CURRENT RESEARCH IN BUSINESS CYCLES

BUSINESS CYCLES IN THE INTERWAR PERIOD: THE
"QUANTITATIVE-HISTORICAL" APPROACH

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A review of the literature speedily convinces one that we still know distressingly little about the causes of economic fluctuations in the United States in the period between the two Great Wars. In this paper, I shall indicate what, in my opinion, are some of the most important unanswered questions about this period and how we may best go about trying to answer them. In a sense, this paper is a first report on a larger project dealing with American business cycles during the interwar years which is now in progress.¹

I. Questions We Need to Answer

The need for more detailed study of this period is easily documented. Even the best of the existing studies of business cycles during the interwar years have not brought about general agreement among economists as to the nature and causes of the major cyclical fluctuations between 1919 and 1939.² To be more specific, consider the following questions, to which, so far as I know, satisfactorily detailed answers do not now exist.

1. What were the most important secular forces operating upon the American economy during the interwar period, and how were these secular forces related to both the boom of the twenties and the depression of the thirties? It is now generally accepted that secular and cyclical movements are interrelated and that an understanding

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of the causes of short-run instability requires a detailed knowledge of the long-run forces operating on the economy.\(^3\)

2. The role of World War I in influencing cyclical and secular developments needs further study, particularly for the United States—where war-created dislocations were less obvious than in Europe. In this connection, we need to compare secular movements before 1914 with the changes which occurred after the war. To what extent, and in what sense, did World War I create a “break in trend” in important sectors of the economy?

3. Partly because of our uncertainty regarding the answers to these questions, there is no consensus on how to interpret the total pattern of change during the interwar years. For example, should the entire period 1921-33 be considered a “major” cycle, on which were superimposed several minor cycles? How shall we draw the secular movements during 1919-39? Should we recognize both “primary” and “secondary” trends? And so on.

4. We need more study of the timing and extent of the apparent “drying-up” of investment opportunities at the end of the twenties. For each major industry, what was the nature of the market situation and the prospects for further investment in 1928-29, and how did the changes which occurred during the twenties affect developments from 1929 on? To what extent were the deflationary forces at work merely cyclical, and to what extent also secular?

5. We have few detailed studies of significant cyclical turning points during the interwar period.\(^4\) In particular, there is no adequately detailed study of the 1929 turning point, which should include a detailed analysis of the behavior of significant industries in the neighborhood of the downturn in total activity. Studies of turning points should be integrated with an analysis of the preceding cumulative phase and should aim at throwing light on three questions: where and why deflationary or expansionary stimuli originate, through what

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\(^3\)Writers with such different approaches to business cycle analysis as Schumpeter, on the one hand, and A. F. Burns and the National Bureau of Economic Research, on the other, seem to agree on this point. Schumpeter’s views are well known. Note the emphasis given in the National Bureau’s research program to the studies of secular changes in income, production, employment, and productivity since 1900 or earlier in various sectors of the economy. In addition to these individual studies, see the interpretive summary of findings by George Stigler, Trends in Output and Employment (New York, 1947).

\(^4\)There is some consideration of timing relationships at the turning points in 1927, 1929, and 1932-33 in W. C. Mitchell and A. F. Burns, “Production during the American Business Cycle of 1927-1933,” National Bureau of Economic Research Bulletin 47 (November, 1936). See also the turning point analysis in Slichter’s two articles on the interwar period. Slichter’s articles, excellent as they are in some respects, have two main defects. They are not sufficiently systematic and detailed in their study of timing relationships at the turning points, and, more important, his study of turning points is not integrated with an analysis of underlying cyclical and secular developments. The latter criticism applies also to Roosevelt’s study of the turning points in 1937 and 1938. (See his article previously cited and his doctoral dissertation on which the article is based.)
channels they are transmitted, and approximately what weights should be attached to the various originating forces. While discouragingly little can be done with this third question, some rough quantitative statements should be possible.\footnote{Eventually, the techniques and models of the sort being developed by Leontief may permit us to make significant statements about the quantitative importance of various initiating forces uncovered by an integrated study of a particular turning point and the preceding cumulative phase.}

6. The facts regarding the relations between income and consumption, in the aggregate and for significant segments of the economy, need to be more fully explored, both for the twenties as a whole and for the 1929 downturn. The main job here is putting together the numerous partial, and partly contradictory, pieces of evidence. Reliance on a few aggregative series, without examination of other relevant evidence, is not enough.

7. It is generally agreed that, over and above the causes that initiated the downswing of 1929-33, a combination of additional factors contributed to the peculiar severity of the decline. But we are unable to give precise answers to such questions as the following:

a) What, specifically, was the role of the various causes which have been cited as contributing to the length and severity of the Great Depression?

b) What happened after 1929 to each of the main sources of investment in the twenties? In what industries was investment particularly deficient, and what can we say about the causes of these deficiencies (in terms of both the demand and supply of investment funds)?

c) How was the world-wide collapse in international trade related to developments in the United States? How were cyclical forces transmitted internationally, both on the downswing and during the stirrings of revival in 1932-33?

d) If we do make a distinction between the forces that initiated the depression and those that accentuated its severity, how did the interrelationships between these two sets of forces change as time went on? In this connection, more attention needs to be paid to the abortive recoveries in 1930 and 1931. The reasons for these slight revivals and the causes of their quick termination should throw valuable light on the deflationary forces operating during 1929-32.

8. The attention of business cycle students has usually centered on upper turning points, to the neglect of the factors responsible for initiating revivals. We need a careful study of the lower turning point in 1932-33. What industries led in the brief 1932 upturn? Which most strongly resisted further deflationary pressures? What, generally, were the favorable and unfavorable factors in the business
situation in 1932? Similar questions can be asked concerning developments in March, 1933, and again at the end of 1933 after the brief "NRA boom" had collapsed.

9. The considerable literature on the cycle of 1933-38 does not give clear-cut answers to either of the two key questions: (1) What were the immediate causes of the turning points in 1937 and in 1938? (2) What factors were responsible for the unsatisfactory nature of the recovery during 1933-37? The first question requires a detailed turning-point analysis of the sort that we referred to in discussing the 1929 peak. To secure a more satisfactory answer to the second question, we need to complete the study of secular forces mentioned earlier and to compare in detail the factors affecting production and investment in 1935-39 with those prevailing in the late twenties.

10. Thus far we have emphasized the gaps in our knowledge concerning the "major cycle" of 1921-33 and the cycle of 1933-38. While our information about the cycle of 1919-21 is fairly good, we need to know much more concerning the "minor cycles" between 1921 and 1929. Time does not permit a detailed listing of the more important questions that remain unanswered here.\footnote{The reader will undoubtedly want to supplement this list of questions with others which he thinks are equally or more significant. In particular, he may miss any reference to such debated issues as the effects of monetary policy on developments before and after 1929, the role of capital gains in stimulating spending, the effect of the stock market crash, and so on. Such questions would automatically come up for consideration in dealing with the issues raised in the text. The form in which I have put the list suggests the directions in which I think empirical work can be most profitably pursued. The result should throw light on many questions besides the ones specifically raised in the text.}

II. The Statistical Approach to Empirical Business Cycle Research

The questions we have raised obviously imply an application of the so-called "historical" approach to empirical business cycle research, in contrast to what may be termed the purely statistical approach. A few comments on the usefulness of both methods in "explaining" past cyclical fluctuations may be in order.

The various versions of the "statistical" approach have this in common. For periods covering several business cycles, they look for patterns of systematic behavior in significant statistical series which can form the basis of generalizations about the nature and causes of business fluctuations. Either whole cycles or the successive data for individual months or years are taken as "observations" on "underlying" patterns of behavior, and statistical techniques are then applied to these observations in order to uncover the typical patterns and interrelationships which may exist.

Two versions of the statistical approach are currently attracting
attention: the econometric work of Tinbergen and the Cowles Commission group and the business cycle studies of the National Bureau of Economic Research. It may seem odd to classify together two groups which differ so radically on fundamental problems of methodology, but there is a basic similarity between the two which should not be neglected. Both are interested primarily in typical, statistical relationships and behavior. In contrast to the historical approach, emphasis is not placed upon detailed, over-all studies of individual cycles or turning points. Particular cycles or cyclical phases are “explained” chiefly through generalized explanations which apply to all cycles in the period under study. In addition these and other versions of the statistical approach find it difficult to handle information which cannot be quantified and expressed in the form of averages or functional relationships.

The heart of the econometric approach is the search for “structural behavior equations” which will explain the movement over time of significant economic variables in terms of other variables which are included in the model. Basically, it represents a sophisticated and elaborated application of least-squares analysis applied to time series. Equations are first set up to reflect the investigator’s judgment of the significant relationships which govern changes in economic activity, and statistical techniques are then applied to the data to secure the parameters for these equations. The equations thus secured are taken


3 See, for example, T. C. Koopmans’ highly critical review of Measuring Business Cycles in Review of Economic Statistics, August, 1947, pp. 161-172, and the forthcoming exchange between Koopmans and Rutledge Vining to be published in the same journal.

4 These comments require some qualification with respect to the National Bureau’s methods. The qualifications would apply more to the potenitualities of the Bureau’s approach than to the results thus far published. While averages and cycle “patterns” bulk large in what the Bureau has thus far done, the data for individual cycles are available for analysis, and the statistical records for individual cycles or specific series can be analyzed in conjunction with nonquantitative information.

5 The advance of modern econometric business cycle research over earlier correlation studies has been chiefly along two lines: (1) the construction of complete equation systems or models to portray the behavior over time of all aggregrative variables thought to be significant in explaining and predicting the level of business activity and (2) the adoption of probability reasoning in applying these models to reality and the consequent use of recent contributions to the theory of statistical inference in estimating the parameters of the equations used.
to describe the dynamic behavior of the economy and to "explain" why the endogenous variables change as they do over the business cycle.

Current econometric research in business cycles has a number of serious weaknesses. As tools of empirical research, econometric models are too simple and too rigidly bound by the set of hypotheses chosen. To permit of statistical estimation, these models must contain relatively few equations (even twenty or thirty are few in this context), and the total number of variables must be correspondingly limited. As a result, the variables studied tend to be broad aggregates and broad index numbers. Further, the functional relationships are taken to be of a simple form and, more important, are assumed not to change in the period being covered. This is a dangerous assumption to make when not all of the possibly significant variables are included in the model.

Reliance on broad aggregates and on unchanging, simple functional relations is particularly questionable in a field where observation tells us that the behavior of components is of strategic importance and that the role of these components varies from cycle to cycle and even within the same cycle. In addition, econometric studies of the cycle suffer from the same technical weaknesses that have always plagued multiple-correlation studies of time series—intercorrelation among the "explanatory variables" (nearly all of which move roughly in the same cyclical pattern) and a reduction in "degrees of freedom" as the number of variables is increased.19

Econometric studies leave untapped all information which cannot be put into the chosen system of equations. "Exogenous variables" are included as given data—which means that the attempt is made to measure the effects of such variables on the other parts of the model, but no effort is made to explain the behavior of these "exogenous" events. But numerous factors are not taken into account at all—because precise data are not available, because these factors are not measurable, because they may be judged to be nonsignificant on a priori grounds, and so on.

The econometric approach excludes two types of study of considerable importance in business cycle research. It does not attempt to trace channels of transmission of initiating forces, partly because this in-

19 Econometric studies of economic behavior over time have thus far been further hampered by the almost exclusive use of annual data, which are too crude for business cycle analysis. Resort to quarterly or monthly data raises another problem, that of high correlation between successive pairs of observations of the same variables. See, however, Koopmans' comment that "statistical theory is sufficiently flexible to face situations in which there is high serial correlation, as in quarterly and monthly data, though the 'mathematical and computational difficulties inherent in such a situation pose technical problems which need to be overcome." Op. cit., p. 170.
volves dealing with an unwieldy mass of variables, partly because the econometric technique precludes *ad hoc* judgments by the investigator regarding cause and effect sequences. Secondly, the method deals with a given time period in isolation. No attempt is made to relate observed behavior during this period to what has gone on before, or to separate secular and cyclical forces (which can be done only if the period of investigation is related to preceding decades).  

For these reasons, among others, econometric techniques give us high correlations but fail to yield convincing explanations of the causes of cyclical fluctuations. They may tell us that a given set of observed facts is not inconsistent with the hypotheses embodied in the model chosen. But if the facts are equally consistent with a quite different but equally plausible set of hypotheses, we are not much better off than when we began. And there may be still other hypotheses, not yet tested, which fit the facts equally well.

The techniques thus far employed by the National Bureau also do not take us very far in answering the questions raised regarding cyclical behavior in the interwar period. The National Bureau has sought to uncover the average or typical behavior of economic series over a large number of cycles. Thus far, the emphasis in the Bureau's specific work on business cycles has been on typical patterns of behavior displayed by individual series during "specific" and "reference" cycles — on "specific" and "reference" cycle *patterns*.

The delineation of such patterns serves a useful purpose, for it increases our ability to generalize about the characteristics which business cycles tend to have in common. But, if causal relationships vary from cycle to cycle as much as observation leads us to expect, this form of the statistical approach is not a substitute for detailed historical

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13 As a matter of fact, current econometric business cycle research does not even require the assumption that business cycles exist. The method is applicable to static models of the Keynesian type or to "dynamic" models which introduce lags and rates of change. Even the dynamic models do not recognize the cycle as a unit of experience requiring separate analysis; the models "explain" through the invariant functions included, why the endogenous variables are what they are in any particular unit of time, regardless of the particular cycle or cyclical phase into which that unit of time falls.  

14 Hence I view with skepticism Schumpeter's statement that "the highest ambition an economist can entertain who believes in the scientific character of economics would be fulfilled as soon as he had succeeded in constructing a simple model displaying all the essential features of the economic process by means of a reasonably small number of equations connecting a reasonably small number of variables." ("The Decade of the Twenties," *op. cit.*, p. 3.) Will it ever be possible to display "all the essential features" of economic behavior in this fashion? If the number of variables is "reasonably small" and therefore composed of broad aggregates, can we get the amount of detail we need to speak with confidence of specific causes? And as pointed out, models that seem to "fit the facts" do no more than tell us that one set of hypotheses is not inconsistent with these facts. Other sets of hypotheses may be equally consistent. In this respect, the writer shares the skepticism voiced by Keynes in his review of one of Tinbergen's studies, though Keynes did not always stand on firm ground in his detailed technical criticism. Cf. *Economic Journal*, September, 1939, pp. 558-568.
studies of individual cycles. Also, the Bureau's business cycle research thus far has been concerned primarily with setting forth the facts, in the form of measures of average cyclical behavior of specific series. The task of explanation and interpretation still lies ahead.

In this connection, the Bureau's choice of cycle units probably lessens somewhat the usefulness of the work thus far done. Mechanical criteria are set up for marking off cycles in aggregate activity and in specific series, and these criteria preclude the recognition of possible "major cycles" underlying the business cycles which are recognized. Thus, for our period, the Bureau mechanically marks off "business cycles" according to the familiar turning points (which are listed in footnote 22). No measures are computed for the underlying swing of 1921-33; the decline of the thirties is related only to the truncated expansion of 1927-29. Each of the shorter cycles becomes a unit in the averages which are computed.14

Since so much of the evidence points to the need of treating the period 1921-33 as a cyclical unit, we are enjoined from using many of the results of the National Bureau's analysis of the cycles during this period. At the same time, however, we shall place heavy reliance upon what are perhaps the Bureau's two main contributions to empirical business cycle research thus far: their invaluable compilation of original data, corrected for seasonal variation,15 and their many excellent monographs on the behavior of income, production, prices, and other variables in different sectors of the economy.

III. The Historical Approach

The essential characteristics of the historical approach to empirical cycle research are these. The emphasis is on explaining behavior during particular cycles, rather than on obtaining general conclusions that apply to all cycles within a given period. Full use is made of qualitative as well as quantitative information. The approach does not require precise measurement of functional relations or the preliminary setting up of complete theoretical models. Causal inference depends upon personal interpretations and judgment after detailed examination of the available evidence. A variety of statistical techniques—including econometric studies—may be employed. In addition, the approach should entail placing the cycle or period being studied in the context

14 Nor, I gather, would Mitchell or Burns suggest that it was. In this connection, see the comments on the potentialities of the National Bureau's methods in footnote 10.
15 See Mitchell's and Burns's brief comments on the relative advantages of treating the cycle of 1921-33 as a single unit of experience and of breaking the period up into segments corresponding to the shorter cycles. "Production during the American Business Cycle of 1927-1933." op. cit., p. 2.
16 The attitude of unswerving co-operation by Professor Burns and his fellow workers at the National Bureau in making this material available calls for special acknowledgment.
of the dynamic forces operating over a considerable period in the past.

The historical, no less than the statistical, approach entails initial theorizing—setting up working hypotheses. But the role of theory in both approaches can vary over a wide range. At the one extreme, complete theoretical models may first be constructed, in terms of which an attempt is made to "explain" historical events. This, for example, is the method used by Schumpeter, and also in the econometric model-building of the Cowles Commission group. More often, the historical approach utilizes theory chiefly as a guide to suggest significant types of relationships to examine in attempting to explain particular fluctuations.\(^{18}\) This particular relation between theory and empirical research can be extended into the formal "testing" of alternative theories.\(^{19}\) The econometric approach can also do this by trying different models, each being tested against the data in turn.

The three most important historical studies of business cycles in the interwar period are probably those of Schumpeter, Slichter, and Wilson.\(^{20}\) Each contributes significantly to our knowledge, but, in varying degrees, each falls short of providing satisfactory answers to most of the questions asked in the preceding pages.

Time does not permit a full critical evaluation of these studies here, but some of their limitations may be mentioned briefly. Of the three authors, only Schumpeter attempts to place the interwar period in the setting of secular movements originating before 1914, and his analysis is seriously hampered by his adherence to an unchanging theoretical and statistical model. None of the studies attempts to assess the quantitative significance of secular and cyclical developments in strategic sectors, and none provides an analysis of the major turning points in the detail and along the lines which we have described as necessary. All three studies generally fail to present the available evidence in sufficiently detailed and systematic form.

We may conclude that the possibilities of applying the historical approach to a study of business cycles in the interwar period have been far from exhausted. It also seems reasonable to say that, in further applications of the historical approach to this period, the following lines of inquiry need particularly to be emphasized:

1. Consideration of the fluctuations during 1919-39 against the

\(^{18}\) This is essentially what is done in Slichter's study of turning points during 1919-36.

\(^{19}\) This is Wilson's aim in the empirical section of his Fluctuations in Income and Employment. Even when formal testing of alternative theories is not the primary aim of a historical study, the analysis almost always permits some conclusions regarding the extent to which particular explanations are consistent with observed relationships during the period examined. Thus Slichter's article on the period 1919-36, which deviates from examining theories against observed behavior, has a final section of "Tentative Conclusions," a good many of which are concerned with the extent to which the evidence supports or refutes particular theories. (Op. cit., pp. 17-18.)

\(^{20}\) The full references are given in footnote 2.
background of secular and cyclical change during the several preceding decades.

2. Heavy emphasis upon the behavior of segments of the economy—particularly the components of total investment and also output and employment in particular industries.

3. Detailed study of the "anatomy" of turning points, with attention being paid to particular industries and particular types of spending as well as to significant aggregative variables.

4. Rough assessment of the quantitative importance of various segments of the economy affecting total employment and investment at turning points and during cumulative phases.

5. Finally, such a study should emphasize systematic coverage and presentation of data so that the reader can check the author's judgments and interpretation as the analysis progresses. In the past, historical studies have too frequently been marred by the use of statistics merely for illustrative purposes.

For lack of a better term, we may refer to this method of analysis as the "quantitative-historical" approach. Our emphasis, as in purely statistical studies, is on quantitative measurement; but we deal with individual cycles and turning points and utilize qualitative evidence and personal judgment as they seem to be required.

While our approach is quantitative as well as historical, we recognize that frequently it is impossible to arrive at convincing judgments regarding the actual magnitude of various forces which we may be able to isolate as probable causes of particular fluctuations. As Schumpeter has noted, organic processes do not lend themselves to quantitative evaluation of causes, but certainly more is possible here than has thus far been attempted in historical studies.

IV. Cyclical Patterns in the Interwar Period

So much for how, in my opinion, the job should be done. In the little time remaining, I should like to comment briefly on the cyclical contours of the interwar period.

We can accept immediately the turning-point dates which the National Bureau has tentatively established for the cycles between 1919 and 1939. From this and other evidence, we secure the five business cycles that are usually recognized for the interwar period: 1919-21,

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2a These are:
See Burns and Mitchell, op. cit., p. 78.
1921-24, 1924-27, 1927-33, and 1933-38. The evidence is overwhelming, however, that not all of these cycles stand on the same footing. Whatever our opinion as to the occurrence of "major" cycles before 1914, it is clear that we should group together the three "business cycles" from 1921 to 1933, particularly if we are to attempt to explain the causes of the Great Depression following 1929.

We can therefore describe the cyclical pattern of the interwar period as consisting of (a) the postwar cycle of 1919-21, (b) the "major cycle" of 1921-33, on which were superimposed the short and relatively mild cycles of 1921-24 and 1924-27 and which culminated in the spurt of 1928-29 and then in the prolonged and severe downswing of 1929-33, and (c) the "New Deal" cycle of 1933-38, with its unusually long but halting expansion, which terminated with the sharp recession of 1937-38.

The cycle of 1919-21 consists of two asymmetrical phases. The decline in output and prices was much greater, in both amplitude and duration, than the upswing. The general contours of this cycle and the fact that important indicators had been reflecting an underlying expansion since 1914 suggest that 1919-21 was part of a longer cyclical swing—a major cycle—which began about 1914 and may have reached its peak (so far as physical volumes are concerned) in 1917 or 1918. The three-year moving averages in Chart I delineate this major swing quite well.

The downswing of 1920-21 is usually compared to the depressions of the 1870's, 1880's, 1890's, and 1930's, as well as to that of 1907. Actually, despite the sharpness of the drop in many business indicators, the depression of 1921 does not belong in the same class with most of

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23 What the writer means by "business cycles" is indicated by the following definition. Business cycles consist of recurring alternations of expansion and contraction in aggregate economic activity, the alternating movements in each direction being self-reinforcing and pervading virtually all parts of the economy. Further, but merely as a working rule which may on occasion be broken, we specify that business cycles usually last from about two to about twelve years. We may measure "aggregate economic activity" for this purpose by taking total output or total employment. Except for its criterion of "aggregate economic activity," this definition is similar to that of the National Bureau but has the virtue of being brief. Cf. Burns and Mitchell, op. cit., p. 3.

24 As we shall emphasize later, the upswing of the minor cycle of 1921-24 was anything but mild. The 1921-25 upswing must be studied as part of the underlying expansion of 1921-29 as well as of the 1921-24 cycle.

25 The longest earlier expansions recorded by the National Bureau (going back to 1854) were associated with the Civil War (46 months) and World War I (44 months), (See Burns and Mitchell, op. cit., p. 78.) Since 1918, a new record has been established by the expansion which began in that year and ended in the latter part of World War II.

26 The peak in prices and in total spending, of course, did not come until 1920.

27 Cf., for example, A. R. Eckler, "A Measure of the Severity of Depressions, 1873-1932," Review of Economic Statistics, May, 1933, pp. 75-81; and J. B. Hubbard, "Business Declines and Recoveries," ibid., February, 1936, pp. 16-23. Hubbard puts the 1920-21 decline in the same class (as to severity) with the downswings of 1882-85 and 1907-08 but rates it as being considerably less severe than the depressions of the '70s, '90s, and 1930's.
The nature and sources of the data are as follows:


D. Outside bank clearings to 1919 and outside debits thereafter, deflated by Snyder’s “Index of the General Price Level.” Originally taken from F. R. Macaulay, *The Movements of Interest Rates, Bond Yields and Stock Prices in the United States since 1856*, Table 30, and continued by the National Bureau of Economic Research. This series has been transcribed directly from the National Bureau’s files.
these other depressions for a number of reasons. The downswing was relatively short. While the depression involved drastic liquidation of prices, inventories, and short-term debts, it led to only the most temporary impairment of the business community's "propensity to invest." According to Kuznets' estimates, most of the decline in gross capital formation between 1920 and 1921 was accounted for by the difference in inventory accumulation. When adjusted for price changes, private business construction in 1921 was about as high as in 1920, and residential construction was larger. The flow of producers' durables declined by about a third, but this loss was more than regained by 1923. The moderate decline in consumers' expenditures between 1920 and 1921 apparently reflected merely the drop in prices. Kuznets' estimate of total consumers' outlay in constant prices is higher for 1921 than for 1920.

Add to these facts the character of the recovery between 1921 and 1923. The annual production series in Chart I, as well as other physical-volume series which are not plotted, suggest that the 1921-23 rise was the most vigorous cyclical expansion since the turn of the century and perhaps since the Civil War. Nearly all the serious depressions of the past have been followed by one or more "submerged" cycles, in which industrial output failed to reach as high a level, relative to the underlying trend, as did the preceding peak. Such "submerged" cycles seem to have occurred after the crises of 1837, 1857, 1882, 1893, and even 1907, as well as after the 1929-33 downswing.

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This does not seem to have happened after 1921. The ensuing expansion put the 1923 peak in most production series significantly above that in 1920. (See Charts I and II.) Of course, we are not sure how much allowance to make for trend, and it is possible to draw the underlying trend so sharply upward that the “trend adjusted” figure for 1923 is no higher than for 1920. There is strong reason to believe, however, that the trend in total output and in industrial production was not so steeply inclined.

Let us now look at the period 1921-29. Taking first the cycle of 1921-24, we note immediately the asymmetry between the expansion of 1921-23 and the contraction of 1923-24. Monthly indices of industrial production are unanimous in indicating that the downswing was, in absolute terms, less than half the preceding rise. Indeed some annual measures show little or no decline in 1924.
The recovery after mid-1924 was very rapid until the early months of 1925. Then ensued a period of remarkable stability, but with continued expansion, until the beginning of 1928. Expansion during 1925-26 was generally at a much slower rate than during 1921-23. The recession of 1927 was so mild as to show up in many series merely as a decline in the rate of advance.

Then followed the boom of 1928-29. Industrial production advanced at the most rapid rate since 1923, and the rise in GNP between 1928 and 1929 was the largest of any year since 1923. I should like to emphasize several points about this final spurt in output: the rapidity of the rise, the fact that the expansion started from a relatively high level, and the composition of the increase in output and GNP. Regarding this last point, we should note the sharp rise in inventory accumulation, the marked increase in the flow of producers' durables, and the fact that manufacturing suddenly became again the chief generator of expanding incomes and employment. (During 1923-28, finance, service, and government each accounted for a larger increase in national income than did manufacturing, and employment in manufacturing actually declined during these years.) As a result of the increase in inventory accumulation and in producers' durables, gross capital formation rose sharply in 1929, despite a decline in construction. And here we may point to another significant contrast, which is brought out in Chart II. Whereas the rise in GNP from 1923 to 1928 took the form primarily of an expansion in consumption, capital formation changing relatively little, gross investment rose relatively much more than consumption in 1929 and even matched the absolute increase in the latter.

We thus get a picture of an underlying expansion continuing from 1921 to 1929, but with much the larger part of the rise occurring in the first two years of sharp recovery and in the last year's final spurt. During the five intervening years, from 1923 to 1928, we find the underlying expansion taking the form of a continued rise in consumption but with little expansion in investment. We should now look at the components of consumers' outlay and capital formation in more detail, but the pressure of time makes that impossible here.

The 1929-33 decline was the longest since the contraction of the seventies. In amplitude, it was almost certainly the most severe since the Civil War, and perhaps in our entire history. This long downswing

However, the annual estimates of Kuznets (for the GNP), by Shaw (for total commodity flow) and by Fabricant (for manufacturing output) all agree that, taking two year intervals, the total rise from 1927 to 1929 was somewhat less than during 1924-26 and, of course, considerably less than during 1921-23.


Cf. Eckler, op. cit.; Hubbard, op. cit.; and Burns and Mitchell, op. cit., pp. 403, 455. See also such measures of economic activity going back to the Civil War or earlier as those of Silberling (The Dynamics of Business, pp. 39, 50-51), Ayres (Cleveland Trust Index), and Balsen (going back to 1871).
is clearly not symmetrical with the rise during 1928-29. If we are to find a meaningful cyclical unit in which to include this decline, clearly we must take the entire period 1921-33. We do not need a rigid model such as Schumpeter's to insist that the major swing of 1921-33 is a more significant unit to study than the cycle of 1927-33.

Further evidence of the cyclical unity of the period 1921-23 is provided in Chart I. Here three-year moving averages have been drawn through several annual series measuring changes in the physical volume of production and trade. (Between 1885 and 1914 and again during the 1920's minor cyclical fluctuations regularly ranged between three and four years in duration.49) In all of the series shown, the moving average traces out a major cycle from 1921 to 1932 or 1933 which is striking in its amplitude and regularity of movement. The chart also suggests that there has been no other major cycle of comparable amplitude since the 1870's. While the expansion of 1921-29 was perhaps not unprecedented, the decline after 1929 clearly was.

Chart I deserves careful study. It lends support to the hypothesis that a distinction should be made between major and minor cycles, but it also suggests that the major swings have not followed any regular pattern and sometimes scarcely seem to show up at all. So far as the observed behavior of output is concerned, the chart lends no support to rigid—as opposed to flexible—versions of the major-minor cycle hypothesis. Major cycles, granted they exist, do not seem always to include some given number of minor cycles. They may include none at all.

Charts I and II together also deserve study for the light they may throw on the secular forces operating on the twenties and thirties. There seems to be some evidence in these charts that the rate of growth in output was subject to some degree of retardation before 1929 and perhaps before 1914. This is a point on which there is disagreement, and I shall not push the issue here.49 Our ability to generalize regarding the degree of secular retardation, if any, is further complicated by the fact that there have been long-term oscillations in the rate of growth—what A. F. Burns has called trend-cycles.47 To this writer, Charts I and

47 Cf. Burns, Production Trends, Ch. 5; Kuznets, National Income: A Summary of Findings, pp. 60-71. These "trend-cycles" or intermediate swings in rates of growth are not to be confused with the "long waves" associated with the name of Kondratiev.
II suggest that the underlying rate of growth in the twenties—particularly in capital formation—was less than it was between the nineties and 1914, and significantly less than it was in the seventies and eighties. However, we need to disentangle the "primary" from "intermediate" (or "trend-cycle") movements, and even then we may not be able to reach clear-cut conclusions as to the relative roles of cyclical and secular forces in the twenties and thirties.39

A final word about the thirties. The interwar years after 1933 cover only one complete cycle—with a rise from March, 1933, to May, 1937, and a subsequent decline to about May, 1938. Here again there is a marked lack of symmetry between the expansion and contraction phases. The upswing was the longest in the National Bureau's records; and, since it began from a low level, the total rise was very large, even though output and employment at the peak were little if any higher than in 1929. The contraction was very short. Though the decline was precipitous, it ended quickly enough to leave the trough far above the levels of 1932-33. The recovery after the 1938 low point was rapid, so that by the end of 1939 the 1937 level had been reattained. Hence, so far as statistical behavior is concerned, the downswing of 1937-38 does not belong high on our list of "severe" depressions. It apparently belongs in the same category as the downswings of 1920-21 and 1907-08.39

V. Conclusion

I must apologize for the briefness and generality of my remarks about the cyclical contours of the interwar period. Because of the time limitation, they violate in part some of the criteria set up earlier in this paper for historical research in business cycles. Even a description of broad cyclical patterns, if it is to be useful in later analysis, requires more historical perspective, a more detailed breakdown of aggregates, and greater recognition of non-quantitative information than I have been able to present here. These criteria will be more strictly adhered to in the larger project to which I have referred.

39 This subject is pursued further in the larger study referred to in this paper.
39 The decline in production was roughly of the same order of magnitude in all three downswings, although the monthly rate of decline was considerably greater in 1937-38 than in the other two cases. In all three cases, about the same period elapsed before the level of the preceding peak was again reached. These comparisons are based upon a study of Babson's and the American Telephone and Telegraph indices, both unadjusted for trend.