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PART II

Reports on Selected Bureau Projects

APPLICATIONS OF BUSINESS CYCLE RESEARCH

The popularity of business cycle indicators, which seemed to reach a new high during 1962, demonstrates a significant point concerning the utilization of the results of economic research. If the results are to be widely and promptly used, it is essential that ways to use them be demonstrated—that the findings be expressed in a form such that their practical application is evident. Without such a demonstration, experience suggests, the results may not attract the attention they warrant, or may do so only after a long interval. Since the objective of research is to produce useful knowledge, it would seem desirable to pay some attention to this fact of life, and supplement our research effort, in some degree, to take account of it. I should like to show, with the aid of a few illustrations drawn from our business cycle research program, how this has been done and what some of the results are.

Let us recall, to begin with, that the National Bureau is an institution devoted to basic research, and that this has always been and continues to be the fundamental characteristic of our activity. We pursue studies that we believe will contribute to knowledge. Whether that knowledge is immediately useful is not the primary consideration. We have good reason to believe that the uses will come, whether we attend to them or not. We have seen, many times, that basic economic research yields practical results; indeed, it is indispensable to the cumulative growth of practical knowledge. Nevertheless, the growth of knowledge in a form in which it will be used may be accelerated if we devote a small fraction of our effort to adapting and translating the results of basic research so that their application to current problems is more obvious than it might otherwise be. This is likely to speed up and broaden the application of our findings. Moreover, it is likely to feed back useful information and relevant questions to the basic research process.

Consider the experience with indicators. Our lists of leading and lagging indicators can be regarded as one of the practical forms in which the findings of a basic research program were expressed. This research program, which Wesley Mitchell initiated in the early 1920's, was not undertaken in order to provide a list of indicators. It was undertaken to develop empirical knowledge of business cycle processes—to discover what happens during business cycles with a view to a better understanding of these phenomena. To attain that objective, a large body of relevant economic time series was assembled, a method of analyzing their cyclical behavior was constructed, and a collection of statistical measures obtained by applying the method to each series was generated. These materials have become the basis for a long series of monographs and shorter papers on business cycles—research reports that concentrate upon a particular aspect of activity, such as Stanback's recent *Postwar Cycles in Manufacturers' Inventories*, as well as monographs that take a broader view, such as Mitchell's *What Happens during Business Cycles*. Such studies were, and are, the basic objective of the program. But armed with a mass of statistical materials adapted to the problem, and armed also with the analytical results of many of the monographic studies, we could readily use them to obtain a brief list of indicators relevant to the practical problem of forecasting. The list, published first in 1938, revised in 1950 and again in 1960, was a by-product of the basic research.

The successive lists of indicators have turned out to be a medium through which some of the results of basic research have been brought to public attention and made available for current use. Not infrequently nowadays, when new monthly figures on the average workweek or on new orders for durable goods are released, reference is made to the fact that these series tend to move early in the business cycle and often foreshadow developments in other indicators. Recognition of this finding has undoubtedly been speeded up and widened by the inclusion of these series in our lists of leading indicators.

The new-orders series also illustrates the feedback process. In their 1938 report on indicators, Mitchell and Burns noted that one of the most promising improvements in forecasting tools would be to construct an index combining data on new orders in many lines of business, including contracts for construction. Through the efforts of the National Industrial Conference Board and the Department of Commerce, more comprehensive data on new orders soon became available. These statistics, in turn, became a basic ingredient in the study of the cyclical behavior of orders that Victor Zarnowitz embarked upon, as well as in the study of purchasing waves that Ruth Mack undertook.

But the story does not end there. In the course of Zarnowitz' investigation, the Mitchell-Burns suggestion was explicitly carried out, and an index combining new orders for machinery and equipment with contracts for the construction of commercial and industrial buildings and public utilities resulted. The Department of Commerce aided this endeavor by furnishing some unpublished subdivisions of its new-orders survey, and the F. W. Dodge Corporation supplied the construction contract figures. The composite series is now published every month in the Commerce Department's *Business Cycle Developments* and hence has become generally available.

The latest development in this sequence is that Zarnowitz now plans to use the order-contracts series in a new study of forecasting plant and equipment investment. It provides a measure of the commitment stage of the investment process, and he intends to make it the focus of an exploration of the factors that determine investment commitments. Thus the statistical series that Mitchell and Burns, a quarter-century ago, recommended be constructed for practical use has not only come into practical use but will itself become the object with which some basic research is concerned.

It seems likely that the cross-fertilization process connected with our indicator studies will continue and that it will improve both the statistics and knowledge of what they signify. Last autumn, for example, the President's Committee to Appraise Employment and Unemployment Statistics recommended that studies leading to the development of statistics on job vacancies be undertaken. Such data, the report indicates, would fill a vital gap in our statistical intelligence regarding the state of the labor market and the economy generally. The report also suggests that an index of vacancies might be found to be a leading indicator, and that "this might be a reasonable hypothesis to explore, since a job vacancy series should lead the labor turnover series on hires, which is itself regarded as a lead indicator."[1] Some recent work we have done on the monthly series on job openings reported by the Employment Security Offices suggests that this hypothesis is at least partly correct, in that the number of openings pending does begin to diminish before a recession starts. Indexes of help-wanted advertising behave similarly, as one would expect.

Again, among the recommendations for statistical programs in the 1964 Federal Budget, there appears a proposed new monthly survey of inventories of basic materials, which "will provide a sensitive measure of business conditions and a leading indicator of cyclical movements of business."[2] Stanback's study established that inventory investment, particularly investment in purchased materials, usually changed direction prior to the onset of a business recession, and considered the factors that brought this about. The new survey may, perhaps, be a step toward the development of the type of statistic that Ruth Mack's work suggests would be more illuminating than inventory data alone, namely, data that combine stocks on hand with orders placed for materials.

A second illustration of the practical application of the results of basic research is provided by the National Bureau's business cycle chronology. This list of dates of peaks and troughs in the cyclical swings of aggregate economic activity originated as a tool for research. By examining the behavior of pertinent economic series during the intervals between these benchmark dates, Mitchell and his colleagues expected to find clues to economic relationships that would help explain the cyclical process. For many years the business cycle chronology served virtually no other purpose, and it was brought up to date only when a substantial new body of statistics could be analyzed with its aid.

In recent years, however, particularly with the publication by the Department of Commerce of *Business Cycle Developments,* the "reference dates" have found other uses. It has become a matter of public importance to determine when a recession or recovery has begun, and to do so as promptly as possible. Hearings held by two congressional committees last summer were devoted, in part, to precisely this question. Once a recession has begun, the reference dates also provide a useful framework for comparing the current decline with earlier contractions. They serve a similar purpose during expansions, and *Business Cycle Developments* has contained charts based on this use of the reference dates since its inception in October 1961. A number of reports published by banks, business magazines, and other private concerns also have made use of the reference dates. Obviously, these current uses of a tool designed originally for basic research could not have come about unless some effort had been devoted to the problem of identifying reference dates promptly.

It seems quite likely that feedback effects will occur in this case also. The development of more comprehensive and more reliable monthly statististics on aggregate economic activity is one possibility. Gross national product estimates are now available only by quarters, but perhaps monthly estimates will become feasible in the not distant future. The most comprehensive monthly physical output index, compiled by the Federal Reserve Board, covers only mining, manufacturing, and utilities.

[1] *Measuring Employment and Unemployment,* Washington, 1962, p. 273.

[2] Bureau of the Budget, "Principal Federal Statistical Programs Included in the 1964 Budget," January 29, 1963, p. 12.

Construction, transportation, and other industries are omitted. Experimental monthly series on total labor input (man-hours of employment in nonfarm industries) have been constructed at the National Bureau, but difficulties having to do with erratic fluctuations in the workweek and with the matching of employment and workweek data remain. Efforts to improve these and other comprehensive statistics will no doubt affect the procedures and concepts underlying the selection of business cycle peak and trough dates. A related development is the recent interest in triggering devices to determine the timing of antirecession actions such as public works expenditures or the extension of unemployment insurance benefits. Like the reference dates, these devices involve precise identification of the beginning and end of recessionary periods, and our experience with this problem should prove helpful in their formulation and evaluation.

For a third illustration of an effort to put the results of basic research into practical form, I shall draw upon our investigations of the changing quality of credit in booms and depressions. Since James Earley reviews these studies below, I shall deal merely with one particular point.

The measurement and evaluation of credit quality is a difficult affair, as every loan officer or credit manager knows. In the day-to-day business of appraising risk, evidence from many sources is sought. Sometimes this evidence is conflicting, often its meaning is uncertain, usually it is limited in scope. Judgments must nevertheless be made, and they must be made in the light of the fact that not only the particular characteristics of the loan and the borrower but also the future general economic situation will have a bearing on the outcome.

Our research into credit quality has attempted to clarify this complicated matter. We have also sought to show how statistical data can be assembled and analyzed to aid in reaching broad judgments regarding developments in this sphere. In the final chapter of a lengthy examination of consumer credit quality, for example, Philip Klein and I try to translate monthly and annual data on the terms (maturity and down payment) of new automobile instalment credit contracts into estimates of credit risk (anticipated rates of delinquency, repossession, or loss). That is, we have sought to put into quantitative form the general proposition that an easing of terms increases the risk of credit losses while a tightening reduces it, and to do so on a continuing basis so that these changes may be viewed over time and, hopefully, kept up to date. The objective is easy to describe, but its statistical implementation proved most difficult.

To measure the extent to which an easing of terms increases risk, we examined delinquency, repossession, and loss rates on loans of different terms made to different borrowers. Various sample studies of this type exist, but they come from different sources and they do not all agree. They differ in the way they measure terms, in the way they measure credit experience, and in what they reveal as to the relation between the two. Next, to measure the extent to which terms have changed over time, we resorted to other sample studies, and these also measured terms in different ways and not always consistently with the first set. Finally, to evaluate our computed indexes of credit risk, we had to compare them with measures of loan experience that differed conceptually or in coverage from our indexes. We had also to allow for the facts (a) that lending terms are not the only elements in the credit transaction that are associated with risk, and (b) that ultimate experience is determined importantly by general economic developments not foreseen when the loan is made.

Hence a great many judgments entered into the statistical experiment itself, and still more are required for its evaluation. Nevertheless, we believe the job worthwhile. Whether or not it is adjudged to have turned out successfully, its real value is that it may lead to improvement in the basic statistics. The main source of difficulty in our experiment was that the available statistics, which in fact had been gathered independently by two private and one governmental agency, had not been designed with a view to the specific use we put them to, even though, broadly speaking, the main purpose for which figures on loan terms are collected is to appraise risk. Our experiment exposes the difficulties of doing so in quantitative terms, and perhaps it will stimulate progress toward better design of the statistics at their source.

In this manner, our tools for promptly detecting shifts in credit standards and areas of credit weakness may be sharpened. This in turn should facilitate the consideration of appropriate private and public policies. It is encouraging to find, in this connection, an expression of interest in "the possibilities of statistical measurement of the 'quality' of credit" in *A Federal Statistics Program for the 1960's* (Washington, 1962), a report recently prepared for the Joint Economic Committee by the Office of Statistical Standards in the Bureau of the Budget.

It would be easy to multiply these illustrations of the ways in which basic research findings can be adapted to current practical problems and how, in turn, this adaptation ultimately enriches basic research. The current study of interest rates by Conard, Brown, and others; of money stock and related variables by Friedman, Schwartz, and Cagan; of costs and profits by Hultgren; of capital appropriations by Stanback; of foreign trade by Mintz—every one of these studies of business cycle processes affords illustrations of the kind elaborated above. And, of course, the electronic computer programs that Bry and Boschan are developing are both a means for getting research done and a medium through which the results are applied. What I have been describing, then, is really an integral feature of our research program. But lest we become overly enthusiastic about this state of affairs, let me conclude with a warning of two dangers.

One is that if we are impelled to devote too great a portion of our intellectual or financial resources to facilitating the application of basic research findings, the resources left to develop the basic findings themselves may dwindle. The seed corn of basic research must be planted or the harvest will not be there to reap. We must therefore concentrate most of our energy upon fundamental studies. If we can encourage others to take up the "practical" side, by continuing the new statistical series that we construct, or by bringing our earlier findings up to date, or by adapting our results to fit a current need, we should do so. This may mean waiting patiently until someone else seizes the initiative, but by this sort of abstinence we can conserve our own resources. Such a strategy has worked well in the past. The purport of my message is not that we should abandon this strategy, but rather that it should be nurtured judiciously by making the potential applications plain.

The second danger is that public enthusiasm for a particular finding or type of analysis may, if its practical application is stressed, become greater than is warranted. The qualifications that were part and parcel of the basic research findings may be discounted or ignored. Overconfidence of this sort may lead to serious mistakes in economic policies, both public and private, and be followed by disillusionment. This in turn may cast a cloud on and discourage constructive economic research.

It was in this spirit that the National Bureau recently decided upon a new study of short-term economic forecasting. The study will attempt to provide a systematic and objective review of the past record of forecasts, based upon the variety of methods that are in general use. It will point out the successes as well as the failures. It will consider and, to the extent possible, develop methods that promise to improve the future record.

In this investigation we come full circle in the process I have been describing: it is a basic study of what is surely the most practical application of business cycle knowledge. We hope the results will both protect the gains that have undoubtedly been made in the field of forecasting and contribute new gains. If we can reach this worthwhile goal, I shall not lack for future illustrations of my theme.

GEOFFREY H. MOORE

THE QUALITY OF CREDIT STUDIES IN PERSPECTIVE

The history of the National Bureau's Quality of Credit Program illustrates the shifting and expanding horizons of economic research in complex fields where empirical foundations must largely be developed in the course of the research itself. Inasmuch as most of the Bureau's work is of this character, a retrospective view of the genesis and development of the Quality of Credit Program and some of its findings is perhaps of general interest to readers of this report.

1. ORIGINS AND OBJECTIVES OF THE PROGRAM

"The time seems to be ripe," the Bureau's 1956 Annual Report stated, "for the provision of new facts about a subject that is close to the heart of the problem of economic instability: the changing quality of credit. Our exploration has uncovered materials that are not being properly exploited and has given us reason to believe that new sources of information can be developed." Specifically, the Report proposed studies of:

1. The changing quality of consumer instalment credit as indicated by loan terms and relevant characteristics of borrowers or their economic circumstance

2. Delinquency, loss, and recovery rates on commercial bank credit in relation to the volume and composition of loan portfolios, valuation reserves, and charge-off policies

3. Examiners' appraisals of loans by commercial banks and other lending institutions: their validity, relation to business conditions, and consequences for cyclical stability

4. The level and trends in financial ratios of individual companies (as indicators of their creditworthiness), taken in relation to their changing use of credit during booms and depressions

5. The credit files of commercial banks, to determine whether it is feasible to obtain from them periodic summaries reflecting the quality of commercial loans as indicated by lending terms, borrowers' financial status, and so forth

6. Credit ratings by rating agencies, to determine their validity as indicators of the creditworthiness of individual firms and the feasibility of a summary compilation showing shifts in credit ratings of the business population.

Significantly, in view of the subsequent history of the program, the following sentence accompanied this list of studies: "Other projects dealing with the quality of state and municipal security issues, the quality of farm loans, and other credit areas might be useful."

The 1957 Annual Report noted that the interim financing of these "exploratory studies" by the Association of Reserve City Bankers had been replaced by a definite grant from the Merrill Foundation for the Advancement of Financial Knowledge, and that work had begun on a "three-year study" to "develop new sources of information on current changes in lending policies and in the quality of credit."

Symptomatic of the stubborn problems facing the study of credit quality is the fact that, six years later, some of these originally projected studies are still under way. Symptomatic of the shifting boundaries of credit quality research is that some of the completed projects have been incorporated into larger studies of which they provided partial ingredients. Symptomatic of the expanding boundaries of the research is the fact that several new studies in credit quality have been added quite recently.

The major architect of the quality of credit program was Geoffrey Moore. His article, "The Quality of Credit in Booms and Depressions," in the *Journal of Finance* for May 1956, ably stated the case for studies of this sort. Among those engaged in the project were Thomas Atkinson, George Brinegar, Donald Jacobs, Edward J. Kilberg,[1] Philip Klein, Martin Seiden, Albert Wojnilower, and Victor Zarnowitz. The writer was appointed director in February 1959, and has served, on a part-time basis, since that time.

[1] Kilberg died in 1958.

In fact, however, the genesis of the program went back a number of years. Wesley Mitchell's and Arthur Burns' studies of business cycles had suggested that cycles in speculative activity seriously added to the amplitude of major swings in business and perhaps played a causal role in their development, and a long list of Bureau studies, undertaken largely as parts of its Financial Research Program, had found that wide differences in the soundness of credit instruments existed, both over time and at any point of time. These were found in consumer, business, urban and farm mortgage, corporate bond, and foreign government lending. Explanation of these quality variations and an analysis of their effects was a clear challenge to business cycle research. The task was equally interesting simply from the standpoint of obtaining a better understanding of the operations of the monetary and financial system.

These earlier studies demonstrated even more clearly the insufficiency of the empirical data required to measure and predict these qualitative differences in credit. By the mid-1950's data on the *quantity* of most types of credit were abundant, but data on quality were fragmentary and unreliable. Such information as there was, moreover, became available only long after the transactions it described had become history. Hence one of the main tasks of the new research program was to open up new sources of information. Another was to persuade private and government agencies that credit quality was worth reporting fully and promptly.

Public issues of the 1950's added impetus to the new program. In 1956 the federal government became concerned about the possible destabilizing role of consumer credit. The Federal Reserve System asked the National Bureau to conduct a large-scale research conference on the problems involved in the regulation of consumer credit, as part of a broad study the Federal Reserve Board was undertaking of whether statutory authority for selective instalment credit control should be provided. Part of the Bureau's contribution to this task was the preparation of an exploratory study of the quality of consumer instalment credit.[2] This inquiry revealed at least potentially serious quality problems; but it also demonstrated that further empirical investigation was called for before the seriousness of these problems could be judged.

In a similar way, congressional concern over the adequacy of credit to small business—a concern leading ultimately to the enactment of the Small Business Investment Act of 1958—led the Federal Reserve System to ask the National Bureau to marshal data on the risks of lending to small business. This study[3] showed that although some salient points could be established, a great amount of data had still to be gathered before the quality of credit to business, large or small, could be evaluated.

2. SUBSEQUENT DEVELOPMENTS: STUDIES OF BANK LOAN QUALITY

So much for the genesis of the program. As the list of initial studies shows, the major focus of the original program was on the quality of business credit, and special attention was given to the quality of bank lending to business. The extent to which the several projects in this area paid off varied greatly.

The original hope that credit files of commercial banks could directly provide statistically reliable information on changing credit quality proved illusory. It was impossible to secure access to enough of these files to get a representative sample, and information so gathered would be extremely expensive. On the other hand, it was possible to use the information on the financial ratios of bank-borrowing firms that the Robert Morris Associates collect regularly, and also to obtain similar information from bank examiners' worksheets.

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[2]G. H. Moore, T. R. Atkinson, and Philip A. Klein, "Changes in the Quality of Consumer Instalment Credit," in *Consumer Instalment Credit: Conference on Regulation,* Volume I, Board of Governors of the Federal Reserve System, Washington, 1957.

[3]G. H. Moore, T. R. Atkinson, and E. J. Kilberg, "Risks and Returns in Small Business Financing," in *Financing Small Business: Report to the Committees on Banking and Currency and the Select Committees on Small Business by the Federal Reserve System,* Part 1, 85th Congress, 2nd Session, Washington, 1958, pp. 40-106.

The projected study of the relationships between bank size, portfolio composition, and rates of loss on loans was carried out, but here again data defects were frustrating. Only composite data for groups of banks were readily available, and loan loss rates were given only for all loans combined, with no breakdown into various types, e.g., business, consumer, real estate, and agricultural loans. It was therefore necessary to seek other data on loan losses.

The Federal Reserve Bank of Chicago generously agreed to conduct loan loss surveys of all Seventh District member banks in order to get around some of these data obstacles. Their surveys covered loan losses and recoveries in each of the years 1957, 1958, and 1959. The resulting data permitted the calculation of loss rates by type of loan, size and industry of business borrower, bank location and size, and composition of banks' loan portfolios. The major results of the surveys, published by the Chicago Bank, were of definite interest.[4] Unfortunately, however, loan loss data are far from ideal for studying the changing quality of bank loans. Data on losses are generally not available in relation to the periods when the loans were contracted, and the timing of loss-taking is affected by the charge-off policies of different banks. Moreover, loss data give only after-the-fact information; what is especially needed is knowledge of how credit quality is changing *before* the time when losses are charged off.

For these reasons the main emphasis in the study of bank loan quality has been put upon the originally projected study of bank examination records. These invaluable materials, not ordinarily available to economists because of their confidential nature, record the quality judgments of trained credit analysts while the loans are still on the books of banks. The generous cooperation of the Federal Reserve Banks of New York, Philadelphia, and Atlanta, as well as that of the Board of Governors of the Federal Reserve System, enabled the Bureau to make use of these records.

This study aptly illustrates the necessarily cooperative character of successful credit quality studies. Moore, Kilberg, Atkinson, and Jacobs designed the study, and Victor Zarnowitz supervised much of the data processing. Albert Wojnilower, given leave by the New York Federal Reserve Bank, carried the study to completion. Each of the cooperating Federal Reserve banks provided important assistance, and the study also incorporated the main findings of the Chicago Federal Reserve Bank's loan loss surveys. The study, recently published as an occasional paper,[5] represents a notable example of the collaboration of public regulatory agencies with the National Bureau.

Besides establishing the fact that bank examination records provide generally valid and useful sources of current information on the quality of bank loans, the study's main specific findings listed below are of interest.

1. Substantial and systematic differences in the quality of bank loans appear among industries and between size of borrowing firms when examiner criticism rates (as well as loan loss rates) are analyzed at a given time.

2. It appears that the quality ordering of various industry-size groups remains fairly stable over time.

3. Banks appear to differentiate rationally among these quality groups; they lend to a smaller proportion of all business firms in those industry and size groups in which quality, as judged by examination criticism rates and other evidence, is lower.

4. As cyclical upswings progress, the industry composition of bank loans shifts in the direction of greater risk, whereas the size distribution shifts toward the larger and higher-quality firms. This process seems to be reversed in times of cyclical decline and early recovery.

5. On balance, however, the quality standards imposed by banks in lending to business apparently do show cyclical movements. During the upswing of 1954-57, credit standards eased in 1954

[4]See Mary T. Petty and Theodore H. Schneider, *Loan Loss Experience at Member Banks of the Seventh Federal Reserve District, 1957 and 1958* (Chicago, 1959) and a subsequent issue for 1959. For a summary of the findings, see the Bureau's 1960 Annual Report, p. 50. The 1959 survey largely confirmed the results of the earlier ones.

[5]Albert M. Wojnilower, *The Quality of Bank Loans: A Study of Bank Examination Records,* New York, NBER, 1962.

and in 1955, but tightened in 1956. They eased again in 1957, when business activity reached its peak and started to decline.

6. Examination data over the period 1948-57 suggest that bank examiners' appraisals of bank loan quality go through cyclical swings, declining in the later stages of business expansions and rising toward the ends of periods of economic contraction.

Since the bank examination study was confined to only sixty banks in only three Federal Reserve Districts, its findings are highly tentative. It is noteworthy, however, that the Federal Reserve System is now considering a program of systematically gathering the statistical results of its bank examination process for the light they can throw on changing credit and bank conditions.

3. THE DUN AND BRADSTREET CREDIT RATINGS STUDY

This study illustrates the cooperation of private agencies in the carrying out of the credit quality program. It was hypothesized that the credit ratings of business firms published every two months by Dun and Bradstreet in their *Reference Books* might provide a reliable source of knowledge of current changes in the financial condition of business. Dun and Bradstreet was itself interested in this question, and kindly put its data and facilities at our disposal. A study of a series of bimonthly samples, each consisting of 1200 listings, covering the period 1950-58, was completed in early 1959. The results, reported by Victor Zarnowitz in the 1959 Annual Report, showed that credit ratings were reliably discriminating as to quality among firms of differing size and ages, tending to confirm evidence from other studies that small company size and immaturity are associated with greater credit risk. Even more interesting was the finding that from 1950 on there was a substantial and fairly steady decline in the percentages of the sampled firms that received "good" or "excellent" ratings. The study, in short, suggested a steady and widely diffused, although not precipitous, decline in the creditworthiness of American business during the 1950's.

4. FINANCIAL RATIOS OF BUSINESS FIRMS

Another envisaged source of current information on credit quality was the financial ratios of business firms. The Bureau's program has given much attention to this source. In dealing with financial ratios from the credit quality standpoint, however, it is necessary to get adequate and reliable ratio data broken down both by industry and by size of firm within industries. Various industries and size classes of companies have characteristic financial ratio levels, and it is difficult to interpret the data over time without breakdowns into these fairly homogeneous groups.

The data derivable from the published U.S. *Statistics of Income* and the ratios published in the FTC-SEC *Quarterly Reports of Manufacturing Corporations* do not permit these breakdowns. The ratios published annually by Dun and Bradstreet supply no size breakdowns, and the Robert Morris Associates data include only certain industries and only bank borrowers, with uneven coverage. Useful as these data are for the purposes for which they are collected, they are not representative enough to base findings on the quality of business credit as a whole.

In the face of these data limitations, it was decided to exploit the data in the unpublished *Source Books* which underlie the published volumes of the *Statistics of Income*. These comprehensive data were used to compute numerous financial ratios of companies classified by size, industry, and profitability status, for each year from 1947 through 1957. Martin H. Seiden conducted this study.

The most important finding is that over the period 1947-57 there was a substantial decline in the financial strength of American business enterprises. Four basic financial ratios—the current ratio, the "liquidity ratio" (the ratio of cash and government securities to current liabilities), the net working capital ratio, and the net worth to debt ratio—all fell appreciably over 1947-57 for each of the six major business sectors. This downward drift in the financial ratios of the business population, combined with the downward movement of Dun and Bradstreet credit ratings, is the major basis for the general conclusion that the quality of credit extended to the business sector showed some significant weakening during the 1950's. The fact that business failure rates have risen substantially over 1947-62 is collaborative evidence of this conclusion.

5. A NEW STUDY: TRADE CREDIT

The work on business financial ratios was done as a part of a comprehensive study of the quality of trade credit inaugurated in the fall of 1959. This broader study was also conducted by Martin Seiden.

Although the amount of credit extended between business firms (normally from supplier to business buyer) is extremely large and has been growing rapidly in the postwar years, there has been little systematic study of it. Yet from the credit quality standpoint, trade credit is especially interesting. Changes in the over-all quality of business credit probably occur first at this level, and interfirm credit probably undergoes sharper fluctuations in quality than that extended by banks and other financial institutions. Some recent studies have suggested that, in times of business boom and tight money, banks generally continue to lend to their larger and financially stronger borrowers, with the weaker and less creditworthy borrowers financing their needs increasingly by trade credit from their stronger suppliers. This may be one of the reasons why bank loan losses and examination studies have shown no clear deterioration in business credit quality in the boom periods of the 1950's, despite the rise in failure rates, the decline in credit ratings, and the fall in business financial ratios.

All possible sources of information, both quantitative and qualitative, were pursued in the trade credit study. The Internal Revenue Service's *Source Books* provided the rates of bad-debt losses of nonfinancial enterprises, expressed as percentages of receivables outstanding and of sales. They supplied financial ratios and the bases for estimating the size and composition of trade credit. The Credit Research Foundation provided data on the percentage of receivables past due at quarter-year intervals, and the American Credit Indemnity Company supplied loss rates on receivables. In addition, the Federal Reserve Board, the National Commercial Finance Conference, and several private commercial finance companies and collection agencies supplied both data and counsel. The study thus again demonstrates the necessity for the collaboration of private and public agencies in developing data for credit quality studies.

The study was completed in 1962 and has now gone to the Board of Directors for approval as an occasional paper, *The Quality of Trade Credit,* by Martin Seiden. As a pioneering work, there are numerous new findings. The study establishes that trade credit has grown very rapidly in the postwar years, reaching about $75 billion by 1957 (it is estimated at about $100 billion now) and that the ratio of trade losses to sales has risen appreciably. Data on trade credit delinquency also support the view that trade credit quality was weakening during the 1950's. The trade credit study as a whole makes it clear that by the later 1950's American business no longer enjoyed the unusually strong financial position that was a legacy of wartime developments and postwar inflation.

6. THE AGRICULTURAL CREDIT STUDIES

Agricultural credit, viewed historically, has been one of the sorest spots of American finance. In the 1920's losses on agricultural loans were heavy, and the early 1930's brought a veritable debacle in this sector of the credit system. Hence two agricultural credit studies were included in the program. These studies were especially designed to discover whether the records of the Farm Credit Administration might not permit prospective assessment of changing agricultural credit quality.

Among the preliminary results of the studies was the positive correlation found between losses on short- and medium-term Production Credit Association loans to farmers and the ratings of these loans by FCA examiners. There was also strong correlation between loss rates and examiner loan ratings, on the one hand, and cash receipts from farming in the areas covered by the data, on the other. In farm mortgage lending, the study tended to validate the ratings of the quality of farms and of farming areas used by the Federal Land Banks in making farm mortgage loans. Repayment experience has been significantly worse on mortgage loans made on low-graded farms and in poorer-rated agricultural areas.

Further analysis of the agricultural credit data is under way. The Farm Credit Administration, whose wholehearted cooperation has permitted the study to be carried forward, has expressed strong interest in the final result of the work.

7. CONSUMER INSTALMENT CREDIT STUDIES

The consumer sector has bulked much larger in the American credit system since World War II than in earlier periods. The credit quality program reflects this fact. Much attention has been given throughout to consumer instalment credit, and recently the program has been extended to include residential mortgage debt.

The consumer instalment credit quality paper prepared in 1956 for the Federal Reserve's *Consumer Credit Conference* was only provisional. A full-scale draft manuscript was completed in 1959. The analysis of much additional information, especially on instalment credit borrower characteristics, and the absorption of the authors, Geoffrey Moore and Philip Klein, in other projects have delayed final completion of this manuscript.

The instalment credit study well illustrates the gradual and halting accretion of the kinds of data needed for a full analysis of credit quality. The 1956 study demonstrated that loan terms, borrower characteristics, and employment and income fluctuations affected the collection of data. But the data then available did not permit a thorough study of the interrelations among loan terms, borrower characteristics, and loan experience, and the comparative stability of the economy made it difficult to test fully the sensitivity of loan experience to changing economic conditions.

Later two important bodies of data became available: the National Analysts Inc. sample survey of new car purchases in 1954-55 made for the Federal Reserve Board, and detailed data of the loan terms and experience of sales finance companies operating in twelve major metropolitan areas. The Federal Reserve data permitted for the first time full analysis of the interrelationships of loan terms, borrower characteristics, and loan experience on a national basis. The new sales finance company data permitted study of loan experience in regions where market and economic conditions fluctuated much more sharply than in the country as a whole, and where differences in typical terms and borrower characteristics were more extreme.

It is impossible to summarize briefly the findings of this comprehensive study. However, the results show that difficulty in collecting instalment contracts is significantly greater for low-down-payment and longer-maturity paper, and that, contrary to some beliefs, long maturities and low down payments are directly rather than inversely associated in loan contracts. Moreover, borrowers with weaker credit characteristics also tend to be concentrated in the lower-quality, long-maturity, and low-down-payment loan classes. Since cross-section data for geographical areas with differing movements in economic activity show that the sensitivity of instalment credit difficulty to changing economic conditions is considerable, it appears that the quality problem may become serious unless lender restraint and high employment are maintained.

8. ENLARGING THE PROGRAM

Except for the Trade Credit Study, which grew out of and consolidated several others, the studies discussed so far followed the original plans fairly closely. The fact that the postwar period has brought an enormous growth of almost every kind of debt made it seem desirable to enlarge the program to include the postwar experience of every major credit sector where any hazard of credit deterioration exists. In a sense this shifted the focus of the program from data discovery to an examination of whether the seeds of trouble were being sown by the quite revolutionary credit developments of the postwar era.

9. TESTING THE SOUNDNESS OF STATE AND MUNICIPAL FINANCE

One of the sectors of rapid credit expansion has been states and municipalities. A study of the quality of postwar municipal issues was therefore added in 1959. Inclusion of this study was also stimulated by the appearance of Roland Robinson's *Postwar Market for State and Local Government Securities* (NBER, 1960), and the concern of bank regulatory authorities with the quality of the swelling state and municipal portfolios of commercial banks. Hitherto unavailable information on state and municipal issues had also become available. The Investment Bankers Association had been card-punching detailed data on new state and local government securities since mid-1956, and generously offered us access to their materials.

Analysis of these data has proved inconclusive. Judging by agency ratings, there has been no appreciable decline in quality in the finance of states and municipalities, nor has there been any clear cyclical movement of the ratings. On the other hand, the very large proportions (reaching almost half in 1954) of new issues that are revenue bonds and the fact that, in number, close to 60 per cent of the issues of 1957-59 were unrated by the rating agencies suggest that postwar state and municipal issues are less firmly secured than issues of the prewar period. The need for further study of quality problems in state and municipal finance is strongly suggested. Data limitations, however, prevent us from carrying the study further without a closer analysis of the economic and fiscal situation of states, subdivisions, and municipalities. Resource limitations preclude this at present.

10. THE QUALITY OF POSTWAR CORPORATE BONDS

The resumption of corporate bond financing on a large scale and the evidence that the financial strength of American corporations, so high in the early postwar years, has recently been weakening have made it seem desirable to add at least a modest study of postwar corporate bonds. Nothing like the monumental Bureau study of earlier years has been possible, but Thomas Atkinson is now completing an occasional paper, *Trends in Postwar Corporate Bond Quality,* that should be a valuable supplement to the Hickman studies of the prewar decades. His findings indicate that the corporate bond issues of the postwar period as a whole are noticeably better in quality than those of the 1930's, the 1920's, and even earlier. The bond default record in the postwar years is also markedly better than the prewar record. Most of the bonds going into default in the postwar years were prewar issues, mainly railroad bonds of much earlier date.

Nevertheless, there has been an appreciable rise in very recent years in the percentages (both in dollar amount and number of issues) of publicly issued corporate bonds rated by the rating agencies as of "subinvestment" quality. Furthermore, convertible bonds, which have been a conspicuous element in corporate finance in the late fifties, raise some concern from the quality standpoint. Reruns of the Hickman data to bring out the default experience of convertible issues of the 1920's reveal that they proved especially vulnerable to default in the subsequent years of adversity.

11. THE QUALITY OF RESIDENTIAL MORTGAGES

The tremendous growth of residential mortgage lending and the sharp rise in maturities and loan-to-value ratios during the postwar years called for the inclusion of this financial sector in a comprehensive credit quality program. Work on the project began in 1960. The study to date suggests, though it does not compel, the conclusion that the pronounced relaxation of mortgage terms, when combined with the cessation of inflation in house and residential land values, foreshadows a serious quality problem in residential finance in the years ahead (see the 1962 Annual Report). A projected study of greater depth is now under way. Representative lenders' associations—the Mortgage Bankers Association, the U.S. Savings and Loan League, and the National Association of Mutual Savings Banks—recently made grants to the Quality of Credit Program for the study. Even more important, they hope to compile heretofore unavailable data on the relationships between mortgage and borrower characteristics and differential delinquency, default and foreclosure. Very recent studies of these relationships in VA and FHA mortgages will also be used. Data recently collected by the Chicago Federal Reserve Bank, and new data on mortgage loans by life insurance companies being gathered in the National Bureau's Interest Rate Study, will also be helpful in this extended investigation.

12. PERSPECTIVE AND PROSPECT

This, in brief, is the story of the research program that began in 1956. Seven years later it can be reported that many facts have been discovered, some valuable new sources of information have been developed, and some important conclusions have been reached. The several published reports cited above, together with the manuscripts soon to be submitted for publication, and a summary volume now in preparation, set forth these facts and conclusions. But the stubborn need for more and better facts remains, and the importance of the role that credit quality plays in economic instability has still to be fully assessed.

JAMES S. EARLEY

STUDIES IN INTERNATIONAL ECONOMIC RELATIONS

In our work at the National Bureau we are seeking to gain a better understanding of the various disturbances which have affected the balance of payments adversely in recent years, the counterforces which have worked to strengthen it, the nature and extent of the maladjustments which can be discerned in price or other relations between the United States and other countries, and the possibilities of corrective action. We have just published *Problems of the United States as World Trader and Banker,* an exploratory essay aimed at providing a preliminary assessment of these questions and at identifying problems for further study. We are already engaged in investigating some of these problems and have others in mind to take up if permitted by our resources. In this work we shall benefit by the results of some of our earlier research on international economic topics.

Our preliminary survey reviews the kinds and severity of the disturbances which have affected the U.S. balance of payments during the past decade. These disturbances include a large increase in the financial burdens to be borne, that is, government aid and military expenditures abroad and private foreign investment. They include also various changes adversely influencing our competitive position in trade compared with the unique advantages which we held for some years after the war. It is suggested in the study that adjustments to such major changes could scarcely have been easily and quickly made, and also that the United States is, for various reasons, more limited than smaller countries in the choice of means which it can employ to make adjustments. Under these circumstances, the study sees ground for encouragement in the fact that our export surplus on goods and nonmilitary services has risen appreciably since the early 1950's, even though this gain is largely offset by, and partly attributable to, the rise in our various financial burdens already mentioned. Our competitive power in world trade may therefore be greater than might appear if one were to look only at the size of our payments deficits without considering the strength of the disturbances experienced and the time required to make adjustments.

The adequacy of our competitive power has to be judged, however, in relation to the size of the burdens to be borne, and we also have to allow for the effects, both favorable and unfavorable, which a more buoyant economy here, or perhaps a less buoyant economy in Europe, would have on the balance of payments. A major part of our present research effort in the international field is therefore aimed at providing a closer assessment of our competitive position than was possible in our exploratory study.

In one of our research projects we are seeking to remedy in some measure the very serious gaps in our knowledge of how U.S. prices compare with those of its leading competitors. National price indices of various kinds, though deficient in comparability, suggest that during the mid-fifties our prices rose in relation to foreign prices, contributing to our balance-of-payments difficulties, but that there may have been some improvement in our relative position in the last two or three years. We need, however, better indices of price changes and also information permitting comparisons of absolute prices at a given moment of time. This is the broad aim of the investigation now being carried on by Kravis, Lipsey, and Bourque. Their present work will benefit by their previous price studies, including in particular Lipsey's *Price and Quantity Trends in the Foreign Trade of the United States,* now nearing its publication date. It is not suggested that the new study will yield quick and easy answers to questions about our international competitiveness. Perhaps the more successful we are in collecting price information, the more aware we shall become of the complexities of wringing conclusions from the data. That in itself would be a gain compared with the present widespread tendency to generalize from exceedingly few observations. But we hope that the study will do more—that it will permit a closer assessment of our relative price position. We hope also that it will contribute a methodology which can be followed by others in future years, since it would be wrong to suppose that we can safely let down our guard once our present payments difficulties are over.

We are also trying to assess our international competitive position through another approach —that is, by a systematic investigation of changes in relative market shares wherever American and foreign products meet in competition. We are pursuing this inquiry in some detail, by products and by individual countries. The utility of such a disaggregated approach is made clear in the work already done by Georgiadis. His data indicate that from 1953-55 to 1960-61 the United States as a supplier increased its share of crude materials and semimanufactures but reduced its share of manufactures in the combined imports of twelve foreign industrial countries. The further analysis of the data show, however, that these results were heavily influenced by a sharp reduction in the preponderant share of the Canadian market held by the United States, and that the United States appreciably increased the share which it supplied of both broad groups of products in the consolidated imports of Western European countries and Japan. Supplementary details for the latter group of countries show that we did very well as a supplier of most types of capital goods but very badly in most consumer manufactures. I shall not attempt to draw any conclusions from this limited exploration of the data except that it confirms the need for the kind of detailed investigation of changes in market shares which we are undertaking. We intend to go further than I have so far indicated and examine other countries' imports from us not only in relation to their imports of like products from other sources but also in relation to their own output and consumption of these products as derived from their national production and expenditure statistics. And we shall be making the same sort of study of changes in the share of imports in the U.S. market—a subject of special interest in view of the spectacular growth in our imports of manufactures during the past decade.

The two projects to which I have just referred are complementary approaches to the broad question of U.S. competitiveness in world trade, and the methodology and results of each investigation will be of interest to the other. Both of these projects are, as indicated, chiefly concerned with merchandise trade. Beyond Karreman's study of international transportation published in 1961, we have not made or planned any investigation of service transactions in our international accounts, but may do so later if it appears that detailed work on them would help to fill important gaps in our knowledge. This leads me to say how useful it would be to an understanding of recent developments and current problems if we could bring to bear on them the kind of structural analysis of international payments in which Woolley has pioneered. His report on "Measuring Transactions Between World Areas," now nearing completion, presents detailed matrixes for individual types of transactions—including service items—painstakingly built up from the balance-of-payments accounts of individual countries. These figures are being supplemented in a more detailed study of international capital movements by Michael. All of these matrixes by particular types of transactions relate to the years 1950-54. For merchandise trade and services taken together, however, Woolley has developed a simplified method for extending the results to later years.

As noted in *Problems of the United States as World Trader and Banker,* the student of recent developments in the international trade and payments position of the United States is confronted with the difficulty of distinguishing between cyclical fluctuations and long-run changes. Such a distinction is, of course, basic, unless one is dealing with a period long enough to permit cyclical fluctuations to be averaged out. But even cyclical fluctuations are not necessarily of only minor and transitional interest, especially if the thesis should be confirmed that U.S. exports are now more vulnerable than its imports to changes in the business cycle. This view gained support after the 1958 experience, but needs to be looked at again in the light of developments in 1960-61. The work which Ilse Mintz has been doing on foreign trade and business cycles should prove increasingly useful in examining problems of this nature, especially after she has been able to extend to imports the type of analysis on which she has been engaged for exports.

Apart from Michael's work, we do not now have any projects under way specifically dealing with international capital movements. It is clear that there are a number of problems in this broad area on which further study is urgently needed. One of these subjects concerns U.S. private direct investments abroad, especially in manufacturing in Western Europe. There has recently been a great deal of controversy with regard to the effects, for better or worse, of these investments on the balance of payments. An objective analysis of this problem could serve a useful purpose, but it may be that more time will need to elapse before an empirical study of this problem could yield useful results.

Another problem is that of U.S. private short-term capital movements. In my preliminary study it is suggested that short-term capital has become so mobile and such a large component of the balance-of-payments deficit as to prevent the free use of monetary policy to which we have become accustomed and to require a greater reliance on fiscal policy in guiding the economy. Others have expressed a similar view, but recently some students have questioned it on the ground that they find little relation between interest rate differentials and short-term capital flows in recent years. With so many other things happening during this highly disturbed period, the failure to find a close correlation between two such variables is, I think, scarcely surprising and does not prove that there is no causal connection between them. Under the circumstances indicated, I am not sure that analysis of the data for recent years could give firm results, but the importance of the question and its implications for policy argue in favor of making a further investigation. This might explore such figures as we have for earlier periods or perhaps be conducted along quite different lines. It may be, for instance, that interviews with banks, insurance companies, and industrial firms could be illuminating.

These are some of the questions in international economic relations which we are now studying or have under consideration. Significant research is also being done elsewhere on some of these topics, both by government agencies and by private bodies and individual scholars. We hope that the results of these various efforts will in due course permit us to undertake a new and somewhat more conclusive synthesis of the interrelations between our external and our domestic economic activities, and to throw a clearer light on ways of reconciling this country's objectives. These are still relatively new problems for the United States, or at least for Americans of the present generation. As a nation, we have yet to grasp the full implications of this country's suddenly increased exposure to influences from abroad and to understand that this exposure will continue as a new dimension of economic policy after the present strains in our international transactions have been overcome.

HAL B. LARY

ECONOMIC ASPECTS OF PENSIONS

This preliminary summary presents some of the major conclusions tentatively reached in the pension research project. The scope of the study has been restricted to economic aspects of public and private pensions and to the basic questions raised by their spectacular growth. We are concerned with a new fiscal operation, the Old-Age and Survivors Insurance system (and the companion Railroad Retirement system), and a new financial institution, the retirement programs of private organizations.

Specific questions include the following: (1) What are the characteristics of the current pension structure which have a bearing on the structure of the future? What trends are significant? What is likely to be the extent of pension coverage, the size of benefit payments, and the fund accumulations in 1970 and 1980? (2) Is personal saving through pension programs substituted for saving in other forms? Or does pension saving represent a net addition to the saving flow? (3) How do pension arrangements affect the distribution of income? How might these redistributive effects influence consumption and saving? (4) What are some of the influences on the capital market of the investment of fund accumulations? How does the channeling of savings through public and private pension funds change the supply of funds in different sectors of the capital market? What are the effects upon prices and yields?

A comprehensive view of the pension structure in 1960 can be summarized as follows:

	Individuals Covered (millions)	*Asset Accumulations ($ billion)*
Federal government programs:		
Old-Age, Survivors, and Disability Insurance	73.0	22.6
Railroad Retirement	0.9	3.7
Federal civil service	2.2	10.5
Subtotal	76.1	36.8
State and local governments	4.5	18.5
Private plans	21.6	49.9
Grand total	102.2	105.2

There are, of course, many duplications in the coverage of individuals, notably arising from the extensive coverage under OASDI of participants in other programs. On the other hand, coverage under certain special federal programs, including that for the armed services, is not tabulated. Nor are potential old-age assistance and veterans' benefits included.

Spectacular increases in the number of people covered under the pension plans of both state and local governments and private organizations have already occurred, but our projections for future coverage (in millions) are no less impressive:

	State and Local Plans	*Private Plans*	*Total*
1940	1.4	4.1	5.5
1950	2.6	9.8	12.4
1960	4.5	21.6	26.1
1970	5.8	34.0	39.8
1980	7.0	41.7	48.7

The other major consequence of the emerging pension structure is the accumulation of funds for long-term investment, especially under state and local government and private programs. The past record and our projections to 1970 and 1980 show the following assets (in billion dollars):

	State and Local Plans	*Private Plans*	*Total*
1940	1.6	2.4	4.0
1950	4.9	11.7	16.6
1960	18.8	49.9	68.7
1970	46.1	127.3	173.4
1980	84.7	234.6	319.3

In these projections for the future, the combined annual growth in assets would rise from less than $8 billion in 1960 to about $13 billion in 1970 and to $16 billion in 1980. These figures represent the annual net flow of funds into the capital market from these sources.

These projections of fund accumulations, which are still subject to revision, involve many assumptions about the extension of coverage, benefit levels, and interest earnings. However, variations in these assumptions lead to projections for the years through 1970 that are only modestly different from those set forth above. Even by 1980, the differences are not substantial unless extreme assumptions are employed.

In order to test the range of plausible assumptions, Daniel M. Holland has been relating his projections to an investigation of trends in the development of the public and private pension structure.

The number of beneficiaries and the volume of benefit payments lag far behind coverage, of course, but a major portion of the maturing process will take place during the next two decades. We estimate the following trend in the number of beneficiaries (in millions):

	State and Local Plans	*Private Plans*	*Total*
1940	0.2	0.2	0.3
1950	0.3	0.5	0.7
1960	0.5	1.8	2.3
1970	0.8	3.9	4.7
1980	1.3	6.6	7.9

The proportion of people over 65 receiving such supplementary benefits would exceed 30 per cent by 1980, which is more than double the current fraction of 15 per cent. Thus the major impact of transfer payments on the distribution of income still lies ahead.

We have identified such developments as the provision of earlier vesting in corporate plans and shifts in the types of formulas for determining benefits. Contrary to some preconceptions, we found relatively little liberalization of formulas. The level of total pension benefits has been rising mainly because wages and salaries have risen, because OASDI benefits have been increased, and because supplementary benefits have not been reduced as an offset to increases in OASDI benefits. The contribution per employee covered under private plans has not been rising in recent years partly for these reasons and partly because of the substantial improvement in interest earnings.

To turn to another aspect of our study, among private pension arrangements we observed a dearth of facts regarding union, multiemployer, and nonprofit organization plans.

Spectacular and unsupported statements have been circulated over the years about the growing economic power of labor unions through their participation in the management of pension funds. We found that the assets of union and jointly administered noninsured funds totaled only about $1.61 billion in 1960. While covering over three million workers in 1960 and growing rapidly, these funds will not bulk large as concentrations of financial assets even though they may have assets of $15 to $20 billion by 1970.

Our analysis of these funds brought to light no unusual patterns of portfolio composition. Indeed, the composite picture for two recent years is one of conservatism, with a visible trend toward the diversification typical of single-employer corporate noninsured funds. The following figures refer to all union and multiemployer pension funds for which we could gather portfolio data.

	1959	*1960*
Total assets ($ million)	1,262	1,569
Rate of increase from preceding year (%)	24	27
Distribution of assets (%):		
Cash	6.4	5.0
Government securities	34.4	25.8
Other bonds	27.5	31.8
Preferred stocks	1.7	1.7
Common stocks	13.7	17.2
Mortgages	12.5	15.6
Other investments	1.5	1.2
Other assets	2.3	1.7
	100.0	100.0

The older group of pension systems of nonprofit organizations, both insured and noninsured, may have as many as 500,000 participants. Assets exceeded $2 billion in 1960. While dominated by the pension boards of the Protestant churches, this group includes a widening circle of charitable, educational, and religious organizations. For example, coverage is expanding in voluntary hospitals and among lay workers of the Catholic Church.

THE IMPACT ON AGGREGATE PERSONAL SAVING

The question whether saving through pension programs represents an addition to or a partial substitute for saving in other forms has been long debated. To help answer this question, we made use of the survey of a panel of Consumers Union members already developed for other purposes by the National Bureau. We sought pairs of spending units similar in as many characteristics as possible (age, income, education, occupation, and wealth) but differing in whether or not covered under a pension plan supplementary to OASDI. Responses were obtained from almost 11,000 households which we could divide into two groups, between which the only important systematic differences related to coverage under a pension plan other than OASDI. When we computed the average saving ratio (saving divided by income) for the main categories of saving, we found the following results:

	Average Saving Ratios (%) Covered	Not Covered
Saving in cash, savings accounts, and securities	2.8	2.1
Saving through life insurance, annuities, and equity in a home or other real estate	5.9	5.7
Saving through pension funds	2.8	
Total	11.5	7.8

We found, in other words, the ratio of saving in other forms to income to be at least as high for those covered as for those not covered. Despite the limits on the accuracy of detailed results from even as large a sample as this, it seems clear from this analysis by Phillip Cagan that on the average pension coverage does not lead households to reduce their saving in other forms.

It appears that pension coverage has a "recognition effect." It is true that in certain groups, notably those with high employee contribution rates and full vesting, there is some substitution of pension saving for saving in other forms. But those who react in this way are fully offset by those whose reaction is to increase other saving. The composite picture, therefore, is one of a net addition to personal saving of the full amount of pension accumulations. That is to say, realization of retirement needs and of the opportunities for financial independence opened up by a pension stimulate the motivation to save.

This does not mean that personal saving in the economy will necessarily rise relative to income, as the pension system spreads. Other developments affect both those covered and those not covered under pension programs supplementary to OASDI. For example, increasing protection from a wide range of hazards (unemployment, disability, protracted illness, mortality, etc.) through social and private insurance programs might tend to reduce total savings relative to income.

The redistributive effects of the growing stream of transfer payments, described more fully in the next section, also are in the direction of depressing the saving ratio. The operation of tax-supported programs at present moderately increases consumption at the expense of saving if one presumes—as seems reasonable—that pension beneficiaries save smaller fractions of their incomes than do contributors to pension programs. A more pronounced effect of income redistribution on saving is indicated for the future.

We conclude that public and private pension systems tend to enlarge the flow of personal savings, but that other factors work in the direction of reducing it. Since pension fund accumulations will grow less rapidly than transfer payments in the future, the influence of pension systems in sustaining personal savings may be expected to diminish in the years ahead. Indeed, our analysis raises the question whether the creation of pension commitments running far into the future, and related developments in social welfare, will retard the future pace of economic growth by making for an insufficiency of savings.

REDISTRIBUTIVE EFFECTS

The public and private pension system redistributes income in a number of ways. Using the year 1957 for analytical purposes, we found that the combined effect of all tax-supported programs was a net transfer of more than $8 billion a year to spending units with annual incomes of less than $4,000, with OASDI responsible for the major portion of this transfer. By 1970, the net transfer to lower-income groups will be substantially larger.

The exemption of contributions to both public and private plans from taxation as income to the covered employees reduces tax revenues below what they otherwise would be. Taxpayers in general, therefore, presumably pay income taxes at higher rates than would otherwise be the case. The shifts in disposable income are from uncovered to covered workers and between those in different income brackets according to whether the tax deferment (reduction) raises rates progressively or proportionately.

The pension system, both public and private, also shifts income between other large groups in the population: from younger to older workers, whenever past service is recognized in adopting or liberalizing plans; from those who die or leave covered employment prior to earning vested benefits to those who retire under plans; from younger to older generations, particularly through OASDI; and, most fundamentally, from the actively productive members of society to those who have ceased to contribute to current output.

This transfer of resources to the aged is not, of course, altogether new, because the working population has long contributed voluntarily to the care of parents and relatives or through government to the care of the needy aged. In a broad sense, then, social insurance and supplementary programs have only institutionalized and liberalized provision previously made for those no longer able to support themselves. Pension programs represent a major effort of a society seeking to translate gains in living standards into a degree of financial independence for the older members of society which will more adequately preserve human dignity.

INFLUENCES ON THE CAPITAL MARKET

The influence of pension plan funding on the capital markets takes several forms. As mentioned above, we have concluded that the growing fund accumulations are currently helping to sustain the supply of savings seeking outlets in the capital markets.

Over the last decade, dynamic changes have occurred in the direction of fund flows, and further changes are still in prospect. Major breaks with past restraints imposed by law and tradition have already taken place and others are now in process. Notably, private noninsured funds have shifted into equity investments on a large scale. State and local government retirement systems have shifted their principal investment outlets from government to corporate securities. All types of trusteed funds are becoming real estate mortgage lenders.

The magnitude of these shifts in the allocation of funds to various segments of the capital market can be illustrated by the postwar changes in the composition of the retirement systems administered by state governments (in per cent of total assets):

	1947	*1961*
Cash and deposits	2.3	1.0
Federal government securities	70.6	30.1
State and local government securities	20.4	13.8
Total cash and government securities	93.3	44.9
Corporate bonds	4.2	37.9
Corporate stocks	0.8	2.6
Mortgages	1.1	11.6
Other assets	0.6	3.0
Total nongovernment securities	6.7	55.1

Concurrently, corporate noninsured funds were also concentrating new investments in corporate securities. The resulting changes in portfolio composition for the past decade were as follows (in per cent of total assets):

	1951	*1961*
Cash and deposits	4.2	1.5
Federal government securities	31.6	6.4
Corporate bonds	45.5	46.8
Corporate stocks	15.8	38.3
Mortgages	0.9	2.8
Other assets	2.0	4.2
	100.0	100.0

These shifts in investment policies reflect a lagging but nevertheless dramatic response to the changing demand for funds in the capital market which was reflected in wide yield differentials. A large part of the pronounced narrowing in these yield differentials is likely to persist as the greater flexibility and responsiveness of pension fund investment management is expressed in the changing allocation among all segments of the capital market of an increasing flow of long-term funds.

The most dramatic shift in yield differentials during the postwar years was, of course, the changed relationship between stock and bond yields (in per cent):

	1947	*1962*
High-grade bond yields	2.58	4.29
Common stock yields	5.00	3.39
Difference	+2.42	+0.90

Trusteed pension funds were undoubtedly one of the factors in this revaluation of corporate earning power. Most recently, we have witnessed the impact on the bond market of buying by state and local government retirement systems in narrowing the yield differential between new public issues of high-grade corporate and U.S. Treasury bonds to less than 0.25 per cent.

The creation of new financial institutions of major importance has contributed to breaking down the compartmentalization of the capital markets which resulted from carrying over into the postwar period institutional rigidities and restraints created in earlier decades by law and custom to conform to then existing conditions. Thus, we conclude that public and private pension accumulations have gradually come to make an important contribution to the more efficient allocation of resources through the mechanism of the market place for long-term funds.

We made a comprehensive analysis of portfolio changes in typical corporate pension trusts during a period characterized by major fluctuations in the prices and yields of capital market instruments. A representative group of pension fund trustees provided us with this information on a quarterly basis. As a consequence, we were able to make the first systematic study of a diverse group of well-established funds.

Our studies indicate that the rates of purchases and sales of securities by pension funds, as well as changes in the structure of portfolios, do not respond in any important degree to cyclical swings in the economy or the stock market. Furthermore, it appears that pension funds will buy stocks that are advancing in price relative to the market about as frequently as stocks that are declining in price. In other words, pension funds appear to have little short-run influence on the prices and yields of stocks. This is partly because of the long time horizons set for investment policy and partly because of structural restraints on the shifting of assets on short notice.

Pension funds have, no doubt, contributed to the upward revaluation of corporate equity securities, but other investors have also been influential. Furthermore, the level of stock prices in the early 1950's, when pension fund buying first emerged as an important factor, was relatively low. It by no means follows that the process of upward revaluation will be carried on indefinitely by pension funds or other long-term investors.

ROGER F. MURRAY