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P A R T I I I

**Staff
Reports**

I. ECONOMIC GROWTH

LONG SWINGS IN ECONOMIC GROWTH IN THE UNITED STATES

The economic development of the United States has, in the past, assumed an irregular wavelike form in which periods of years with relatively high rates of growth were succeeded by periods in which the rate was much lower. After allowance for short (three- to five-year) business cycles, such fluctuations in growth rates stand out in records of total and non-agricultural output, capital formation, productivity, population and labor force growth, growth of the money supply, rate of change in prices, and other aspects of the economy. They are particularly prominent in residential building, railroad and canal construction, immigration, the balance of payments, and capital imports.

Evidences of such waves can be found in this country as early as the 1830's, and in the past they have run their course in ten to twenty years. (Recent experience, however, may not accord with this rule: if we treat the current wave of growth as an unbroken unit starting in the early 1930's, its duration appears outside the range of past experience. It is plausible to suppose, however, that this is due in part to the economic disturbances connected with World War II.)

The purposes of this study are to describe the characteristics of the long swings of economic growth in their various aspects, to determine how nearly uniform they were from occasion to occasion, to help discover whether they arose from systematic or accidental causes, and to use the results to throw light on the causes of growth and instability in economic life. Some preliminary findings were described in the 38th and 39th Annual Reports, and in testimony to the Joint Economic Committee of the Congress.¹

Our preliminary results suggest that the ob-

¹ Hearings before the Joint Economic Committee, 86th Congress, First Session, Part 2, *Historical and Comparative Rates of Production, Productivity and Prices*, Washington, 1959, pp. 411-466.

served variations in the rate of growth of output, productivity, population, labor force, and capital stock reflect, in addition to other causes, the occurrence from time to time of protracted periods when the proportion of resources partially or totally unemployed is relatively high, followed by periods when resources are more intensively utilized. The effects of these alternations in intensity of resource utilization are not, it appears, completely eliminated by data-smoothing techniques.

The relations of the various processes to one another, even when we view them in a form which attempts to correct for business cycles, suggest that they are connected with fluctuations in unemployment and in the intensity of resource use generally.² Long swings in the growth of output, therefore, appear to arise in part from fluctuations in the growth of productive capacity, but in part also from alternations in the rates at which effective demand and productive capacity grow in relation to one another. There is, moreover, an interaction between the two. In the past, protracted unemployment acted to reduce the growth of the non-agricultural labor force by discouraging immigration and by reducing migration from farms to cities; in more recent decades, it may also have operated to reduce labor-force participation rates. Underutilization of capital cut the rate of growth of the capital stock by reducing investment, while high levels of employment and capital use had the opposite effects. At the same time, an increase in the level of investment is an important part of the process by which the economy generates the growth of demand required to absorb expansion in productive capacity.

We may, therefore, consider the present investigation and Easterlin's companion study (his report follows) in part as attempts, first, to describe the effects of periods of protracted unemployment upon the growth of labor force, population, and capital stock as well as on the rates of growth of output, produc-

tivity, and of certain financial processes; next, to show how these facets of the economy recover from protracted unemployment in a process which cumulates over a period longer than a single business cycle, and how the values of these variables and their relations change as unemployment is succeeded by sustained prosperity; and, finally, to shed such light as we can on the recurrence of protracted periods of unemployment.

I plan to set forth my results in three essays on different aspects of the long-swing phenomenon. The first will deal with construction cycles, which are perhaps the most prominent example of economic fluctuations with a period longer than business cycles. Its purposes are to show which sectors of construction display long waves and which do not, to describe the characteristics of these waves, and, in particular, to ask whether the long swings in the different sectors run together sufficiently closely to produce long waves in total construction.

One result of this work is to define more clearly the problem raised by construction cycles. The theory of building cycles, as we know it today, ascribes the long waves in building to certain features of structures, of the construction industry, and of the real estate market. These are supposed to make the response of construction activity to changes in demand unusually sluggish. The lagged reactions of construction activity, of rents, and of real estate prices are also supposed to produce excesses and deficiencies in the supply of structures which cannot be quickly corrected. But such theories can at best account for local waves in residential and commercial building and for sectoral waves in the construction of plants for particular industries.

Considering the variety of local growth rates and the diversity of types of plant and of conditions influencing construction in different industries, there is no good reason to believe that building waves in each area and industry would tend to have the same timing and duration, and, therefore, that nation-wide waves in total construction would arise out of the specific characteristics of the building industry or of real estate markets. Insofar as

² In the processing of the data which underlie these findings, we were able to make use of cycle analysis programmed for the IBM-704 by the National Bureau's programming unit.

there have been long waves of national scope in aggregate construction, therefore, we must look for an explanation in an interaction between construction activity and the economy at large which brings the local and sectoral fluctuations in construction into phase with one another.

A second essay will deal with the relation between long cycles in construction and the character of business cycles. It will focus on the question whether there has been a significant correlation between the amplitudes and durations of business cycles, on the one side, and the phase of building cycles, on the other. Earlier work, described in the Bureau's 38th Annual Report, indicated that there was a significant relation, but these results must now be reviewed in the light of a more extensive collection of materials and in a broader theoretical frame.

The third study is intended to be a more general treatment of long swings in the rates of growth of economic time series. The preliminary report of the physical aspects of long swings contained in the Joint Economic Committee Hearings cited earlier will be elaborated, especially in connection with the demographic features of the swings on which Richard Easterlin's work centers. In addition, we hope to add sections dealing with the financial aspects of the problem, in particular the balance of payments, capital imports, money supply, and prices.

MOSES ABRAMOVITZ

LONG SWINGS IN THE GROWTH OF POPULATION AND LABOR FORCE

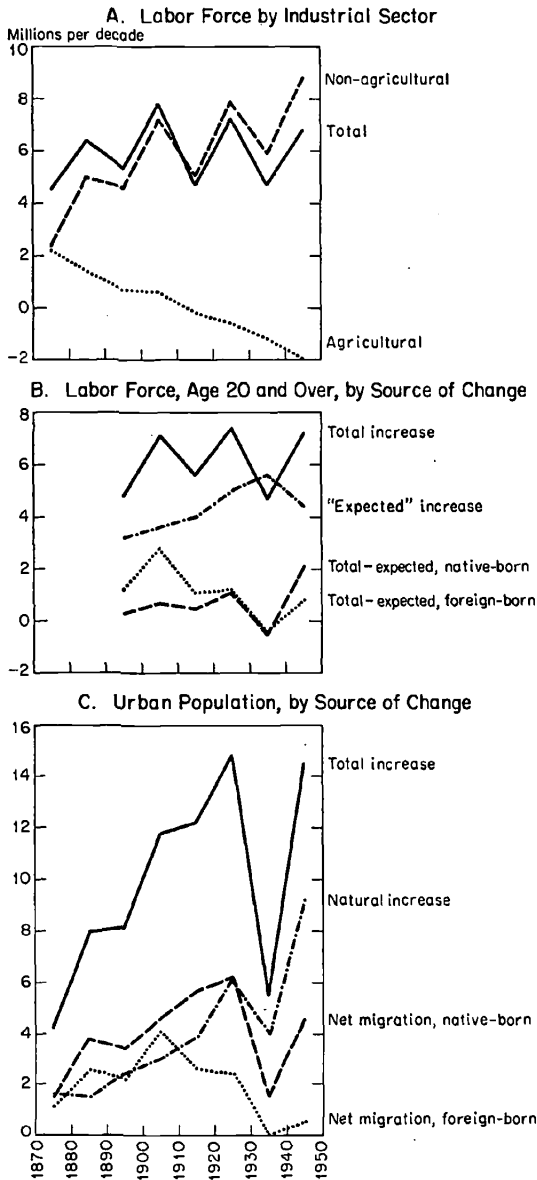
Though the trend in population and labor force in the United States has been continuously upward, the rate of growth of each has been far from steady. Variations within the course of ordinary business cycles might be expected. But even after one attempts to eliminate cyclical disturbances by averaging the values included within the period of each successive cycle, the series exhibit fluctuations of considerable magnitude around the primary trend—fluctuations whose duration typically

averages fifteen to twenty years. The recent surge in the rate of population growth in the United States, when viewed in historical perspective, can be conceived as another in the succession of long swings. The purposes of this study, which is conceived within the broader framework of that of long swings in the economy as a whole, are, first, to synthesize and extend the present description of long swings in population and labor force growth and movement; and second, to determine as far as possible the factors responsible for these swings. The phase of the study here described is devoted to analysis of long swings in labor force growth since 1870, and is based chiefly on data in the decennial censuses, the dates of which fall close to long-swing turning points in the rate of growth of total labor force.

Decade-to-decade fluctuations in the absolute growth of total labor force are shown in panel A of Chart 1. From this it also appears that these fluctuations were concentrated in the non-agricultural rather than agricultural sector. In order to throw light on the origin and diffusion of these swings, the industrial, occupational, and regional components of the labor force have each been analyzed in a similar way, and their relation to the process of urbanization studied. It is also of interest to know which segments of the population experienced these swings—the incidence by age, sex, color, and nativity—and to identify the mechanism that provided these variations in labor force growth. Only the latter will be discussed here.

Labor force change in an area during a given period can be subdivided into several factors. The normal demographic processes of aging of the initial population and mortality customarily lead to new entrants or withdrawals from the labor force. Labor force participation rates for given age-sex groups may vary over time as persons in these groups vary in their responsiveness to the attractions of the labor market. And migration, either from abroad or from other regions within a nation, may affect the growth of an area's labor force by altering the numbers that would otherwise have been in given age-sex groups of the pop-

CHART 1
Decade Rates of Change in Labor Force and Population, United States, 1870-1950



ulation and because of differences in age-sex specific participation rates between in-migrants, out-migrants, and non-migrants. While it is not possible to identify precisely the relative role of these various sources of labor force growth in long swings, several analyses have been performed that shed light on the question.

In panel B of Chart 1, the rate of growth

of the national labor force, ages twenty and over, since the decade of the 1890's is plotted along with that of several component sources of change. That labeled "expected" shows the growth in labor force one might have expected as a result of the normal processes of aging and death of the population existing at the beginning of each decade, labor force participation rates for each age-sex group remaining unchanged. The difference between the actual and expected growth is, in turn, divided into two parts, one for the native-born population, which reflects the influence of changes in labor force participation rates, and the other for the foreign-born population, which reflects chiefly the influence of immigration, at least for most of the period. From this it appears that demographic processes typically were not the source of fluctuations in the growth of labor force, and that the important factors were immigration and changes in participation rates, with the relative importance shifting from the former to the latter during the period.

The analysis above pertains to the nation's total labor force, and thus precludes the possibility of internal migration as a source of labor force change. Long swings appear to be chiefly concentrated in urban areas, and thus it is possible that internal migration from the farm sector was a significant source of change. The information plotted in panel C of Chart 1 is intended to test this possibility. Here the rate of growth of the urban population of all ages is shown, and the contribution to this of natural increase (the excess of births over deaths), and net migration of the native-born and of the foreign-born populations. With regard to the net migration curves, that for the native-born population reflects chiefly the influence of internal rural-urban migration, and that for the foreign-born, for most of the period, the influence of immigration. The finding of immediate interest is that positively conforming fluctuations in internal migration did occur, and that their magnitude relative to those in immigration increased in importance between the beginning and end of the period.

Conceptually, long swings may originate in

fluctuations in the demand for labor, in the supply of labor, or both. The data assembled in the course of the present analysis provide a basis for testing alternative hypotheses. For example, long swings in labor force growth might arise from fluctuations in supply traceable in turn to an echo effect from some earlier systematic impulse to fertility. The curve of expected labor force change in panel B, however, does not support this hypothesis; for if it were true, one would expect this curve to show vigorous conforming movements. More difficult to determine is whether the fluctuations due to immigration should be treated as an exogenous shift in supply or a response to changes in labor force demands of the domestic economy. Our preliminary impression to date supports the latter view, but further inquiry is necessary.

A preliminary draft of the labor force analysis is expected to be completed this spring. Attention will then be turned to the study of long swings in population and its various components—births, deaths, and migration—and their interrelations with labor force change.

RICHARD A. EASTERLIN

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: How rapidly has the Soviet economy grown? 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.

Studies of the industrial and transportation sectors are reported on below. A summary report is planned that will bring together the findings of these studies as well as materials on a number of other sectors, including population, employment, housing construction, and the standard of living.

Industrial Production

The report on *Soviet Statistics of Physical Output of Industrial Commodities: Their*

Compilation and Quality, by Gregory Grossman, is in press.

The draft monograph on "Industrial Production in the Soviet Union" is being revised after review by the Staff and others, and should soon be ready for submission to the Directors. A preliminary and tentative summary was presented to the November hearings of the Joint Economic Committee and is reproduced in the Committee print, *Comparisons of the United States and Soviet Economies*, Part II. It is also published in the *Journal of Law and Economics*, October 1959.

Adam Kaufman has distributed a report on "Small-Scale Industry in the Soviet Union" for comment. It is now being revised and prepared for submission to the Board.

Marie-Christine Culbert continued her assistance in the work of the industrial sector as well as in general editorial supervision of the project.

G. WARREN NUTTER

Transportation

Statistical materials in the monograph on "Transportation in the Soviet Union" are being revised with the assistance of Holland Hunter. It should be ready for final review shortly.

ERNEST W. WILLIAMS, JR.

Agriculture: Inputs and Productivity

The study of inputs and productivity in Soviet agriculture has centered its activities on estimating indexes of agricultural output, labor input, and income of the agricultural population. Considerable effort is still required before we can complete our estimates of inputs other than labor and land. The difficulties of estimating inputs of buildings, machinery, and current inputs purchased from the rest of the economy have prevented us from completing the estimates of total inputs. However, considerable progress has been made during the year.

A preliminary comparison of output changes in agriculture in the United States and the Soviet Union was published in Joint Economic Committee, *Comparisons of the United States and Soviet Economies*, Washington,

1959. After a somewhat crude adjustment of the Soviet index of gross agricultural output for changes in territory, we concluded that the increases in agricultural output in the two countries between 1925-29 and 1955-58 were approximately the same, roughly 55 to 58 per cent. A major factor in the increase of Soviet agricultural output was the extension of the sown area, which increased from 104.3 million hectares in 1925 to 195.6 million in 1958. A little more than half the increase (after adjustment for territorial change) came as a result of the famous New Lands program.

The increase in average product per worker in Soviet agriculture between 1928 and 1955-57 was approximately 100 per cent. However, a large part of this was due to the substantial increase in the number of days worked per year. The change in output per man-year worked was estimated to be 36 to 43 per cent. In the United States the increase in average product per man-hour for the same period was 193 per cent.

In the latter part of 1959 the Soviet Union published an official index of gross agricultural output. When this index is compared to the index we constructed, we find that the official index indicates a somewhat smaller increase in output between 1928 and 1957 or 1958. Since our index of gross agricultural output was based on official output data for individual commodity groups, where available, the differences in the indexes for several years raised a number of serious and difficult questions.

After a number of checks and calculations, our tentative conclusions are as follows. First, the increase in agricultural production between 1913 and 1928 has been substantially exaggerated in the new official index. Earlier Soviet indexes indicated an increase, between 1913 and 1928, of about 6 per cent instead of the 24 per cent claimed in the new index. A part of the greater increase in the new index is caused by recent revisions in the estimates of gross output of individual commodity groups (downward revisions were made for 1913), but not all of the excess can be accounted for in this way. Second, the new index seems to provide consistent estimates of

output change within the following periods, but not necessarily between them—1913 through 1921, 1926 through 1938 or 1939, and 1950 through 1958, excepting possibly 1957. Third, the indexes for 1913-21 and 1950-58 seem to be generally consistent with what one would expect, if one accepts the officially published output data and does not adjust for territorial change. Fourth, the output indexes for 1936 through 1938 or 1939 are quite definitely exaggerated relative to the indexes for the fifties. Consequently, the official index underestimates the change in agricultural output between the late twenties and the fifties, perhaps by 10 to 15 per cent.

While there has been a very considerable increase in the amount of published agricultural output data during the past year, no effort has been made by Soviet statisticians to explain how the output series or indexes were constructed or even to indicate how output is defined. It is reasonably clear that the Soviet concept of meat and milk output is not the same as that used in most other countries. Furthermore, no explanation has ever been given of what is included in the estimate of grain production, and we do not know whether the estimates for recent years are consistent with those for the twenties. Consequently, considerable uncertainty attaches to the use and interpretation of the output data for individual commodity groups or comprehensive indexes constructed from them.

D. GALE JOHNSON

TRENDS IN WAGES AND PRODUCTIVITY IN THE UNITED STATES

Final reports on this series of studies, which have been supported by grants from the Alfred P. Sloan Foundation, have been prepared.

Two reports have been published: John W. Kendrick, *Productivity Trends: Capital and Labor*, Occasional Paper 53, 1956; Solomon Fabricant, *Basic Facts on Productivity Change*, Occasional Paper 63, 1959.

Two reports are in press: Clarence D. Long, Jr., *Wages and Earnings in the United*

States, 1860-1890; Albert Rees, *Real Wages in Manufacturing, 1890-1914*.

Two reports are being prepared for press: John W. Kendrick, "Productivity Trends in the United States"; Albert Rees, "New Measures of Wage-Earner Compensation in Manufacturing, 1914-57," Occasional Paper.

The proceedings of a conference on "Output, Input, and Productivity Measurement" are in press (see Part II). John Kendrick was chairman of the Conference and wrote an introduction to the proceedings volume.

At the request of the Joint Economic Committee, Mr. Fabricant presented the results of the National Bureau's productivity studies at the Committee's Hearings on Balanced Economic Growth, April 8, 1959.

LEO WOLMAN

OTHER STUDIES

The following reports concerned with various aspects of economic growth were published:

Regional Cycles of Manufacturing Employment in the United States, 1914-1953, George Borts, Occasional Paper 73.

The Comparative Study of Economic Growth and Structure: Suggestions on Research Objectives and Organization, Conferences on Comparative Economic Growth and Structure, Exploratory Report.

Merger Movements in American Industry, 1895-1956, Ralph L. Nelson, General Series 66.

Capital in Transportation, Communications, and Public Utilities: Its Formation and Financing, Melville J. Ulmer, Studies in Capital Formation and Financing 4.

Other reports in press or being prepared for press are:

Wages in Germany, 1871-1945, Gerhard Bry, General Series 68.

Trends in Government Financing, Morris Copeland, Studies in Capital Formation and Financing 7.

Capital in Manufacturing and Mining: Its Formation and Financing, by Daniel Creamer, Sergei Dobrovolsky, and Israel Borenstein, Studies in Capital Formation and Financing 6.

Diversification and Integration in American Industry, Michael Gort, General Series.

Capital in the American Economy: Its Formation and Financing, Simon Kuznets, Studies in Capital Formation and Financing 8.

Demographic and Economic Change in Developed Countries, Special Conference Series 11.

Trends in the American Economy in the Nineteenth Century, Studies in Income and Wealth 24.

Output, Input, and Productivity Measurement, Studies in Income and Wealth 25.

Several studies having an important bearing on economic growth are reported in Sections 2 and 5. A conference on "The Economic and Social Factors Determining the Rate and Direction of Inventive Activity" will be held in May 1960 (see Part II).

2. NATIONAL INCOME, CONSUMPTION, AND CAPITAL FORMATION

CONSUMERS' BUYING PLANS

An initial report on this study, which has been supported by grants from the Reim Foundation, the Consumers Union of the United States, and funds of the National Bureau, was published as Occasional Paper 70, *Consumer Expectations, Plans, and Purchases: A Progress Report*. Research efforts during the year were concentrated on analysis of data from a reinterview survey of some 20,000 member-subscribers of Consumers

Union who had agreed to participate. This survey was taken in October 1958, six months after an original NBER survey of the same group.¹ The objective was to find answers to such questions as:

¹ Preliminary results of the reinterview survey are reported in F. Thomas Juster, "Prediction and Consumer Buying Intentions," *Papers and Proceedings of the American Economic Association*, May 1960. A second reinterview of this group was taken in April 1959 in cooperation with Albert G. Hart, Columbia University. Results from the survey will be incorporated in subsequent reports.

1. Which way of asking households about buying intentions provides the best explanation of their subsequent behavior? Subgroups of the panel were sent differently phrased questions in April 1958, and we can test the net relationship between responses to each of these questions and subsequent purchases of durable goods.
2. Which questions about expectations and attitudes make a net contribution to the explanation of purchases? That is, are responses to questions concerning short-range income prospects, long-range financial prospects, or attitudes about market conditions related to subsequent purchase behavior, after account has been taken of the effects on purchases of such factors as income, age, assets, number of children, etc.?
3. To what degree are unexpected developments related to purchase behavior, when intended or planned behavior is taken into account? For example, are favorable income surprises related to purchases, taking buying intentions into account? We can measure income surprise since we have data on expected income change in the April survey and actual income change in the October reinterview survey.
4. Is the net explanatory value of buying intentions for items currently owned by the household different from that of intentions for items that represent new acquisitions? This question is of interest because the answer may provide weights for specific items in an index of buying intentions.

An electronic computer IBM-704 program designed to elicit answers to these questions has been developed by our programmers, and we are about to get results from a test run on actual data. Some 16,000 individual household reports are available for analysis; close to 4,000 households were eliminated for reasons that ranged from key-punching errors in the identification number to non-response on important questions.

Substantial research effort has gone into analysis of cross-tabulations, some of which were prepared in order to estimate weights for variables that are to be included in the computer program. In addition, the cross-tabulations have permitted analysis of the predictive value of alternative questions about buying intentions. It appears that almost any question

concerning buying intentions has some gross predictive value in cross-section data, in the sense that households reporting intentions to buy are more likely to make purchases than households reporting no intentions. This can be seen from Table 1, which shows simple

TABLE 1
Aggregate Relations Between Buying Intentions
and Purchases of Durable Goods,
April-October 1958

Buying Intentions	Correlation Coefficient (<i>r</i>)	Regression Coefficient (<i>b</i>)
Within 6 months	.308	.367 ± .019
Over next 12 months	.291	.252 ± .014
Definitely over next 12 months	.304	.384 ± .020
Over next 12 months if income is as expected	.352	.317 ± .014
Later (than six months from now)	.021	.015 ± .012

NOTE: Intentions in each case are correlated with reported actual purchases during the six months following the April 1958 survey.

correlations between April 1958 intentions (of varying kinds) and purchases over the subsequent six-month period.

Essentially the same conclusion emerges if we examine the behavior of intentions and purchases for individual commodities. By comparing the degree to which the various intentions questions are capable of discriminating between buyers and non-buyers, we obtain a measure of predictive usefulness. Table 2 shows, for a selected number of individual commodities, the algebraic difference between the fraction of planners or intenders who purchased (*r*) and of non-intenders who purchased (*s*). If this measure (*r-s*) is a positive number when computed from cross-section surveys, it can be shown that buying intentions and purchases would necessarily be related over time; that is, there must be some association between the level of buying inten-

TABLE 2

Calculated Differences Between the Fraction of Intenders Who Purchased (r) and the Fraction of Non-intenders Who Purchased (s), Selected Commodities and Various Buying Intentions Questions

Commodity	$(r-s)$ for Specified Buying Intentions Question					
	Definitely Within 12 Months	Within 6 Months	Within 12 Months ^a	Within 12 Months ^b	Probably- Possibly Within 12 Months	Later (Than 6 months)
Automobile	37.4	41.9	31.7	26.8	16.0	3.7
Refrigerator	39.6	38.2	27.8	28.2	13.3	8.5
Washing machine	36.7	32.2	31.0	24.1	11.5	1.4
Dishwasher	36.6	28.7	22.5	21.2	8.0	4.0
Clothes dryer	29.6	31.2	20.2	17.8	4.6	3.5
Furniture	34.1	26.8	28.7	21.3	7.4	3.2
Carpets and rugs	28.3	20.4	19.4	13.4	5.7	4.6

^a This question included two other alternative questions about buying intentions. Households were asked what they planned to buy (a) if income were higher than expected, (b) if lower than expected, (c) if as expected. The responses to part (c) are shown above.

^b This was the only question asked this group about buying intentions (cf. note a).

tions obtained from successive surveys and the level of purchases.

All the differences in Table 2 have a positive sign, indicating that each of these questions has some predictive value provided certain other conditions are met. Can we also conclude that the question showing the biggest difference is also the one with the most predictive value? Not necessarily, since predictive value is related to other factors. In general, it turns out that the $r-s$ calculation must necessarily yield larger differences for relatively short-range and specific questions about buying intentions than for relatively long-range and vague ones. The pattern of differences observed in Table 2 is therefore of doubtful value as an indication of which question provides the most useful information about future purchases. Further research on this point is under way.

Lastly, we have devoted much effort to the question whether and how income expectations contribute to the explanation of purchase behavior, when households are classified by variables such as age, income expectations, and actual change in income. It seems probable that unexpected income de-

velopments play an important role in the translation of intentions into purchases. We find that relating actual income change to the ratio of purchases to buying intentions yields a positive association, but that relating actual change minus expected change yields a stronger positive association. One would expect this result if intentions were contingent on the fulfillment of income expectations. We find also that this kind of association generally does not hold for households that report zero buying intentions; here, income expectations themselves, rather than "income surprise," are the more powerful variable. Certain hypotheses that may account for this dichotomy in results are being tested.

F. THOMAS JUSTER

INVESTMENT IN EDUCATION

This study, financed by a grant from the Carnegie Corporation of New York, is concerned with an evaluation of the educational process, viewed as a form of investment in the human agent.

A draft of two chapters, one dealing with the theory of investment in education and

other kinds of training, and the other with estimates of the return to education, has been circulated to a staff committee and other interested persons. Part of a third chapter was presented at the December meeting of the American Economic Association and will appear in the May 1960 *Papers and Proceedings* of the Association, with the title "Evidence on Underinvestment in College Education." It presents our estimates of the average return to college graduates and compares this with the average return to business capital.

A first draft of the full manuscript is in progress. The remaining work includes a rough assessment of the contribution of education to economic growth in the United States, and a detailed presentation of the methods used in obtaining the results.

GARY S. BECKER

THE CHANGING ROLE OF PHILANTHROPY IN THE AMERICAN ECONOMY

This three-year study, under a grant from the Russell Sage Foundation, started early last summer. Since philanthropy is literally "love of mankind" and is not immediately concerned with the market place, economists have paid little attention to it. Moreover, much of the responsibility for poor relief has shifted during the past several decades from local private and local public agencies to the federal government. Accordingly, the concept or boundaries of philanthropy are ill-defined.

Approximately thirty years ago the National Bureau published two limited studies on philanthropy.² The present study will cover the past three decades. It will be necessary to employ a broad definition of philanthropy in order to delineate its changing role during this period. Hence we are concerned with both public and private philanthropy, whether the beneficiaries are residents of the United

² Willford Isbell King, *Trends in Philanthropy: A Study in a Typical American City*, New York, National Bureau of Economic Research, 1928; Pierce Williams and Frederick E. Croxton, *Corporation Contributions to Organized Community Welfare Services*, New York, National Bureau of Economic Research, 1930.

States or of any country which has been the recipient of private and public aid from the United States other than purely military aid. Private philanthropy has accounted for roughly 2 per cent of gross national product during most of these thirty years. Public philanthropy has increased by leaps and bounds. The combined total is now roughly 10 per cent of gross national product.

The scope of the broad concept is indicated in the following outline:

I. Private Philanthropy

A. Domestic

1. Beneficiaries: individuals, religion, hospitals and health, education, welfare, fine arts, research, etc.
2. Sources: individuals, corporations, foundations, and charitable trusts; also intermediaries such as community chests

B. Foreign

1. Beneficiaries: individuals, religious groups, governments
2. Sources: individuals and corporations; foundations and charitable trusts

II. Public Philanthropy (Federal, State, and Local)

A. Domestic: part or all of social welfare expenditures, including social insurance, public aid, health and medical programs, other welfare services, veterans' programs, education, public housing, and disaster relief

B. Foreign: Lend Lease, UNRRA, ECA, Point IV, Mutual Defense Assistance, various lending programs, Mutual Security, etc., with foreign aid for strictly military purposes (broadly defined during the war years) excluded from the totals

This outline sketch will be filled out by tables and text. At this stage of the work, however, there is considerable doubt about the period of time—the last three decades—and whether it will be desirable or possible to do more with "Public Philanthropy, Foreign" (II.B. in the outline) than to present broad totals. There is no contention that this broad concept of philanthropy is ideal. The choice has been dictated by the problem and its setting. For an earlier period, when there were not so many persons acting as individuals or as private or public officials giving away so much money to so many persons at home and

abroad and for so many purposes, the present concept would be too broad. In developing and presenting the data in this study, attention will be given to the needs of those who may wish to use a narrower definition.

A review of the literature indicates that most students have been concerned with private philanthropy only; some have even excluded parts of what we have designated as private philanthropy. Although these narrower concepts have merit, they seem to neglect the dynamic role of philanthropy as it is affected by social evolution. It will be necessary to consider certain market-place activities even though their quantities must be later excluded from the totals of philanthropy *per se*. Tuition paid by college students is an example. Again, although voluntary hospitals have generally been considered philanthropic institutions, it will be necessary to report their sales of services (cash or post-payment or pre-payment through insurance) in order to show that the trend during the past thirty years has been for a hospital to become more of a business institution and less of a philanthropic institution. In general, the study will examine philanthropic-type activities and institutions for the purpose of depicting the changing role of philanthropy in the American economy.

The term "transfer payments" in social accounting implies no *quid pro quo*; in that sense such payments are a type of charity. This term could have been severely modified and used as a substitute for the word "philanthropy" in the title of this study. But the necessary modifications would have proven too confusing to economists interested in social accounting. We shall, nevertheless, make considerable use of social accounting in trying to show the changing assets and liabilities, the changing income and outgo of philanthropic-type institutions and activities.

Ralph L. Nelson joined the philanthropy study staff on September 1, 1959. We expect to complete many of the statistical tables during 1960 and sketch some of the chapters of a report. A conference on philanthropy, to be held in 1961, will be expected to deal with the subject in a more speculative manner than

in the research project itself and should indicate some future trends in philanthropy.

FRANK G. DICKINSON

THE MOBILITY OF CAPITAL IN MANUFACTURING INDUSTRIES

The study of capital and rates of return in manufacturing is approaching its final stages. The chapter on rates of return as a determinant of the allocation of investment among industries is virtually completed, and only a final chapter on the relations between capital and labor in manufacturing industries remains.

The effects of differences among industries in realized rates of return upon their rates of investment vary with the time span under study. If one observes both realized rates of return and rates of investment in a given year, there is no reason to expect a strong relationship. If entrepreneurs correctly predict the schedule of rates of returns next year for various amounts of investment, and if they are able to make the investment corresponding to these rates, their competition should make realized rates of return equal in the various industries. Errors in prediction should not create any relation between investment and *realized* rates of return unless these errors are systematically biased, although the equality of realized rates will no longer obtain. Our regression analyses confirm this expectation: in each year of the period 1947-54 there was no significant relation between realized rates and relative increase in capital, changes in receipts (as a rough measure of changes in demand) being held constant.

As the period is lengthened, however, one would expect a positive relation to appear between rates of return and rates of investment. High realized rates of return (due perhaps to errors of expectations) would lead to higher than average rates of investment in a subsequent period. This expectation is also confirmed for both of the periods into which our data have been divided: 1938-47 and 1947-54.

In both annual and longer-period analyses, the movements of receipts are the dominant

determinant of investment, and the elasticity of relative investment rates with respect to relative changes of receipts is usually about 0.5 to 0.6. Since both receipts and investment are in book values, however, they are subject to the parallel price movements that tend to exaggerate the relation between the "real" volume of demand and investment. When the deflated data for capital, rates of return, and output are utilized—and here, unfortunately, the analysis must be restricted to 21 two-digit industries—the influence of rates of return becomes as large as that of changes in output over long periods.

The general impression one draws from the numerous regression analyses upon which these remarks are based is that the direction of investment is fairly responsive to expected rates of return. Some attempt has been made to test this conclusion directly by measuring movements of expected rates of return by changes in the market values of the securities of industries (an approach suggested by Yehuda Grunfeld's work). The data on industry security values are so meager, however, that one can say little more than that the interesting results reinforce the need for vastly improved security price indexes for the American economy.

GEORGE J. STIGLER

FARM OUTPUT, CAPITAL, AND PRODUCTIVITY

The first two studies reported below were begun under a National Science Foundation grant at the University of Chicago. Work on them was completed shortly after I became a research associate at the National Bureau in September 1959, and the third, longer study was then begun.

Estimates of the Aggregate Elasticity of Farm Supply

This paper reports on an econometric analysis of the index of total farm output, relating it to prices received and paid by farmers, a weather index, trend, lagged farm output, and other variables. Similar analyses were also performed on the "all crops" and "livestock

and livestock products" subaggregates. My results confirm the existence of a statistically significant, albeit small, positive response of farm output to changes in the ratio of prices received to prices paid. That is, farm output tends to increase when the ratio of prices received to prices paid increases, and to decrease when the price ratio declines.

The estimated short-run price elasticity of total farm output is about 0.1 to 0.2 and the estimates for the "crops" and "livestock" components fall within the same range. The estimated trend coefficients are consistent with independent estimates of the growth of productivity in U.S. agriculture. There is also strong evidence that the responsiveness of farm output to price changes has increased substantially in recent years. Dividing the whole period into two subperiods results in much higher price coefficients for the 1935-58 period than for the 1911-34 period. This is related to and confirms Moore's finding of increasing conformity of crop cycles to business cycles. (Cf. Thirty-third Annual Report, May 1953, pp. 35-36.) A paper based on this study is scheduled to appear in the May 1960 issue of the *Journal of Farm Economics*.

Capital Stock in Investment Functions: Some Problems of Concept and Measurement

The stock of capital plays two roles in a function purporting to explain gross investment. It has a negative effect on net investment because of the depressing effect of the existing stock of capital on the rate of adjustment to the new equilibrium level of stock. It has a positive effect on gross investment since the level of replacement demand is a function of the existing stock of capital (and its age distribution). But what is the appropriate measure of capital to use in this context?

The paper argues that these two different roles of capital may also require two different measures of it. Furthermore, it is argued that a quantity (or capacity or number of machines) measure of capital is the more appropriate measure of the depressing effect of the existing level of capacity on new investment, whereas the depreciation in the market value

of the existing stock of capital is the better measure of replacement demand. The latter argument is based on the assumption that entrepreneurs desire to keep the value of their capital intact. Since market value depreciation can be well approximated by a declining balance scheme, replacement demand is proportional to a net stock (market value of capital) concept.

These hypotheses are tested in a study of U.S. farmers' gross investment in machinery and motor vehicles (1921-41, 1947-58). A wide variety of capital measures is used in conjunction with several other independent variables. None of the capital measures is significant singly. When two measures of capital are introduced together, one approximating the quantity and the other the value concept, both are highly significant and have opposite signs. The value or net stock concepts have positive signs, whereas the quantity or gross concepts have negative coefficients. Several alternative hypotheses that could explain these results are examined, and it is concluded that they accord more with the original hypothesis than with the alternative explanations.

The Rise in Agricultural Productivity

During the last twenty years farm output increased by 57 per cent while man-hours used for farm work fell by 46 per cent. As the result of these developments farm output per man-hour rose by close to 200 per cent in the United States between 1939 and 1958. In comparison with this period, the changes in farm output and farm output per man-hour in the previous thirty years (1910-39) were minute. Similar large increases in farm output in this country occurred previously only as a result of settlement on new land and they were not accompanied by comparable increases in productivity.

I intend to investigate how these recent large increases in farm productivity came about and what caused them. The most recent twenty years (1939-58) in the United States will be the focus of interest, but an attempt will be made to provide both historical and world-wide perspective. Also, while substantial attention will be devoted to the meth-

odological and theoretical problems of measuring output, the inputs used in agriculture and their changing productivity, and the contribution of specific innovations, the goal of this study is not to produce another measure of the rise in agricultural productivity but to explain it. The knowledge gained will be used in evaluating the prospects for continuation of the recent high rates of growth in farm output and productivity.

ZVI GRILICHES

NATIONAL WEALTH AND NATIONAL BALANCE SHEETS

The manuscript on the national wealth of the United States during the postwar period was enlarged by including estimates for 1957 and 1958, and by the addition of two chapters, one dealing with capital-output ratios in the United States in the postwar period, and another with the international comparison of the structure of national wealth, its growth during the postwar period, and average and marginal capital-output ratios in various countries. The revised manuscript is expected to be ready in mid-1960.

The basic national and sectoral balance sheets were similarly extended to include data for 1957 and 1958, with the help of a grant from the Research Fund of the Mortgage Bankers Association. These data, together with additional material on the stock of residential real estate, will be used in preparing a manuscript on the national balance sheet and the position of housing in it that is to be completed in the spring of 1960. One new body of material was prepared for this report: a retabulation of Survey of Consumer Finances data for 1950, which for the first time provides information on assets and liabilities separately for debt-free and mortgaged homeowners and renters.

At the request of the Joint Economic Committee I prepared, with the assistance of Robert Lipsey, a draft report on the connection between price level changes and net worth, using both national and sectoral balance sheets and other relevant data taken primarily from sample surveys of consumer finances and estate tax returns.

Considerable progress was made in the preparation of an extensive document containing the basic data on which the estimates of national wealth and national balance sheets are based and showing in detail the derivation of these estimates. It is hoped that the manuscript, on which Milton Kelenson, Robert Lipsey, and Morris Mendelson are working with me, will be completed in the summer of 1960.

RAYMOND W. GOLDSMITH

OTHER STUDIES

Robert J. Lampman's report, *Changes in the Share of Wealth Held by Top Wealth-Hold-*

ers, 1922-1956, was published as Occasional Paper 71. His full manuscript on this subject will shortly be submitted to the Board. A manuscript by Michael Gort, "Capital Formation: Sources of Funds," will soon be ready for Staff review.

Abramovitz reports on a study of long cycles in construction in Section 1. For a list of recent and forthcoming publications on capital formation, see the end of Section 1. Other studies dealing with capital formation and financing are reported in Section 4, and a report on a study of international capital movements is in Section 5. The activities of the Conference on Research in Income and Wealth are described in Part II.

3. BUSINESS CYCLES

THE POSTWAR BUSINESS CYCLE

Secular changes in the occupational and industrial structure of employment in the United States have had significant effects on the character of the cyclical swings in employment in the postwar period. In order to analyze these effects we have, with the assistance of Jane Kennedy, developed two types of statistical compilations. One, consisting of monthly or quarterly employment data for the postwar period, shows how various occupational-industrial groups have fared during recent business cycles. The other, which comprises employment or labor force data at intervals of a decade or so back to the 1870's, shows how these groups have shifted in relative importance over the years. Together these materials enable one to determine whether and to what extent industries or occupations that are highly unstable cyclically have diminished in importance, and when such shifts took place. Projections of trends in the composition of the labor force can also be analyzed for their implications with respect to cyclical stability in the future.

Some results of this analysis, together with an analysis of other factors bearing on economic stability in the postwar period, were

presented by Arthur Burns in his presidential address before the American Economic Association in December. This address appears in the March 1960 *American Economic Review*. We plan to prepare an Occasional Paper setting forth the statistics on employment trends and cycles in the near future.

ARTHUR F. BURNS

GEOFFREY H. MOORE

STATISTICAL INDICATORS

The study of indicators published in 1950 as Occasional Paper 31 suggested that certain types of economic processes behaved in a notably consistent and distinctive manner during business cycles prior to 1938. Of the several hundred series examined, twenty-one were selected as the best available representatives of these processes. In most instances there was not only good statistical evidence but also a satisfactory economic rationale to account for their typical behavior. A considerable number of more or less stable features of the economic environment, not just one or a few, underlay the persistent leads or lags shown by the statistics. Hence it seemed likely, though by no means certain, that the cyclical behavior of

these processes after 1938 would be consistent with what it was before.

Since 1938 we have recorded eight business cycle turns. The first two occurred in 1945, when the economy was reconverting from a wartime to a peacetime basis. Leaving these to one side, and confining attention to the last six turns (in 1948, 1949, 1953, 1954, 1957, and 1958), we can determine whether the twenty-one indicators acted in a manner consistent with their prewar behavior.

Since the indicators were grouped into eight leading, eight roughly coincident, and five lagging indicators on the basis of prewar data, a matter of primary interest is whether the postwar timing of the indicators has been consistent with this grouping, and how the degree of consistency compares with the prewar record. Table 3 summarizes the results. Column 3 shows that 93 per cent of the timing comparisons for the indicators previously classified as leading were "consistent" in the postwar period; that is, were leads. This is, if anything, a bit better than the prewar record, when these series led in 81 per cent of the cases (column 4). For the roughly coincident group, as determined from prewar experience, we find that 71 per cent of the timing comparisons in the postwar period were again roughly coincident—that is, had a lead or lag no longer than three months distant from the business cycle turn. This again is very close to the prewar figure, 68 per cent. For the lagging group the postwar figure is 71 per cent; the prewar, 72 per cent. Taking all twenty-one indicators together, the percentage of timing comparisons that were consistent with the prewar classification of the indicators was 79 per cent in the postwar period; 75 per cent, prewar.

The average lead or lag of each group, taking all timing comparisons together (columns 5 and 6), provides another test of the validity of the classification made on the basis of prewar experience. The postwar averages turn out to be longer leads or shorter lags than the corresponding prewar averages, but the differences among the averages for the several groups are broadly similar.

The percentages in columns 7 and 8 show

how frequently the indicators failed to reach a corresponding turn every time a business cycle turn occurred. Here we find that the leaders skipped a larger proportion of turns in the postwar than in the prewar period, while in the other two groups the percentages were roughly the same as prewar.

Columns 9 and 10 pertain to the frequency with which each group reached cyclical turns in the absence of a corresponding business cycle turn. They did so more frequently postwar than prewar. As a matter of fact, all of the "extra" turns in the postwar period occurred during the Korean war, 1950-52, when a number of crosscurrents associated with that conflict developed in the economy.

In summary, we can say that out of the 120 cyclical turns in the 21 indicators in the postwar period, 70 per cent occurred in their expected position relative to business cycle turns—that is, in the position to be expected on the basis of prewar performance. The corresponding percentage for the prewar period is exactly the same. We can also say that of the 126 opportunities to match business cycle turns in the postwar period, the indicators reached turns in accordance with their prewar classification in 67 per cent of the cases. The corresponding prewar figure was 66 per cent. On the whole, the indicators did as well in the postwar period as could have been expected in the light of their prewar record.

A "success" record of 67 per cent does *not* mean that in two out of three business cycle turns the indicators worked out as expected, whereas in one out of three they did not. At each of the six business cycle turns since 1948 a majority of the indicators reached cyclical turns in accordance with their prewar classification. Nevertheless, since these majorities varied and in any case never exceeded 80 per cent, the results underline the advantage, if not the necessity, of depending on groups of indicators rather than any single one (of average fallibility).

It should not be supposed, however, from the fact that these groups of indicators have retained substantially their prewar cyclical timing, that this is true of every single indi-

TABLE 3
Timing of Twenty-One Indicators at Postwar and Prewar Business Cycle Peaks and Troughs

Indicator Group	Timing Comparisons													
	Total Number		Per Cent Consistent ^a		Av. Lead (-) or Lag (+), in Months		Skipped Business Cycle Turns, per Cent		Extra Specific Cycle Turns, per Cent		Total Business Cycle Turns Covered		Total Specific Cycle Turns Covered	
	Postwar (1)	Prewar (2)	Postwar (3)	Prewar (4)	Postwar (5)	Prewar (6)	Postwar (7)	Prewar (8)	Postwar (9)	Prewar (10)	Postwar (11)	Prewar (12)	Postwar (13)	Prewar (14)
Eight leading	38	159	93	81	-11	-5	21	10	17	10	48	176	46	176
Eight roughly coincident	42	119	71	68	-3	-1	12	14	9	2	48	138	46	122
Five lagging	26	36	71	72	+2	+3	13	12	7	5	30	41	28	38
Twenty-one	106	314	79	75	-5	-3	16	12	12	7	126	355	120	336

NOTE: The postwar period includes three business cycle peaks (Nov. 1948, July 1953, July 1957) and three troughs (Oct. 1949, Aug. 1954, April 1958). The prewar period includes all business cycle turns covered by each indicator through June 1938. For list of indicators, see *Statistical Indicators of Cyclical Revivals and Recessions*, Occasional Paper 31, 1950, Table 12. The prewar record given in that table differs from this one because of various revisions, but the differences are not great. For example, the percentages of consistent timing comparisons, corresponding to col. 4 above, are 81, 71, 80, and 78.

^a For leading indicators, consistent timing comparisons are leads plus one-half the exact coincidences; for roughly coincident indicators, rough coincidences (leads or lags of one to three months and exact coincidences); for lagging indicators, lags plus one-half the exact coincidences.

cator in each group. Several of the indicators would, on the basis of the fuller information now available, appear to be better classified in a different group, or dropped altogether. Moreover, series that better represent the type of economic process concerned have become available since the 1950 study was completed, and new studies have revealed consistencies in cyclical behavior that were not known at the time. For all these reasons we have, during the past year, constructed a new list of indicators. The new list will be published in the book, *Business Cycle Indicators*, now in press.

GEOFFREY H. MOORE

MONEY AND BANKING

Occasional Paper 68, *The Demand for Money: Some Theoretical and Empirical Results*, was published in November 1959. This paper is part of the larger study that Anna Schwartz and I have had in process.

It has now been decided to present this larger study in two volumes, one giving the historical background of the money supply, the other a statistical analysis of the secular and cyclical behavior of the money supply plus a description of the construction of the money series.

The first of these volumes is an outgrowth of what was originally intended to be a brief introductory chapter to the statistical analysis. It has now become a substantial manuscript in its own right. During the year, a draft of the final section, covering the period 1933 to date, was completed, so that there is now a complete draft of both projected volumes. There remains the task of writing introductory and concluding chapters for the historical volume and revising the existing drafts of the intervening chapters in light of criticisms by the Staff and others. It is hoped that this can be done by the middle of the year. We shall then turn to a similar revision and tidying of the drafts of the statistical volume.

In the historical section, one of the more interesting and currently relevant issues discussed is the post-World War II changes in the public's holdings of money and other

liquid assets in relation to price movements. For the immediate postwar years, from 1946 to 1948, the puzzle, as it seems to us, is why the rise in both the stock of money and in prices that occurred was no larger than it was, given both the very high level of the public's cash balances and government security holdings relative to income and the relatively low rates of interest on government securities that the Federal Reserve System committed itself to support. How was it that, at these rates, the public was willing to hold such a large stock of assets whose value was fixed in nominal terms?

Paradoxical though it may seem, the low rate of increase in the money supply as well as in prices reflected the willingness of the public to hold much cash, as part of its willingness to hold much liquid assets. Had the public desired to dispose of more of its liquid assets, the attempt to do so would have tended to drive down prices of government securities and raise their yields, which, in turn, would have led the Federal Reserve System, in pursuance of its support program, to buy government securities, thereby raising high-powered money and the total stock of money.

We concluded that two factors largely explained the slow growth in the money supply and in prices. One was the large government surpluses. These enabled the public to reduce the ratio of its money and liquid-asset holdings relative to its income to a limited extent without producing either inflationary pressure on prices or monetary expansion under the support program. The second was a widespread public fear of a major contraction and a continued belief that prices were destined to fall. This state of expectations explains why the public wished to reduce its ratio of liquid assets to its income by only a limited extent and was willing to maintain this ratio well above its prewar level.

The failure of the 1948-49 recession to develop into a major contraction, and then the outbreak of the Korean war, shook these expectations and this change helped to produce the sharp price rise in the latter half of 1950 and to convert the bond support program into the actual engine of monetary ex-

pansion that had been its potential all along.

Ever since, our analysis suggests, there has been a continued shift in expectations about the future course of prices away from the immediate postwar prospect of a price decline and toward widespread expectation of a price rise. These anticipations do not duplicate in any way the actual behavior of prices. If our analysis is right, there has been a far more drastic shift in expectations than in the actual behavior of prices, and indeed in the opposite direction—prices have, if anything, risen less since, say, 1951 than from 1946 to 1951, yet expectations have shifted from an anticipated decline to an anticipated rise in prices.

These anticipations and the changes in them may help explain both the abnormally low velocity in the early postwar period and the rapid and substantial rise since to a level well above that which would have been suggested by the long-run demand function for money in Occasional Paper 68. (Cf. Richard Selden's report in Section 4.)

Phillip Cagan has completed a second draft of most of his monograph on the determinants of the money supply in the United States from 1875 to 1955. The plan of the work calls for two final chapters, which are still in an early stage. These chapters, based on his analysis of the sources of change in the money supply, discuss the contributions of the money supply to cyclical and secular variations in prices and economic activity.

MILTON FRIEDMAN

COSTS AND PROFITS

Labor Cost

We extended our monthly data for eighteen industries through September 1958. The new figures enable us to add another group of production cycles, corresponding to the business cycle of 1954-58, to the four groups previously studied.

Processing and analysis of the new figures show that the relations among hours per unit of product, hourly earnings, labor cost per unit of output, the level of production in the individual industry, and the level of general

business activity were similar to the relations prevailing in earlier cycles (Table 4). Hours per unit and labor cost fell in most expansions of production (Stages I to V), rose in most contractions (Stages V to IX). Hours per unit in most industries fell both in the business expansion and in the business contraction, but declines were much more frequent in the expansion. In both phases of the business cycle, labor cost increased in most industries. The frequency of rises in hours per unit and cost tended to increase in both kinds of expansions and decline in both kinds of contractions, although the trend from segment to segment was irregular, as is usual in observations for a single-cycle period. Almost without exception, because of general increases in hourly earnings, rises in labor cost outnumbered rises in hours per unit in all segments of either kind of cycle. Except for the predominance of rising cost in the contraction phase of the 1954-58 business cycle, all of these features agree with those observable in the four earlier periods. As usual, labor costs in most industries were higher at the end of the full cycle than at the beginning.

Until now all our work has been at an individual-industry level. The 1954-58 figures make it possible to construct fairly long composite monthly indexes of production, man-hours, compensation, man-hours per unit of product, and cost per unit for fifteen manufacturing industries combined, 1947-58. They point a lesson on the perils of statistical aggregation. When we studied these fifteen industries individually, we found hours per unit falling in most of the individual expansions and rising in most of the individual contractions during this period. The composite index of production also has contractions, in 1948-49, 1950-52, 1953-54, 1955-58. But an index of hours per unit computed by dividing the composite production index into the composite hours index declines in every one of these four contractions as well as in the expansions. The only difference is that the fall proceeds more slowly in the former than in the latter. The composite data conceal the typical experience of the component industries.

The main explanation is that aggregation

TABLE 4

Percentage of Industries with Rising Hours per Unit or Labor Cost, 1954-58 Business Cycle and Corresponding Individual-Industry Production Cycles, Eighteen Industries

From Stage	To Stage	Production Cycles		Business Cycle	
		Hours per Unit of Output	Labor Cost per Unit of Output	Hours per Unit of Output	Labor Cost per Unit of Output
I	II	0	6	6	28
II	III	6	31	28	67
III	IV	31	62	22	89
IV	V	19	44	28	78
V	VI	81	94	28	29
VI	VII	38	75	78	89
VII	VIII	50	62	33	39
VIII	IX	75	81	39	33
I	V	0	19	6	61
V	IX	62	88	44	61

NOTE: Stage I is the three months centered on the initial trough, Stage V the three months centered on the peak, and Stage IX the three months centered on the terminal trough. Stages II, III, and IV cover successive thirds of expansion; VI, VII, and VIII successive thirds of contraction. The business cycle turns are August 1954 (trough), July 1957 (peak), April 1958 (trough). The dates of production cycle turns vary from one industry to another.

reduces fluctuations in production and consequently their influence on hours per unit. Since the industries do not reach a peak or a trough simultaneously, the fluctuation in aggregate production is smaller, percentagewise, than the average fluctuation in the components. The influence of technological change, which tends to reduce hours per unit in contractions as well as in expansions, is not similarly reduced.

A discussion of the aggregation problem is included in a revised version of the Occasional Paper on *Changes in Labor Cost During Cycles in Production and Business*. The new version takes account of suggestions received from directors and others, and embodies the recent experience.

Cost, Prices, and Profit Margins

We brought up to date, through the second quarter of 1959, our figures on sales and profit margins in the twenty-two standard divisions of manufacturing. These are basically

Federal Trade Commission-Securities and Exchange Commission data, adjusted by us for defects in coverage as well as for seasonal variation. We also brought up to date similar material for railroads, the telephone industry, and electric utilities.

To obtain some information on margins in the era before the data for broad manufacturing areas become available, we had previously collected quarterly figures on sales and profits of large individual manufacturing companies before World War II. During the year we checked and edited these compilations. Considerable editing was necessary to take account of allowances for contingencies, capital gains and losses, tax adjustments relating to earlier operations, and other large, nonrecurring items that tend to make the figures non-comparable from quarter to quarter and to distort the cyclical variation. Information about sales and margins thins out rapidly as one pushes the search for data farther and farther back into the past, but usable infor-

mation was obtained for twenty-three corporations over the 1932-38 business cycle, and for some of them as far back as 1919. The electronic technique of seasonal adjustment cannot at present handle negative mixed with positive figures, and many of these companies had negative profit ratios at the bottom of the Great Depression. We therefore transformed the data into cost ratios, which are all positive and can be handled by the electronic program.

We seasonally adjusted the indexes of prices received that we were able to find or construct for seventeen of the twenty-two manufacturing divisions, and began some inquiries into the relation between price change and margin change. Theoretically it should be possible to construct indexes of cost per unit of product from the price and margin data, since cost per unit of product equals cost per dollar of sales times price per unit of product. We applied this formula to the quarterly price and margin data for the seventeen divisions, but will have to experiment with the resulting estimates before we can judge whether the inevitable imperfections in the figures are fatal to their use.

Meanwhile, on the basis of material in shape for analysis, I began a manuscript on interrelations among costs, prices, and margins. The conclusions so far were largely anticipated in last year's report. The data on large individual companies will be incorporated. Even though they have not yet been fully analyzed, it is already evident that they will confirm the general picture of a positive cyclical relation between profit margins and sales. It is too early to tell whether they will also confirm the tendency for margins to decline in the later stages of sales expansion and to rise in the later stages of sales contraction. Whatever trustworthy conclusions emerge from the quarterly cost estimates will also be included in the report. When our cost-and-profit investigations were started, accessible monthly or quarterly data on costs or margins were brief and scarce. A report based entirely on annual figures for margins and related income account and balance sheet items was therefore prepared at that time. Such annual

data still have supplementary interest. We therefore brought them up to date and will work them into the new manuscript.

THOR HULTGREN

PRICE STATISTICS REVIEW COMMITTEE

A Price Statistics Review Committee was appointed last autumn by the National Bureau of Economic Research at the request of the Office of Statistical Standards of the Bureau of the Budget. The committee is to undertake a review of the federal government's statistical programs dealing with prices and price index numbers, and to make recommendations for improvements and additions that may be needed for more effective analysis by both government and private users. The committee held its first meeting in Washington on November 14 and 15. Its members are Dorothy Brady, University of Pennsylvania; Edward Denison, Committee for Economic Development; Irving Kravis, University of Pennsylvania; Philip McCarthy, Cornell University; Albert Rees, University of Chicago; Richard Ruggles, Yale University; Boris Swerling, Stanford University; George Stigler, University of Chicago, Chairman. Harry McAllister of Washington State University, a Research Associate at the National Bureau this year, is Secretary.

The committee has determined to concentrate its review on the Consumer Price Index, the Wholesale Price Index, and the indexes of prices paid and received by farmers, but study will also be devoted to export and import prices and the price problems posed by the deflation of the national accounts. In addition to the work of the committee itself, a series of staff studies are being commissioned. They include (1) consumer durables in the consumer price index—Peter O. Steiner, University of Wisconsin; (2) general and special-purpose consumer price indexes—Eleanor Snyder, Franklin D. Roosevelt Foundation; (3) seasonal fluctuations in quantities and prices—Victor Zarnowitz, University of Chicago; (4) effects of changing coverage on the behavior of the wholesale price index—Harry McAllis-

ter, Washington State University (see below); (5) indexes of freight rates—Walter Oi, Transportation Center, Northwestern University; (6) quality changes in consumer durable goods—Meyer L. Burstein, Northwestern University; (7) alternative concepts of parity—Geoffrey Shepherd, Iowa State College.

The final report is to be submitted by October 1, 1960, and it is expected that this report and the staff studies will be published subsequently. GEORGE J. STIGLER

CYCLICAL STABILITY OF THE WHOLESALE PRICE INDEX: EFFECT OF CHANGES IN METHOD OF CONSTRUCTION

This problem is being explored as one of the staff studies for the Price Statistics Review Committee.

Since it was first instituted the Wholesale Price Index (WPI) has been used as a general measure of change in the level of prices. One characteristic of importance is the amplitude of its swing over the business cycle. To a

certain extent "mechanical factors" may have brought changes in the amplitude of this index, quite apart from the real changes that have occurred in the economy. For example, there have been extensive changes from time to time in coverage, in weighting, in the number of price reporters, and in the frequency with which price quotations are obtained.

Some evidence that partially reflects the effect of change in coverage is available for the period January 1926–December 1931. In the latter year the Bureau of Labor Statistics increased the number of commodities included in the WPI from 550 to 784, and revised the index back to 1926 based on prices collected during the period but not used in the former index. There exist, then, two indexes for 1926–31, one with 550 items and another with 784. Of the 234 additional items one was a raw material, 31 were semimanufactured goods, and 202 were finished goods. It would be expected that prices of finished goods would show a smaller amplitude than semimanufactured goods or raw materials. NBER cyclical analysis of price indexes for

TABLE 5

The Effect on Amplitude of the Changed Sample for the All Commodity Wholesale Price Index, 1926–1931

Date, and Position of Index	550-Item Index, 1926:100		784-Item Index, 1926:100		Ratio, Col. 4 to Col. 2, Per Cent
	In Index	Per Cent	In Index	Per Cent	
Jan. 1926 High	103.6		103.2		
June 1927 Low	93.8		94.1		
Sept. 1928 High	100.1		98.6		
Dec. 1931 Low	66.3		68.6		
	Change, 550-Item Index		Change, 784-Item Index		Ratio, Col. 4 to Col. 2, Per Cent
	In Index	Per Cent	In Index	Per Cent	
	(1)	(2)	(3)	(4)	(5)
Jan. 1926–June 1927	–9.8	–9.5	–9.1	–8.8	93
June 1927–Sept. 1928	+6.3	+6.7	+4.5	+4.8	72
Sept. 1928–Dec. 1931	–33.8	–33.8	–30.0	–30.4	90

SOURCE: 550-item index, Bureau of Labor Statistics, *Wholesale Prices*, Bulletin No. 543; 784-item index, *Monthly Labor Review*, February 1932.

these groups shows, for example, that the average rise and fall of finished-goods prices during four cycles, 1922-39, was only 0.5 per cent per month, compared to 1.0 per cent per month for semimanufactured goods and 0.9 per cent for raw materials during approximately the same period.

Although the 1926-31 period does not coincide with a complete cycle, evidence from data of that period shows the comparative swing of the old and the new index (Table 5).

The increased stability of the new index, both upward and downward, is evident. The amplitude of change in the new index varied from 72 per cent to 93 per cent of the relative swing in the old index.

A preliminary analysis of another overlapping period, 1947-51, when methods of handling the data were changed and the sample more than doubled, with the majority of items being added at a higher stage of manufacture, gives the same type of result. Further analysis of the overlapping periods, in order to delimit more clearly the causes of the decreased amplitude, is being made.

The feasibility of two other analyses is being studied. It has often been alleged that the prices collected for the WPI do not accurately reflect the actual prices at which commodities sell in primary markets. Methods of attacking this question, presently being explored, involve the comparison of Census data with BLS data and of trade source data with the official quotations and indexes.

A third analysis involves an attempt to show that measurements of price flexibility that are derived by counting price changes over some period of time are systematically influenced by changes in the number of reporters used per item.

Results of the studies are to be made available to the Price Statistics Review Committee by autumn 1960.

HARRY E. McALLISTER

ORDERS AND PRODUCTION IN MANUFACTURING INDUSTRIES

A monograph with the title as above (subtitled "A Cyclical Analysis") will be com-

pleted soon. A report on "The Timing of Manufacturers' Orders During Business Cycles," based on some of the results of the larger study, is to be included in the forthcoming volume, *Business Cycle Indicators*. The contents of the monograph is as follows:

1. Background and Scope of the Study
2. Nature and Limitations of Order Data
3. Size and Frequency of Fluctuations in New Orders and Manufacturing Output and Shipments
4. Cyclical Patterns and Sequences
5. The Timing of New Orders Relative to Shipments
6. Timing Comparisons Involving Production
7. Unfilled Orders, Prices, and Lags of Delivery
8. New Orders and Investment Expenditures
- 9, 10. Manufacturers' Orders during Business Cycles: Conformity and Timing
11. Cyclical Diffusion of Orders and Related Activities
12. Summary of Findings and Their Implications

Chapters 1-6 are completed and the jobs of data processing and analysis for the other substantive parts of the manuscript also are finished. Some of the results described in Chapters 7 and 8 are:

1. When new orders received by an industry persistently exceed its shipments (so that its backlog of unfilled orders persistently increases), this condition will as a rule reflect pressures of high demand upon productive capacities. One would expect prices to rise in such an "excess demand" situation. The hypothesis has been advanced and tested that, in industries in which a high or substantial share of output is produced to order, price change is a positive function of the change in the orders backlog. (Monthly data for 1948-58, provided by the Office of Business Economics, were used in these tests.) To take account of the inertia of industrial prices, the reaction was assumed to involve distributed lags of specified type (with weights receding steadily into the past according to geometric progression).

The results of this approach proved economically interesting and statistically significant. For such major industries as textiles or "other durable goods" (mainly lumber, furniture, and stone, clay, and glass products),

which are competitive to a relatively high degree, correlations of .86 and .73 were obtained between price change and backlog change (where the former was treated as a distributed-lag function of the latter variable). The coefficient for the paper industry is also high (.73). On the other hand, in industries with heavily predominant elements of imperfect competition or oligopoly, the association between price changes and backlog changes, while still positive, is rather weak. Thus the correlation coefficients for primary metals, motor vehicles, and non-automotive transportation equipment are respectively .47, .25, and .24. These are reasonable results, since the sensitivity of price to varying demand and delivery conditions can be expected to vary positively with the degree of competition in the given industry—or, inversely, with the index of concentration, which is the measure actually used in these comparisons. While the response of prices is thus found to be in the direction consistent with the hypothesis, its extent is often small; e.g., the elasticities of price change with respect to backlog change are mostly low (less than unity for all the major manufacturing industries examined, with the exception of textile-mill products). The time it takes for an average price reaction to reach its practical end varies among the industries, but most of the adjustment to a change in market conditions seems to be accomplished within a few—in some cases just one or two—months.

A paper dealing with these relations and entitled "Price Change and Backlog Accumulation" was presented at the December meeting of the Econometric Society.

For the period 1948-58, we have compiled estimates of the current value of investment orders by combining selected OBE series on new orders for producers' durable equipment with the F. W. Dodge series on industrial, commercial, and public utility construction contracts. The resulting figures led at each turning point in the SEC-OBE quarterly series on total plant and equipment expenditures. There are four two-quarter and two four-quarter leads, and the average is a lead of about eight months at peaks and troughs alike.

Comparison of the order-contract series with the SEC-OBE *anticipations* of plant and equipment expenditures showed the former to be superior in some respects as a predictor of the actual outlays on plant and equipment. (These tests utilized quarterly changes in the variables involved and made allowance for the different publication lags of the statistics.)

Expenditures on plant and equipment by major manufacturing industries show a considerable degree of association with new orders received by the same industries. Typically, the cycles in fixed investment lag those in new orders received by intervals of varying, but often substantial, length.

VICTOR ZARNOWITZ

POSTWAR CYCLES IN MANUFACTURERS' INVENTORIES

Two new chapters have been prepared on the basis of additional research. This was prompted partly by the availability of certain data accumulated by purchasing agents' associations, which made it possible to relate inventory behavior to the purchasing process. In addition it was deemed desirable to attempt a critique of Metzler's theory of inventory cycles in the light of the over-all findings of the study.

The entire manuscript (six chapters) has been reviewed by a Staff reading committee, and I am undertaking to make appropriate revisions.

T. M. STANBACK, JR.

APPLICATIONS OF ELECTRONIC COMPUTERS TO ECONOMIC RESEARCH

In the past two years the National Bureau has developed a small integrated unit for the application of electronic computing to economic research. The project has been supported by grants from the National Science Foundation and from the International Business Machines Corporation, as well as by a contractual arrangement with the Board of Governors of the Federal Reserve System.

The efforts of the electronic computer unit

were concentrated upon two objectives: to develop general purpose programs designed for economic analysis, and to adapt and apply programs to specific research projects of the National Bureau. In addition, the unit has advised and assisted economists outside the National Bureau in the application of electronic computers.

One of the main achievements of the past two years was the programming and operational development of the Bureau's standard business cycle analysis. With this program it is now possible for non-specialists to carry out a complete cyclical analysis of any time series. The program can be applied to cycles of any length or character, and also provides measures of long-term trends and rates of growth. A supplementary program, designed for the study of current business conditions, provides recession and recovery patterns of the type described by Moore in Occasional Paper 61, *Measuring Recessions*.

We have designed and partly completed a program for a comprehensive analysis of distributions, based on either ungrouped or grouped data. Analysis of frequency distributions is so often used by statisticians that machine treatment promises to be fruitful. Also, the computation of some measures, such as those of inequality, are rather time-consuming if done by desk calculators. Therefore they are rarely computed for whole time series of distributions or for any large number of regional or industrial systems. Furthermore, computational difficulties usually precluded, in the past, the provision of more than one measure of inequality. In view of the conceptual differences among these measures, it is often desirable to test whether specific findings are closely linked to the measure used, or whether they remain substantially the same when alternative measures are used. The electronic computer permits us to resolve this problem. Once the basic data are available and the computation of the basic measures is programmed, several measures can be provided at little incremental cost, as compared to the cost of a single measure.

We have continued to use the seasonal adjustment program developed and tested at the

Bureau of the Census with the cooperation of the National Bureau, and have consulted with the Census Bureau on various modifications of the program. We assisted in the adaptation of the seasonal adjustment program for the IBM-704 computer.

We assisted also in the application of electronic computer programs to Thomas Juster's project on consumers' buying plans (multiple-correlation analysis of questionnaire replies); Herbert Woolley's study of international trade (solution of simultaneous equations); Richard Easterlin's project on long swings in the growth of population and labor force; and Moses Abramovitz' project on long swings in U.S. economic growth (use of the "business cycle" analysis to measure long-term growth rates as well as long cycles).

In addition to application of programs to National Bureau projects, we attempted, within our means, to respond to requests from university, business, and government economists for advice on the use of computers in economic research and information on our programs and on the availability of programs for specific machines.

Plans are being formulated for a three-year program that will develop new areas of computer applications to economic problems.

GERHARD BRY

CHARLOTTE BOSCHAN

OTHER STUDIES

The following reports, which deal in whole or in significant degree with business cycle phenomena, were published:

Regional Cycles of Manufacturing Employment in the United States, 1914-1953, George Borts, Occasional Paper 73.

The Average Workweek as an Economic Indicator, Gerhard Bry, Occasional Paper 69.

Basic Facts on Productivity Change, Solomon Fabricant, Occasional Paper 63.

Federal Receipts and Expenditures during Business Cycles, 1879-1958, John M. Firestone, Studies in Business Cycles 9.

Housing Issues in Economic Stabilization Policy, Leo Grebler, Occasional Paper 72.

Changes in Labor Cost During Cycles in Production and Business, Thor Hultgren, Occasional Paper 74.

Consumer Expectations, Plans, and Purchases: A Progress Report, F. Thomas Juster, Occasional Paper 70.

Trade Balances during Business Cycles: U.S. and Britain since 1880, Ilse Mintz, Occasional Paper 67.

International Financial Transactions and Business Cycles, Oskar Morgenstern, Studies in Business Cycles 8.

Merger Movements in American Industry, 1895-1956, Ralph L. Nelson, General Series 66.

Two reports are in press:

The Quality and Economic Significance of Anticipations Data, Special Conference Series 10.

Wages in Germany, 1871-1945, Gerhard Bry, General Series 68.

Ruth Mack's manuscript, "Materials Purchasing and Business Fluctuation," is being reviewed by the staff. Abramovitz' study, which deals in part with the relations between severe depressions and long swings in economic growth, is reported in Section 1. James Earley's report on the quality of credit in booms and depressions is in Section 4. In Section 5 Ilse Mintz reports on her study of foreign trade and business cycles.

4. FINANCIAL INSTITUTIONS AND PROCESSES

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

The several major phases of this broad study of the economics of pensions are trends in the pension structure, its impact on aggregate saving, redistributive effects of the transfer payments involved, and the influences of the resulting flow of funds on various segments of the capital markets. The research is supported by grants from the Maurice and Laura Falk Foundation of Pittsburgh and from the Life Insurance Association of America.

The effects on saving and investment will depend in part upon various trends in the development of the pension structure, which are discussed below with particular reference to private pension plans. The trends in benefit formulas and vesting provisions, for example, will influence the size of fund accumulations.

In the case of the Federal Old Age and Survivors Insurance Program, however, the size of the trust fund is less important than the economic effects of the transfer payments involved. Payroll tax collections are estimated at \$9.7 billion for the current fiscal year and benefit payments at \$10.3 billion. All federal, state, and local government retirement programs, involving an aggregate of over \$16 billion a year in benefits, must obviously produce

a redistribution of income between taxpayers and beneficiaries, and consequently have important effects on consumption and saving. John J. Carroll of St. Lawrence University is now completing a study of the redistributive effects of these tax-supported programs.

From this analysis, we shall proceed to the more difficult question of the redistributive effects of private pension programs and their implications for consumption and saving. Our search for empirical evidence regarding the impact on aggregate saving is discussed below.

Capital Market Influences

The quantitative influence of pension funds on the capital market is well known; that is, we can trace with reasonable accuracy the size of the flow of pension fund accumulations into various sectors of the market. But annual tabulations of composite investment activities conceal differences in fund managers' decisions. The study of aggregate data may even give rise to the impression that all pension funds are invested alike.

Detailed examination of representative portfolios on a quarterly basis has been extremely helpful in verifying several observations about the management of pension trust portfolios. In the first place, it appears that despite their diversity and inherent flexibility, investment

policies are not sensitive to short-run changes in economic conditions, interest rates, or price differentials. Indeed, the emphasis on long-range objectives may even produce action quite inconsistent with trends prevailing at a particular point in time.

The widely advertised concentration of pension fund buying of common stocks has apparently been exaggerated. Fund managers have been spreading out in their choices during recent years. Also, the stocks most favored for pension trusts change from year to year, so that substitutions are constantly being made in any list of favorites.

Finally, the stabilizing influence of pension fund investing in equities may also have been exaggerated. It is clearly present as a cushion for a broad decline in prices, viewing the market as a whole; but in the case of individual issues or industry groups, pension fund buying and the limited amount of selling may often amplify the range of price movements as well as restrict them.

ROGER F. MURRAY

The Pension Structure

Assembling data for a statistical summary of the scope and characteristics of private pension plans and a history of their growth is essential as a basis for conjecture about the future size of the various fund flows. We have used two general points of interest as guides through the mass of data now available:

1. The scope of private pensions and the level of support which they will provide.
2. The amount of net new funds that will be forthcoming for investment in future years. Here something more than a comparison of current levels and an "estimate" for, say, 1975 is required, for the question of the pattern of annual asset accumulation is of great interest. Since differential rates of change can be expected to characterize the various fiscal operations of pension plans—contributions, earnings, and benefit payments—it is unlikely that net annual asset accumulation will be linearly related to the aggregate net asset change for the period of the projection.

For (1) we have concentrated on two characteristics of private plans: vesting and

benefit patterns. Initially we worked with cross-sectional surveys, which furnished information for a selected year or for a two- or three-year period. For various recent periods these surveys suggest that the general pattern of vesting can be described in these terms: (a) Very few plans, covering an insignificant fraction of participating employees, provide for immediate vesting. (b) A substantial percentage of plans, applying to an even larger fraction of employees, have no provision for vesting prior to retirement. (c) Where vested rights are provided, the usual prerequisite is attainment of a fairly advanced age, a considerable period of service, or some combination of the two.

In the 1959 Annual Report (Table 22, p. 66), a series of surveys were tabulated and it was pointed out that no real trend toward adoption of liberalization of the vesting provisions was visible over the decade ending in 1955.

However, this tabulation was based on surveys which, in each period, consisted only of new plans and of those plans in which changes had been made. The cumulative effect of the adoption of earlier vesting provisions in current and past periods could not be determined from the surveys. For a more precise measure of trends in vesting, therefore, it seemed necessary to develop a continuous sample of plans, and such a sample for large firms was constructed for use in studying both vesting and benefit formula trends. It is not designed to be representative of all plans, but the sample does include 124 large firms which have had pension plans in operation for a decade or more. These firms employ over 4.5 million covered workers, perhaps a third of the total number included in single-employer plans.

Table 6 gives the results of an analysis of the development of vesting provisions in these large-firm plans during the postwar years. The trend may be described as the change in the likelihood that an employee of specified age and years of service would have earned a vested right to a pension. The percentages are weighted by the number of workers covered

TABLE 6

Likelihood of Workers of a Given Age and Years of Service to Have Earned a Vested Pension Right,
124 Large-Company Pension Plans

Years of Service (cumulative)	Age Group							
	Under 30	30-39	40-44	45-49	50-54	55-59	60 and Over	
			<i>1947-49</i>					
Under 5 ^a	0.2	0.2	0.2	0.2	0.2	1.0	10.8	
5-9	0.8	1.3	1.3	1.3	1.4	2.2	12.0	
10-14		4.0	5.4	6.9	7.2	9.5	20.1	
15-19			7.5	9.3	9.8	12.5	25.0	
20-24				13.1	18.3	21.3	36.1	
25-29					18.3	21.3	36.1	
30-34						21.3	36.1	
35-40							36.1	
			<i>1950-52</i>					
Under 5 ^a	0.1	0.1	0.1	0.1	0.1	1.1	1.5	
5-9	2.2	2.6	2.6	2.6	2.7	3.7	4.1	
10-14		6.7	7.4	8.5	8.8	12.0	23.1	
15-19			9.8	11.1	12.0	15.5	29.5	
20-24				18.4	20.2	25.0	41.5	
25-29					20.2	25.0	41.5	
30-34						25.0	41.5	
35-40							41.5	
			<i>1953-55</i>					
Under 5 ^a	0.02	0.02	0.02	0.02	0.02	0.1	2.0	
5-9	1.8	2.3	2.3	2.3	2.5	2.6	4.5	
10-14		5.7	25.5	31.0	31.7	34.2	37.7	
15-19			26.9	32.6	34.6	38.2	43.4	
20-24				34.9	37.8	42.7	51.2	
25-29					37.8	42.7	51.2	
30-34						42.7	51.2	
35-40							51.2	
			<i>1956-59</i>					
Under 5 ^a	0.02	0.02	0.02	0.02	0.02	0.3	1.9	
5-9	1.9	2.3	2.3	2.3	2.6	2.9	4.5	
10-14		6.3	30.6	35.6	37.2	40.0	42.0	
15-19			38.4	43.9	46.7	49.9	59.6	
20-24				47.4	50.8	55.0	82.3	
25-29					50.8	55.0	82.3	
30-34						55.0	82.3	
35-40							82.3	

^a Immediate vesting through age 54 only.

by the plans, not the number in each particular category of age and years of service.

To illustrate the use of this table, one can study the trend in vesting for employees in the fifty- to fifty-four-year age group with fifteen to nineteen years of service. There has clearly been a major change in the chances that such a long-term employee will have a vested pension benefit, as is shown by the following excerpts from the table:

	<i>Likelihood of Vesting</i>
1947-49	9.8%
1950-52	12.0
1953-55	34.6
1956-59	46.7

Similar trends for a wide range of combinations of age and years of service can be discerned from the table.

This analysis of the continuous sample of plans clearly shows a trend toward earlier vesting provisions. But the significance of the results must be related to the pattern of labor turnover rates for various groups and industries. This will facilitate a more precise appraisal of the importance of the liberalization of vesting provisions for the cost of pension benefits and hence the asset accumulations involved. For example, in this sample of plans, it was just about as likely that in 1956-59 an employee aged forty-five with ten to fourteen years of service would have a vested pension right as it was that a sixty-year old employee would have such a right after twenty years of service in the 1947-49 period. If, in fact, there was little turnover in employees between the ages of forty-five and sixty, provided they had already worked for the same company ten years or longer, this earlier vesting trend cost very little. Conversely, for further liberalization of vesting provisions, the higher turnover rates in employees under age forty would require a material rise in contributions.

Also, the study of labor turnover rates in relation to vesting provisions should help in our search for an answer to this important question: What fraction of those presently covered under pension plans can be expected ultimately to receive benefits from them? Comparable studies on benefit patterns will also

make use of the continuous sample of large plans.

Concerning (2), above, exploratory work on estimates of the future size of the fiscal operations of pension plans suggests that even moderate variations in the assumptions used produce widely different results. While still within the range of "reasonable" possibilities, projections ten or fifteen years into the future can produce a range from a continually growing net annual accumulation to a start at decumulation. Obviously, further refinements are necessary in order to produce a credible range of results.

DANIEL M. HOLLAND

The Impact on Aggregate Saving

Pension funds conceivably increase aggregate personal saving, and one part of the pension project deals with this effect. The Annual Report for 1959 (p. 68) described a survey that elicited the amount of pension contributions and information on other saving behavior of a sample of 20,000 Consumers Union subscribers. We have analyzed the data from a set of questionnaires covering this group for the year preceding October 1958, and are now analyzing results of a new questionnaire answered by the same group six months later and giving more detailed information.

Our preliminary findings from the October 1958 set of questionnaires suggest that participation in a pension program does not produce any reduction in a household's total other saving, defined as the sum of changes in bank accounts, stocks and bonds, life insurance equity, real estate equity, and non-mortgage debt (in which an increase is treated as negative saving). Indeed, participants in pension plans seem to save more in other forms than non-participants: the former have slightly larger total saving even when contributions to pensions are excluded from the total, and they have much larger total saving when we include such contributions of their own and, *a fortiori*, of their employers on their behalf. The data were classified by age and income groups, so that they exclude the separate effects of these two variables.

We plan to check these preliminary results with those from the new questionnaire, now being processed, and to see whether they are explicable by some selection process. It might be, for example, that in our sample the occupational, educational, or other characteristics of those participating in pension plans, rather than merely their participation, are responsible for their higher saving ratios. Fortunately, the questionnaires provide a wealth of such information about the respondents.

If we find no evidence of a selection process at work, it would suggest that our results are not affected by any special characteristics of our sample and so ought to apply to any group; in particular, to groups that will come under pension plans in the future. The implication would be that aggregate personal saving is now higher, and will tend to grow still higher than it would otherwise as the equity in pension funds grows. Although the effect of the growth of pensions on saving suggested by these results may not last forever, it could be sizable over the next decade or two.

PHILLIP CAGAN

CONSUMER FINANCE STUDY

The basic purpose of this four-year study is to assess the role played by consumer finance in the functioning of the U.S. economic system. The growth of consumer credit during the first half of the twentieth century has been striking. Paralleling this growth, there has been continued progress in measuring and analyzing the volume of credit extended and outstanding since the early studies published by the National Bureau in the 1940's. The recent Federal Reserve study, *Consumer Instalment Credit*, to which the National Bureau contributed, presented a wealth of documentation and analysis by informed observers of the consumer finance field.

Yet continued development of consumer credit as a method of finance, and public interest in its implications, provide a constant reminder that basic questions remain unanswered in what has become a strategic credit sector. Informed opinion remains divided on many questions important to public policy

that are actively under discussion in both federal and state legislatures. For example, what are the basic facts concerning the relation of consumer credit to economic growth and stability? How does the American consumer view the institution of credit in formulating his expectations, plans, and decisions to borrow and buy? Is the consumer able to appraise the cost of credit in a reasonably effective manner? Does existing legislation on the state and federal levels provide an environment fostering the meeting of consumer demands for credit with an adequate supply at reasonable cost? To what extent is consumer finance responsive to general monetary controls? Because of the importance of these questions, the National Bureau has recognized the desirability of renewing its research efforts in consumer finance to help provide a firmer factual basis for policy considerations than now exists.

Initial work on this study, which began last summer, is being supported by grants from several sales finance companies. Four sectors have been selected for concentrated attention:

1. The Rate and Cost Structure in Consumer Finance. One of the major gaps in consumer credit statistics is the absence of series to measure the level of consumer credit charges and their changes. Development of such measures and analysis of their relation to lending costs will be the objective of this project. Paul Smith, Wharton School of Commerce and Finance, University of Pennsylvania, and Robert P. Shay are in charge of this work.

2. Economic Aspects of State Legislation Affecting Consumer Finance. The growth of retail instalment lending statutes and changing regulations affecting all fields of consumer finance will be studied with a view to their impact upon the economics of the firm, the industry, and the consuming public. Wallace P. Mors, Babson Institute of Business Administration, is conducting the study.

3. The Management of Consumer Finances. The study will focus upon (1) the structure of aggregate demands for credit by households and their relation to balance sheet items and income flows; (2) measuring the net effects upon consumer balance sheet and

flow magnitudes of a variety of demographic, financial, and expectational factors; (3) the degree to which credit costs and terms influence its use. F. Thomas Juster is engaged in this research. Philip A. Klein, Pennsylvania State University, has undertaken an analysis of certain data on the use of consumer credit by the unemployed. His work is described in the report that follows.

4. Factors Bearing upon Sources of Funds and Their Ultimate Use by Consumer Lenders. The increased inelasticity of the supply of loanable funds in the postwar period has been accompanied by marked changes in sources of funds to consumer lenders. The work will identify factors bringing about such changes and evaluate their effect upon lenders and the public. Richard Selden, Columbia University, is undertaking studies in this area. John Chapman, Columbia University, is expanding and bringing up to date a survey of financial statistics of consumer finance companies.

A summary report, bringing together the results of these and other studies, is planned.

In order to obtain the advice and assistance of experts in this field, an Advisory Committee for the project has been appointed by the National Bureau, under the chairmanship of Paul W. McCracken, University of Michigan. The committee held its first meeting in October 1959. The members are Dorothy S. Brady, Lester V. Chandler, John M. Chapman, Bertrand Fox, Raymond W. Goldsmith, Robert E. Lewis, Roger F. Murray, George W. Omacht, Roland I. Robinson, Sidney E. Rolfe, Herbert Stein, Van Buren Thorne, Jr., LeRoy A. Weller, and William L. Wilson.

ROBERT P. SHAY

The Pattern of Credit and Expenditure Adjustment to Unemployment

This study is concerned with the pattern of adjustment utilized by unemployed persons to alter their expenditures and debt obligations in the face of reduced income. It is designed to analyze the factors which most influence consumer spending and debt patterns, and to consider what categories of expenditure or debt will be most commonly altered by con-

sumers of various classes. Accordingly, the hypothesis is that these patterns are influenced by (1) the duration of unemployment, (2) the level of income prior to unemployment, (3) the per cent decline in income, (4) the family's liquid asset position, (5) the expectation of early reemployment, and (6) the predictability of unemployment before it occurred. These several factors could conceivably lead to (1) reductions in various categories of expenditure, (2) an increase in delinquency on credit obligations, perhaps resulting in repossession by the lender, (3) the using up of prior savings or other liquid assets, and (4) an increase in new debt by borrowing to meet current expenditures.

It is hoped that the present study will enable us to say something not only about the relations between the six factors mentioned above, and the types of adjustment just considered, but also about the priority patterns consumers adopt for reducing expenditures and credit obligations when faced with unemployment. We also hope to analyze these relations for consumers classified by several demographic variables (age, occupation, position in the family) in an effort to see what such a classification reveals about consumer behavior. The results should prove useful in analyzing the economic consequences of unemployment and the extent to which they are mitigated by unemployment benefit payments.

Basic data for the study were obtained from questionnaire interviews carried out in six states, under the auspices of the Bureau of Employment Security, for a sample of individuals selected from all those applying for unemployment compensation benefits in the last week of the "survey year." This twelve-month period differed from state to state, but all surveys were conducted between 1954 and 1959. The states included are Pennsylvania, Oregon, New York, South Carolina, Missouri, and Florida.

The basic data have been put on IBM cards and computations are now under way. It is expected that a draft manuscript of the results will be available by the end of the summer.

PHILIP A. KLEIN

THE QUALITY OF CREDIT IN BOOMS AND DEPRESSIONS

The major purposes of this group of studies, carried out under a grant from the Merrill Foundation for the Advancement of Financial Knowledge, are, first, to ascertain the relations that exist between the terms and borrower characteristics of various kinds of credit on the one hand and experience with such credit (delinquencies, defaults, repossessions, and losses) on the other; second, to assess the role that these qualitative credit factors may play in business cycle movements; and third, to explore the possibilities of developing timely data on qualitative changes in credit.

During the past year work has continued along lines previously staked out, and two additional studies have been started. Several of the earlier studies are nearly finished. The remaining task is to bring all of the studies to completion and to prepare a summary volume.

Consumer Credit Quality

A completed manuscript is currently being revised by Philip Klein and Geoffrey Moore. This study examines loan and borrower characteristics in consumer instalment credit; explores the relations of these loan characteristics to delinquency, repossession, and loss experience; and relates both loan characteristics and loan experience to changing economic conditions. Very broadly, the results show:

1. Collection experience, whether defined as delinquencies, repossessions, or losses, varies significantly with the down-payment percentage required of the borrower and with the maturity of the credit contract.

2. Contrary to the beliefs of some, small down payments and long maturities tend to be positively rather inversely associated—that is, instalment contracts with longer maturities ordinarily also carry, on the average, somewhat smaller down-payment percentages.

3. During the postwar years there has been a progressive though unsteady reduction in the typical down-payment ratio and an associated lengthening of typical maturities.

4. While over-all delinquency, repossession, and loss rates of lenders have generally remained low in the postwar years, there are sufficiently close relations between easier credit terms and greater collection difficulties, and between both of these and swings in business activity, to raise some question whether the onset of a protracted recession might not cause serious collection difficulties and reduce lenders' willingness to finance instalment sales as fully as in recent years.

5. Borrower characteristics (age, marital status, occupation, income, net worth, and liquid-asset holdings) are much less clearly related to collection difficulty than are terms of the loan. Nevertheless, analysis does indicate that weak borrower characteristics, independently of loan terms, are of consequence to lenders and potentially to economic stability.

Credit Quality in Agriculture

This study, directed by George Brinegar, embraces the short- and intermediate-term loans of the Production Credit Associations and the long-term mortgage loans of the Federal Land Bank System. For our purposes, detailed analysis of the PCA data is being confined to the Springfield District (New England, New York, and New Jersey), and analysis of the Land Bank data to New York State, which represents about one-half of the Bank's loans in the Springfield District.

Preliminary results from the PCA data were published in the last Annual Report (p. 58). The Federal Land Bank data are being used to examine the following: (1) The behavior through time of the ratio of amount of loan to land value, the grade of farm, and the grade of area of the land mortgaged, to see whether there have been secular or cyclical movements in these qualitative characteristics; (2) the behavior through time of foreclosure and loss rates on the loans; (3) the relations existing between loan characteristics and loan experience. In this last matter analysis will attempt to determine whether lower grades of farm and area and higher percentages of value lent are significantly associated with foreclosure and losses, and whether these interrelations

themselves have shown cyclical or secular patterns.

A report covering both the PCA and the FLB studies is to be completed this summer.

Bank Loan Quality

Two major studies in this field have proceeded far enough to permit some tentative conclusions.

The first is a study of bank loan losses conducted by the Federal Reserve Bank of Chicago, under the direction of George W. Mitchell and published by the Chicago bank in a pamphlet, *Loan Loss Experience at Member Banks of the Seventh Federal Reserve District, 1957 and 1958*, by Mary T. Petty and Theodore H. Schneider. The bank is undertaking to make a similar study for 1959.

The special value of this study lies in its separation of losses by type of loan (consumer, business, non-real estate farm loans, and real estate loans), and showing the type of business of the borrower and the borrower's asset size for all business loan losses. The data thus permit calculation of loss rates by type of loan, by size and industry of business borrowers, by bank location and size, and by the composition of bank loan portfolios. Some findings of importance are:

1. Loan losses continued to be moderate in 1957 and 1958, as has been the postwar experience; there was, however, an appreciable rise in loss rates in 1958 over 1957, probably as a result of the business recession.

2. This increase in loss rates was greatest for business loans and next greatest for consumer loans, the types that also showed the highest loss rates for 1957.

3. In both 1957 and 1958, for each type of loan, the larger banks as a group had lower loss rates than the smaller banks. But this was partly or fully offset by the larger banks' heavier concentration on loans to consumers and business, which showed the highest incidence of loss.

4. Loss rates on business loans were generally higher for small business borrowers than for larger ones, although there were exceptions in certain industry classes.

5. There were also significant differences in loss rates by type of industry. Loans to retail trade suffered loss rates twice as high as those for any other industry, and in retail trade there was an especially sharp contrast between loss rates for the larger and smaller borrowers.

6. Banks concentrating most heavily in consumer lending tend to have significantly higher consumer-loan loss rates than others. On the other hand, banks whose portfolios were more concentrated in business loans had *better* loss experience on their business lending. In the main, this latter finding reflected the experience of the larger banks, which are more specialized in the business loan field; and it may largely reflect the fact that much of their lending is to large and prime borrowers.

The second study of bank loan quality is based on a pilot analysis of bank examination data secured through the cooperation of the Board of Governors of the Reserve System and the Federal Reserve Banks of New York, Philadelphia, and Atlanta. A draft manuscript by Albert Wojnilower, Federal Reserve Bank of New York, has been completed.

The study covers the business loans of sixty state member banks in the three Reserve Districts. Data were secured from the reports that the bank examiners compiled on each examined bank, 1947-57, and also from the individual loan cards prepared by the examiners in 1957. All the data examined in the study were coded, and complete anonymity of both bank and borrower has been scrupulously preserved.

The data for this sample suggest the following tentative findings:

1. Bank examination data appear to be generally valid and discriminating measures of the quality of loans in bank portfolios, as judged by other available criteria.

2. Movements of criticism rates may lead swings of general economic activity, but the sample is too small to confirm this positively.

3. Although more stringent lending standards are apparently applied to small firms, criticism rates and the risks of default and loss remain generally higher for loans to small concerns.

4. There are also significant differences in the quality of bank loans to firms in different industries. Loans to small borrowers in some industries appear to be less risky than those to larger borrowers in other industries.

5. There was some shift of the composition of loans from 1953 to 1957 toward those business lines which showed evidence of greater risk. This partial weakening of apparent credit quality was, however, offset by a concomitant shift toward loans to companies of larger size, on which risks are generally lower.

6. As judged by the financial ratios of new borrowers (compared with those already on the books), lending standards were apparently easier during the period of easy money and relatively fierce lender competition in 1954 and 1955, and tighter during the generally tighter credit and monetary situation of 1956. In 1957, however, financial ratios, particularly of large borrowers, weakened.

All these results, of course, pertain only to the sample of banks included in our study. They are, at most, illustrative of the kinds of information obtainable from bank examination materials.

Trade Credit Quantity and Quality

There are reasons to believe that the quality of trade credit undergoes sharper changes with changing economic conditions than most other types of credit. There are also indications that the maintenance of bank loan portfolio quality in recent years was associated with an expansion of trade credit from the larger and stronger firms (which could secure bank loans despite tight credit conditions) to the smaller firms buying goods and services from them. Moreover, the volume of trade credit has been growing faster than bank credit in recent years. Thus developments in the trade credit sector may portend some changes in the total credit fabric that could not be detected in portfolios of financial institutions.

For these reasons a general study of trade credit was started in the fall of 1959. Martin Seiden is engaged in this phase of the program. The objective is to get the best possible estimates of the quantity and distribution of trade

credit in the postwar years, along with changes in trade credit characteristics (such as maturities and other credit terms) and measures of trade credit experience, including delinquency, default, and loss rates.

Special data are being generously provided by the Credit Research Foundation, Dun and Bradstreet, the Robert Morris Associates, the National Commercial Finance Conference, the Board of Governors of the Federal Reserve System, and others. Victor Zarnowitz' study of the credit ratings of firms and the structure of insurance premiums and losses on insured trade receivables (cf. the Annual Report for 1959, pp. 59-62) will provide a useful adjunct to the new data. General movements of financial ratios of borrowing and lending firms will also be examined.

State and Local Securities

Growing state and municipal financing in the postwar years gives new importance to this sector of the credit system. Since 1956 the research department of the Investment Bankers Association of America, under the direction of Frank E. Morris, has been gathering and transcribing on punch cards basic data for virtually all new issues by states and municipalities. The data include the size of issue, its maturity, whether general obligation or revenue bonds, the rating given the issue by Moody's or by Standard & Poor's, the net interest cost, and the reoffering yield. An analysis of these data, which the Association is undertaking to develop, should indicate whether there have been significant shifts in quality characteristics in this credit sector, and whether changing economic and monetary conditions have modified the relations among the variables.

The Federal Deposit Insurance Corporation is currently engaged in a study of the quality of state and municipal securities in the portfolios of the banks they examine. The proportions of the securities classified by rating agencies and the examiners into various classes are being recorded and analyzed. It is hoped that the salient results can be utilized in the National Bureau's studies.

A Summary Report

A volume bringing together the results of the several quality-of-credit studies is being prepared as the required materials become available. Its main function will be to distill the findings of the studies of credit quality described above, and to evaluate their importance for economic knowledge and policy. The summary volume will also present relevant data on the postwar behavior of the quantity of credit in the different debtor and creditor sectors, and will provide a convenient place to present more up-to-date data, where available, on credit areas previously studied by the National Bureau.

JAMES S. EARLEY

RISKS AND RETURNS IN SMALL-BUSINESS FINANCING

Under the agreement reached with the Federal Reserve System in 1958, the preliminary report of the study of changes in credit quality for various sizes of business borrowers (published in Federal Reserve System, *Financing Small Business*, Report to the Committee on Banking and Currency and the Committees on Small Business, U.S. Congress, 85th Congress, Second Session, Washington, 1958, Part 1) was to be followed by a more complete report incorporating materials from sources impossible to exploit in the time available to meet the original deadline. Thus it was contemplated that a survey would be made of the records of bank examination authorities, new tabulations would be made of Robert Morris Associates data, and a time series be tabulated of Dun and Bradstreet credit ratings. These tasks are essentially completed and a final draft, presenting all the evidence bearing on the problem, is being prepared.

Both the Dun and Bradstreet study and the survey of bank examination reports represent basic contributions to the subject of credit quality. (See the report on the quality of credit study, above.) The new materials, dealing with differential changes in quality of credit between various-sized firms, have been of considerable value in substantiating findings based on somewhat less solid evidence

contained in the preliminary report. Nevertheless, the changes in the conclusions of the preliminary report that have resulted from the additional evidence are relatively minor, and the final report will shortly be ready for submission to the National Bureau's Board of Directors and to the Federal Reserve authorities.

GEOFFREY H. MOORE
THOMAS R. ATKINSON

THE POSTWAR RISE IN MONETARY VELOCITY

The project described in the 1959 Annual Report (pp. 69-70), which attempts to account for the sharp upward trend in the volume of transactions per unit stock of money since World War II, has been broadened in three respects: (1) To gain perspective on the postwar period, some of the estimates of sector velocities were extended back to the war years and the prewar period. (2) We used *Statistics of Income* to analyze postwar velocity changes within nearly fifty major industry groups. In addition, in five of these groups, velocities were computed by ten size-of-firm classes. (3) Finally, we conducted several crude tests of relations between velocity changes and changes in other variables (e.g., holdings of government securities) in an attempt to account for interindustry differences in velocity behavior.

Perhaps our most interesting new finding is that the rise in velocity in the business sector, at least since 1950, has been confined primarily to large firms. Other important findings are that cyclical changes in aggregate velocity are mainly the result of cycles in business velocity; the wartime decline in velocity was much more severe for households than for firms; and consumer velocity (especially when withheld taxes are removed from the numerator) has fallen substantially since 1939 in relation to business velocity. Some of these results, together with many charts, were incorporated in my testimony before the Joint Economic Committee, May 26, 1959.

During the year we also constructed several new multiple correlations of annual aggregate

velocity estimates, real income per capita, long-term interest rates, and yields on money substitutes for the period since 1919. These tests closely resemble those published in *Studies in the Quantity Theory of Money*, edited by Milton Friedman (Chicago, 1956). They differ from the earlier tests, however, in that all time deposits have been excluded from the velocity denominators and the six years 1952-57 have been added to the analysis. Furthermore, a new measure of the yield on money substitutes was computed, consisting of annual estimates of the weighted average yield on all important liquid assets.

A manuscript entitled "The Postwar Rise in Monetary Velocity: A Sectoral Analysis" was reviewed by the staff late in the year and revisions are now under way.

RICHARD T. SELDEN

POSTWAR CAPITAL MARKETS

Completion of all the manuscripts connected with this study, which has been supported largely by a grant from the Life Insurance Association of America, is expected during 1960. Roland Robinson's *Postwar Market for State and Local Government Securities* has been published. Saul Klamman's study of the market for residential mortgages has been submitted to the Board. Eli Shapiro's manuscript on the market for corporate securities and loans is scheduled to be completed this spring. A revised draft of the study of the market for treasury securities by Robinson and Morris Mendelson, now being completed by the latter, should be ready for Board review within a few months.

Of the Occasional and Technical Papers arising out of the Postwar Capital Market Study two were published in 1958 and 1959: *The Volume of Mortgage Debt in the Postwar Decade* (Technical Paper 13) and *The Postwar Rise of Mortgage Companies* (Occasional Paper 60), both by Saul Klamman. George Hanc's report on the saving bond program has been reviewed by the staff. Two Occasional Papers dealing with the national wealth of the United States and with national and sectoral balance sheets during the postwar period

are expected to be completed shortly. (See my report in Section 2.) Morris Mendelson's draft of an Occasional Paper analyzing the estimates of the quarterly flow of funds through the capital markets is likely to be finished this spring: a working memorandum containing the statistics was made available during 1959. Another Occasional Paper by Mendelson, which presents estimates of saving from 1946 through 1956 (continuing estimates of *A Study of Saving in the United States*), should be ready by the middle of the year.

As for the summary report of the study, arrangements have now been made for me to prepare such a report as a joint document for the National Bureau and the Commission on Money and Credit. A manuscript is expected to be ready for submission to the two organizations this autumn.

The status of the individual studies is described below by their authors.

RAYMOND W. GOLDSMITH

Residential Mortgage Market

The preliminary manuscript on the postwar residential mortgage market was revised in the summer of 1959 on the basis of comments received from the staff, and has been submitted to the Board of Directors. As finally revised, the manuscript consists of the following chapters and a foreword by Raymond Goldsmith.

1. Plan of the Book and Summary of Findings
2. Survey of Postwar Changes in Mortgage Debt Structure and in Mortgage Flows
3. Elements in the Changing Postwar Mortgage Market
4. Postwar Pattern of Mortgage Interest Rates
5. Flow of Funds into Mortgage Markets
6. Mortgage Lending Policies of Financial Intermediaries
7. Mortgage Market Techniques and Characteristics
8. The Postwar Rise of Mortgage Companies

SAUL B. KLAMAN

The Market for Corporate Securities and Loans

The Meiselman-Shapiro manuscript, "Corporate Sources and Uses of Funds"—annually

from 1950 to 1955 and quarterly from 1953 to 1955 for six broad subsectors of the corporate universe—is being prepared for review. A first draft of “The Market for Corporate Securities and Loans” is being revised. Both are expected to be available for review shortly.

ELI SHAPIRO

The Market for U.S. Government Securities

A preliminary manuscript on the market for Treasury securities was completed early in 1959 and was made available to the participants in the meeting called by the Treasury and the Federal Reserve in the initial stages of their study of developments in the government securities market in 1958. Revisions of Chapters 3 and 5 have been completed by Roland Robinson. These and other planned revisions will take into account Staff comments on the manuscript as well as the results of the Federal Reserve-Treasury study and that by the Joint Economic Committee.

It is hoped that within the near future we shall be able to bring the manuscript up to date and to include further analysis of money-market phenomena.

MORRIS MENDELSON

Estimates of Saving and the Flow of Funds

In the course of the year, new estimates of saving by major sector and by major components were developed for the period 1946-56. A manuscript dealing with the differences between these and estimates made by others, such as the Federal Reserve Board and the SEC, and explaining many of the technicalities of the derivations, is about two-thirds completed. I hope to have this manuscript ready for review shortly. The only data work that remains is the revision of some of the reconciliation tables.

My derivation of quarterly flow-of-funds figures for the years 1953 through 1955 has been issued as a Working Memorandum, so that the statistics would be available to specialists in finance. An analysis of these data in the form of an Occasional Paper will be undertaken as soon as work on the manuscripts

on U.S. government securities and on saving are completed.

MORRIS MENDELSON

United States Saving Bond Program

My study of the postwar saving bond program has been revised, utilizing recently compiled data on individuals' financial saving and asset holdings. The revised draft has been circulated to the Research Staff for review.

GEORGE HANC

THE INDIVIDUAL INCOME TAX

Substantial portions of materials and analysis that had been prepared in connection with our studies of the individual income tax were made available to the Committee on Ways and Means of the House of Representatives in the fall of 1959 and published by the Committee, together with papers submitted by others, in a three-volume collection of papers entitled *Tax Revision Compendium*. The papers presented by members of the National Bureau's Staff, which were supplemented by oral testimony by their authors before the Committee, were “Personal Deductions in the Individual Income Tax,” and “Coverage of Entrepreneurial Income on Federal Tax Returns,” by C. Harry Kahn; “Underreporting of Dividends and Interest on Tax Returns,” and “Stockholders' Differential Taxation and Tax Relief,” by Daniel M. Holland; and my own paper, “The Place of the Personal Exemptions in the Present-Day Income Tax.”

Harry Kahn's volume on personal deductions is in press and Daniel Holland's Occasional Paper on dividends is being prepared for press (see Holland's report below). My own manuscript on “The Personal Exemptions” is being mimeographed for submission to the Directors. Studies of entrepreneurial income (see Kahn's report below), capital gains and losses, and other components of taxable individual incomes are in progress.

In the literature of the income tax and in legislative debates on the subject in this and other countries, the need to protect some minimum standard of living has usually been emphasized as the central purpose of the per-

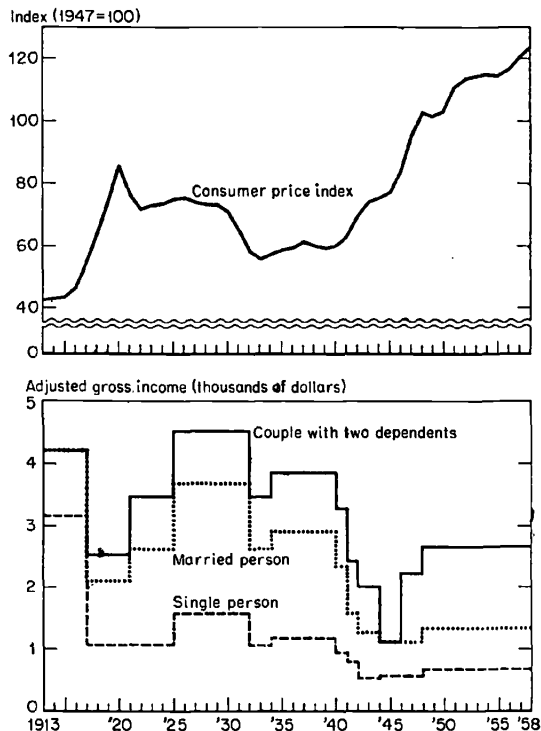
sonal exemptions. It is a striking fact, therefore, that the actual movements of the exemption levels in the United States over the whole period since 1913 have generally been opposite in direction to those in the cost of living. This is evident from a comparison of the Consumer Price Index, by years, with the maximum amount of adjusted gross income that a person could have before incurring any liability for income tax. Such a comparison, for single persons, married couples, and couples with two dependents, is presented in Chart 2.

It will be observed that the personal exemptions were reduced in 1917-20, when consumer prices were rising, and were increased in 1921-31, when prices were generally stationary or declining; that they were cut drastically in 1940-47, when the cost of living rose sharply; and that, following the increase from \$500 to \$600 in the per capita exemptions in 1948, they have remained stationary despite a substantial rise in consumer prices.

These contrary movements are less paradoxical than they may seem, however. The exclusion of the very poor from income tax has been only a part, and in some respects a minor part, of the functions of personal exemptions as employed in the United States. In American practice, the exemptions fix the amounts of income, whether received by the relatively poor or the rich, to which a zero rate of tax is applied. Besides completely excluding persons at the lower end of the income scale, they play an important part in determining the tax liabilities and the effective tax rates of all persons remaining subject to the tax; and they provide a means of taking account, at all levels of income, of variations in family responsibilities and, in recent years, of age and blindness. Because of their central importance in the coverage and yield of the income tax, the levels of the personal exemptions in the United States from the beginning have been determined primarily by the amount of revenue sought.

The major obstacle to a ready use of increases in the personal exemptions to protect a minimum standard of living against rising prices is to be found precisely in the wide and

CHART 2
Consumer Price Index and Maximum Adjusted Gross Income Before Liability for Income Tax, by Years, 1913-58



Note: Consumer Price Index (1947-49 = 100) is from U.S. Bureau of Labor Statistics. Adjusted gross income figures for years 1934-43 take account of the earned income credit then allowed—10 per cent of earned net income as a deduction from net income. For all years prior to 1944, when the statute first established the adjusted gross income entity and the optional standard deduction of 10 per cent was introduced, the maximum adjusted gross income that could be received without incurring liability for income tax was derived by adding the applicable personal exemptions, earned income credit, and an estimated allowance of 5 per cent of adjusted gross income for non-business deductions to the statutory net incomes which were then the basis of tax calculations.

For recent years the maximum adjusted gross income before liability for income tax differed slightly for some taxpayers from those presented here. The simplified tax tables used to determine tax liability for persons without substantial amounts of non-wage income who used the standard deduction, and had total incomes of less than \$2,325 or adjusted gross incomes of less than \$5,000, have fixed uniform amounts of tax liability within each \$25 interval of total or adjusted gross income for each group of taxpayers with the same number of dependents (up to four for returns with total incomes of less than \$2,325 and up to eight for returns with adjusted gross incomes of less than \$5,000).

profound effects of seemingly modest increases in them. For example, an increase of \$100 in the per capita exemptions in 1957

would have reduced income tax liabilities for that year by about \$2.7 billion; but only 11 per cent of this reduction would have gone to those with adjusted gross incomes under \$3,000, while more than 60 per cent would have gone to those with adjusted gross incomes of \$5,000 and more. In short, the effects of increasing the level of the present type of personal exemptions as a means of offsetting advances in the cost of living for the lowest income groups are wider and less concentrated than those intended.

A much more pronounced increase in the exemptions would be possible at small revenue cost if it were confined to the low end of the income scale. We have estimated, for example, that if all single returns with adjusted gross incomes under \$1,000 and all joint returns with adjusted gross incomes under \$2,000 had been exempted from tax liability in 1957, with all other exemptions remaining unchanged, nearly two million returns at the bottom of the taxable income scale would have been rendered tax-free, with a total revenue loss of less than \$100 million.

One difficulty with this type of approach, which was long used in Great Britain, is that it requires a "notch" adjustment for incomes just exceeding the exemption limit—for a single person with an adjusted gross income of \$1,010, for example. Notch adjustments that are both simple and equitable are difficult to devise, and Congress, for this reason, has been reluctant to employ them. An approach that would avoid the need for a notch adjustment is through the standard deduction, which operates in some respects as an addition to the effective personal exemptions. If, for example, besides the present maximum standard deduction of \$1,000 per return, Congress established a *minimum* standard deduction of \$300 per return, the result would be to raise the effective minimum personal exemption to \$900 for single persons and to \$1,500 for married couples, and to reduce the tax liabilities of many low-income persons remaining on the tax rolls. The revenue cost of such a provision, we have estimated, would be about \$180 million.

LAWRENCE H. SELTZER

Entrepreneurial Income

I have completed a draft on the income tax treatment of entrepreneurial income of self-employed persons and shall submit it for Staff review in the near future.

Of particular significance is the extent to which the income tax provides offsets for entrepreneurial losses, i.e., handles positive and negative income symmetrically. It is frequently assumed that such offsets consist primarily of the carry-forward and carry-back of losses. But because most self-employed individuals have additional sources of income, and of substantial amount, the larger part of net entrepreneurial losses are actually offset against other income in the same year as the loss is sustained. Our estimate of adjusted gross income of sole proprietors and partners for 1957 shows that their entrepreneurial income is heavily supplemented by other forms of income (Table 7). In addition to \$30 billion of entrepreneurial income, they reported an estimated \$25 billion of other income.

For this reason, only \$1.05 billion out of \$2.79 billion of net losses, or 38 per cent, was not completely offset against other income in the current year. Since the total estimated deficit (\$.84 billion) for the group which ended the year with negative total income was less than the amount of net losses from enterprise, it is likely that the loss that was not offset was less than \$1.05 billion. Part of the loss not offset currently is of course carried back into past, or forward into future years. No net operating loss carry-forward figures have been separately tabulated for recent years, but for 1954 the carry-forward deduction amounted to \$145 million, or 12 per cent of the previous year's net loss not offset against other current income. Because tax return statistics are tabulated from unamended returns in the year when filed, losses carried back are not shown in *Statistics of Income*. Yet the carry-back figure is likely to be even larger than the carry-forward figure because taxpayers are required to carry a net operating loss back two years before they may carry forward any unused loss balance. It is thus evident that a large proportion of the en-

TABLE 7

Distribution of Entrepreneurial Net Income and Adjusted Gross Income of the Self-Employed, by Size of Income, 1957

Adjusted Gross Income Group (thousands of dollars)	Entrepreneurial			Estimated Adjusted Gross Income (4)	Entrepreneurial Net Income as Percentage of Adjusted Gross Income (3) ÷ (4) (5)
	Net Profit (1)	Net Losses (2)	Net Profit Minus Net Loss (1) - (2) (millions of dollars) (3)		
Deficit	90	1,052	-961	-837	114.9
0-2	2,054	351	1,703	2,739	62.2
2-3	2,093	181	1,912	3,253	58.8
3-5	4,822	286	4,536	8,541	53.1
5-10	7,756	355	7,402	15,127	48.9
10-25	8,852	195	8,657	13,454	64.3
25-50	4,330	122	4,208	6,709	62.7
50-100	1,853	109	1,744	3,606	48.4
100-500	601	107	495	1,859	26.6
500 and over	38	35	3	496	0.6
Total	32,490	2,791	29,698	54,948	54.0

entrepreneurial losses of self-employed persons are taken into account in computing taxable income, thereby producing at least some symmetry in the treatment of positive and negative income. Even with complete loss offsets, however, there remains the asymmetry introduced by virtue of the progressive rate schedule of the tax: with a given level of other income, net entrepreneurial profits may be subject to a higher marginal tax rate than net losses.

C. HARRY KAHN

Dividends

My report, "*Dividends Under the Income Tax*," has been approved for publication by the Directors. I am now revising it to take account of suggestions received from several members of the Board and of the Fiscal Research Committee. In addition, I plan to add the relevant data for 1954-57 and to incorporate recent revisions of the national income estimates and some made by the Treasury Department.

DANIEL M. HOLLAND

OTHER STUDIES

Michael Gort's report, "Capital Financing: Sources of Funds," will shortly be ready for Staff review. For a list of reports on the financing of capital formation, see the end of Section 1. "The Growth of Government Expenditures in the United Kingdom, 1890-1955," by Alan T. Peacock and Jack Wiseman, will shortly be submitted to the Board.

The following reports dealing with financial institutions and processes were published:

City Expenditures in the United States, Harvey E. Brazer, Occasional Paper 66.

Federal Receipts and Expenditures during Business Cycles, 1879-1958, John M. Firestone, Studies in Business Cycles 9.

The Demand for Money: Some Theoretical and Empirical Results, Milton Friedman, Occasional Paper 68.

Housing Issues in Economic Stabilization Policy, Leo Grebler, Occasional Paper 72.

International Financial Transactions and Business Cycles, Oskar Morgenstern, Studies in Business Cycles 8.

Merger Movements in American Industry, 1895-1956, Ralph L. Nelson, General Series 66.

The following reports are in press or will shortly go to press:

Statistical Measures of Corporate Bond Financing since 1900, W. Braddock Hickman, Studies in Corporate Bond Financing 3.

Industrial Demands upon the Money Market, 1919-57: A Study in Fund-Flow Analysis, Wilson F. Payne, Technical Paper 14.

Public Finances: Needs, Sources, and Utilization, Special Conference Series 12.

The Flow of Funds Approach to Social Accounting, Studies in Income and Wealth 26.

5. INTERNATIONAL ECONOMIC RELATIONS

FOREIGN TRADE AND BUSINESS CYCLES

After a spectacular three-year rise from \$11 to \$20 billion, United States exports, between the first quarters of 1957 and 1959, slid down to a trough of \$15 billion (annual rates). This decline has attracted much attention and stirred up a lively debate. What are the causes of the slump and the prospects for revival? Are we faced with long-run changes in the structure of foreign trade or with a mere cyclical swing?

The historical perspective provided by our proposed Occasional Paper, "American Exports During Business Cycles, 1879-1958," may help to answer these questions. The fol-

lowing are some of its findings: The recent drop in exports was, indeed, considerably sharper than the several contractions that occurred between 1921 and 1948, except for the Great Depression (Table 8, column 4). It was of the same order, however, as the two export contractions which preceded it. From 1957 to 1959, exports fell by 32 per cent of their average level in the 1954-59 cycle. The corresponding figure for the 1952-54 downswing is 30 per cent; for that of 1949-50, 31 per cent.

Hence the decline itself is not outstanding. Moreover, it should not be judged without reference to the strength of the preceding expansion, which was one of the largest on record.

TABLE 8

Percentage Changes in United States Exports During Export Contractions and During Full Export Cycles, Listed in Order of Severity of Contraction, 1921-59

Dates of Turns in Export Cycles			Change in Contraction		Change in Full Cycle	
Trough (1)	Peak (2)	Trough (3)	Total (4)	Per Month (5)	Total (6)	Per Month (7)
1926/I	1927/II	1927/IV	-6.5	-0.8	+1.8	+0.1
1921/IV	1925/I	1926/I	-9.9	-0.8	+32.3	+0.6
1945/IV	1947/III	1948/II	-21.6	-2.4	+34.3	+1.1
1934/IV	1937/III	1938/IV	-25.8	-1.7	+29.0	+0.6
1950/I	1952/I	1954/I	-30.1	-1.2	+16.5	+0.3
1948/II	1949/I	1950/I	-30.9	-2.6	-22.6	-1.1
1954/I	1957/I	1959/I	-31.9	-1.3	+24.3	+0.4
1927/IV	1929/I	1934/IV	-150.3	-2.2	-115.6	-1.4

NOTE: Data are seasonally adjusted exports, monthly from 1921 to 1927, quarterly thereafter; in current dollars, except for 1933-38 exports, which are in dollars of 1930 parity. Military aid is excluded, 1950-59. Percentage changes are based on average level of exports in the cycle to which they refer. Change in full cycle measures the difference between initial and terminal trough.

It is certainly reassuring to find (column 6) that at their trough in 1959, exports were still 24 per cent above their standing at the preceding trough in 1954, and that this gain was larger than in four of seven other cycles covered.

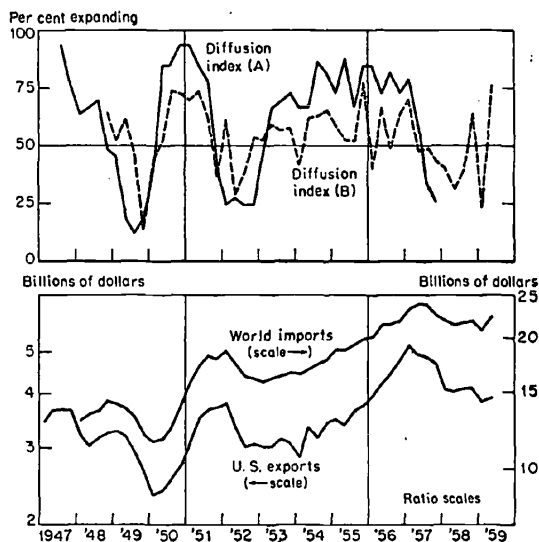
Another point illuminated by the study is how United States exports have fared compared to those of foreign countries. What changes have occurred in our share of world trade? We have examined the movement of the ratio of U.S. exports to the total imports of the world outside the United States during world import cycles. This analysis discloses that it is normal for the share of United States exports in world imports to fall in periods of contraction in world imports. The recent drop by 10.5 per cent compares with a 10.3 per cent fall from 1948 to 1950 and a 6.6 per cent decline during the contraction of 1952. Here, too, the gain during the preceding period of expansion should be taken into account. The net decline over the whole cycle then turns out to have been only 3 per cent, which compares with a 7 per cent fall in the preceding cycle. In view of the natural and desirable recovery of foreign economies, these changes do not seem to indicate grave weaknesses in the United States economy.

The above-mentioned Occasional Paper from which these results are drawn has been reviewed by the Staff and will shortly be submitted to the Directors. It is part of a broader study that is being supported by a grant from the National Science Foundation. An Occasional Paper, *Trade Balances during Business Cycles: U.S. and Britain since 1880*, was published in May 1959. The statistical work for the next part of the study, which deals with export prices and commodity classes, is near completion. It is being greatly facilitated by the availability of the IBM-704 programs for seasonal adjustment and cyclical analysis.

Further work has also been done on the diffusion index of world imports mentioned in the Annual Report for 1959. This index was based on same-quarter-year-ago comparisons for each of thirty-three countries. We have now constructed a tentative index of seasonally adjusted quarter-to-quarter movements in

CHART 3

Percentage of Countries with Rising Imports (Diffusion Index); Value of World Imports and United States Exports



Diffusion index (A): Based on change in imports from same quarter of preceding year, centered, 33 countries.

Diffusion index (B): Based on change in imports from preceding quarter, seasonally adjusted, 42 countries.

World, excluding United States imports: United Nations and Department of Commerce. Seasonal adjustment by NBER.

United States exports: Department of Commerce. Grant-aid shipments are excluded. Seasonal adjustment by NBER.

the imports of forty-two countries from the fourth quarter of 1948 to the second quarter of 1959 (Chart 3). This index leads at four of the five cyclical turns in total world imports that occurred during the decade covered. It coincided at the fifth turn, the tentative trough in the first quarter of 1959. It is useful as a measure of the scope of current changes in world imports and appears to hold promise as an indicator of swings in world trade.

ILSE MINTZ

INDEXES OF UNITED STATES FOREIGN TRADE SINCE 1879

A draft manuscript on trends in United States export and import prices and quantities has been reviewed by the Staff. When I finish my present work with the Postwar Capital Markets Study, I expect to revise the manuscript

to prepare it for submission to the Directors.

The first two chapters discuss substantive findings on long-term trends in American international trade. One is concerned with trends in the volume, value, and composition of trade and their relation to the growth of the domestic economy and to shifts in the importance of sectors and industries. The other deals with price relations between exports and imports and among various types of commodities as well as with the relation of domestic to export and import prices.

The remaining chapters are more technical in nature, covering such questions as the methods of construction of the indexes, their reliability, and comparisons with other indexes. The appendixes set forth the indexes themselves and their composition in detail. The tentative Table of Contents is as follows:

Introduction

1. Trends in Export and Import Values and Quantities
2. Trends in Prices, Terms of Trade, and Price-Quantity Relationships
3. Methods of Construction of Indexes and Comparison of Different Types
4. The Nature of the Basic Foreign Trade Data
5. Measures of the Reliability of the Indexes
6. Comparison with Other Foreign Trade Indexes

Appendixes

- A. Indexes for Major Classes
- B. Indexes for Intermediate Classes
- C. Indexes for Minor Classes, with Source Notes
- D. Quarterly Interpolation of 1924-29 Commerce Index
- E. Standard Errors of Indexes
- F. Adjustment for Changes in the Customs Area of the United States
- G. Sources of Data for Text Charts and Tables

ROBERT E. LIPSEY

THE STRUCTURE OF WORLD TRADE AND PAYMENTS

Two reports of the project, which has been supported by a grant from the Ford Foundation, appeared in print early in the year. Robert M. Lichtenberg's *The Role of Middleman Transactions in World Trade* was published as Occasional Paper 64. Carmellah Moneta's paper on "The Estimation of Trans-

portation Cost in International Trade Accounts" appeared in the *Journal of Political Economy*, February 1959. Herman F. Karreman revised his paper on the "World Transportation Account, 1950-53" in the light of Staff comment; the manuscript has been edited and will shortly be submitted to the Board for consideration as a Technical Paper. Walter Michael's study of international capital movements is reported on below.

My analysis of the structure of world trade and payments was mostly in draft form by the end of the year; an outline appeared in the 1959 Annual Report (p. 79). Chapter 2, on the composition of goods and services transactions between world areas, is being drafted. This chapter had been deferred in order to benefit from the compilation of world trade data that the United Nations has recently published. In addition, an introductory chapter which will summarize the findings is planned. Also remaining to be drafted are the technical appendixes.

During the year a grant was received from the National Science Foundation to develop estimates for and an analysis of goods and services transactions between eight world areas for the period since 1954. The estimation technique would apply the method previously worked out for a four-area model. The method uses estimates of parameters based upon readily available but incomplete records, and will provide more up-to-date information that can otherwise be obtained. As the work will involve solving a set of seven simultaneous equations, the programming unit of the National Bureau is programming the calculations on the IBM-704 electronic computer. Once the value of trade between world areas has been estimated for the years since 1954, I hope to analyze it into price and quantity components. In the last several months we have been exploring the statistical problems involved in preparing for this purpose price indexes for the several interarea trades.

HERBERT B. WOOLLEY

International Capital Movements, 1950-54

The purpose of the study is to analyze international capital movements for the years

1950-54 by forms and purposes among the countries of the world (excluding intra-Soviet-bloc movements), grouped by different stages of economic development. The criteria by which this grouping was made were described in the 1959 Annual Report (p. 81), and a tentative outline of the study was given there. The procedure is (1) to construct a two-valued matrix of capital transactions between world areas, as reported to the International Monetary Fund (with submatrixes for the four reported categories: official and private, divided into long- and short-term); (2) to revise the data for consistency and coverage; (3) to classify the transactions by form of movement and purpose (industry) as far as possible; and (4) to construct matrixes by forms for flows between the countries grouped on the above principle.

Steps (1) and (2) have been completed.

An estimate of total international long-term investment, 1950-54, classified by form of transaction, is given in Table 9. The capital transactions of the United States have been analyzed by form and purpose, and matrixes of portfolio transactions and of extraordinary repatriation of capital have been constructed.

During 1959 the study of forms and purposes of capital transactions continued. Additional material was collected from sources available in Washington and New York, particularly on the transactions of the United Kingdom and the Continent, where the uncertainties in the data are greatest. Recent capital censuses and newly revised data for some of the major sterling-area countries, as well as some others, made possible more complete breakdowns of intra-sterling-area movements, and of those to which sterling countries are partners. As a result regional

TABLE 9
Forms of Long-Term Foreign Investment by All Countries, 1950-54

	Changes in Total Assets		
	Increase	Decrease	Net Increase
	(millions of dollars)		
World total			14,280
<i>Less:</i>			
Reserves in form of long-term securities	280		
Changes in assets due to quota payments by new members to international institutions	1,210		
Miscellaneous not in the nature of investment		80	-1,410
<i>Total Investment</i>			12,870
Loans by government	4,000	3,880	120
Loans by IBRD	970	70	900
Private loans by banks and industry	1,450	850	600
Portfolio:			
New issues	2,900		2,900
Redemptions and trade		440	-440
Extraordinary repatriation		450	-450
Direct investment	9,230 ^a		
Discrepancy			10
			12,870

^a This estimate is incomplete and is probably closer to \$9.5 billion, with compensating changes in private loans, portfolio trade, and a possible change in the total.

distributions were improved and information was obtained on the circumstances under which particular movements occurred.

Most of the remaining matrixes for capital and grants have been constructed, but work on direct investment flows, short-term movements, and the relative importance of government and private activity remains to be done. I have written the greater part of the section on procedure, and hope to have the entire study in draft form by the end of the academic year.

WALTHER P. MICHAEL

OTHER STUDIES

The following reports dealing in whole or in part with international economic relations or developments in other countries were published or are in press:

The Comparative Study of Economic Growth and Structure: Suggestions on Research Objectives and Organization, Conferences on Comparative Economic Growth and Structure, Exploratory Report.

Demographic and Economic Change in Developed Countries, Special Conference Series 11.

International Financial Transactions and Business Cycles, Oskar Morgenstern, Studies in Business Cycles 8.

Wages in Germany, 1871-1945, Gerhard Bry, General Series 68.

For a report on the study of economic growth of the Soviet Union, see Section 1. The monograph by Alan T. Peacock and Jack Wiseman, "The Growth of Government Expenditures in the United Kingdom, 1890-1955," will shortly be submitted to the Board.

National Bureau Publications

Instructions for ordering are on page 72.

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, 448 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
- *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*
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- *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.

*Out of print.

- *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
- 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*
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- 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
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- 51 *The Transportation Industries, 1889-1946: A Study of Output, Employment, and Productivity*
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- 57 *The Frontiers of Economic Knowledge*
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- *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*. (Order from the National Bureau.)
- 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
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- 68 *Wages in Germany, 1871-1945*
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Wesley C. Mitchell 1927, 514 pp., \$5.00
- 2 *Measuring Business Cycles*
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- 3 *American Transportation in Prosperity and Depression*
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- 9 *Federal Receipts and Expenditures During Business Cycles, 1879-1958*
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- 10 *Business Cycle Indicators*
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- *1 *National Income: A Summary of Findings*
Simon Kuznets 1946
- *2 *Price-Quantity Interactions in Business Cycles*
Frederick C. Mills 1946
- 3 *Economic Research and the Development of Economic Science and Public Policy*
Twelve papers presented at the Twenty-Fifth Anniversary Meeting of the National Bureau of Economic Research 1946, 208 pp., \$1.00
- *4 *Trends in Output and Employment*
George J. Stigler 1947, 78 pp.

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Two: *Inventory of Current Research on Financial Problems*
Exploratory Committee on Financial Research
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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.

*Out of print.

- *2 *Sales Finance Companies and Their Credit Practices*
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- 3 *Commercial Banks and Consumer Instalment Credit*
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- 7 *The Volume of Consumer Instalment Credit, 1929-38*
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Miles L. Colean
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- 3 *Urban Real Estate Markets: Characteristics and Financing*
Ernest M. Fisher
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4. *History and Policies of the Home Owners' Loan Corporation*
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- 5 *Commercial Bank Activities in Urban Mortgage Financing*
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- 6 *Urban Mortgage Lending: Comparative Markets and Experience*
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Neil H. Jacoby and Raymond J. Saulnier
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Raymond J. Saulnier and Neil H. Jacoby
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- *4 *The Financing of Large Corporations, 1920-39*
Albert Ralph Koch
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- *5 *Financing Equipment for Commercial and Industrial Enterprise*
Raymond J. Saulnier and Neil H. Jacoby
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- 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.

V Studies in Corporate Bond Financing

- 1 *The Volume of Corporate Bond Financing since 1900*
W. Braddock Hickman
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- 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
(in press)

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

*Out of print.

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

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- 1 Eight papers on concepts and measurement of
national income 1937, 370 pp., \$2.50
- *2 Six papers on wealth measurement, price
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product 1938, 358 pp.
- *3 Seven papers on income size distribution, sav-
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come by states 1939, 508 pp.
- *4 *Outlay and Income in the United States, 1921-
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Harold Barger 1942, 420 pp.
- *5 *Income Size Distributions in the United States,
Part I*
1943, 160 pp.
- *6 Seven papers on income measurement, govern-
ment 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 Mendershansen 1946, 192 pp.
- *8 Eleven papers on estimating national income,
for use in dealing with war problems and post-
war 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
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distribution, and resource distribution patterns
1947, 352 pp., \$4.50
- 11 Six papers on the industrial distribution of man-
power, real incomes in dissimilar geographic
areas, national income forecasting, and the sav-
ing-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 reproduc-
ible 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
- 16 *Long-Range Economic Projection*
1954, 488 pp., \$9.00
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1955, 520 pp.
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1955, 384 pp., \$7.50
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Product Accounts*
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1958, 460 pp., \$10.00
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teenth Century* (in press)
- 25 *Input, Output, and Productivity Measurement*
(in press)

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- *1 *Report of the Committee on Prices in the Bitu-
minous 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.

*Out of print.

- | | | | | |
|----|--|-----|--|-----------|
| 3 | <i>Conference on Research in Business Finance</i>
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Simon Kuznets | 1934, 50¢ |
| 4 | <i>Regularization of Business Investment</i>
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