

The following findings are tentative, since much of the cross-checking remains to be done. Nevertheless, the broad outlines of the findings seem clear.

In terms of most of Hickman's measures, corporate bonds issued in the postwar period are as a group of substantially higher quality than at any time since 1900. Agency ratings, earnings coverage, and market ratings of postwar issues are noticeably better than those prevailing in the twenties, thirties, and even earlier. In terms of lien position (i.e., the pledge of specific assets and the ranking of the creditor interests of holders), postwar issues are less strongly protected than were those of earlier periods generally, but it appears that this characteristic has become subordinated in investors' minds to other quality characteristics. While at this point it is possible only to speculate about why bond quality has improved, it would seem that the lessons of the twenties and thirties, the postwar improvement in corporate financial positions, and the growing sophistication and increased importance of institutional investors in the bond market must have played a considerable part.

When the later postwar years are compared with the earlier ones, the picture is not quite so comforting. Although the earnings coverage position has not deteriorated, the agency ratings, lien position, and market rating measures have all shown a drift toward lower quality.

The most recent figures still show substantially better quality than in the 1920's, and the postwar deterioration has been slight; but it is perhaps notable that most of the measures mentioned did not show really sharp deterioration in the 1920's either. One is left to wonder how much of the apparently superior quality of corporate bonds issued in the post-World War II period is merely a by-product of the improved economic conditions of the times, rather than a basic improvement in the quality of the instruments or their issuers.

Bond defaults of the postwar period, when compared with those earlier periods in which there were no severe depressions, are of interest in assessing this question. As Table 10 shows, the total volume of straight corporate bonds going into default in the postwar period (including 1944 and 1945) was over $300 million, or an annual average of slightly more than $20 million. This average is smaller than the default figure for any single earlier year as far back as 1907. As a percentage of the total bonds outstanding and in good standing, i.e., the eligible bond population, bond defaults of the 1940's were only half, and those of the 1950's substantially less than half, those of previous decades of the 1900's. There is also a sharp contrast between the negligible defaults during the postwar recessions of 1948-49, 1953-54, and 1957-58 and the defaults of the depressions of somewhat comparable severity in 1923-24 and 1926-27. During these earlier two-year periods, bond defaults approximated $500 million and $400 million respectively, according to Hickman's study.

Moreover, less than 1 per cent of the bonds that did go into default in the postwar years were postwar issues. By far the largest proportion were issues of the 1907-13 period. Over two-thirds consisted of railroad bonds.

It is hoped that by the time this Annual Report appears the studies of convertible bonds and private placements will have been completed, drafting finished, and data checked. The preliminary draft is also being revised to include further comparison of the present situation with that of the 1920's.

THOMAS R. ATKINSON

TRADE CREDIT: A QUANTITATIVE AND QUALITATIVE ANALYSIS

A draft of this study has been completed. Among the data developed preparatory to the qualitative analysis were new estimates of the total volume of trade credit outstanding for the period 1947-57 and of the distribution of trade receivables and payables by economic sector and manufacturing industry and by size and profitability status of firms. Detailed data from the U.S. Treasury *Source Book* provided the backbone of this part of the study.

The analysis of trade credit quality involved securing both *ex post* measures (actual experience) and *ex ante* (predictive) quality measures. The *ex post* measures employed are (1) the volume and rate of bad-debt losses of nonfinancial enterprises, (2) trade credit delinquencies, and (3) business failures.

These measures, on balance, indicate that the quality of interfirm credit declined in the 1947-57 period, although the evidence is not entirely unequivocal. The data on trade credit delinquencies are not reliable enough to ascertain their trends. While the dollar volume of trade credit losses currently exceeds a billion dollars a year—or more than the losses of all other forms of credit combined—the *ratio* of trade credit losses to receivables outstanding, though behaving cyclically, had a stable trend. On the other hand, the ratio of trade credit losses to sales rose appreciably, and failure rates, as measured both by numbers of firms failing and by the ratio of the dollar volume of failure liabilities to total current liabilities, rose substantially (see Chart 8).

Such *ex post* measures, taken alone, are not sufficient for a full diagnosis. The main object of the study was to secure reliable data which would foreshadow weaknesses in the trade credit fabric. Three types of *ex ante* measurements are used in this study: (1) movements of selected financial ratios, (2) trends in Dun and Bradstreet credit ratings, and (3) changes in the distribution of trade debt among business borrowers representing differing degrees of risk.

Earlier studies have indicated that four financial ratios are especially helpful in predicting the subsequent failure of business firms: the "quick ratio" (cash and government securities to current liabilities), the "current ratio" (current assets to current liabilities), the ratio of net working capital to total assets, and the ratio of net worth to debt. These ratios are widely used in analyzing the risks attached to the extension of trade credit to particular concerns.

Without exception the course of these four ratios was downward during the period 1947-57 for each of the six major business sectors (see Chart 9). When the sectors were combined into an all-sector business aggregate, the liquidity ratio declined by about one-third, the working capital and worth-to-debt ratios each by about one-fifth, and the current ratio by more than one-eighth. In general, the ratios were better maintained in manufacturing than in other business sectors, with the service sector showing the greatest weakening. Analysis of the behavior of these ratios according to business size classes within sectors shows that the decline was greatest for the smaller firms.

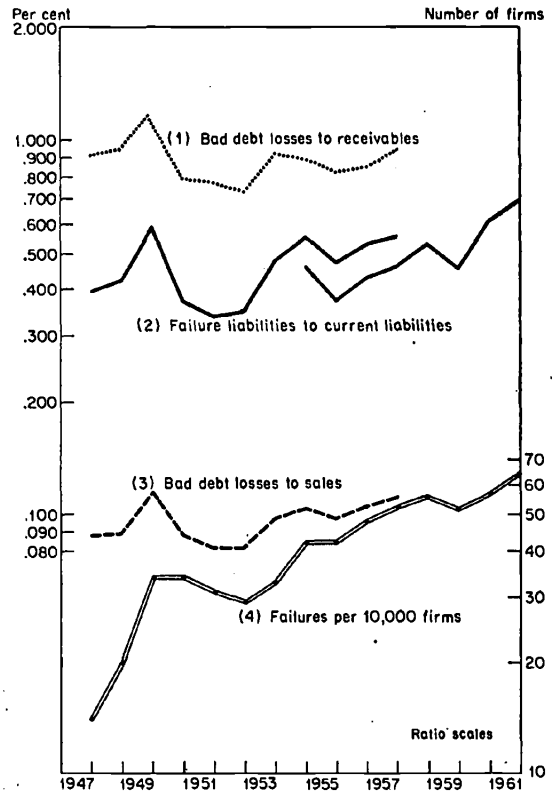
A decline in the quality of trade credit during the 1950's is also suggested by the upward drift in the proportion of firms whose credit rating in Dun and Bradstreet is only "limited" or "fair." Victor Zarnowitz' earlier study of these credit ratings (see 38th Annual Report, pp. 59-63) is the basis of this portion of the study.

Analysis of the changing distribution of trade payables among economic sectors and among different types of firms produces mixed evidence regarding quality changes. The share of all payables owed by small and young firms (both of which have been shown to be of more than average riskiness) did not increase appreciably during 1947-57, but the proportion of trade debt owed by the especially risky class of small firms operating at a loss did rise substantially.

Still other measures of the quality of trade credit investigated were the ratios of trade receivables to sales (the "collection period"

CHART 8

Rates of Trade Credit Losses and Business Failures, Major Business Sectors Combined



(1) Ratio of bad-debt losses to receivables outstanding: mining, manufacturing, wholesale, and construction corporations. Data from *Source Book,* U.S. Treasury.

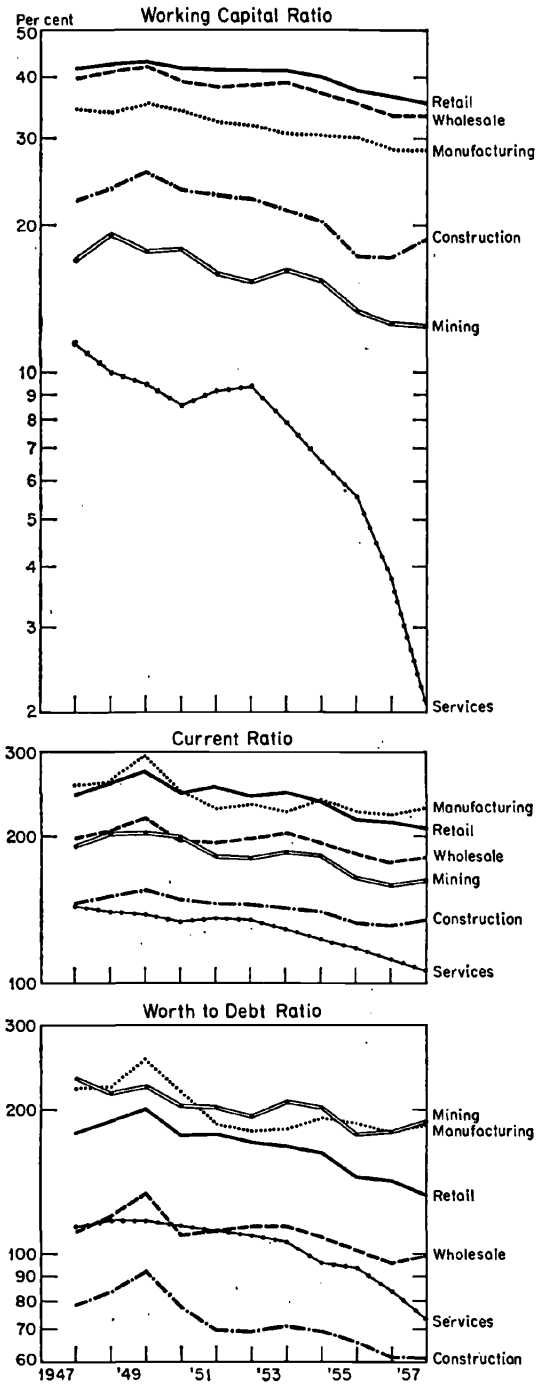
(2) Ratio of failure liabilities to total current liabilities. Failure liabilities are for corporate and noncorporate nonfinancial firms reported in *Dun & Bradstreet's Failure Record.* Current liabilities in the 1947-57 series are for corporate and noncorporate nonfinancial firms reported by Raymond W. Goldsmith, "Studies In The National Balance Sheet of the United States," MS., NBER, Tables III-2, III-4. Current liabilities in the 1954-61 series are for all corporations, excluding only banks, savings and loan associations, and insurance companies, *Economic Report of the President—1962,* Table B-66, p. 284.

(3) Ratio of bad-debt losses to sales: mining, manufacturing, wholesale, and construction corporations. Data from *Source Book,* U.S. Treasury.

(4) Rate of failure per 10,000 firms. Corporate and noncorporate nonfinancial firms, *Dun & Bradstreet's Failure Record.*

CHART 9

Selected Ex Ante Measures of Credit Quality, Corporations by Sector



SOURCE: *Source Book*, U.S. Treasury.

of trade creditors) and the ratio of trade payables to sales (the "payables turnover" ratio), which measures, in a sense, the dependence of firms upon trade credit financing. Both of these ratios rose appreciably over the 1947-57 period, indicating some decline in trade credit quality. The rise in the collection period is tantamount to a lengthening of the credit terms of sales and hence an increase in risk exposure.

Tests of the prognostic ability of several of the *ex ante* measures were made by combining them into an "index of credit quality" and regressing this index upon the *ex post* measures, similarly combined into an "index of credit difficulties." The inverse correlation of the indexes proved statistically significant.

Although rigorous cyclical analysis of either *ex ante* credit quality or credit difficulties was not possible with available data, the evidence supports the hypothesis that trade credit quality weakens during periods of general economic expansion and is restored during periods of recession. The study also suggests that while many American businesses were in an unusually strong credit position shortly after World War II, owing to the liquidation of debt and the wartime and postwar inflation of values, this was no longer the situation by the late 1950's.

MARTIN H. SEIDEN

POSTWAR RESIDENTIAL MORTGAGE QUALITY

The unprecedented rise in residential mortgage debt since the end of World War II gives special importance to the question whether there has been any deterioration in its quality. The possibility of deterioration is strengthened, *a priori*, by the sharp rises in loan-to-value ratios and in typical maturities that have characterized residential mortgage lending in the postwar years. The easing of these mortgage terms in recent years is shown in Tables 11 and 12.

The average maturity of VA and FHA loans made on new houses rose from about twenty years in the early postwar years to twenty-nine

years by 1960. (Average VA and FHA maturities on loans on existing houses—not shown in Table 11—rose about as much proportionately, although from lower levels.) Table 12 indicates a similar trend in the typical maturity of conventional residential mortgages.

A sharp rise in loan-to-value ratios paralleled the rise in maturities during the postwar years. "No-down-payment" mortgages were available to large classes of veterans during most of the postwar years. As Table 11 shows, however, the rise in average loan-to-value ratios was proportionately as great for FHA as for VA mortgages. By 1960 the average loan-to-value ratio exceeded 91 per cent for FHA loans and reached 97 per cent for VA loans.

TABLE 11

POSTWAR TREND IN RESIDENTIAL MORTGAGE TERMS: FHA-INSURED AND VA-GUARANTEED LOANS ON NEW HOMES

LOANS MADE IN	AVERAGE MATURITY		AVERAGE LOAN-TO-VALUE RATIO	
	FHA Single-Family Homes (Sec. 203)	*VA Primary Loans*	*FHA Single-Family Homes (Sec. 203)*	*VA Primary Loans*
	Years	Years and Months	Per Cent	
	(1)	(2)	(3)	(4)
1946	21.0	19-4	84.1	92.7
1947	20.2	20-2	81.2	90.4
1948	20.1	19-8	80.1	84.5
1949	22.8	21-2	83.6	86.5
1950	24.1	23-0	85.0	91.9
1951	23.4	24-0	82.5	89.6
1952	21.7	23-1	80.4	86.9
1953	22.2	23-0	82.9	88.8
1954	22.9	25-9	82.2	92.6
1955	25.6	27-5	85.0	94.5
1956	25.5	27-2	83.2	93.1
1957	25.5	27-4	82.3	92.2
1958	27.3	28-3	88.7	94.3
1959	28.8	28-9	91.0	96.7
1960	29.2	28-9	91.4	96.9

SOURCE

Cols. 1, 3 1946-59 data are from HHFA *Annual Reports;* 1960 data are from *Quarterly Reports on FHA Trends.*

Col. 2 1946-59 data were supplied by the Veterans Administration. 1960 was extrapolated from 1959 by the percentage change in the average maturity calculated from the distributions shown on p. 66 of *Housing Statistics,* October 1961 (monthly issue), assuming maturities of 15, 18, 23, 27.5, and 30 years for the respective groups.

Col. 4 1946-59 data were calculated from the series on average loan and average purchase price supplied by the Veterans Administration. 1960 was extrapolated from 1959 by the percentage change from 1959 to 1960 shown by the annual averages of monthly data given in *Housing Statistics,* May 1961, p. 64.

TABLE 12

POSTWAR TREND IN RESIDENTIAL MORTGAGE TERMS:
CONVENTIONAL LOANS MADE BY SAVINGS AND LOAN ASSOCIATIONS ON NEW HOMES

	Percentage of Associations Reporting Their Typical Maturity to Be:			*Percentage of Associations Reporting Their Typical Loan-to-Value Ratio to Be:*	
	Under 15 Years (1)	20 Years and Over (2)	25 Years and Over (3)	Under 65 Per Cent (4)	75 Per Cent and Over (5)
1948	64.1	21.8	n.a.	37.1	26.2
1949	71.4	16.9	n.a.	44.2	15.7
1950	29.7	26.4	n.a.	41.7	16.2
1951	26.2	25.8	n.a.	47.7	9.1
1952	n.a.	n.a.	n.a.	n.a.	n.a.
1953	24.7	23.6	n.a.	37.8	11.0
1954	20.8	29.4	n.a.	32.2	16.4
1955	17.6	39.1	n.a.	18.3	30.2
1956	18.7	40.2	2.8	16.6	28.8
1957	14.9	43.7	3.4	17.0	25.4
1958	14.3	49.0	4.3	10.9	34.6
1959	8.7	60.9	12.2	8.0	46.0
1960	6.9	67.8	14.5	5.0	52.9
1961	7.6	69.5	18.2	3.8	60.1

SOURCE: Data collected by the U.S. Savings and Loan League from a "representative group of savings and loan associations" in the spring of each year.

Table 12 shows that loan-to-value ratios also advanced markedly in the conventional mortgage field.

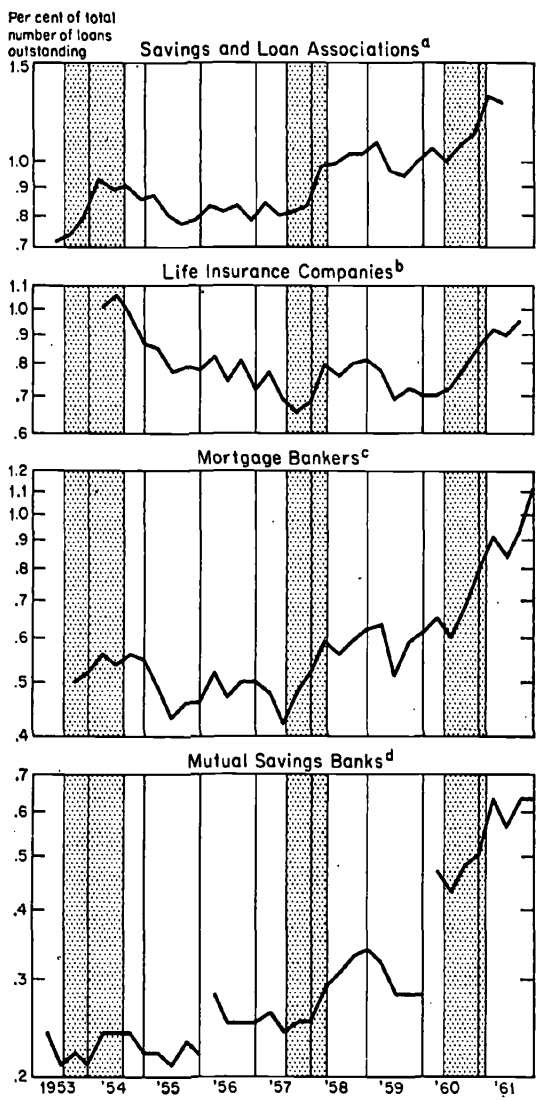
The rise in loan-to-value ratios has, of course, permitted purchases of houses by persons with smaller resources, and reduced the equity margin protecting lenders. The lengthening of maturities, by reducing the monthly mortgage payments required for a loan of any given size, has permitted persons to finance larger housing purchases relative to their incomes. On both counts there is a presumption that the average quality of mortgage debt may have declined.

Despite these developments, residential mortgage quality, as judged by foreclosure and loss rates, has stood up very well. High employment and relative economic stability, together with the rising house and residential land values associated with rapid population growth, high family formation, and some general inflation, have helped to validate the more liberal mortgage lending terms. Most straitened borrowers have been able to sell their houses for more than enough to cover their indebtedness, and the holders of most defaulted mortgages have been able to sell the foreclosed properties without loss.

There is increasing evidence that this favorable combination of circumstances is passing. The rate of family formation has recently been declining. Prices of existing houses in many areas have ceased to rise or have even begun to fall. Vacancy rates, both on rental proper-

CHART 10

Residential Mortgage Delinquency, as Reported by Important Classes of Lenders, 1953-61 (ratio scales)

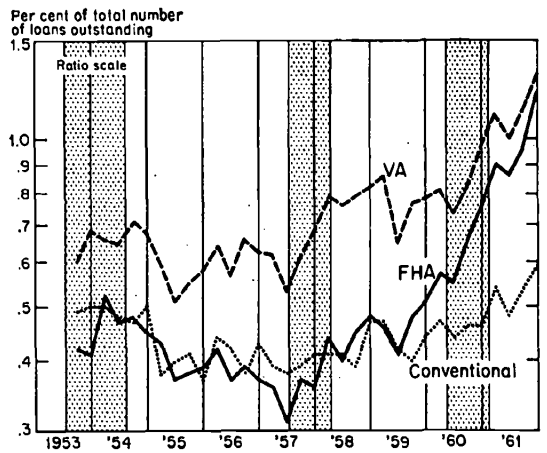


NOTE: Shaded areas represent business cycle contractions; unshaded areas, expansions (monthly chronology).

[a]Loans delinquent two months or more: quarterly averages supplied by U.S. Savings and Loan League, based on monthly data reported by a representative sample of associations.

CHART 11

Delinquency of Two Months or More on One- to Four-Family Housing Loans, by Type of Loan, 1953-61



NOTE: Shaded areas represent business cycle contractions; unshaded areas, expansions (monthly chronology).

SOURCE: *National Delinquency Survey*, Mortgage Bankers Association of America. Loans in foreclosure are included.

NOTES TO CHART 10 (continued)

[b]All city mortgages (not merely residential) delinquent two months or more, including loans in foreclosure, as compiled by Life Insurance Association of America on the basis of the experience of companies holding approximately 80 per cent of the assets of all U.S. life insurance companies.

[c]Residential mortgages of one- to four-family units delinquent two months or more, including loans in foreclosure, from *National Delinquency Survey*, compiled by the Mortgage Bankers Association of America from company reports.

[d]Mortgages delinquent three months or more, as reported by the National Association of Mutual Savings Banks in its *Special Bulletin*. The break in the series at the beginning of 1956 reflects the inclusion of loans in foreclosure, and that at the beginning of 1960 the restriction of coverage to loans on one- to four-family houses. For 1953 through March 1958, delinquency rates on FHA, VA, and conventional loans, supplied by NAMSB, were weighted by the amount of holdings of the given type of loan.

ties and on homeowner units, have been rising in the past few years. In 1950 only about 2.5 per cent of rental units were vacant, and in the mid-1950's this percentage hovered around 5 to 6 per cent. In 1961, however, rental housing vacancy rates rose to about 8 per cent. Although conditions vary greatly among sections of the country, it appears that the general sellers' market in residential houses is disappearing.

Foreclosure rates have begun to show some evidence of this change. The foreclosure rate on nonfarm one- to four-family homes in the U.S., which has been extremely low by historical standards throughout the postwar years, has recently been creeping up. The estimated rate of foreclosure per 1,000 such dwellings was 1.96 in 1957, rose to 2.35 in 1958, and reached 2.65 in 1960.

Foreclosures tell only part of the story. Delinquency (i.e., the failure of borrowers to make scheduled mortgage payments promptly) provides more sensitive and discriminating evidence. Chart 10 presents delinquency data gathered by associations representing important classes of residential mortgage lenders. The rates refer to all types of residential mortgages in the portfolios of the reporting lenders.

Although differences in absolute levels among lender classes should not be given much significance, because of differences in the composition of their portfolios and in reporting methods, it will be observed that until the latter part of 1957 the course of mortgage delinquency was steady or downward for all classes. From then on, by contrast, the trend in all cases has been upward, and steeply so in 1960 and 1961.

Chart 11 traces delinquency experience on FHA, VA, and conventional mortgages separately. It shows that the recent rise in delinquency rates has occurred in all three classes of mortgage, although it has been sharper for VA and FHA loans than for conventionals. In general, delinquency has been highest on VA loans and lowest on conventional, although recently FHA experience has been little better than that for VA loans. These differences accord with the quality differences suggested by the maturity and loan-to-value ratios for VA, FHA, and conventional mortgages.

There is some, but slight, evidence in these nationwide figures of sensitivity of delinquency to changing general economic conditions. They fell generally to their lowest levels during the period of prosperity ending in 1957, and there was a sharp rise in the recession of 1957-58. On the other hand, delinquency continued to rise through the prosperity period ending in the summer of 1960, and the improvement in economic conditions beginning in the spring of 1961 has not prevented a further rise. As of the end of 1961, mortgage delinquency rates had reached their highest level since these statistics were first compiled. Provisionally it appears that secular or structural developments have been more important than the recent moderate cyclical swings in explaining changes in residential mortgage delinquency.

A number of other features of the quality problem in the house mortgage field are being examined. As would be expected, delinquency and other quality data show divergent patterns in various sections of the country. These are being explored. The key question of whether longer maturities, lower down payments, and higher ratios of required mortgage payments to borrowers' income have been associated with significantly more serious delinquency and foreclosure difficulty is as yet largely unanswered, although the differences noted with regard to experience on VA, FHA, and conventional loans are suggestive. Some published data of the Federal Housing Administration indicate that experience is less favorable on the longer-term loans, but further exploration is necessary. It is hoped that an adequate study of the crucial relations between the several characteristics of mortgage loans and loan experience can be made during the months ahead.

JAMES S. EARLEY

POSTWAR CAPITAL MARKETS

This project, which has been financed in part by grants from the Life Insurance Association of America and the Commission on Money

and Credit, is nearing completion. The summary report on "The Flow of Capital Funds in the Postwar Economy," prepared jointly for the Commission on Money and Credit and the National Bureau by me with the assistance of Rachel Floersheim, is being revised in the light of comments by the staff reading committee.

Another report in the series of institutional monographs undertaken for this project, Saul B. Klaman's *The Postwar Residential Mortgage Market,* was published during the year, and an Occasional Paper by George Hanc, *The United States Savings Bond Program in the Postwar Period,* was published recently.

Eli Shapiro's "The Market for Corporate Securities and Loans" was delayed because of the author's preoccupation with the completion of the work of the Commission on Money and Credit. It is hoped that the manuscript will be completed in 1962.

A technical paper prepared jointly by Eli Shapiro and David Meiselman, "Corporate Fund Flows: Annual and Quarterly Estimates," which reports on the results of the construction of such figures for the period 1950-55, was revised and will shortly be submitted to the Directors.

Morris Mendelson reports below on his study of the market for Treasury securities.

RAYMOND W. GOLDSMITH

THE PRIVATE DEMAND FOR MARKETABLE TREASURY SECURITIES

My study starts with the premise that the demand by U.S. Government Investment Accounts, the Federal Reserve System, and dealers is essentially different in character from the demand by other sectors. Government and quasi-government accounts are subject to the overriding influence of public policy considerations; the demand by dealers is essentially trading-oriented. That the participation of other private transactors can hardly be described as strictly investment-oriented reduces, but does not eliminate, the differences in character. It is therefore the private demand for marketable Treasury securities which will be the focus of my study. It will comprise the following main topics: (1) The Market, (2) Theories of Investment and Speculation, (3) Liquidity-Oriented Investment, (4) Safety-Oriented Investment, (5) Speculative Elements in Portfolio Management, (6) An Over-All View of the Distribution of Treasury Securities.

So far, in addition to planning the study as a whole, I have drafted a substantial portion of the first chapter, which will provide a background for the examination of the practices and policies of investors.

MORRIS MENDELSON

THE INDIVIDUAL INCOME TAX

Copies of my draft on the personal exemptions in the income tax have been distributed to members of the staff and others for critical review before submission to the Directors. The draft comprises the following chapters: (1) Introduction: The Income Tax as a Personal Tax, (2) Central Importance of the Personal Exemptions in the Present-Day Coverage and Revenue Yield of the Income Tax, (3) Profile of the Present Personal Exemptions, (4) Historical Sketch of the Exemption Levels in the U.S., (5) The Complex Rationale of the Personal Exemptions, (6) The Appropriate Levels of the Personal Exemptions, (7) Summary and Conclusions.

C. Harry Kahn's manuscript on profits and losses of unincorporated enterprise (see below) will soon be submitted to the Directors, and he is well along on his analysis of wages and salaries as a component of taxable income. Other studies of the individual income tax already published include my *The Nature and Tax Treatment of Capital Gains and Losses* (1951) and *Interest as a Source of Personal Income and Tax Revenue* (1955), Kahn's *Personal Deductions in the Federal Income Tax* (1960), and Daniel M. Holland's *Dividends Under the Income Tax* (1962).

Capital Gains and Losses

I am now engaged, with the assistance of Selma F. Goldsmith,[2] in updating some of the basic materials in my earlier study of capital gains and losses. The statistical and other factual data in that book are mainly confined to years prior to 1947. Since then, changes have been made in the statute, new kinds of quantitative information have become available, and the principal statistical series have been lengthened by thirteen years. At the same time, shifts of emphasis have been proposed in the policy objectives sought in the tax treatment of capital gains and losses—notably a new emphasis on economic growth. We plan to take account of these developments in an Occasional Paper.

The amount of net capital gains reported on individual income tax returns for 1959 was larger than any previously reported for income tax purposes. Net long-term and short-term gains totaled $13.6 billion before the statutory exclusion from adjusted gross income of 50 per cent of each taxpayer's net long-term gain in excess of his net short-term loss.

The total of net capital losses reported for 1959, before the statutory restrictions on the amount allowed in computing adjusted gross income, and including previously "unused" capital losses carried over from the preceding five years, was slightly less than one-seventh of the amount of capital gains. The statutory limitations permitted only about 28 per cent of the total of net capital losses to be used in computing adjusted gross income in 1959. The remainder, exclusive of any unused carry-over for net capital losses sustained in 1954, was available to be carried forward to 1960 as short-term capital loss, and approximated $1.3 billion.

The deductibility from ordinary income of a net capital loss incurred in any year is limited to an amount equal to the smaller of (1) taxable income (adjusted gross income if the tax table is used) computed without regard to capital gains or losses or the deduction for personal exemptions, or (2) $1,000. The remainder may be carried forward as a short-term capital loss for the next five years and applied without limit against capital gains that are realized and, to the extent of $1,000 or less, against ordinary income; but any portion of a carry-over loss that is not so absorbed in the five-year period ceases to be deductible in any way.

The annual totals of net capital gains reported on individual returns have characteristically displayed wide fluctuations as far back as our figures go. Thus the total of net capital gains reported in 1920 was more than three times that in 1917, but the amount fell 55 per cent in 1921. (These figures exclude returns with statutory net deficits.) The 1928 total of $4.8 billion was nearly five times that of 1922. The amount fell little in 1929, but shrank drastically in the early thirties and reached $1 billion in only one year between 1931 and 1942. Net capital gains then rose tenfold from 1942 to 1946. Thereafter the fluctuations were less extreme, though often substantial. The total of net capital gains reported for 1959 was roughly 40 per cent larger than that for 1958.

Lawrence H. Seltzer

Unincorporated Enterprise Profits and Losses

The draft of "Unincorporated Enterprise Under the Income Tax" has been revised in view of comments by a staff reading committee, and the statistical series have been brought forward through 1959, the last year for which comprehensive data are now available. It will soon be submitted to the Directors for approval. The text consists of five chapters: (1) Introduction and Summary, (2) Coverage of Income on Tax Returns, (3) Size and Pattern of Income on Returns with Profit or Loss, (4) The Treatment of Losses, (5) Tax Liability on Unincorporated Enterprise Income.

Wages and Salaries

I have also been engaged in a parallel study, "Wages and Salaries in the Individual Income

[2]Deceased, April 15, 1962.

Tax." The inquiry focuses on three aspects of the tax treatment of income from employment. First, two measures of the coverage of wages and salaries under the income tax will be presented. One of these will simply show the coverage according to the current concept of taxable wages and salaries. It indicates, as one might expect, that since World War II well over 90 per cent of employment income has been reported on individual income tax returns. This is a higher coverage than for any other type of income, and is attributable to withholding at the source and to the fact that wages and salaries in most industries are subject to precise record keeping for social security tax purposes. Another ratio of coverage, taking into account possible omissions because of alleged conceptual shortcomings, will be examined. Such an expanded concept will call for the inclusion of items now excluded (such as various types of deferred compensation, social security benefits, unemployment compensation) and for the deduction of items which are now, possibly erroneously, included (such as payroll taxes, some expenses incurred in the production of income, and the cost of vocational training and education). Computation of this second coverage ratio will depend on the availability of data.

A second focus of this study is the existing and past tax provisions specifically applicable to employment income. The size and distribution by income groups of the sick-benefit exclusion, the so-called working mothers' allowance, and the now discontinued earned-income credit will be briefly examined.

Third, estimates of the amount of tax liability, and effective rates of tax, attributable to wages and salaries will be presented. Of interest in this connection is the detailed available information on withholding of tax at the source. In recent years, overpayment of tax because of too much being withheld or too much being declared on quarterly estimated-tax returns has increased in magnitude relative to total tax still due at time of filing. In the early years of the withholding system (beginning in 1943) taxpayers in the spring of each year owed the Treasury more than the Treasury owed them, but in recent years this relationship has been reversed. I am currently examining the data to determine to what extent there is evidence of differential timing of tax payments between income from employment and other income.

C. HARRY KAHN

OTHER STUDIES

"Risks and Returns in Small Business Financing," a manuscript by Geoffrey H. Moore and Thomas R. Atkinson, is being revised preparatory to review by a staff reading committee.

See Part II with regard to a new study of flow of funds being undertaken by Hyman P. Minsky; a conference report, *The Flow of Funds Approach to Social Accounting;* and a conference on Monetary Economics organized by the Universities-National Bureau Committee for Economic Research.

5. INTERNATIONAL ECONOMIC RELATIONS

THE UNITED STATES IN A CHANGING WORLD ECONOMY

This study, undertaken with the assistance of a grant from the Rockefeller Foundation, is aimed at assessing the basic changes in the international economic position of the United States and its capacity to adjust to these changes. My own work in this field is now devoted to the preparation of an introductory report in which I seek to identify the main problems for further investigation and to illuminate them on the basis of our studies so far. H. G. Georgiadis reports below on a supporting project in the field of trade which he is undertaking within the framework of the larger study. Subject to the availability of financing, it is intended that various other

problems will be singled out for fuller investigation as collateral projects. These problems include, in particular, (1) a new approach to international price comparisons relying on the solicitation of comparable data from buyers as well as sellers, (2) an empirical study of the levels and rates of technological development in this country and in other industrial countries as one of the determinants of our international competitive position, (3) the effects of United States direct investments in foreign manufacturing on our international trade and payments.

Export Orders as a Guide to the Development of Exports

In recognition of the new significance of the balance of payments as a constraint on United States policy, we have given some attention to the evaluation and improvement of certain currently reported information as indicators of short-run prospects in this domain. In this connection, we have reviewed available data on export orders as a guide to the prospective development of exports. Some information on this subject is regularly compiled by two different bodies, both private. Though limited in coverage, the data invite examination for their potential usefulness in forecasting the course of exports and for their bearing on the possibilities of developing improved statistics of this nature. We expect to explore these questions more fully in an Occasional Paper, but now, in view of the timeliness of the subject, offer some preliminary observations.

The most comprehensive export order series in the United States, though pertaining to goods comprising only about 15 per cent of total exports,[1] is that compiled monthly since 1957 by the Economics Department of the McGraw-Hill Publishing Company on the basis of returns from producers of nonelectrical machinery (excluding also farm machinery and transportation equipment). The reporting firms are understood to constitute only a small sample, but the behavior of the McGraw-Hill series appears to be broadly consistent with that of actual exports of these goods as reported by the Commerce Department[2] (Chart 12). Orders were already sharply falling when the McGraw-Hill series began in 1957, and we therefore cannot establish the turning point associated with the preceding international investment boom (perhaps the third quarter of 1956 or even earlier, if the data on machine tools in Chart 13 are taken as a guide). After strengthening a bit in the second half of that year, orders fell to a low in mid-1958, and then turned strongly upward again. Recorded exports, on the other hand, did not begin to fall until the latter part of 1957, reached their low in early 1959, and then began a sustained increase. Both orders and exports reached a peak in 1961, orders in the second quarter and exports a few months later, though at the year-end the extent of the decline in orders and of the repercussion on actual exports remained to be seen.

These observations are too limited to permit any conclusions, but they suggest a pattern of behavior similar to that which has been observed in other National Bureau studies of capital goods orders and deliveries.[3] The greater cyclical swings in orders than in exports would also accord with these other studies. On the assumption that the export order series is a representative sample, the difference in amplitude would represent a shortening of manufacturers' backlogs in the downswing and a lengthening during the upswing. This difference suggests the importance of information on the length of export order books along with that

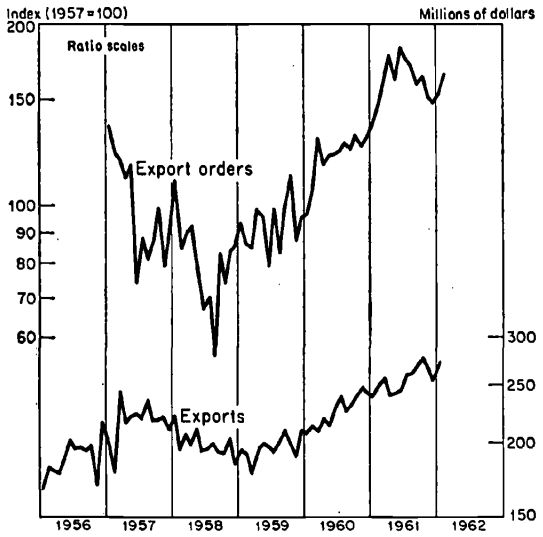
[1] Exports of nonelectrical machinery in 1961 amounted to $3,054 million out of total U.S. exports of some $20 billion.

[2] Exports as given in the chart have been seasonally adjusted on the basis of experience over the period 1954-61, but the shorter export order series is plotted without seasonal adjustment.

[3] See Victor Zarnowitz, "The Timing of Manufacturers' Orders During Business Cycles," in Geoffrey H. Moore (ed.), *Business Cycle Indicators*, Princeton University Press for National Bureau of Economic Research, 1961, Vol. I, pp. 420-484.

CHART 12

Nonelectrical Machinery, Export Orders and Exports



NOTE: Orders are as reported by the Economics Department of the McGraw-Hill Publishing Company (not seasonally adjusted). Exports are derived from the foreign trade statistics of the U.S. Department of Commerce by selection of items represented in the McGraw-Hill export order series, with seasonal adjustment by the National Bureau of Economic Research. The group nonelectrical machinery excludes farm machinery.

on new orders in the appraisal of export prospects.

The second source of information on export orders is the report issued each month by the National Machine Tool Builders' Association. Though relating to a much smaller group of products than the McGraw-Hill series, it has the advantage of extending back over a longer period.[4] This survey has several further advantages: it provides data not only on new orders but also on shipments and cancellations (and on order backlogs, but without distinguishing in this case between foreign and domestic orders), and it reports the data in dollar values, permitting comparisons of levels as well as movements.

One of the notable features of the NMTBA data in Chart 13 is the great peak in export orders in 1950-51 and in export shipments in 1952-53—a phenomenon mainly attributable to heavy orders for machine tools placed here by the United Kingdom for rearmament purposes after the start of the Korean crisis. Even apart from this dominant feature, orders and exports exhibit a striking similarity in movement and in level.[5] The lag in exports behind orders seems to have been some eight to ten months most of the time since 1953, but appreciably less than that during the past two years. In the NMTBA series orders do not regularly show a significantly greater cyclical variability than exports, such as that noted in the case of nonelectrical machinery, but both fluctuate much more widely than either of the two series for the larger group.

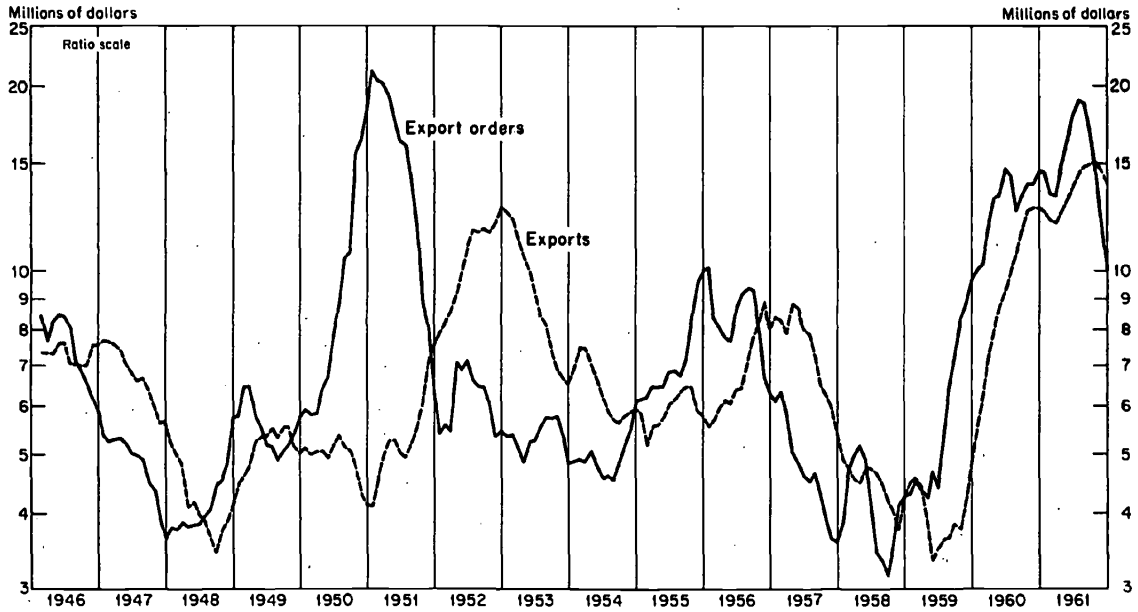
Because of the relatively long periods required for their production, information on export orders for machinery and other types of capital equipment may give a better indication of the subsequent development of exports than would be true of similar data for other manufactures. It may nevertheless be relevant to note that, to illuminate prospective developments in the domestic economy, the Department of Commerce has found it useful to collect order information from all manufacturers that report unfilled orders. This information is given in considerable detail by type of product, but is not divided between home and foreign orders so as to assist also in the appraisal of the outlook for foreign trade and the balance

[4] The data in Chart 13 relate only to metal-cutting machine tools, exports of which amounted to $164 million, as reported by the NMTBA. Since 1956 the NMTBA reports also provide separate data for metal-forming machine tools, exports of which amounted to $37.5 million in 1961. It may be noted that machine tools are also among the products included in the McGraw-Hill sample.

[5] The identity of the reporting firms in the two series helps to explain this conformity, but it also appears that the production period must be fairly uniform in this rather closely defined industry.

CHART 13

Metal-Cutting Machine Tools, Export Orders and Exports



NOTE: Original data for both series are from the National Machine Tool Builders' Association. They are given here as four-month moving averages after seasonal adjustment by the National Bureau of Economic Research. Export orders are "gross," i.e., without deduction of cancellations.

of payments.[6] Such a dual purpose is served in the Federal Republic of Germany, where industrial companies regularly report their orders broken down not only between capital goods, consumer goods, and basic materials but also between domestic buyers and foreign buyers.

The German data for the 1954-61 period plotted in Chart 14 suggest that, used with discrimination, a comprehensive series on export orders for industrial products can furnish significant advance clues to the actual development of exports. In this case three turning points can be observed in each series, with the turn in exports lagging each time several months behind that in orders. Over the period as a whole the rise in the two series is quite similar, but here again export orders tend to exhibit greater cyclical variability than actual exports.

One may speculate on the significance of the fact that the McGraw-Hill series on nonelectrical machinery export orders for the United States continued to rise vigorously for more than a year after German export orders began to level out in 1960.[7] It would be helpful to know, for instance, whether, because of price or other advantages, backlogs in German

[6] Without such a distribution, the value of the information collected on orders may be impaired even as a guide to domestic economic developments. Thus Zarnowitz has demonstrated, *ibid.*, that orders for capital equipment, together with construction contracts, provide a valuable advance indicator of private investment activity. To serve this purpose best, however, the data should be net of foreign orders.

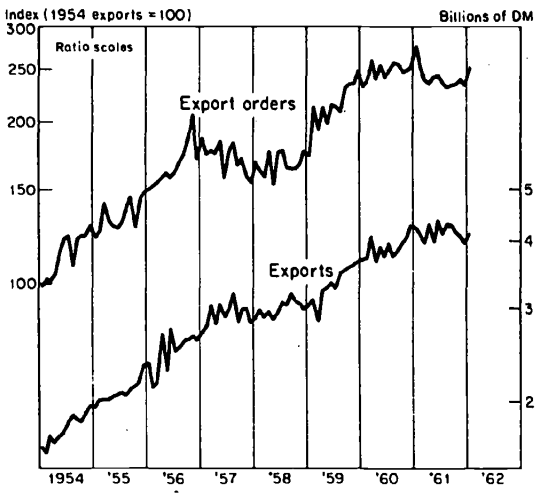
[7] This contrast is also seen if one takes the German export order data for capital goods only.

plants had become so much longer than those of American producers as to cause some shift in new orders to the latter's benefit, or whether the international competitive position of United States industry may, in fact, have been strengthening again even apart from its ability to quote shorter delivery dates. These questions suggest that fuller information on new export orders and also on order backlogs and current export shipments by manufacturers would considerably improve the basis for assessing balance-of-payments prospects. An improvement in this area of analysis becomes, in turn, highly relevant to the appraisal of domestic economic prospects as long as the balance-of-payments position is chronically or occasionally such as to require policies of restraint.

HAL B. LARY

CHART 14

Federal Republic of Germany, Export Orders Received by Industry and Exports of Industrial Goods



NOTE: Original data through November 1961 are from official German sources supplied through the courtesy of the Bundesbank, with seasonal adjustment by the National Bureau of Economic Research. Subsequent entries are based on data appearing in secondary sources.

AN APPRAISAL OF UNITED STATES PERFORMANCE IN WORLD TRADE

The purpose of this project is to see what can be concluded from a close and systematic analysis of international trade data with respect to the international competitive position of the United States. The analysis will include an examination and a search for explanation of the behavior of United States imports in relation to the relevant categories of national expenditures and to purchases of comparable domestic products. Correspondingly, it will include a study of other countries' imports from the United States in relation to their own national expenditures and to their purchases of competing products from their own or third sources.

The study is intended to throw light on such questions as the effect of changes in relative costs and prices at home and abroad on United States foreign trade; the identification of long-term trends and of the extent to which recent changes represent a return to prewar patterns of behavior, or new shifts of a "structural" nature, or the influence of temporary forces; the effects of commercial policies of the United States and other countries on imports and exports; the degree of cyclical variability of United States exports and, if greater than that of other countries' exports, the reasons why this should be so.

While the focus is on the postwar position and problems of the United States in international trade, it will extend back to earlier periods to the extent permitted by the data and necessary to the analysis of these and other basic questions.

Work on the study began last August, the first task being to provide a systematic statistical basis. The Standard International Trade Classification of the United Nations was, therefore, taken and rearranged by "end-use" categories similar to those now being developed by the Department of Commerce as one of the standard ways of presenting United States trade

statistics. The classification by end use includes the following main categories (comprising in each case a number of subgroups and individual items from the SITC): capital equipment, consumer manufactures, food and beverages, fuels, chemicals, materials used in agriculture, materials used in the construction industry, materials used for production of durables, materials used for production of nondurables.

It is considered that these categories fit, or can best be related to, the main expenditure categories in the national accounts, and that the end-use approach is more promising for purposes of economic analysis than the conventional trade classification by degree of manufacture or by kind.

A complete set of data according to end-use categories for imports from the United States and from the rest of the world has so far been completed for the following countries, covering the period 1951-60: Australia, Austria, Belgium-Luxembourg, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, Sweden, and the United Kingdom. These data are now being studied in an effort to develop systematic relations between foreign countries' imports, both total and from the United States, and the appropriate domestic variables of such countries.

This approach, based on the use of other countries' import statistics, has the advantage over United States export statistics of making it possible to relate our foreign sales, systematically and in some detail, to the broader framework of world trade. The disadvantage is that the data can be compiled in this way only for a relatively short period, though they can be supplemented by other series, including the Commerce Department's arrangement of United States exports by end uses since 1925. For United States imports, the data for the main end-use categories are also available annually since 1925 from the Commerce Department's publications, and their movements in relation to the corresponding categories of total national expenditure can be studied over this period.

H. G. GEORGIADIS

FOREIGN TRADE AND BUSINESS CYCLES

The impact of further advances in U.S. business activity on exports, imports, and the trade balance is a matter of great concern at present. Policy decisions depend in part on judgments about the relations between foreign trade and business cycles. Yet information on which to base judgments is scanty and policy makers have to rely in part on guesswork. To fill some of the gaps is one aim of my project; another is to shed some light on the reverse problem: the influence of foreign trade on the domestic business cycle.

A first report of the project, which is supported by a grant from the National Science Foundation, was published in May 1959 as Occasional Paper 67, *Trade Balances during Business Cycles: U.S. and Britain since 1880.* A second was published in April 1961 as Occasional Paper 76, *American Exports During Business Cycles, 1879-1958.* It deals with fluctuations in the total value of U.S. exports, their timing, amplitudes, and relations to domestic and foreign business cycles.

During the past year cycles in major components of total export value were analyzed in similar fashion, and now the changes in total value can be traced back not only to those in the values of the major classes of export commodities but also to price and quantity factors. The main statistical work for the study of exports has been completed and a number of chapters have been written. The task for the current year is to write the remaining sections and the introductory and summary chapters. An indication of some tentative findings follows.

In Occasional Paper 76 it was shown that total export value since 1921 has almost always developed more favorably during an expansion in the United States economy than during the preceding or following contraction. This positive correlation of exports and domestic business activity requires explanation. A rise in home demand hampers and a decline stimulates exports, which would therefore move against rather than with the domestic business

cycle if it were not for fluctuations in foreign demand. In order for exports to conform positively to United States business cycles, the pull of foreign demand must regularly outweigh the rise or fall of domestic absorption. This, however, does not appear plausible at first glance, since the timing of business cycles in the outside world is not synchronous with that of this country's cycles.

The analysis of export prices and export quantities by commodity classes sheds some light on this question. It traces the high conformity of the total value of United States exports back, first, to that of the value of exports of finished manufactures, which rise more in every business expansion in this country than during corresponding contractions. This in turn can be attributed in most instances to positive conformity of both the prices of finished manufactures and the quantities exported. Since larger purchases at higher prices cannot occur without a rise in demand, it follows that foreign demand for finished manufactures does indeed grow more rapidly as a rule when business here expands than when it contracts, and that the opposite impact of home demand is submerged by the impact from abroad.

Exports of crude materials and of semimanufactures behave in the same way as finished manufactures in not more than half the instances under observation. In others the inverse effect of the domestic cycle prevails and is reinforced occasionally by a movement in world demand which runs counter to the business cycle in the United States. In such cases export prices still rise more in domestic expansions than in contractions, but their movements are more or less offset by opposite changes in the quantities exported. The result is that the value of crude and semimanufactured exports conforms less well to U.S. business cycles than finished manufactures. That a rise in domestic demand should encroach more on exports of raw materials than on those of finished manufactures seems plausible enough, since domestic demand for the former is more cycle-sensitive than for the latter, while output, on the contrary, cannot be adjusted as speedily.

Another finding that may be of interest concerns the timing and cyclical pattern of changes in export prices. It is sometimes argued that a revival of business can be expected to proceed for quite a while without causing prices in general and export prices in particular to rise, and that downward adjustments of prices after a business peak take even longer. But the actual behavior of prices has differed considerably from this picture. Since 1921 the price index for total exports begins to decline about as often before the business peak is reached as afterward, and it tends to fall as rapidly during the earlier part of business contraction as toward the end. Prices of semimanufactures, crude material, and food exports fall more regularly and more steeply in the early stages of recessions, prices of finished manufactures toward the end. At the business cycle trough, prices of total exports are, indeed, likely to lag, but after some four or five months they begin to climb rapidly, so that their progress from the trough to mid-expansion is much larger, on the average, than from there to the peak. A similar pattern, with the largest rise at the beginning of business expansions, was found by Frederick C. Mills to characterize most domestic price indexes in the interwar period.

Before World War I, however, the behavior of prices was quite different. One might think that in that era they must have reacted more quickly to cyclical pressures, but the contrary is true. From 1879 to 1913, domestic wholesale prices as well as export prices show long lags after business cycle troughs and rise mainly in the later stages of business expansions.

These shifting patterns, which have remained unexplained, as far as I know, seem to be due in part to fluctuations in foreign demand. After 1921, large rises in world trade coincide repeatedly with the earlier parts of United States expansions and world trade peaks sometimes lead those in American business. This corresponds to the rapid rise and flattening out of prices. Before World War I, however, world trade rose less regularly and less rapidly in

the first than in the second half of United States expansions and so did prices. Thus it appears that foreign economic fluctuations have had a greater impact on the American economy via commodity prices than one might have suspected.

ILSE MINTZ

STRUCTURE OF WORLD TRADE AND PAYMENTS

The manuscript as originally drafted is being subdivided into several parts for separate review. In consequence, parts of the previous draft have been reassembled and revised into a shorter work, "Measuring Transactions Between World Areas." This will be largely confined to a presentation of the transactions matrices, a discussion of the statistical methods employed in preparing them, and an evaluation of the limitations of the data, without attempting to employ the materials analytically or exploit their potential for description to the full. The manuscript consists of an introductory chapter on purposes, methods, and results, Chapter I on constructing and supplementing the record of transactions between world areas, Chapter II on transactions of all areas with all areas, Chapter III on measuring the course of trade between world areas, Chapter IV on measuring net financial flows between world areas, and two appendixes on special topics. It has been mimeographed for circulation inside and outside the Bureau for further comment.

The study of the structure of world trade and payments has been carried out with the assistance of a grant from the Ford Foundation, supplemented by other funds of the National Bureau.

HERBERT B. WOOLLEY

INTERNATIONAL CAPITAL MOVEMENTS 1950-54

The matrices of different forms of capital movements have been recast in a two-valued arrangement, partly because a number of major changes have been made in the country estimates and partly because the attempt to show only a single set of values proved to suffer from certain deficiencies.

The capital flows are broken down into eleven matrices, countries being grouped according to four stages of economic development.

The coming months will be devoted to further work on the analysis.

WALTHER P. MICHAEL

OTHER STUDIES

Robert E. Lipsey's study of "Price and Quantity Trends in the Foreign Trade of the United States" is in press. The scope of the study is indicated by the chapter headings: (1) Trends in Prices and Terms of Trade, (2) Trends in Values and Quantities,, (3) NBER Indexes: Methods of Construction and Comparisons Among Them, (4) Characteristics of Basic Foreign Trade Data, (5) Sampling Characteristics and Accuracy of Index Numbers, (6) Comparison of NBER Indexes with Others.

AUTHORS OF STUDIES COMPLETED OR IN PROCESS DURING 1961

MOSES ABRAMOVITZ, A.B. Harvard, Ph.D. Columbia; prof. econ. Stanford; NBER since 1938; pubs.: *Inventories and Business Cycles* (1950); *Resource and Output Trends in the U.S. since 1870* (1956).

THOMAS R. ATKINSON, B.A. Denison, M.A., Ph.D. Wisconsin; econ. Scudder, Stevens & Clark; NBER since 1949; pub.: *The Pattern of Financial Asset Ownership* (1956).

GARY S. BECKER, A.B. Princeton, Ph.D. Chicago; prof. econ. Columbia; NBER since 1957; pubs.: *The Economics of Discrimination* (1957); "Irrational Behavior and Economic Theory" (*JPE*, Feb. 1962).

CHARLOTTE BOSCHAN, B.S. N.Y.U., M.A. Columbia; NBER since 1952; pubs.: "Economic Projections to 1975," in *The Economy of New Jersey* (1958); "Application of Electronic Computers to Business Cycle Research" (with G. Bry, ASA, *Proceedings*, 1960).

WILLIAM H. BROWN, B.A., Ph.D. Yale; assoc. prof. econ. Swarthmore; NBER since 1960; pubs.: "Innovation in the Machine Tool Industry" (*QJE*, Aug. 1957); *Planning Municipal Investment* (with C. H. Gilbert, 1961).

GERHARD BRY, Ph.D. Columbia; prof. econ. N.Y.U.; NBER since 1940; pubs.: *The Average Workweek as an Economic Indicator* (1959); *Wages in Germany, 1871-1945* (1960).

ARTHUR F. BURNS, A.B., A.M., Ph.D. Columbia; John Bates Clark prof. econ. Columbia; NBER since 1930; pubs.: *Measuring Business Cycles* (with W. Mitchell, 1946); *Frontiers of Economic Knowledge* (1954).

PHILLIP CAGAN, A.A. U.C.L.A., M.A., Ph.D. Chicago; prof. econ. Brown; NBER since 1953; pubs.: "Monetary Dynamics of Hyperinflation," in *Studies in the Quantity Theory of Money* (1956); *The Demand for Currency Relative to Total Money Supply* (1958).

NOTE: Authors of conference papers or committee reports published or in preparation during 1961 are not included.

AVERY B. COHAN, B.A. Cornell, M.A., Ph.D. Columbia; prof. fin. and Drexel res. prof. North Carolina; NBER 1942 and since 1961; pubs.: *Private Placements and Public Offerings* (1961); *Cost of Flotation of Long-Term Corporate Debt Since 1935* (1961).

JOSEPH W. CONARD, B.A. Grinnell, M.A., Ph.D. California (Berkeley); prof. econ. Swarthmore; NBER since 1960; pub.: *An Introduction to the Theory of Interest* (1959).

MORRIS A. COPELAND, A.B. Amherst, Ph.D. Chicago; Robert Julius Thorne prof. econ. Cornell; NBER since 1945; pubs.: *A Study of Moneyflows in the United States* (1952); *Trends in Government Financing* (1961).

FRANK G. DICKINSON, B.A. Illinois, M.A. Penn State, Ph.D. Illinois; NBER since 1959; pubs.: "Public Works and Cyclical Unemployment" (*Annals Am. Acad. Pol. & Soc. Sci.* Suppl., Sept. 1928); "The Growth of Private and Public Philanthropy," in *Voluntary Action and the State* (1962).

JAMES S. EARLEY, B.A. Antioch, M.A., Ph.D. Wisconsin; prof. econ. Wisconsin; NBER since 1959; pubs.: *Pricing for Profit and Growth* (1957, 2nd ed. 1961); "Marginal Policies of 'Excellently Managed' Companies" (*AER*, March 1956).

RICHARD A. EASTERLIN, M.E. Stevens Institute, A.M., Ph.D. Pennsylvania; prof. econ. and chm. dept. econ. Pennsylvania; NBER since 1955; pubs.: *Population Redistribution and Economic Growth, United States, 1870-1950*, I, II (coauth., 1957, 1960); *The American Baby Boom in Historical Perspective* (1962).

SOLOMON FABRICANT, B.C.S. N.Y.U., B.S. C.C.N.Y., A.M., Ph.D. Columbia; prof. econ. N.Y.U.; NBER since 1930; pubs.: *Capital Consumption and Adjustment* (1938); *The Trend of Government Activity in the United States since 1900* (1952).

MILTON FRIEDMAN, B.A. Rutgers, M.A. Chicago, Ph.D. Columbia; prof. econ. Chicago; NBER since 1937; pubs.: *Essays in Positive Economics* (1953); *A Theory of the Consumption Function* (1957).

HOURMOUZIS G. GEORGIADIS, B.A., Ph.D. Cornell; asst. prof. econ. Princeton; NBER since 1961; pub.: *Balance of Payments Equilibrium* (1962).

RAYMOND W. GOLDSMITH, Ph.D. Berlin; prof. econ. Yale; NBER since 1951; pubs.: *A Study of Saving in the U.S.* (1955, 1956); *Financial Intermediaries in the American Economy* (1958).

MICHAEL GORT, A.B. Brooklyn, A.M., Ph.D. Columbia; assoc. prof. fin. Chicago; NBER since 1954; pubs.: "Systematic Errors in Budgeting Capital Outlays" (*RES*, Feb. 1962); *Diversification and Integration in American Industry* (in press).

MANUEL GOTTLIEB, B.A. Minnesota, M.A. California (Berkeley), Ph.D. Harvard; assoc. prof. econ. Wisconsin; NBER since 1961; pubs.: "Theory of an Economic System" (*AER*, May 1953); "Value and Price in Industrial Markets" (*EJ*, Mar. 1959).

ZVI GRILICHES, B.S. California (Berkeley), Ph.D. Chicago; assoc. prof. econ. Chicago; NBER since 1959; pubs.: "Hybrid Corn: An Exploration in the Economics of Technological Change" (*Econometrica*, Oct. 1957); "Hedonic Price Indexes for Automobiles," in *The Price Statistics of the Federal Government* (1961).

JACK M. GUTTENTAG, B.S. Purdue, M.S., Ph.D. Columbia; chief, dom. res. div., Fed. Res. Bk. of N.Y.; NBER since 1961; pubs.: "The Short Cycle in Residential Construction, 1946-59" (*AER*, June 1961); "The Federal National Mortgage Association" (in press).

CHALLIS A. HALL, JR., B.S. Kansas, A.M., Ph.D. Harvard; assoc. prof. econ. Yale; NBER since 1961; pubs.: *Effects of Taxation on Executive Compensation and Retirement Plans* (1951); *Fiscal Policy for Stable Growth* (1960).

GEORGE HANC, B.S., A.M., Ph.D. Columbia; assist. dir. res. Nat. Assn. of Mut. Savings Bks.; NBER 1952-54 and since 1959; pub.: *United States Savings Bond Program in the Postwar Period* (1962).

MILLARD HASTAY, B.A. Reed, Ph.D. Columbia; prof. econ. Washington State; NBER since 1946; pub.: "The Cyclical Behavior of Investment," in *Regularization of Business Investment* (1954).

DANIEL M. HOLLAND, B.A., Ph.D. Columbia; assoc. prof. fin. M.I.T.; NBER since 1949; pubs.: *The Income-Tax Burden on Stockholders* (1958); *Dividends Under the Income Tax* (1962).

THOR HULTGREN, A.B., M.A. Columbia; NBER since 1940; pubs.: *American Transportation in Prosperity and Depression* (1948); *Changes in Labor Cost During Cycles in Production and Business* (1960).

D. GALE JOHNSON, B.S. Iowa State, M.S. Wisconsin, Ph.D. Iowa State; prof. econ., dean div. of soc. sci. Chicago; NBER since 1958; pubs.: *Forward Prices for Agriculture* (1947); *Agriculture and Trade* (1950).

F. THOMAS JUSTER, B.S. Rutgers, Ph.D. Columbia; NBER since 1957; pubs.: *Consumer Expectations, Plans, and Purchases* (1960); "Prediction and Consumer Buying Intentions" (*AER*, May 1961).

C. HARRY KAHN, B.A. Vanderbilt, M.A., Ph.D. Wisconsin; assoc. prof. econ. Rutgers; NBER since 1952; pubs.: "The Stability of State and Local Tax Yields" (with H. M. Groves, *AER*, Mar. 1952); *Personal Deductions in the Federal Income Tax* (1960).

HERMAN F. KARREMAN, econ. cand., econ. docts. Netherlands Sch. Econ.; res. assoc. Econometric Res. Prog., Princeton; NBER since 1954; pubs.: "Programming the Supply of a Strategic Material" (*Naval Res. Logistics Qu.*, Sept. 1960); *Methods for Improving World Transportation Accounts, Applied to 1950-1953* (1961).

ADAM KAUFMAN, M.A. Warsaw, M.A. New School for Soc. Res.; econ. affairs officer U.N. Div. Gen. Econ. Res. and Policies; NBER since 1953; pubs.: "The Origin of Political Economy of Socialism" (*Sov. Stud.*, Jan. 1953); *Small-Scale Industry in the Soviet Union* (1962).

JOHN W. KENDRICK, A.B., M.A. North Carolina, Ph.D. George Washington; prof. econ. George Washington; NBER since 1954; pubs.: *Productivity Trends in the United States* (1961); *Measuring Company Productivity* (with Daniel Creamer, 1961).

REUBEN A. KESSEL, M.B.A., Ph.D. Chicago; asst. prof. econ. Chicago; NBER since 1961; pubs.: "Inflation-Caused Wealth Redistribution" (*AER*, Mar. 1956); "Price Discrimination in Medicine" (*J. Law & Econ.*, Oct. 1958).

SAUL B. KLAMAN, B.S. Massachusetts, M.A. Michigan State, Ph.D. N.Y.U.; dir. res. Nat. Assn. of Mut. Savings Banks; NBER since 1956; pubs.: *The Postwar Rise of Mortgage Companies* (1959); *The Postwar Residential Mortgage Market* (1961).

PHILIP A. KLEIN, B.A., M.A. Texas, Ph.D. California (Berkeley); assoc. prof. econ. Penn State; NBER since 1956; pubs.: "Changes in the Quality of Consumer Instalment Credit," in *Consumer Instalment Credit* (1957); "A Critique of Contemporary Institutionalism" (*QREB*, 1961).

SIMON KUZNETS, B.S., M.A., Ph.D. Columbia; prof. econ. Harvard; NBER since 1927; pubs.: *National Income and Its Composition* (1941); *Capital in the American Economy* (1961).

ROBERT J. LAMPMAN, B.A., Ph.D. Wisconsin; prof. econ. Wisconsin; NBER since 1957; pubs.: *The Share of Top Wealth-Holders in National Wealth, 1922-56* (1962); *Washington Medical Service Corporations* (with G. A. Shipman and S. F. Miyamoto, 1962).

HAL B. LARY, lic. ès. sc. pol. Geneva; NBER since 1960; pubs.: *The United States in the World Economy* (1943); "Disturbances and Adjustments in Recent U.S. Balance-of-Payments Experience" (*AER*, May 1961).

ROBERT E. LIPSEY, B.A., M.A., Ph.D. Columbia; lect. econ. Columbia; NBER since 1945; pub.: *Price and Quantity Trends in the Foreign Trade of the United States* (in press).

RUTH P. MACK, A.B. Barnard, Ph.D. Columbia; vis. prof. econ. New School for Soc. Res.; NBER since 1941; pubs.: *Flow of Business Funds and Consumer Purchasing Power* (1940); *Consumption and Business Fluctuations* (1956).

HARRY E. MCALLISTER, B.A. Eastern Washington State, M.A. Washington State, Ph.D. Colorado; prof. bus. admin. Washington State; NBER since 1959; pubs.: "Postwar Public Works and Construction" (*The Seventh Report of the House Special Committee on Postwar Economic Policy and Planning*, coauth., 1945); "Statistical Factors Affecting the Stability of the Wholesale and Consumers Price Indexes" (*Price Statistics of the Federal Government*, 1961).

DAVID MEISELMAN, A.B. Boston, M.A., Ph.D. Chicago; asst. prof. econ. Chicago; NBER since 1955; pubs.: *The Term Structure of Interest Rates* (in press); *Corporate Sources and Uses of Funds* (with E. Shapiro, in prep.).

MORRIS MENDELSON, B.A. Queen's, Canada, Ph.D. Cornell; assoc. prof. fin. Pennsylvania; NBER since 1955; pubs.: *The Flow-of-Funds Through the Financial Markets, 1953-1955* (1959); "The Optimum Grossness in Flow-of-Funds Accounts," in *The Flow-of-Funds Approach to Social Accounting* (1962).

WALTHER P. MICHAEL, B.S. Columbia; assist. prof. econ. Ohio State; NBER since 1954; pub.: *International Capital Movements, 1950-54* (in prep.).

HYMAN P. MINSKY, B.S. Chicago, Ph.D. Harvard; assoc. prof. econ. California (Berkeley); NBER since 1962; pubs.: "Central Banking and Money Market Changes" (*QJE*, May 1957); "A Linear Model of Cyclical Growth" (*RES*, May 1959).

ILSE MINTZ, doc. rer. pol. Vienna, Ph.D. Columbia; prof. econ. Columbia; NBER since 1949; pubs.: *Deterioration in the Quality of Foreign Bonds* (1951); *American Exports During Business Cycles* (1961).

GEOFFREY H. MOORE, B.S., M.S. Rutgers, Ph.D. Harvard; NBER since 1939; pubs.: *Production of Industrial Materials in World Wars I and II* (1944); *Business Cycle Indicators* (editor, 1961).

WALLACE P. MORS, Ph.B., A.M., Ph.D. Chicago, C.P.A. Illinois, dean of fac., prof. fin. Babson Institute; NBER since 1960; pubs.: "Consumer Instalment Credit Insurance" (*Ins. Law J.*, May 1956); "Recent Trends in State Regulation of Instalment Credit" (*J. Fin.*, May 1960).

ROGER F. MURRAY, B.A. Yale, M.B.A., Ph.D. N.Y.U.; S. Sloan Colt prof. banking and fin. Grad. Sch. of Bus., Columbia; NBER since 1958; pubs.: *Pensions: Problems and Trends* (contrib., 1955); *Business Loans of American Commercial Banks* (contrib., 1959).

RALPH L. NELSON, B.S. Minnesota, A.M., Ph.D. Columbia; lect. econ. C.C.N.Y.; NBER since 1955; pubs.: *Merger Movements in American Industry* (1959); "Market Growth, Company Diversification and Product Concentration (*JASA*, Dec. 1960).

G. WARREN NUTTER, A.B., A.M., Ph.D. Chicago; prof., chm. dept. econ. Virginia; NBER since 1954; pubs.: *Extent and Growth of Enterprise Monopoly in the U.S.* (1951); *Growth of Industrial Production in the Soviet Union* (1962).

WILSON F. PAYNE, Ph.B., M.A., Ph.D. Chicago; dean Grad. Sch. Babson Institute; NBER since 1943; pubs.: *Business Behavior 1919-22: An Account of Post-War Inflation and Depression* (1942); *Industrial Demands Upon the Money Market, 1919-57* (1961).

ALAN T. PEACOCK, M.A. St. Andrews; prof. econ. Edinburgh; NBER since 1954; pubs.: *Economics of National Insurance* (1952); *The Growth of Public Expenditure in the United Kingdom* (with J. Wiseman, 1961).

ALBERT REES, B.A. Oberlin, M.A., Ph.D. Chicago; chm. dept. econ. Chicago; NBER since 1953; pubs.: *New Measures of Wage-Earner Compensation in Manufacturing, 1914-57* (1960); "Postwar Wage Determination in the Basic Steel Industry" (*AER*, June 1951).

ANNA JACOBSON SCHWARTZ, B.A. Barnard, M.A. Columbia; NBER since 1941; pubs.: *Growth and Fluctuation of the British Economy, 1790-1850* (coauth., 1953); *The United States Money Stock, 1867-1960* (with M. Friedman, in prep.).

MARTIN H. SEIDEN, B.A. C.C.N.Y., M.A., Ph.D. Columbia; inst. econ. C.C.N.Y.; NBER since 1959; pubs.: "Pricing a Banking Service" (*J. Fin.*, Sept. 1960); *Trade Credit* (in prep.).

RICHARD T. SELDEN, B.A. Chicago, M.A. Columbia, Ph.D. Chicago; assoc. prof. banking Columbia; NBER since 1959; pubs.: "Cost-Push Versus Demand-Pull Inflation, 1955-59" (*JPE* Feb. 1959); *The Postwar Rise in the Velocity of Money* (1962).

LAWRENCE H. SELTZER, A.B., A.M., Ph.D. Michigan; prof. econ. Wayne State; NBER since 1941; pubs.: *A Financial History of the American Automobile Industry* (1928); *The Nature and Tax Treatment of Capital Gains and Losses* (1950).

ELI SHAPIRO, A.B. Brooklyn, A.M., Ph.D. Columbia; prof. fin. Harvard; NBER since 1955; pubs.: *Money and Banking* (with W. Steiner, 1941, rev. ed., 1953); *Corporate Sources and Uses of Funds* (with D. Meiselman, in prep.).

ROBERT P. SHAY, B.S., M.A., Ph.D. Virginia; lect. econ. C.C.N.Y.; NBER since 1959; pubs.: *Regulation W: Experiment in Credit Control* (1953); "Consumer Credit Control as an Instrument of Monetary Policy for Economic Stability," in *Consumer Instalment Credit* (1957).

JULIUS SHISKIN, A.B., A.M. Rutgers; chief econ. stat. Bureau of Census; NBER since 1938; pubs.: *Seasonal Adjustments by Electronic Computer Methods* (1958); *Signals of Recession and Recovery* (1961).

PAUL F. SMITH, A.B. Chicago, M.A. Northwestern, Ph.D. American U.; assoc. prof. fin. Pennsylvania; NBER since 1960; pubs.: "Extensions and Repayments of Consumer Instalment Credit" (*FRB*. Jan. 1954); "Response of Consumer Loans to General Credit Conditions" (*AER*, Sept. 1958).

THOMAS M. STANBACK, JR., B.S. North Carolina, M.B.A. Harvard, Ph.D. Duke; assoc. prof. econ. N.Y.U.; NBER since 1955; pubs.: "The Textile Cycle: Characteristics and Contributing Factors," (*Southern Econ. J.*, Oct. 1958); *Postwar Cycles in Manufacturers' Inventories* (1962).

GEORGE J. STIGLER, B.B.A., Washington, M.B.A. Northwestern, Ph.D. Chicago; Walgreen prof. Amer. Instit. Chicago; NBER since 1942; pub.: *Capital and Rates of Return in Manufacturing Industries* (in prep.).

LEO TROY, B.A. Penn. State, Ph.D. Columbia; assoc. prof. econ. Rutgers; NBER since 1953; pubs.: *Distribution of Union Membership among the States* (1957); "Local Independent and National Unions, Competitive Labor Organizations" (*JPE*, Oct. 1961).

NORMAN B. TURE, B.S. Ohio State, M.A. Chicago; NBER since 1961; pub.: *Federal Revenue System: Facts and Problems* (1961).

MELVIN I. WHITE, B.A. Cincinnati, Ph.D. Columbia; prof. econ. Brooklyn Coll.; NBER since 1961; pubs.: *Personal Income Tax Reduction in a Business Contraction* (1951); "Impact of Economic Fluctuations on Municipal Finance" (*Nat. Tax J.*, Mar. 1954).

ERNEST W. WILLIAMS, JR., B.S., M.S., Ph.D. Columbia; prof. transp. Columbia; NBER since 1954; pubs.: *Economics of Transportation* (with M. Fair, 1950); *Freight Transportation in the Soviet Union* (1962).

JACK WISEMAN, reader in econ. London School; NBER since 1954; pubs.: "The Finance of State Education in the United Kingdom," in *Year Book of Education for 1956* (with A. Peacock, 1956); *The Growth of Public Expenditure in the United Kingdom* (with A. Peacock, 1961).

ALBERT M. WOJNILOWER, B.A., M.A., Ph.D. Columbia; chief fin. and trade stat. div., Res. Dept., Fed. Res. Bk. of N.Y.; NBER since 1959; pub.: *The Quality of Bank Loans* (in prep.).

HERBERT B. WOOLLEY, A.B. Stanford, Ph.D. Harvard; man. econ. dept. Caltex; NBER since 1953; pubs.: "The General Elasticity of Demand" (*Econometrica*, July 1947); "Transactions between World Areas in 1951" (*RES* Supp., Feb. 1958).

VICTOR ZARNOWITZ, A.B., Ph.D. Heidelberg; assoc. prof. econ. Chicago; NBER since 1952; pubs.: "The Timing of Manufacturers' Orders During Business Cycles" and "Cyclical Aspects of Incorporations and the Formation of New Business Enterprises," in *Business Cycle Indicators* (1961).

National Bureau Publications

Instructions for ordering are on page 118.

An annotated catalogue of publications is available on request.

BOOKS

General Series

*1 *Income in the United States: Its Amount and Distribution, 1909-1919. I, Summary*
Wesley C. Mitchell, Willford I. King, Frederick R. Macaulay, and Oswald W. Knauth
1921, 168 pp.

*2 *Income in the United States: Its Amount and Distribution, 1909-1919. II, Detailed Report*
Wesley C. Mitchell (ed.), Willford I. King, Frederick R. Macaulay, and Oswald W. Knauth
1922, 454 pp.

*3 *Distribution of Income by States in 1919*
Oswald W. Knauth 1923, 2nd ed., 36 pp.

*†4 *Business Cycles and Unemployment*
Committee of the President's Conference on Unemployment, and a Special Staff of the National Bureau 1923, 488 pp.

*5 *Employment Hours and Earnings in Prosperity and Depression, United States, 1920-1922*
Willford Isbell King 1923, 2nd ed., 150 pp.

*6 *The Growth of American Trade Unions, 1880-1923*
Leo Wolman 1924, 170 pp.

7 *Income in the Various States: Its Sources and Distribution, 1919, 1920, and 1921*
Maurice Leven 1925, 306 pp., $3.50

*†8 *Business Annals*
Willard Long Thorp 1926, 382 pp.

9 *Migration and Business Cycles*
Harry Jerome 1926, 258 pp., $2.50

10 *Business Cycles: The Problem and Its Setting*
Listed also under Studies in Business Cycles
Wesley C. Mitchell 1927, 514 pp., $5.00

*11 *The Behavior of Prices*
Frederick C. Mills 1927, 598 pp.

12 *Trends in Philanthropy: A Study in a Typical American City*
Willford Isbell King 1928, 78 pp., $1.00

---

*Out of print.

†Available on microfilm from University Microfilms, Inc., 313 N. First St., Ann Arbor, Mich.

*†13 *Recent Economic Changes in the United States*
Committee on Recent Economic Changes of the President's Conference on Unemployment, and a Special Staff of the National Bureau
1929, 2 vols., 990 pp.

*14 *International Migrations. I, Statistics*
Imre Ferenczi (compiled on behalf of the International Labour Office, Walter F. Willcox, ed.) 1929, 1112 pp.

*15 *The National Income and Its Purchasing Power*
Willford Isbell King 1930, 394 pp.

*†16 *Corporation Contributions to Organized Community Welfare Services*
Pierce Williams and Frederick E. Croxton
1930, 348 pp.

*17 *Planning and Control of Public Works*
Leo Wolman 1930, 292 pp.

*18 *International Migrations. II, Interpretations*
Walter F. Willcox (ed.) 1931, 716 pp.

*†19 *The Smoothing of Time Series*
Frederick R. Macaulay 1931, 174 pp.

20 *The Purchase of Medical Care through Fixed Periodic Payment*
Pierce Williams 1932, 326 pp., $3.00

*21 *Economic Tendencies in the United States: Aspects of Pre-War and Post-War Changes*
Frederick C. Mills 1932, 666 pp.

22 *Seasonal Variations in Industry and Trade*
Simon Kuznets 1933, 480 pp., $4.00

‡23 *Production Trends in the United States since 1870*
Arthur F. Burns 1934, 396 pp.

‡24 *Strategic Factors in Business Cycles*
John Maurice Clark 1934, 256 pp.

25 *German Business Cycles, 1924-1933*
Carl T. Schmidt 1934, 308 pp., $2.50

26 *Industrial Profits in the United States*
Ralph C. Epstein 1934, 692 pp., $5.00

27 *Mechanization in Industry*
Harry Jerome 1934, 518 pp., $3.50

28 *Corporate Profits as Shown by Audit Reports*
W. A. Paton 1935, 166 pp., $1.25

*29 *Public Works in Prosperity and Depression*
Arthur D. Gayer 1935, 482 pp.

30 *Ebb and Flow in Trade Unionism*
Leo Wolman 1936, 272 pp., $2.50

31 *Prices in Recession and Recovery: A Survey of Recent Changes*
Frederick C. Mills 1936, 602 pp., $4.00

*32 *National Income and Capital Formation, 1919-1935*
Simon Kuznets 1937, 8½ x 12, 102 pp.

33 *Some Theoretical Problems Suggested by the Movements of Interest Rates, Bond Yields and Stock Prices in the United States since 1856*
Frederick R. Macaulay 1938, 612 pp., $5.00
The Social Sciences and the Unknown Future, introductory chapter from the above 25¢

*34 *Commodity Flow and Capital Formation, Volume I*
Simon Kuznets 1938, 8½ x 12, 518 pp.

*35 *Capital Consumption and Adjustment*
Solomon Fabricant 1938, 296 pp.

*36 *The Structure of Manufacturing Production: A Cross-Section View*
Charles A. Bliss 1939, 254 pp.

*37 *The International Gold Standard Reinterpreted, 1914-1934*
William Adams Brown, Jr.
1940, 2 vols., 1474 pp.

*38 *Residential Real Estate: Its Economic Position as Shown by Values, Rents, Family Incomes, Financing, and Construction, Together with Estimates for All Real Estate*
David L. Wickens 1941, 330 pp.

*39 *The Output of Manufacturing Industries, 1899-1937*
Solomon Fabricant 1940, 710 pp.

40 *National Income and Its Composition, 1919-1938*
Simon Kuznets 1941, 1012 pp., $6.00

*41 *Employment in Manufacturing, 1899-1939: An Analysis of Its Relation to the Volume of Production*
Solomon Fabricant 1942, 382 pp.

*42 *American Agriculture, 1899-1939: A Study of Output, Employment and Productivity*
Harold Barger and Hans H. Landsberg
1942, 462 pp.

*43 *The Mining Industries, 1899-1939: A Study of Output, Employment and Productivity*
Harold Barger and Sam H. Schurr 1944, 474 pp.

44 *National Product in Wartime*
Simon Kuznets 1945, 174 pp., $2.00

---

*Out of print.

†Available on microfilm from University Microfilms, Inc., 313 N. First St., Ann Arbor, Mich.

‡Available from Kelley and Millman, Inc., 400 West 23rd Street, New York 11, N. Y.

45 *Income from Independent Professional Practice*
Milton Friedman and Simon Kuznets
1945, 636 pp., $5.50

*46 *National Product since 1869*
Simon Kuznets 1946, 258 pp.

47 *Output and Productivity in the Electric and Gas Utilities, 1899-1942*
Jacob Martin Gould 1946, 208 pp., $3.00

48 *Value of Commodity Output since 1869*
William Howard Shaw 1947, 320 pp., $4.00

49 *Business Incorporations in the United States, 1800-1943*
George Heberton Evans, Jr.
1948, 8¾ x 11¼, 192 pp., $6.00

*†50 *The Statistical Agencies of the Federal Government: A Report to the Commission on Organization of the Executive Branch of the Government*
Frederick C. Mills and Clarence D. Long
1949, 224 pp.

51 *The Transportation Industries, 1899-1946: A Study of Output, Employment, and Productivity*
Harold Barger 1951, 304 pp., $4.00

52 *Deterioration in the Quality of Foreign Bonds Issued in the United States, 1920-1930*
Ilse Mintz 1951, 112 pp., $2.00

53 *Wesley Clair Mitchell: The Economic Scientist*
Arthur F. Burns (ed.) 1952, 398 pp., $4.00

54 *A Study of Moneyflows in the United States*
Morris A. Copeland 1952, 620 pp., $7.50

55 *Shares of Upper Income Groups in Income and Savings*
Simon Kuznets 1953, 768 pp., $9.00

56 *The Trend of Government Activity in the United States since 1900*
Solomon Fabricant 1952, 288 pp., $4.00

57 *The Frontiers of Economic Knowledge*
Arthur F. Burns 1954, 375 pp., $5.00

58 *Distribution's Place in the American Economy since 1869*
Harold Barger 1955, 240 pp., $4.50

59 *Trends in Employment in the Service Industries*
George J. Stigler 1956, 188 pp., $3.75

60 *The Growth of Public Employment in Great Britain*
Moses Abramovitz and Vera F. Eliasberg
1957, 168 pp., $3.75

61 *Concentration in Canadian Manufacturing Industries*
Gideon Rosenbluth 1957, 168 pp., $3.50

62 *The Demand and Supply of Scientific Personnel*
David M. Blank and George J. Stigler
1957, 220 pp., $4.00

63 *A Theory of the Consumption Function*
Milton Friedman 1957, 260 pp., $4.75

*64 *The National Economic Accounts of the United States: Review, Appraisal, and Recommendations*
National Accounts Review Committee 1958
Report made at the request of the Bureau of the Budget and submitted in hearings before the Subcommittee on Economic Statistics of the Joint Economic Committee (85th Cong., 1st Sess.) in October 1957; reprinted from the published *Hearings*.

65 *The Labor Force under Changing Income and Employment*
Clarence D. Long 1958, 464 pp., $10.00

66 *Merger Movements in American Industry, 1895-1956*
Ralph L. Nelson 1959, 198 pp., $5.00

67 *Wages and Earnings in the United States, 1860-1890*
Clarence D. Long 1960, 186 pp., $4.00

68 *Wages in Germany, 1871-1945*
Gerhard Bry 1960, 513 pp., $10.00

69 *Soviet Statistics of Physical Output of Industrial Commodities: Their Compilation and Quality*
Gregory Grossman 1960, 151 pp., $4.50

70 *Real Wages in Manufacturing, 1890-1914*
Albert Rees 1961, 179 pp., $3.75

71 *Productivity Trends in the United States*
John W. Kendrick 1961, 682 pp., $12.50

72 *The Growth of Public Expenditure in the United Kingdom*
Alan T. Peacock and Jack Wiseman
1961, 244 pp., $5.00

73 *The Price Statistics of the Federal Government*
Report of the Price Statistics Review Committee
1961, 526 pp., $1.50
Report made at the request of the Bureau of the Budget and submitted in hearings before the Subcommittee on Economic Statistics of the Joint Economic Committee (87th Cong., 1st Sess.); reprinted from the *Hearings*. (Order from the National Bureau.)

74 *The Share of Top Wealth-Holders in National Wealth, 1922-56*
Robert J. Lampman 1962, 313 pp., $6.50

---

*Out of print.

†Available on microfilm from University Microfilms, Inc., 313 N. First St., Ann Arbor, Mich.

75 *Growth of Industrial Production in the Soviet Union*
G. Warren Nutter 1962, 733 pp., $15.00

76 *Freight Transportation in the Soviet Union, Including Comparisons with the United States*
Ernest W. Williams, Jr. 1962, 243 pp., $4.50

Studies in Business Cycles

1 *Business Cycles: The Problem and Its Setting*
Wesley C. Mitchell 1927, 514 pp., $5.00

2 *Measuring Business Cycles*
Arthur F. Burns and Wesley C. Mitchell 1946, 592 pp., $5.00

3 *American Transportation in Prosperity and Depression*
Thor Hultgren 1948, 432 pp., $5.00

4 *Inventories and Business Cycles, with Special Reference to Manufacturers' Inventories*
Moses Abramovitz 1950, 672 pp., $6.00

5 *What Happens during Business Cycles: A Progress Report*
Wesley C. Mitchell 1951, 422 pp., $5.00

6 *Personal Income during Business Cycles*
Daniel Creamer 1956, 208 pp., $4.00

7 *Consumption and Business Fluctuations: A Case Study of the Shoe, Leather, Hide Sequence*
Ruth P. Mack 1956, 320 pp., $7.50

8 *International Financial Transactions and Business Cycles*
Oskar Morgenstern 1959, 624 pp., $12.00

9 *Federal Receipts and Expenditures During Business Cycles, 1879-1958*
John M. Firestone 1960, 192 pp., $4.00

10 *Business Cycle Indicators*
Geoffrey H. Moore, Editor 1961
Vol. I, 792 pp., $12.50
Vol. II, 196 pp., $ 4.50
Both vols., $15.00

11 *Postwar Cycles in Manufacturers' Inventories*
Thomas M. Stanback 1962, 160 pp., $2.00

Studies in Capital Formation and Financing

1 *Capital Formation in Residential Real Estate: Trends and Prospects*
Leo Grebler, David M. Blank, and Louis Winnick 1956, 550 pp., $10.00

*†2 *Capital in Agriculture: Its Formation and Financing since 1870*
Alvin S. Tostlebe 1957, 248 pp.

3 *Financial Intermediaries in the American Economy since 1900*
Raymond W. Goldsmith 1958, 452 pp., $8.50

4 *Capital in Transportation, Communications, and Public Utilities: Its Formation and Financing*
Melville J. Ulmer 1960, 577 pp., $12.00

5 *Postwar Market for State and Local Government Securities*
Roland I. Robinson 1960, 227 pp., $5.00

6 *Capital in Manufacturing and Mining: Its Formation and Financing*
Daniel Creamer, Sergei Dobrovolsky, and Israel Borenstein 1960, 398 pp., $7.50

7 *Trends in Government Financing*
Morris A. Copeland 1961, 236 pp., $5.00

8 *The Postwar Residential Mortgage Market*
Saul B. Klaman 1961, 332 pp., $7.50

9 *Capital in the American Economy: Its Formation and Financing*
Simon Kuznets 1961, 693 pp., $12.00

Twenty-Fifth Anniversary Series

*†1 *National Income: A Summary of Findings*
Simon Kuznets 1946, 144 pp.

*†2 *Price-Quantity Interactions in Business Cycles*
Frederick C. Mills 1946, 152 pp.

*3 *Economic Research and the Development of Economic Science and Public Policy*
1946, 208 pp.

*4 *Trends in Output and Employment*
George J. Stigler 1947, 76 pp.

Fiscal Studies

*1 *Fiscal Planning for Total War*
William Leonard Crum, John F. Fennelly, and Lawrence Howard Seltzer 1942, 388 pp.

2 *Taxable and Business Income*
Dan Throop Smith and J. Keith Butters 1949, 368 pp., $4.00

3 *The Nature and Tax Treatment of Capital Gains and Losses*
Lawrence H. Seltzer 1951, 576 pp., $7.50

4 *Federal Grants and the Business Cycle*
James A. Maxwell 1952, 136 pp., $2.00

---

*Out of print.

†Available on microfilm from University Microfilms, Inc., 313 N. First St., Ann Arbor, Mich.

5 *The Income-Tax Burden on Stockholders*
Daniel M. Holland 1958, 268 pp., $5.00

6 *Personal Deductions in the Federal Income Tax*
C. Harry Kahn 1960, 266 pp., $5.00

7 *Dividends Under the Income Tax*
Daniel M. Holland 1962, 208 pp., $4.50

Financial Research Program

I A Program of Financial Research

One: *Report of the Exploratory Committee on Financial Research*
Exploratory Committee on Financial Research 1937, 96 pp., $1.00

Two: *Inventory of Current Research on Financial Problems*
Exploratory Committee on Financial Research 1937, 264 pp., $1.50

Research in Securities Markets
Exploratory Committee on Research in Securities Markets 1946, 34 pp., 50¢

Research in the Capital and Securities Markets
Exploratory Committee on Research in the Capital and Securities Markets 1954, 88 pp., $1.00

II Studies in Consumer Instalment Financing

*†1 *Personal Finance Companies and Their Credit Practices*
Ralph A. Young and Associates 1940, 192 pp.

*2 *Sales Finance Companies and Their Credit Practices*
Wilbur C. Plummer and Ralph A. Young 1940, 324 pp.

3 *Commercial Banks and Consumer Instalment Credit*
John M. Chapman and Associates 1940, 342 pp., $3.00

*†4 *Industrial Banking Companies and Their Credit Practices*
Raymond J. Saulnier 1940, 216 pp.

*5 *Government Agencies of Consumer Instalment Credit*
Joseph D. Coppock 1940, 240 pp.

6 *The Pattern of Consumer Debt, 1935-36: A Statistical Analysis*
Blanche Bernstein 1940, 256 pp., $2.50

7 *The Volume of Consumer Instalment Credit, 1929-38*
Duncan McC. Holthausen in collaboration with Malcolm L. Merriam and Rolf Nugent 1940, 158 pp., $1.50

8 *Risk Elements in Consumer Instalment Financing*
David Durand 1941, 186 pp., $2.00

*9 *Consumer Instalment Credit and Economic Fluctuations*
Gottfried Haberler 1942, 262 pp.

10 *Comparative Operating Experience of Consumer Instalment Financing Agencies and Commercial Banks, 1929-41*
Ernst A. Dauer 1944, 240 pp., $3.00

III Studies in Business Financing

1 *Term Lending to Business*
Neil H. Jacoby and Raymond J. Saulnier 1942, 184 pp., $2.00

*2 *Financing Small Corporations in Five Manufacturing Industries, 1926-36*
Charles L. Merwin 1942, 192 pp.

*†3 *Accounts Receivable Financing*
Raymond J. Saulnier and Neil H. Jacoby 1943, 176 pp.

*4 *The Financing of Large Corporations, 1920-39*
Albert Ralph Koch 1943, 160 pp.

*5 *Financing Equipment for Commercial and Industrial Enterprise*
Raymond J. Saulnier and Neil H. Jacoby 1944, 112 pp.

6 *Financing Inventory on Field Warehouse Receipts*
Neil H. Jacoby and Raymond J. Saulnier 1944, 108 pp., $1.50

*†7 *The Pattern of Corporate Financial Structure: A Cross-Section View of Manufacturing, Mining, Trade and Construction, 1937*
Walter A. Chudson 1945, 164 pp.

8 *Corporate Cash Balances, 1914-43: Manufacturing and Trade*
Friedrich A. Lutz 1945, 148 pp., $2.00

9 *Business Finance and Banking*
Neil H. Jacoby and Raymond J. Saulnier 1947, 262 pp., $3.50

10 *Corporate Income Retention, 1915-43*
Sergei P. Dobrovolsky 1951, 142 pp., $2.50

IV Studies in Urban Mortgage Financing

1 *Urban Mortgage Lending by Life Insurance Companies*
R. J. Saulnier 1950, 202 pp., $2.50

---

*Out of print.

†Available on microfilm from University Microfilms, Inc., 313 N. First St., Ann Arbor, Mich.

*2 *The Impact of Government on Real Estate Finance in the United States*
Miles L. Colean 1950, 190 pp.

3 *Urban Real Estate Markets: Characteristics and Financing*
Ernest M. Fisher 1951, 208 pp., $3.00

4 *History and Policies of the Home Owners' Loan Corporation*
C. Lowell Harriss 1951, 224 pp., $3.00

5 *Commercial Bank Activities in Urban Mortgage Financing*
Carl F. Behrens 1952, 152 pp., $2.50

6 *Urban Mortgage Lending: Comparative Markets and Experience*
J. E. Morton 1956, 212 pp., $4.00

V Studies in Corporate Bond Financing

1 *The Volume of Corporate Bond Financing since 1900*
W. Braddock Hickman 1953, 464 pp., $7.50

2 *Corporate Bond Quality and Investor Experience*
W. Braddock Hickman 1958, 568 pp., $10.00

3 *Statistical Measures of Corporate Bond Financing since 1900*
W. Braddock Hickman 1960, 595 pp., $9.00

VI Studies in Agricultural Financing

1 *Mortgage Lending Experience in Agriculture*
Lawrence A. Jones and David Durand 1954, 258 pp., $5.00

2 *Patterns of Farm Financial Structure: A Cross-Section View of Economic and Physical Determinants*
Donald C. Horton 1957, 208 pp., $4.50

Other Studies

1 *The Pattern of Financial Asset Ownership: Wisconsin Individuals, 1949*
Thomas R. Atkinson 1956, 196 pp., $3.75

2 *Federal Lending and Loan Insurance*
Raymond J. Saulnier, Harold G. Halcrow, and Neil H. Jacoby 1958, 596 pp., $12.00

Studies in Income and Wealth

Conference on Research in Income and Wealth

1 Eight papers on concepts and measurement of national income 1937, 370 pp., $2.50

*2 Six papers on wealth measurement, price changes, savings, capital gains, and government product 1938, 358 pp.

*3 Seven papers on income size distribution, savings, national product, and distribution of income by states 1939, 508 pp.

*4 *Outlay and Income in the United States, 1921-1938*
Harold Barger 1942, 420 pp.

*5 *Income Size Distributions in the United States, Part I* 1943, 160 pp.

*6 Seven papers on income measurement, government product, parity, international transactions, forecasting national income, income differences among communities, and net capital formation 1943, 302 pp.

*7 *Changes in Income Distribution during the Great Depression*
Horst Mendershausen 1946, 192 pp.

*8 Eleven papers on estimating national income, for use in dealing with war problems and postwar adjustments 1946, 320 pp.

9 *Analysis of Wisconsin Income*
Frank A. Hanna, Joseph A. Pechman, Sidney M. Lerner 1948, 284 pp., $3.50

10 Eight papers on standardizing basic concepts of national bookkeeping by American, British, and Canadian statisticians; problems of international comparisons of income and wealth; the nation's economic budget and forecasting gross national product and employment; savings and income distribution; and resource distribution patterns 1947, 352 pp., $4.50

11 Six papers on the industrial distribution of manpower, real incomes in dissimilar geographic areas, national income forecasting, and the saving-income ratio 1949, 464 pp., $6.00

12 Thirteen papers on national wealth 1950, 608 pp., $6.00

13 Ten papers on size distribution of income 1951, 608 pp., $6.00

14 Seven papers on wealth, the value of reproducible tangible assets, the concentration of wealth, the Estates Survey, real property assets, and the relation of asset holdings to economic behavior and motivation 1951, 286 pp., $3.50

15 Eight papers on size distribution of income 1952, 240 pp., $3.50

*Out of print.

16 *Long-Range Economic Projection*
1954, 488 pp., $9.00

*†17 *Short-Term Economic Forecasting*
1955, 520 pp.

18 *Input-Output Analysis: An Appraisal*
1955, 384 pp., $7.50

19 *Problems of Capital Formation: Concepts, Measurement, and Controlling Factors*
1957, 624 pp., $7.50

20 *Problems in the International Comparison of Economic Accounts*
1957, 416 pp., $8.00

21 *Regional Income*
1957, 418 pp., $8.00

22 *A Critique of the United States Income and Product Accounts*
1958, 600 pp., $11.50

23 *An Appraisal of the 1950 Census Income Data*
1958, 460 pp., $10.00

24 *Trends in the American Economy in the Nineteenth Century* 1960, 791 pp., $15.00

25 *Output, Input, and Productivity Measurement* (contains author and title indexes for Studies in Income and Wealth, Volumes 1-25)
1961, 517 pp., $10.00

26 *The Flow-of-Funds Approach to Social Accounting* 1962, 492 pp., $12.50

Conference on Price Research

*1 *Report of the Committee on Prices in the Bituminous Coal Industry* 1938, 168 pp.

*2 *Textile Markets: Their Structure in Relation to Price Research* 1939, 290 pp.

*3 *Price Research in the Steel and Petroleum Industries* 1939, 188 pp.

4 *Cost Behavior and Price Policy*
Committee on Price Determination
1943, 376 pp., $3.00

5 *Minimum Price Fixing in the Bituminous Coal Industry*
Waldo E. Fisher and Charles M. James
1955, 554 pp., $10.00

Special Conference Series

Universities–National Bureau Committee for Economic Research

*†1 *Problems in the Study of Economic Growth*
1949 (mimeographed)

*2 *Conference on Business Cycles*
1951, 448 pp.

3 *Conference on Research in Business Finance*
1952, 360 pp., $5.00

4 *Regularization of Business Investment*
1954, 540 pp., $8.00

5 *Business Concentration and Price Policy*
1955, 524 pp., $9.00

6 *Capital Formation and Economic Growth*
1955, 692 pp., $12.00

*†7 *Policies to Combat Depression*
1956, 428 pp.

8 *The Measurement and Behavior of Unemployment*
1957, 616 pp., $7.50

9 *Problems in International Economics*
1958, 142 pp., paperbound, $1.50
February 1958 Supplement to the *Review of Economics and Statistics*. (Order from the National Bureau.)

10 *The Quality and Economic Significance of Anticipations Data*
1960, 477 pp., $9.00

11 *Demographic and Economic Change in Developed Countries*
1960, 546 pp., $12.00

12 *Public Finances: Needs, Sources, and Utilization*
1961, 524 pp., $10.00

13 *The Rate and Direction of Inventive Activity: Economic and Social Factors*
1962, 646 pp., $12.50

Other Conferences

Consumer Instalment Credit: Conference on Regulation

Conference called by the National Bureau, proceedings published by the Board of Governors of the Federal Reserve System; order from Superintendent of Documents, Washington 25, D.C.

1957, Vol. 1, 578 pp., $1.75
1957, Vol. 2, 164 pp., 60¢

---

*Out of print.

†Available on microfilm from University Microfilms, Inc., 313 N. First St., Ann Arbor, Mich.

EXPLORATORY REPORTS

Research in the Capital and Securities Markets
1954, 88 pp., $1.00
(See also Section I under Financial Research Program reports.)

Suggestions for Research in the Economics of Pensions
1957, 64 pp., $1.00

The Comparative Study of Economic Growth and Structure: Suggestions on Research Objectives and Organization, by Conferences on Comparative Economic Growth and Structure
1959, 201 pp., $3.00

BULLETINS

(Replaced by Occasional Papers, December 1940. Those listed are available; a complete list is included in the 25th Annual Report.)

42 *Aspects of the Price Recession of 1929-1931*
Frederick C. Mills 1931, 25¢

47 *Employment during the Depression*
Meredith B. Givens 1933, 25¢

48 *Aspects of Recent Price Movements*
Frederick C. Mills 1933, 25¢

49 *National Income, 1929-1932*
Simon Kuznets 1934, 25¢

51 *Recent Changes in Production*
Charles A. Bliss 1934, 25¢

52 *Gross Capital Formation, 1919-1933*
Simon Kuznets 1934, 50¢

53 *Changes in Prices, Manufacturing Costs and Industrial Productivity, 1929-1934*
Frederick C. Mills 1934, 25¢

54 *Wages and Hours under the Codes of Fair Competition*
Leo Wolman 1935, 25¢

55 *Profits, Losses and Business Assets, 1929-1934*
Solomon Fabricant 1935, 25¢

56 *Aspects of Manufacturing Operations during Recovery*
Frederick C. Mills 1935, 50¢

57 *The National Bureau's Measures of Cyclical Behavior*
Wesley C. Mitchell and Arthur F. Burns
1935, 50¢

59 *Income Originating in Nine Basic Industries, 1913-1934*
Simon Kuznets 1936, 50¢

60 *Measures of Capital Consumption, 1919-1933*
Solomon Fabricant 1936, 25¢

63 *The Recovery in Wages and Employment*
Leo Wolman 1936, 25¢

68 *Union Membership in Great Britain and the United States*
Leo Wolman 1937, 25¢

69 *Statistical Indicators of Cyclical Revivals*
Wesley C. Mitchell and Arthur F. Burns
1938, 25¢

70 *Employment Opportunities in Manufacturing Industries of the United States*
Frederick C. Mills 1938, 25¢

76-77 *The Statistical Pattern of Instalment Debt*
R. A. Young and Blanche Bernstein 1939, 50¢

79 *The Volume of Consumer Instalment Credit, 1929-1938*
Duncan McC. Holthausen, Malcolm L. Merriam, and Rolf Nugent 1940, 25¢

OCCASIONAL PAPERS

*1 *Manufacturing Output, 1929-1937*
Solomon Fabricant 1940, 28 pp.

*2 *National Income, 1919-1938*
Simon Kuznets 1941, 32 pp.

*3 *Finished Commodities since 1879: Output and Its Composition*
William H. Shaw 1941, 49 pp.

*4 *The Relation between Factory Employment and Output since 1899*
Solomon Fabricant 1941, 39 pp.

*5 *Railway Freight Traffic in Prosperity and Depression*
Thor Hultgren 1942, 51 pp.

*6 *Uses of National Income in Peace and War*
Simon Kuznets 1942, 42 pp.

*7 *Productivity of Labor in Peace and War*
Solomon Fabricant 1942, 28 pp.

*8 *The Banking System and War Finance*
Charles R. Whittlesey 1943, 53 pp.

*9 *Wartime 'Prosperity' and the Future*
Wesley C. Mitchell 1943, 40 pp.

10 *The Effect of War on Business Financing: Manufacturing and Trade, World War I*
Charles H. Schmidt and Ralph A. Young
1943, 95 pp., 50¢

*11 *The Effect of War on Currency and Deposits*
Charles R. Whittlesey 1943, 50 pp.

---

*Out of print.

12 *Prices in a War Economy: Some Aspects of the Present Price Structure of the United States*
Frederick C. Mills 1943, 102 pp.,50¢

*13 *Railroad Travel and the State of Business*
Thor Hultgren 1943, 35 pp.

14 *The Labor Force in Wartime America*
Clarence D. Long 1944, 73 pp., 50¢

15 *Railway Traffic Expansion and Use of Resources in World War II*
Thor Hultgren 1944, 31 pp., 35¢

*16 *British and American Plans for International Currency Stabilization*
J. H. Riddle 1943, 42 pp.

17 *National Product, War and Prewar*
Simon Kuznets 1944, 54 pp., 50¢

18 *Production of Industrial Materials in World Wars I and II*
Geoffrey H. Moore 1944, 81 pp., 50¢

19 *Canada's Financial System in War*
Benjamin H. Higgins 1944, 82 pp., 50¢

*20 *Nazi War Finance and Banking*
Otto Nathan 1944, 100 pp.

*21 *The Federal Reserve System in Wartime*
Anna Youngman 1945, 67 pp.

*22 *Bank Liquidity and the War*
Charles R. Whittlesey 1945, 86 pp.

*23 *Labor Savings in American Industry, 1899-1939*
Solomon Fabricant 1945, 56 pp.

24 *Domestic Servants in the United States, 1900-1940*
George J. Stigler 1946, 44 pp., 50¢

*25 *Recent Developments in Dominion-Provincial Fiscal Relations in Canada*
J. A. Maxwell 1948, 62 pp.

*26 *The Role of Inventories in Business Cycles*
Moses Abramovitz 1948, 26 pp.

27 *The Structure of Postwar Prices*
Frederick C. Mills 1948, 66 pp., 75¢

28 *Lombard Street in War and Reconstruction*
Benjamin H. Higgins 1949, 115 pp., $1.00

*29 *The Rising Trend of Government Employment*
Solomon Fabricant 1949, 30 pp.

30 *Costs and Returns on Farm Mortgage Lending by Life Insurance Companies, 1945-1947*
R. J. Saulnier 1949, 55 pp., $1.00

*31 *Statistical Indicators of Cyclical Revivals and Recessions*
Geoffrey H. Moore 1950, 96 pp.

*32 *Cyclical Diversities in the Fortunes of Industrial Corporations*
Thor Hultgren 1950, 34 pp.

33 *Employment and Compensation in Education*
George J. Stigler 1950, 77 pp., $1.00

34 *Behavior of Wage Rates during Business Cycles*
Daniel Creamer 1950, 66 pp., $1.00

35 *Shares of Upper Income Groups in Income and Savings*
Simon Kuznets 1950, 68 pp., $1.00

36 *The Labor Force in War and Transition: Four Countries*
Clarence D. Long 1952, 61 pp., $1.00

37 *Trends and Cycles in Corporate Bond Financing*
W. Braddock Hickman 1952, 37 pp., 75¢

*38 *Productivity and Economic Progress*
Frederick C. Mills 1952, 36 pp.

*39 *The Role of Federal Credit Aids in Residential Construction*
Leo Grebler 1953, 76 pp.

*40 *Transport and the State of Trade in Britain*
Thor Hultgren 1953, 126 pp.

*41 *Capital and Output Trends in Manufacturing Industries, 1880-1948*
Daniel Creamer 1954, 104 pp.

42 *The Share of Financial Intermediaries in National Wealth and National Assets, 1900-1949*
Raymond W. Goldsmith 1954, 120 pp., $1.50

*43 *Trends and Cycles in Capital Formation by United States Railroads, 1870-1950*
Melville J. Ulmer 1954, 70 pp.

*44 *The Growth of Physical Capital in Agriculture, 1870-1950*
Alvin S. Tostlebe 1954, 104 pp.

45 *Capital and Output Trends in Mining Industries, 1870-1948*
Israel Borenstein 1954, 81 pp., $1.00

46 *Immigration and the Foreign Born*
Simon Kuznets and Ernest Rubin
1954, 119 pp., $1.50

*47 *The Ownership of Tax-Exempt Securities, 1913-1953*
George E. Lent 1955, 150 pp.

*48 *A Century and a Half of Federal Expenditures*
M. Slade Kendrick 1955, 112 pp.

49 *The Korean War and United States Economic Activity, 1950-1952*
Bert G. Hickman 1955, 72 pp., 75¢

*Out of print.

†50 *Agricultural Equipment Financing*
Howard G. Diesslin 1955, 116 pp., $1.25

51 *Interest as a Source of Personal Income and Tax Revenue*
Lawrence H. Seltzer 1955, 82 pp., $1.25

52 *Resource and Output Trends in the United States since 1870*
Moses Abramovitz 1956, 23 pp., 50¢

*53 *Productivity Trends: Capital and Labor*
John W. Kendrick 1956, 23 pp.

54 *Bank Stock Prices and the Bank Capital Problem*
David Durand 1957, 76 pp., $1.00

55 *Some Observations on Soviet Industrial Growth*
G. Warren Nutter 1957, 12 pp., 50¢

56 *Distribution of Union Membership among the States, 1939 and 1953*
Leo Troy 1957, 40 pp., 75¢

57 *Electronic Computers and Business Indicators*
Julius Shiskin 1957, 52 pp., $1.00

58 *Federal Lending: Its Growth and Impact*
A summary, prepared by the National Bureau's editorial staff, of *Federal Lending and Loan Insurance*, by R. J. Saulnier, Harold G. Halcrow, and Neil H. Jacoby 1957, 56 pp., $1.00

59 *Corporate Bonds: Quality and Investment Performance*
W. Braddock Hickman 1957, 43 pp., 75¢

60 *The Postwar Rise of Mortgage Companies*
Saul B. Klaman 1959, 117 pp., $1.50

61 *Measuring Recessions*
Geoffrey H. Moore 1958, 57 pp., $1.00

62 *The Demand for Currency Relative to Total Money Supply*
Phillip Cagan 1958, 37 pp., 75¢

63 *Basic Facts on Productivity Change*
Solomon Fabricant 1959, 58 pp., $1.00

64 *The Role of Middleman Transactions in World Trade*
Robert M. Lichtenberg 1959, 102 pp., $1.50

65 *Freight Transportation in the Soviet Union: A Comparison with the United States*
Ernest W. Williams, Jr. 1959, 47 pp., 75¢

66 *City Expenditures in the United States*
Harvey E. Brazer 1959, 93 pp., $1.50

67 *Trade Balances during Business Cycles: U.S. and Britain since 1880*
Ilse Mintz 1959, 109 pp., $1.50

68 *The Demand for Money: Some Theoretical and Empirical Results*
Milton Friedman 1959, 25 pp., 75¢

69 *The Average Workweek as an Economic Indicator*
Gerhard Bry 1959, 122 pp., $2.00

70 *Consumer Expectations, Plans, and Purchases: a Progress Report*
F. Thomas Juster 1959, 192 pp., $2.50

71 *Changes in the Share of Wealth Held by Top Wealth-Holders, 1922-1956*
Robert J. Lampman 1960, 32 pp., 75¢

72 *Housing Issues in Economic Stabilization Policy*
Leo Grebler 1960, 140 pp., $1.50

73 *Regional Cycles of Manufacturing Employment in the United States, 1914-1953*
George Borts 1960, 60 pp., 75¢

74 *Changes in Labor Cost During Cycles in Production and Business*
Thor Hultgren 1960, 102 pp., $1.50

75 *New Measures of Wage-Earner Compensation in Manufacturing, 1914-57*
Albert Rees 1960, 35 pp., 75¢

76 *American Exports During Business Cycles, 1879-1958*
Ilse Mintz 1961, 104 pp., $1.00

77 *Signals of Recession and Recovery: An Experiment with Monthly Reporting*
Julius Shiskin 1961, 203 pp., $3.00

78 *The Postwar Rise in the Velocity of Money: A Sectoral Analysis*
Richard T. Selden 1962, 72 pp., $1.00

79 *The American Baby Boom in Historical Perspective*
Richard A. Easterlin 1962, 64 pp., $1.00

80 *Small-Scale Industry in the Soviet Union*
Adam Kaufman 1962, 111 pp., $2.00

81 *The United States Savings Bond Program in the Postwar Period*
George Hanc 1962, 122 pp., $1.50

TECHNICAL PAPERS

*1 *A Significance Test for Time Series and Other Ordered Observations*
W. Allen Wallis and Geoffrey H. Moore 1941, 59 pp.

---

*Out of print.

†Available on microfilm from University Microfilms, Inc., 313 N. First St., Ann Arbor, Mich.

*2 *The Relation of Cost to Output for a Leather Belt Shop*
Joel Dean 1941, 72 pp.

3 *Basic Yields of Corporate Bonds, 1900-1942*
David Durand 1942, 34 pp., 50¢

4 *Currency Held by the Public, the Banks, and the Treasury, Monthly, December 1917-December 1944*
Anna Jacobson Schwartz and Elma Oliver 1947, 65 pp., 75¢

5 *Concerning a New Federal Financial Statement*
Morris A. Copeland 1947, 63 pp., $1.00

*6 *Basic Yields of Bonds, 1926-1947: Their Measurement and Pattern*
David Durand and Willis J. Winn 1947, 40 pp.

7 *Factors Affecting the Demand for Consumer Instalment Sales Credit*
Avram Kisselgoff 1952, 70 pp., $1.50

8 *A Study of Aggregate Consumption Functions*
Robert Ferber 1953, 72 pp., $1.50

9 *The Volume of Residential Construction, 1889-1950*
David M. Blank 1954, 111 pp., $1.50

*10 *Factors Influencing Consumption: An Experimental Analysis of Shoe Buying*
Ruth P. Mack 1954, 124 pp.

11 *Fiscal-Year Reporting for Corporate Income Tax*
W. L. Crum 1956, 65 pp., $1.25

12 *Seasonal Adjustments by Electronic Computer Methods*
Julius Shiskin and Harry Eisenpress 1958, 34 pp., 75¢

13 *The Volume of Mortgage Debt in the Postwar Decade*
Saul B. Klaman 1958, 158 pp., $2.00

14 *Industrial Demands upon the Money Market, 1919-57: A Study in Fund-Flow Analysis*
Wilson F. Payne 1961, 168 pp., $1.50

15 *Methods for Improving World Transportation Accounts, Applied to 1950-1953*
Herman F. Karreman 1961, 138 pp., $1.50

ANNUAL REPORTS *(gratis)*

By Wesley C. Mitchell

25th *The National Bureau's First Quarter-Century* May 1945

By Arthur F. Burns

*26th *Economic Research and the Keynesian Thinking of Our Times* June 1946

*†27th *Stepping Stones Towards the Future* March 1947

28th *The Cumulation of Economic Knowledge* May 1948

29th *Wesley Mitchell and the National Bureau* May 1949

*†30th *New Facts on Business Cycles* May 1950

31st *Looking Forward* May 1951

32nd *The Instability of Consumer Spending* May 1952

*†33rd *Business Cycle Research and the Needs of Our Times* May 1953

By Solomon Fabricant

*†34th *Economic Progress and Economic Change* May 1954

35th *Government in Economic Life* May 1955

*36th *Basic Research and the Analysis of Current Business Conditions* May 1956

37th *Financial Research and the Problems of the Day* May 1957

38th *Investing in Economic Knowledge* May 1958

39th *The Study of Economic Growth* May 1959

40th *A Respect for Facts* May 1960

41st *Towards a Firmer Basis of Economic Policy* May 1961

By Geoffrey H. Moore

42nd *Tested Knowledge of Business Cycles* June 1962

---

*Out of print.

†Available on microfilm from University Microfilms, Inc., 313 N. First St., Ann Arbor, Mich.

CONTRIBUTIONS AND SUBSCRIPTIONS

Contributors or subscribers of $75 or more a year are entitled to receive a complimentary copy of each publication — *books, Occasional Papers, Technical Papers,* and the *Annual Report* — in advance of release to the public. In addition, the subscriber is entitled to a 33-1/3 per cent discount on any National Bureau publication purchased.

A special subscription rate of $35, providing the same privileges as above, is open to faculty members and students of recognized educational institutions. A limited faculty-student rate of $5, open to faculty members and students of recognized educational institutions, entitles the subscriber to a complimentary copy of each *Occasional Paper, Technical Paper,* and the *Annual Report,* and to a 40 per cent discount on any publication purchased.

For those who wish to subscribe only to *Occasional Papers* and *Technical Papers,* the subscription rate is $4 for five issues. A subscriber of $4 receives the next five *papers* and the *Annual Report.*

Send contributions or subscriptions, or address inquiries, to the National Bureau's Executive Director, William J. Carson.

HOW TO OBTAIN NATIONAL BUREAU PUBLICATIONS

NONSUBSCRIBERS: Order *books* from
Princeton University Press, Princeton, New Jersey

NONSUBSCRIBERS: Order *papers* and request the *Annual Report* from:

SUBSCRIBERS: Order all *books* and *papers* and request the *Annual Report* from:

NATIONAL BUREAU OF ECONOMIC RESEARCH, INC.
261 Madison Avenue New York 16, N. Y.

Contributions to the National Bureau are deductible in calculating federal income taxes.