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PART I

**Basic
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and the
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Now and then one of the friends of the National Bureau urges us to spend some of our energy on the analysis of current business conditions. This interest in the state of the economy is understandable, especially at a time like the present. The direction in which the economy is moving currently is a matter of serious concern to all persons charged with the management of affairs, large or small. Any clue we could provide to the course of events during the weeks and months ahead of us would be of immediate practical value.

Yet the National Bureau holds fast to the program of basic research mapped out at its inception. We continue to devote ourselves largely to broad, persistent economic questions. Our object is to ascertain important economic facts, to uncover fundamental principles of economic behavior — facts and principles that will be of use in dealing with every major problem of policy. And such results cannot be secured easily. By their very nature, the studies we undertake cannot promise quick guidance to those who must make their decisions today.

It goes without saying that we would like to be of immediate help to those around us. We are irked no less than others by the slow pace of our work. At least as keenly as they, we are aware of the “general” character of our results and the frequency with which we label them “tentative.” It is not indifference to the importance of current economic analysis that leads us to resist the pressures to take a hand in it. Nor is it because we wish to keep above the heat and dust of the life about us, for the pressures come also from within ourselves.

We concentrate on basic economic research because we believe that in this way we can make the best contribution of which we are capable to the analysis of current business conditions — not immediately, to be sure, but in the long run.

In support of this belief there is the lesson

This report was presented at the annual meeting of the Board of Directors of the National Bureau, held in New York City February 27, 1956. I am greatly indebted to my colleagues for helpful suggestions on Part One, and to Geoffrey H. Moore for advice and assistance on Parts Two and Three as well.

of experience. The basic work we have done in the past is being widely used by others in their day-by-day analysis of business conditions. The value these applications now yield and may continue to yield in the future could not have been realized had we diverted our attention in the past to the immediate questions of those days.

There is a second reason. The ability of men to judge the present state of the economy and trace its tendencies into the future is far from satisfactory. This, perhaps, is why we are asked to join in that difficult task. But the implication we draw is not that of prompt acceptance of the request. There is painfully much still to be learned about the basic features of our economy. We have a staff experienced in such work and devoted to it. Whatever we can do today to expand tested economic knowledge is an investment that, with all its risks, is likely to pay larger social dividends than any current analysis that might engage our energies.

Let me illustrate our experience with an example or two of the uses being made of our work in current business analysis; and put before you one or two of the basic questions which, if answered, might strengthen our ability to judge the trend of economic events.

I

The year 1955 closed with the American people standing, we have all been told, at "the threshold of a 400 billion dollar economy" — measured in terms of annual gross national product. After provision for capital consumed, and after other adjustments to determine net income, the nation's total earnings in production in the last quarter of the year came to an annual rate of some 330 billion. Of this, 300 billion went in the form of personal income to families (including unattached individuals).

A figure of such size is hard to grasp. Let us therefore see what family income and related figures mean per family. In the last quarter of 1955, then, income per family averaged about \$5,750 on an annual basis. Income taxes took about \$650, leaving disposable income of about \$5,100. Personal consumption

expenditures were running at an annual rate of \$4,750 per family. The balance is family savings. These savings were financing about two-thirds of the additions being made to the nation's stock of housing, business plant and equipment, and inventories, with the rest financed out of corporate savings. Families were, of course, borrowing as well as lending and investing — though doing more of the latter, on the average — and in the fourth quarter of 1955 the net mortgage, instalment, and other consumer debt was increasing at an annual rate of over \$400 per family.

We know also that toward the end of 1955 families were receiving incomes of about \$400 more than a year earlier, were paying income taxes of about \$40 more, were spending for consumption about \$300 more, were saving about \$50 more, and that these savings were net of an additional \$80 of debt accumulation — all at annual rates.

These are enough to indicate the kind of figures we can follow and the kind of story we can read from month to month or quarter to quarter if we wish. We are close to being up to date on statistics that reveal the average economic position of many millions of families and many thousands of business enterprises and governmental units. Figures on the nation's economic activity are common currency today. They appear in virtually every analysis of current business conditions.

Not many years ago — we need go no further back than the early 1930's — not one of the measures I have cited was available on a current basis. During the prolonged contraction in business that began in 1929 we had no regular reports on gross national product or national income; we had no current estimates — or even clear notions of the meaning — of investment or savings; we had only vague ideas of the volume of consumer spending or purchases by government; we knew little of changes in consumer debt. Even the direction of movement of aggregate economic activity from season to season, let alone from month to month, was not clear. Some of us can recall the wide variety of guesses about the severity of the depression current at the time and the

uncertainty and fear that surrounded individual families, businessmen, and responsible governmental officials who had to make their plans and carry on their functions in heart-breaking darkness.

It was not, in fact, until the Department of Commerce began to publish annual estimates of national income in 1935 that a comprehensive measure of economic activity of the sort we now take for granted became available on a regular basis. Monthly estimates of income payments began to be issued in 1938; annual and then quarterly reports on gross national product and its components, not until the 1940's.

Let us recall the events leading up to the appearance of regular official estimates of national income and product and their major components, for this provides my first illustration of how the National Bureau's basic work has contributed to current business analysis.

In 1920 the Board of Directors of the National Bureau selected for the new organization's first project the subject of national income. The choice was made because national income was "a subject of fundamental importance in which the truth is hard to find." Further, it was "an aspect of the whole economy" that "provided a framework within which economic factors could be seen in their organic relation to one another." That is, study of national income could provide answers to some of the crucial questions that troubled people — the level of average income, whether it was growing as rapidly as the population, in what proportion different sources contributed to it, how it was distributed among individuals, how the total and its parts fluctuated with changes in business conditions; and study of income could build a base from which further investigation of these and related questions — all dealing with fundamental features of the economy — might proceed. It was basic economic research of the sort which needed doing, and which the National Bureau had been organized to do.

The two volumes on national income during 1909-1919 that Mitchell, King, Knauth, and Macaulay prepared were soon followed by

complementary studies of the distribution of income among states by Knauth and Leven. A revision and extension of basic sections of the original study came in 1930 with King's volume on *National Income and Its Purchasing Power*. These reports helped establish the practicability of estimates of national income and its distribution and behavior which could be widely accepted as reliable and put to use by persons with different purposes in mind.

The usefulness of national income estimates was soon to be recognized by the Congress. In 1932 the Senate asked the Department of Commerce to prepare official estimates of national income for 1929-1931, in order to measure the severity of the great contraction under way and ascertain its impact on the various sections of the economy. The National Bureau was invited to cooperate in the work, and Simon Kuznets of the National Bureau's staff went to the Department of Commerce to plan and supervise the study and write the report.

Almost at the same time, in December 1932, the Committee on Credit and Banking of the Social Science Research Council outlined a program of studies in banking policy and credit control in relation to economic stability. The first stage of inquiry proposed was a statistical study of the formation of capital. There were then no reliable facts available on the aggregate volume or composition of this item, so significant for economic stability as well as economic growth. Even a historical record of investment was lacking. A few years earlier, when Mitchell was writing his *Business Cycles: The Problem and Its Setting*, he was not able to include information on capital formation as such — a gap in the basic data of which he was keenly aware. While he could guess the average annual volume of total capital formation from figures on savings, and could estimate the relative importance of the different types of capital goods in the stock of national wealth, he knew little more: the relative importance of home-building and other construction, equipment purchases, inventory accumulation, foreign investment, and production of consumer durables — their rate of

growth — their fluctuations — these were still to be determined.

The Committee asked the National Bureau to study these questions. The offer was accepted, and in January 1933 Kuznets, who was bringing the Department of Commerce study of national income to a close, took over its direction. What he was learning in the study of income led him to broaden the scope of the capital formation project to cover the production of all types of commodities and thus make it possible to fit capital formation into the structure of accounts underlying national product and income. Two notable volumes resulted, *National Income and Capital Formation* and *Commodity Flow and Capital Formation*, as well as several bulletins presenting preliminary results.

While Kuznets was working on his later *National Income and Its Composition*, Shaw, who had assisted him in the earlier studies, turned to a study of commodity flow and capital formation in the period between the Civil War and World War I (published as *Value of Commodity Output since 1869*). When the Department of Commerce, which had already initiated regular annual and then monthly supplements to the earlier report on national income, decided to add complementary data on capital formation and commodity flow, Shaw left to join the Department's staff to take charge of that section of their work. Since then, as we all know, there have appeared the famous July 1947 Supplement to the *Survey of Current Business*, which presented an integrated collection of national income and product statistics — including capital formation — for the United States during 1929-1946; and the equally valuable July 1951 Supplement, which presented the detailed basis of the estimates. We now have at our disposal frequent periodic reports on capital formation, consumer expenditures, governmental purchases of goods and services, total national product, personal income, and related magnitudes.

Other examples of current economic statistics in which the National Bureau has had a hand might be added, but I have said enough to make my point. We do well to concentrate

on basic studies. Only these can point to the kind of information needed to assess the current economic scene. It is in such studies that concepts are thought through, sources of data examined and compared, methods of combining and reducing data tested, biases determined, significance explored. Before "facts" can be reported regularly, much work needs to be done. We have far to go before further work of this sort is no longer necessary.

Indeed, continuing work needs to be done even on existing material. The development of good economic statistics is an endless task. Concepts need to be reviewed and revised as our understanding deepens, as new data appear, as standards of accuracy rise and needs expand, and as the march of events makes current measures less satisfactory approximations to the quantities we are trying to determine. An example is the current measure of personal savings. This allows for increases in consumer instalment debt but does not take into account the additions to consumers' assets that are financed by the debt. When automobiles and other equipment constituted a small item in consumers' budgets and the practice of instalment financing was of modest proportions, this inconsistency was of little moment. But that seems no longer to be true: as Goldsmith's calculations suggest, inclusion of net increases in holdings of consumer durable goods would put personal savings in recent years at a level considerably higher than is shown by the current measures, and the pattern of year-to-year changes in percentage of income saved might be significantly altered. In his study of the consumption function Friedman defined savings in the more inclusive fashion.

Whenever we use existing information in our studies we subject it to critical review and thus suggest improvements. The appendices to our reports that contain our observations on the quality of the data utilized are, we know, read with interest by the compilers of those data. Our conferences also contribute. A few months ago the Conference on Research in Income and Wealth spent two days examining the national accounts of the Department of Commerce. One of the questions discussed

was the concept of personal savings. All who participated — the staff of the National Income Division of the Department of Commerce, other government officials, university professors, business economists and statisticians, and members of our own staff — profited from the experience. On occasion, also, members of our staff have taken time from their research work to serve in advisory capacities to governmental agencies engaged in statistical work. I have already mentioned Kuznets' early activities; most recently five of our staff participated in the work organized by the Board of Governors of the Federal Reserve System at the request of the Joint Committee on the Economic Report: Goldsmith and Kuznets on the Committee on Savings Statistics, Abramovitz and Mack on the Committee on Inventory Statistics, and Hastay on the Committee on General Business Expectations.

In my brief illustration I have merely alluded to a significant point. Selection of useful measures of economic activity and interpretation of their meaning always involve something more than "fact-finding" — more than carefully fitting statistics into a sound conceptual mold. It is necessary to have some notion of the pattern and sequence of events if economic statistics are to be reliable guide-posts. And this, of course, is a main objective of our work. As I have suggested, our contribution to current reporting is largely a by-product of work on the enduring features of economic behavior. It is time, therefore, to turn to my second illustration of the practical uses of economic research.

II

During the winter of 1937-1938 it became clear that the climb out of the depths of the great depression had come to a halt and that the interruption was more than a minor setback. The shrinkage in business activity that had been taking place during the summer and fall had reached serious proportions. There was considerable anxiety as to how far the contraction would go and what signs might indicate its end.

It was then that a public agency requested

the National Bureau to prepare a memorandum on statistical indicators of cyclical revivals. The request was urgent, the time short. Little of significance could be expected from information quickly thrown together and analyzed by impromptu methods. It was necessary to have some capital to exploit.

When its initial work on national income had been completed, the National Bureau turned a major part of its energies to another piece of basic research — business cycles. This subject, too, was "one of great importance to all classes in the community," as our annual report mentioned at the time. It was a subject, also, in which quantitative methods could be used to advantage. No one else was planning a comprehensive survey of the whole subject. The staff "seemed" qualified by experience and interest to fill the want. And much of the knowledge gained in studying fluctuations in the national income would be usable here.

By 1937 the National Bureau had a large collection of statistical materials at hand. These had been subjected to considerable analysis and the staff had thought deeply about their meaning. This investment could be mobilized to yield something useful about indicators of cyclical revivals even in the brief time available. The Bureau took on the assignment.

Almost five hundred American monthly or quarterly series in our possession — series on production, employment, prices, security issues, orders, and the like — were examined by Mitchell, Burns and their co-workers, and for each the timing of its changes in relation to business revivals was determined. From this list were selected the series that had been tolerably consistent in their timing and were of "sufficiently general interest to warrant some attention by students of current economic conditions." These, numbering seventy-one, were listed in an elaborate table showing the average lead or lag for each series; and to help its users, Mitchell and Burns added information on the variability of timing — for "tolerable" hardly meant "perfect" consistency — and on such other characteristics of each series as might be needed in judging the significance of its changes.

They did not stop there. From the list of seventy-one series, a further selection was made of the most trustworthy indicators. Attention was given to the length of average lead, uniformity of lead, frequency and intensity of erratic movements, length of the record, and other criteria. None of the series could meet all the criteria well; Mitchell and Burns selected twenty-one that fared best, on the whole. And to their lists of indicators, Mitchell and Burns added a carefully prepared list of "cautions" for the guidance of those who must chart our position in the business cycle at any specific time. These were at least as valuable a part of their memorandum as the selection of series indicating cyclical revival.

We have become so familiar during the past eighteen years with the statistics and characteristic cyclical behavior of many economic processes, that it is difficult to remember the impact of this memorandum — published as a Bulletin in May 1938 — on economists and business analysts at the time. Here for the first time was an analysis of a large body of statistics that was at once penetrating and comprehensive, that sought uniformities of behavior but did not ignore variability, that revealed sharp awareness of the day-to-day problems of business analysis as well as a deep understanding of the complexities inherent in the scientific analysis of business cycles. The paper must have seemed a revelation to its readers.

Since publication of the memorandum the National Bureau has extended the analysis of cyclical indicators in various directions. Before I report the sequel, let me underscore the large amount of unhurried work that built the basis for the memorandum.

First, techniques of measuring business cycles had to be devised in the light of hypotheses concerning their nature, study and comparison of existing statistical methods, review of available statistical data, and experience with the methods tentatively selected. The chapters in Mitchell's 1927 volume constituted a major step in this task; the two reports that Mitchell wrote at different stages of his progress in applying the techniques — reports he called "experimental" and decided not to publish —

another step; the 1935 Bulletin by Mitchell and Burns on the National Bureau's measures of cyclical behavior, a third. Still other stages preparatory to the analysis of cyclical indicators, and following it, are hidden in the large volume on *Measuring Business Cycles* that Burns and Mitchell published in 1946.

Second, a vast quantity of statistical data had to be gathered, if the various economic processes involved in business cycles were to be properly studied. This meant more than copying ready-made series out of standard sources. Frequently it meant piecing together series from the individual issues of business periodicals, which in turn required a search through possible sources; and sometimes it meant also the elaborate calculations and careful judgment that Macaulay and then Durand put into the preparation of their widely used series on bond yields. In addition, it was necessary to determine, so far as possible, the precise nature of the process reported by each series and the reliability of the information provided — which might mean seeking explanations for differences between one source and another, or one series and another. All this work had to be checked. Nor did this essential step end when the figures were neatly arrayed. Charting each series and putting it through the analysis frequently raised further questions as to its meaning and reliability, and these had to be cleared up.

Third, a set of reference dates had to be determined — dates with which the timing of individual series could be compared. Thorp's study of business annals was part of this task; determination of the month around which the cyclical upturns in the various series clustered was another. The few pages on dating business cycles in *Measuring Business Cycles* do not indicate the magnitude of the task. Nor do the few words in Part Three, below, on the determination of the recent reference dates.

Fourth, each series to be analyzed had to be examined for seasonal fluctuations; and when these were found — as was usually the case — they had to be removed to permit cyclical changes to stand out clearly. This was a large task, not only because of the amount of arith-

metic that goes into determining and removing a seasonal change, but also because more than one method sometimes had to be tried. The easy device, frequently favored by businessmen and journalists, of comparing the current month with the corresponding month of last year could not be used because it is inefficient and can be misleading. Matters may be worsening even when current levels exceed those of last year. They may be worsening also when the excess this month is greater than that of the previous month — because of a changing seasonal, or because an interruption to expansion which proved to be minor a year ago may not prove so again. Recently we have been experimenting with electronic calculators for the purpose of determining seasonal fluctuations, and we hope to extend these experiments in the coming year — an interest that indicates how burdensome the removal of seasonals is at present.

Finally, almost an equal amount of labor went into determining, for each of the five hundred series, its average lead or lag, the variation about the average, and the other characteristics of cyclical behavior mentioned earlier.

Spelling out these steps can only suggest how the information at the disposal of Mitchell and Burns in 1937 had been accumulated. It may also serve, however, to indicate what is generally involved in the application of quantitative methods to economic analysis and why scholars working by themselves are under a serious handicap in dealing effectively with many economic questions.

Shortly after the war we decided to turn back to the question of statistical indicators. It had not been neglected in the interim, for Mitchell and other members of the staff were working steadily on the determination and explanation of the characteristic cyclical behavior of various economic processes; but the Employment Act of 1946 had been passed and another close look at the sequence of changes that take place at turning points in business promised a useful guide to those who would have to bear the responsibilities imposed by the Act.

Moore, who was in charge of the task, not only extended the analysis through the business cycle of 1933-1938, but also took advantage of the fact that the Bureau had added many series to its collection — by that time eight hundred in number — and had improved the measures of cyclical behavior. He revised the indicators of revivals, paying more attention to coinciding and lagging series (following up suggestions in the Mitchell-Burns paper) as a valuable confirmation of the indications of the leaders; applied the analysis also to recessions; and experimented with other techniques of analysis. The results appeared in his Occasional Paper, published in 1950, which has attained a degree of popularity unusual for National Bureau publications.

The list of indicators of cyclical revivals (and recessions) that he presented differed from the earlier selection for a number of reasons, two of which are of interest here. One was the appearance of series not available before — gross national product, personal income, and consumer instalment debt, among others. Another was the guidance he obtained from cyclical analyses carried on at the National Bureau after 1938 — Mitchell's, of course, and Abramovitz's on inventories, Barger's on corporate profits and personal income, Burns' on construction, Evans' on incorporations, Haberler's on consumer instalment credit, and Hultgren's on transportation. Moore's list reflected less the mechanical sifting of time series that Mitchell and Burns had been compelled to rely on to some degree, and more the reasoned choice that study of the chain of events during business cycles makes possible.

With the passage of time, generalizations derived from the experience of one period can be checked against later experience. Moore was able to test the twenty-one indicators selected by Mitchell and Burns against their timing in 1938; and later he took advantage of the postwar experience to test his own list, since it was derived from information available only through 1938. Despite the substantial secular and structural changes that we know have occurred in the economy, and the fact

that every business cycle is influenced by special factors that distinguish it from its fellows, the tests were encouraging. They showed a family resemblance between the later cycles and those of earlier years. In this respect, there has been no obvious alteration in the nature of business cycles.

The comparison may be illustrated with the behavior of the indicators during the revival centered at August 1954. Among the series that presage turns in general business are the financial processes, investment commitments, and other sensitive factors that generally initiate and respond to the very beginnings of revival or recession and contribute to its spread — processes represented among the indicators by liabilities of business failures, industrial common stock prices, new orders and contracts for investment goods, new incorporations, hours worked, and sensitive prices of basic commodities. At the beginning of 1954 half of these eight series were rising, and in May — three months before the trough in business — all were going up. Generally coinciding or nearly coinciding with business cycle turns are, as one would expect, turns in such broad measures of business activity as employment and unemployment, gross national product, industrial production, bank debits outside New York City, freight car loadings, corporate profits, and wholesale prices (excluding farm products and processed foods). During 1953-1954 these behaved as in earlier cycles, on the whole. Through the fall, winter, and spring of 1953-1954, all or most of these indicators were falling, except between one pair of months in the spring. By July half were falling, half rising. In October all were rising. As for the group that usually lags turns in general business conditions (personal income and retail sales, consumer instalment debt and manufacturers' inventories, and bank rates on business loans), four out of five were falling as late as August of 1954. Not until October were more than half of them rising.¹

In a word, then, the three groups of indicators behaved during the revival of 1954 as they had been found to behave during earlier revivals. This is especially interesting because

the recession from 1953 to 1954 had been exceptionally mild — far milder than the “average” cycle of prewar experience. Of course, there had been occasional mild recessions in the prewar period also. During such recessions a number of the indicators — especially the lagging series — showed no obvious response to the decline in business. The 1953-1954 recession resembled these earlier episodes in that respect: personal income and instalment debt did not decline appreciably after 1953.

Moore has developed further the diffusion indexes first used in *Measuring Business Cycles*. These measure the proportion of series moving up or down and thus provide a simple picture of their consensus. Together with the diffusion indexes provided by Hultgren in his paper on profits and by Burns in his “New Facts on Business Cycles,” they reveal in a striking manner that cycles in different activities, or even in different firms engaged in the same activity, do not follow the same temporal course. During an expansion the maximum identity of movement — hardly ever 100 per cent — is reached some time before the peak in aggregate activity appears. Months before aggregate activity reaches its peak the proportion of expanding industries or firms is already declining. Months before the aggregate reaches its trough the proportion of expanding activities is already rising. The diffusion indexes thus constitute another leading group of indicators. They have even more interest in indicating how cross-currents grow in importance during the complicated series of events we call recession and revival.

More recently, the indicators and diffusion indexes have been put on a current basis — that is, the turns are being calculated not from observations of the whole cycle, including developments after the turns themselves, but only from observation of developments up to the month under consideration. Once one

¹ Computations are based on directions of change in centered moving averages applied to each seasonally adjusted indicator. The period of the average depends on the extent of erratic changes: it is six months at the maximum (for liabilities of failures). For a few series the directions of change are on a month-to-month basis.

moves from hindsight to contemporary observation, cyclical turns become far more difficult to identify. Changes that soon reverse themselves and therefore represent only temporary interruptions to cyclical expansion or contraction appear to occur frequently. This too has considerable scientific interest, as Ruth Mack's book on the shoe-leather-hide industries demonstrates. Any explanation of how business cycles are generated must take account of the incessant change that surrounds businessmen and the effects this must have on their outlook and behavior.

How helpful the indicators of cyclical recession and revival will be to those who wish to detect the drift of business conditions remains to be seen. The "current-basis" indicators should aid in the experiment. It is safe to say that anyone who uses them to the exclusion of other information and ignores the reservations with which Mitchell and Burns first surrounded them is bound to be disappointed.

It is well to repeat some of these cautions, just as Moore did, for the indicators cannot provide the simple key to the future that folk seek.

Mitchell and Burns mentioned the difficulty of distinguishing an erratic fluctuation from a cyclical turn in a particular process. It is prominent in the charts of the current-basis indicators already mentioned. There is danger, therefore, in trusting the indications of single series. It is necessary to search out the consensus of groups of series, not confining attention to the twenty-one indicators alone. And this is important also because the cyclical timing of a particular series may vary from time to time — sometimes irregularly, sometimes secularly or structurally. There is need, consequently, to be alert to the latter and aware of the former.

The occasional appearance of "incipient revivals which suffer a relapse" poses another problem not to be ignored. An example appeared during the deep depression of the thirties, when the revival that seemed under way at the middle of 1932 petered out in the fall with a serious falling-off of business to another low in the spring of 1933. Such a reversal in

direction might be encountered at other stages of expansion and contraction also, as our experience in 1951-1952 illustrates. In her study of the shoe-leather-hide industries, Ruth Mack gave special attention to the phenomenon as it appeared in those branches of business. She is exploring the matter further in the study of short cycles.

Mitchell and Burns emphasized, in this connection, the need to consider "important factors arising outside the realm of business." This has become increasingly important in recent decades, with the growth of government and such developments as the Employment Act of 1946 and the cold war.

In man's persistent search for a clue to the future, sequence analysis has long attracted attention. If today we have a better understanding of its possibilities and its limitations, it is because of the basic research that has been done on business cycles. The businessman who must speculate about the future course of economic conditions knows more keenly than before that he must "eschew simple formulas" and study a wide range of data. His watch for the typical sequence of events must be kept in full awareness of the variation that characterizes successive business cycles and the changes that go on within them. He must be alert to structural and secular "changes in the making," yet resist the tendency to generalize too easily on the basis of recent experience. He must recognize that several possibilities lie before him and that probabilities have to be attached to each of them; and he must stand ready to revise the probabilities, and the judgments and policies he bases on them, as evidence accumulates from month to month. He must be sensitive to the opportunities open to his own firm, as well as to the general factors that affect business as a whole.

Moore has followed his Occasional Paper with other short pieces dealing with aspects of the subject, one or two of which I have already mentioned. Others of our staff have dealt or are dealing with related questions. I can mention only Hastay's work on businessmen's expectations — which may turn out to be more useful for telling us something about business

behavior than for adding to our kit of forecasting tools. We plan to assemble the various contributions into a volume that will include also some of the statistical materials we have used, thus making available to the public part of the rich collection of time series that we have accumulated and analyzed over the years. The volume should prove valuable to the many business economists and students of business cycles who are aware of the need to improve the knowledge and techniques which current analysis must use, as well as of the need to use what knowledge and techniques we now have as wisely as possible.

Before leaving this question, I would like to recall a general conclusion of Mitchell and Burns about the way to improve forecasting. It points to the kind of work on which we must concentrate the energies we devote to the subject of business cycles. Mechanical methods of trying to improve prognoses, made on a strictly empirical basis, seemed to them to be less promising than efforts to learn about the interrelations among the cyclical movements of different economic processes. Our recent work on statistical indicators gives every support to this conclusion.

At any moment, analysts of business conditions must perforce apply what knowledge they have of the connections between current changes and the events that precede and follow, uncertain though it may be. A major task of our business cycle studies is to strengthen this knowledge of the connections among events — to forge links where they are now lacking, and to replace weak links with stronger ones, and so to help business analysts judge the significance of the events that unroll before their eyes.

If I had the time I could illustrate this process of construction and reconstruction with our studies of one of the elements of what is popularly referred to as the “cost-price squeeze.” I would start with the account Mitchell gave in 1913 of how prosperity breeds depression and recall his hypothesis that “the very conditions that make business profitable gradually evolve conditions that threaten a reduction in profits”; that among these conditions were rising prime

costs per unit of product, and counting heavily in prime costs — though more in some industries than in others — were unit labor costs; and that unit labor costs could be expected to rise, especially in the later stages of business expansion, first as a result of the characteristic cyclical behavior of wage rates, and second because of the probable cyclical behavior of the quantity of labor used per unit of product. I would then go on to show how Mitchell’s conjectures guided our work when we began the study of business cycles; what questions were raised about labor costs when Hultgren came to grips with the matter, in so far as it could be analyzed in the records of American railroads; how Mitchell revised his hypothesis in the light of this work and also of the Bureau’s studies of labor productivity, Creamer’s analysis of cyclical fluctuations in wage rates, and his own preliminary analysis of the figures for manufacturing; what Moore found when he carried the analysis of the manufacturing data a step forward; how the results obtained for the interwar period compare with the recent behavior of wage cost per unit; and what Hultgren is doing to advance the analysis in his current studies of costs in individual industries. Let me merely mention that our studies do show that in manufacturing as a whole, at least, labor cost per unit typically turns upward in the final stages of business expansion. While Mitchell’s original hypothesis about unit labor cost requires alteration in certain significant details, its main point is consistent with the facts for certain important industries as we have been able to observe them.

I turn now to another question, one that suggests a new piece of basic research with interesting possibilities for the analysis of current business conditions.

III

During 1955 net public and private debt went from \$605 to \$650 billion. Consumer mortgage and shorter-term debt rose over the year as a whole by about \$20 billion. The increase in business debts added almost as much, \$19 billion, state and local government debts, another \$5 billion, and the federal debt, another

billion. The total of \$45 billion constituted an exceptionally large increase in volume of obligations. Indeed, for a peacetime period, it was unprecedented. During the 1920's, with which comparisons are frequently made, debt increase did not exceed \$10 billion per annum in any year.

Only in the postwar period itself was there a comparable annual increase: the rise in debt during 1950 had been almost as large. In fact, every recent year has seen an increase in debt of \$20 billion or more. The total rise in the net public and private debt between the end of 1949 and the end of 1955 amounted to \$200 billion, more than the entire debt outstanding at the end of 1929, and much more than the \$45 billion increase between 1923 and 1929. In terms of rate of growth, too, the increase in debt during the past six years has been relatively large, 45 per cent as compared with about 30 per cent during the six-year period ending in 1929.

The large addition to the volume of debt in 1955 has attracted wide notice, coming as it did upon other substantial increases in preceding postwar years. In many quarters, the rise in debt has engendered great concern. But these figures, while meriting close attention, are not themselves sufficient to support some of the judgments being made about the current situation.

There are, first, the obvious things that must be kept in mind when one tries to judge the postwar situation by comparing it with the interwar (or any other) period. The dollar of today is not the dollar of the 1920's; and even more important, the economy of today is bigger than that of 1929. While debt at the end of 1955 was 3.4 times what it was at the end of 1929, the gross national product in current prices was 3.7 times as great. Today's ratio of total debt to gross national product is somewhat lower than it was in 1929. It is also lower than it was in 1923 — and, I might add, in 1949.

The more subtle considerations involved in judging the significance of debt changes are not as easy to put in the simple terms of figures like those I have mentioned. Yet these consid-

erations are not to be ignored on that account.

For one thing, while current attention is focused chiefly on the relation of debt to the stability of the economy, that relation cannot be understood apart from the secular and structural changes that have characterized our financial organization.

Debt and economic growth seem to go together. The practice of borrowing and lending is a means to a higher standard of living for the community: on the whole, it places funds where they can be used to society's best advantage. It does not follow, however, that debt should be expected to parallel national product and that only differences between the two constitute cause for concern. Economic growth, the rising standard of living it fosters, and the altered industrial structure which is one of its causes and one of its consequences, bring with them changes in the form and character of the claims which savers wish or can be induced to hold, or investors wish or can be induced to provide — matters discussed in the reports on our *Conference on Research in Business Finance* and, most recently, in one section of our conference volume on *Capital Formation and Economic Growth*. Debt claims are but one variety of claim, and changes in them must be judged in the context of the whole financial structure. Indeed, it is difficult to classify claims in distinct ways. They merge into one another; and this too raises some troublesome questions about the meaning of the debt figures available.

Also, financial intermediaries change in relation to the rest of the economy and in relation to one another. Thus the number of stages and kinds of connections between ultimate saver and ultimate investor are altered, and with them the relative volume of debt. The growth in size of nonfinancial corporations and the extension of their activities into multiple fields also affect financial structure and the relative importance and significance of different sources and types of finance.

Moreover, economic growth has not been the only factor causing change in the financial system and in the place of debt in that system. The momentous events of the Great Depres-

sion and the Second World War also played a part — by altering price levels, creating a large public debt, and enlarging greatly the government's role in the financial as in other spheres.

Certain aspects of these changes in our financial organization has been described and subjected to analysis in the volumes prepared by the National Bureau's Financial Research Program under Young's and then Saulnier's direction. The report by Grebler, Blank, and Winnick on capital formation and financing in residential real estate, in press, takes up another part of the subject, as do other sections of the National Bureau's Studies in Capital Formation and Financing. A comprehensive statistical outline is provided in Goldsmith's monograph on *Financial Intermediaries in the Saving and Investment Process* soon to be sent to the printer.

The changes mentioned, and others, have transformed the financial system. In many ways it is a new system, different from the structure of even twenty-five years ago. While the broad outline of change is clear, we need to know more about the present structure and the events that have brought it into being if we are to understand and assess current changes in debt and related financial items. Everyone is aware, for example, that many new governmental credit institutions have entered the scene, and the report which Saulnier, Jacoby and Halcrow have completed on federal lending and guarantee describes this development. But the effect of the new institutions on the volume of debt and its significance for economic stability; the effect of government policy, legislation and regulation on the competitive position of various types of financial institutions (which surely influences the volume and character of financial claims) — these are still troublesome questions.

If we had a comprehensive account of the new structure of credit and savings facilities, and understood more fully its drift and its causes, we would be better able to consider such questions as those bearing on the relationship between debt and economic stability and growth.

A start has been made in our study of the

postwar capital markets. Using the structure of accounts originated by Copeland in his *Study of Moneyflows* and relying heavily on the valuable statistics shaped in Copeland's mold by the Board of Governors of the Federal Reserve System, Goldsmith, Klamann, Robinson, Shapiro, and their collaborators are looking into this segment of our financial system. We expect to learn more about its contemporary structure and some of the major reasons for the changes that have occurred over the past decade. We hope also to derive certain by-products: to learn what new work in the credit and capital markets would be most useful, understand better the nature of the available information and perhaps stimulate the production of new data, and discover the best ways to tackle the problems outlined above. The discussion now going on in financial and governmental circles of the problems of inter-institutional competition may lead to the development of basic information that could be put to good use.

Though study of secular and structural changes in financial structure is essential to our understanding of debt expansion, it is clear that debt expansion cannot proceed indefinitely at the pace of the past year. This raises questions about the extent to which production and employment can be maintained at satisfactory levels and rates of growth when debt expansion slows down or comes to a halt. And the interlocking structure of long- and short-term credits so rapidly built up poses serious questions also about problems of adjustment should expansion of business be interrupted.

This is especially the case when deterioration of credit standards has contributed in important ways to the increase in debt. That in one sense or another the quality of credit does seem to deteriorate during the course of an expansion, particularly when it is prolonged and its later stages take on the characteristics of a boom, is shown in a number of our studies. One of the studies is reported in Hickman's second volume on corporate bonds, soon to be submitted for approval to the Board of Directors; its title, *Corporate Bond Quality and In-*

vestor Experience, indicates the kind of information it provides on this sector of the capital markets. The capstone volume by Morton in our urban mortgage lending studies, just off the press, brings together the results obtained by Saulnier, Behrens, Harriss, Fisher, and Edwards. Still a third study is described in the volume by Jones and Durand on agricultural mortgage lending published in 1954; and a fourth, in Ilse Mintz's book of five years ago on the deterioration in the quality of foreign bonds issued in the United States during the 1920's.

The report by Jones and Durand has special interest because they were able to take advantage of information for different areas of the country to provide a variety of experience otherwise difficult to obtain. Above-average increases in farm mortgage debt between 1910 and 1920 were followed in the same areas by especially high rates of "distress transfers" of farms during 1925-1934. The picture is still clearer when attention is focused on a relatively homogeneous region like the corn-belt states. There, increases in farm mortgage debt between 1910 and 1920 were highly correlated with increases in land values per acre during the same period; and in the corn states in which the boom in land values and land sales generated by the first World War went farthest, the later distress transfers were greatest.

In a brief paper — which he hopes to develop more fully at a later date — Moore points out that the difficulties of farmers during the 1920's kept down the volume and actually appear to have improved the quality of new farm credit. This was in sharp contrast to the experience of the rest of the economy, which was expanding rapidly in those years. In the nonfarming sectors for which the studies mentioned provide information, the boom of the twenties was accompanied by a serious and widespread decline in the quality of credit. The subsequent average default rate on domestic corporate bond issues of 1925-1929 was 28 per cent, as compared with 16 per cent on bonds issued during 1920-1924; on foreign government dollar bond issues, 50 per cent as compared with 18 per cent; on urban home

mortgage loans, 21 per cent as compared with 8 per cent; on urban business property mortgage loans, 37 per cent as compared with 14 per cent. These results, and those on farming, confirm one another and suggest something of the relation between boom conditions and changing quality of credit.

Various factors contributed to the deterioration in quality of credit during the 1920's. One seems to have been an increase in the prices of assets financed with the loans, such as we know occurred in the earlier boom in farming. The maintenance of nominal lending standards actually meant a hidden decrease in standards. Another cause suggested by the data was relaxation of credit terms and lending standards, coupled with a reduction in the risk premiums sought or obtained by lenders. The basic factor may have been the overconfidence generated during the twenties by the relative mildness of the contractions that occurred in 1923-1924 and 1926-1927.

Developments of this sort have significance for students of business cycles as well as for observers of the contemporary scene. In *Measuring Business Cycles* Burns and Mitchell suggested the hypothesis that "after a severe depression industrial activity rebounds sharply, but speculation does not. The following contraction in business is mild, which leads people to be less cautious. Consequently, in the next two or three cycles, while the cyclical advances become progressively smaller in industrial activity, they become progressively larger in speculative activity. Finally, the speculative boom collapses and a drastic liquidation follows, which ends this cycle of cycles and brings us back to the starting point." They believed the hypothesis would repay exploration. The information gathered in the studies of credit by us and others is bringing closer the day when such an adventure will be possible; further help, we may expect, will come through the work on "long cycles" that Kuznets, Hastay, and Abramovitz have been doing.

At the moment, however, what we know about credit during the business cycle is still very limited and the materials available cur-

rently are still scanty. These lacks affect the present widespread discussion of the quality of credit and the concern over its volume. Opinions are expressed on the question of its deterioration and judgments based on opinions. But much of the discussion is confused because some people mean one thing when they speak of credit quality and of its deterioration and other people mean something different. Confusion is further confounded by lack of reliable current information on lending practices and the characteristics of loans and borrowers, and by lack of understanding of the significance of current information for the problems that the future might bring.

Reliable and unambiguous information on credit quality assembled and provided on a current basis would not solve every problem of financial management, but if properly interpreted it would help financial institutions and governmental authorities to make sounder judgments. We are therefore thinking of a study that would consider, and to the extent possible devise, a system of current reporting on the quality of credit. During our exploration of the needs for research in the area of credit and capital we have drawn up tentative plans for such an undertaking. It should attempt to clarify the meaning of the term "credit quality." Alternative methods of measurement should be devised and compared. The information that can be extracted from existing records should be organized and analyzed. Since new information is needed, the study should develop practicable suggestions for collecting it. Finally, the economic implications of the data should be set forth in the light of past experience and present-day conditions. Failure to recognize the implications during booms can pile up problems and contribute to the severity of subsequent depressions. Similarly, contraction may be prolonged by failure to recognize that — whatever has happened or may be happening to old credit — new credit may be improving in quality during a depression.

If we should obtain the funds necessary to pursue this investigation and if we should attain some measure of success in the endeavor,

financial and governmental agencies might be stimulated to set up and maintain a system of reporting that would be helpful to all concerned with providing and managing credit under conditions of economic change. And we might add to our knowledge of economic behavior.

IV

Permit me a final word about the objectives of our program and the reasons why it is necessary to look ahead.

The coming decade promises new opportunities and new responsibilities for the American people. Projected additions to the nation's annual rate of production during the next ten years amount to as much as \$150 billion. These form the planning base of the national administration and of our leading businessmen, for they are well within the realm of probability. Such enormous growth will require large expansion of our production machinery and our financial facilities. The rate of investment and reinvestment of the nation's savings, for example, will be pushed scores of billions above present levels; the work required of the financial community will be larger; this in turn will generate a demand for enlarged and improved capacity of our monetary, credit, and savings machinery, among other things.

The next ten years will see also a major test of our power to ward off the perils of depression and inflation. Undoubtedly, determined efforts will be made by federal and state governments to strengthen our defenses, efforts that will be accelerated whenever business and employment suffer contraction or prices begin to rise rapidly. This too means a host of proposals, good and bad, for revamping our economic institutions and for extending the supervision of their operations.

Whatever else one may say about the future, then, one thing is certain: it will bring change; it will create demands to meet the problems that change uncovers.

Economic research today can better prepare us to satisfy these demands as they arise in the future, just as research of the past is helpful in meeting current problems. Surely

we now know more than we otherwise would about the volume, dangers, and benefits of consumer instalment financing — to mention a topic being widely discussed — because some years ago the National Bureau's Financial Research Program included a broad study of such credit. The report by Holthausen, Merriam, and Nugent that we published in 1940 paved the way for the current statistics on the volume of consumer instalment credit; the companion reports by Young, Plummer, Chapman, and Saulnier described the credit practices, customers, operating methods, collection experience, profitability, and other aspects of the business done by financial institutions engaged in consumer instalment financing; Dauer's volume compared the operating experience of some of these institutions; Coppock's study discussed governmental agencies of consumer instalment financing; Bernstein's report pioneered in the use of consumer survey data to reveal patterns of consumer debt; Durand discussed in detail the risk elements in consumer instalment credit; and, as I have already mentioned, Haberler subjected cycles in such credit to economic analysis. Because of this work, and the work of others, the Board of Governors of the Federal Reserve System will be better able, we may expect, to meet the recent request of the President for a speedy report on the need for stand-by legislation to regulate consumer instalment credit. Nevertheless, there are still many important things

we do not know about consumer instalment credit. If the "emergencies" that will arise in the future are to be met with more tested knowledge than we now have, we must acquire that knowledge before the event.

It would be idle to suppose that any research program, no matter how extensive, could give us the full knowledge required to deal confidently with the problem of debt or with the other problems of growth and stability that economic life may unfold, or to appraise adequately all the solutions that ingenious minds will offer. But whatever we can learn about the operations of our economy will help us resist hasty solutions and prepare us to build sound ones.

This is the spur to those who engage in economic research and those who support it. As A. C. Simmonds, Jr., Chairman of the Banking Research Fund of the Association of Reserve City Bankers, put it last spring, research contributes to our knowledge of problems, to the formulation of policy, to the improvement of public supervision, and to the education of our citizens. These are worthwhile aims. Even a step in their direction is important, for the fundamental issue is nothing less than the shape of our political as well as our economic future.

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