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# The “Recession” of 1969–1970

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## I

There can be no doubt that economic expansion came to a halt in the United States in the Autumn of 1969. What has been in question is this: Did the halt mark a pause in the expansion, or did it mark a peak in the business cycle and the onset of a recession?

The quotation marks in the title of this paper are intended to put the reader on prompt notice that no plain yes-or-no answer to the question can be given.

One reason is that most of the declines with which we are concerned when we ask the question have been small, counting to September 1970, the latest month for which much information is now (October) available—although not so small as to preclude the question.<sup>1</sup>

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<sup>1</sup>When the Colloquium was held on September 24, 1970, the latest month for which much information was available was August. [Note added in January 1971: Economic developments since September 1970 have erased what doubts economists might have had at the time on the identification of 1969–70 as a period of recession. The main thrust of this paper is unaffected, however, and I therefore let it stand as it was in October. Changes to the end of 1970 are discussed in my paper, “Recent Economic Changes and the Agenda of Business Cycle Research,” a supplement to *National Bureau Report 8*, May 1971.]

There is another, more important, reason. The word, recession, means different things to different people. Not everyone has in mind the National Bureau's definition. But even that, as was recognized from the start, has its ragged edges. And it has, in any case, always been regarded as tentative, "subject to revision or abandonment if not borne out by observation."<sup>2</sup> The answer must depend on just what is meant by recession.

This is not to imply that every answer is equally valid. The burden of what I have to say is, in fact, that good grounds exist for choosing one answer, tentative though the answer must be. Studies of pre- and postwar business fluctuations by the National Bureau's staff and others, since the last revision of the Bureau's definition of business cycles in 1946, provide the basis for rethinking the concept of business cycles and of the recessions that constitute their downward phase. We need to take stock of what has been learned and put it to use.

A colloquium on "The Business Cycle Today," I hardly need mention, offers an exceptionally appropriate occasion to do this—to bring the knowledge to bear, as far as it will go, on the interpretation of a series of recent events of great public interest; and, at the same time, to pursue our scientific objectives by opening a discussion of the lines along which the National Bureau's definition of business cycles might best be revised.

## II

The main lines in question may be briefly indicated by noting that whether or not economic developments like those of 1969–70 are identified as a business-cycle recession will depend upon:

Where the line is drawn between business-cycle recessions and pauses (or interruptions) in business-cycle expansions, with regard to extent of decline in aggregate economic activity, duration of decline, and degree of diffusion through the economy;

How aggregate economic activity is defined for this purpose—particularly, whether it is measured entirely in real terms, or in the mixture of real and pecuniary terms commonly used in the past—a difference of more than negligible importance in a period of rising price levels; and

Whether recessions are identified by their causes as well as by the course they run.

To be more specific about 1969–70: If a recession is defined as a sustained and widely diffused absolute contraction in aggregate economic activity, at

<sup>2</sup> Arthur F. Burns and Wesley C. Mitchell, *Measuring Business Cycles*, New York, NBER, 1946, p. 3.

least equal in intensity to one or more of the recessions already listed in the National Bureau's chronology of business cycles when intensity is measured in the same way and with the same kind of indicators as were those in previous years—that is, using measures of pecuniary as well as real economic activity—then the economic changes of 1969-70 do not, so far, appear to constitute a recession.

Continuing with the same concept, but measuring changes in aggregate economic activity exclusively in real terms—GNP in constant prices, deflated personal income, industrial production, employment, and the like—the economic changes in 1969-70 come closer to constituting a case of recession. In duration, the current decline already exceeds or is at least equal to the shortest recession in the record. In severity of decline and degree of diffusion measured in real terms, to judge by preliminary estimates, it is near if not actually within, the borders marking the limits implied by recessions listed in the National Bureau's chronology of business cycles.

If these limits are extended so that any sustained contraction in aggregate economic activity, measured in real terms, is accepted as a member of the species (even if the contraction is not as severe as in the mildest recession already recorded) then 1969-70 can more definitely be identified as a recession. Should the contraction have already come to an end (no one can be sure at this date) and should the statistical picture currently before us remain reasonably firm (some revisions are bound to be made later), the recession of 1969-70 would be the mildest on the list.

If, further, a business recession is defined as a sustained and widely diffused decline in the rate of growth of real aggregate economic activity relative to its long-term trend, or—what is not quite the same—in the proportion of available resources actually employed in production (measured, for example, by the relative gap between potential and actual GNP), the case for calling 1969-70 a recession is greatly strengthened. Here the likelihood of subsequent revisions of the currently available estimates is of very little moment. Revisions of the order of those in the past would not lead to a different conclusion.

Finally, during the expansion that stopped in 1969, signs appeared of the "restrictive forces that gradually but insistently come into play as a result of the expansion process itself."<sup>3</sup> If these are taken into account, along with the restrictive monetary and fiscal policies undertaken by the government to curb inflationary pressures—policies that may at least in part be viewed as one manifestation of the restrictive forces generated by the expansion—the case for identifying 1969-70 as a recession is even stronger.

<sup>3</sup> Arthur F. Burns, *The Business Cycle in a Changing World*, New York, NBER, 1969, p. 29.

Not all of these ways of characterizing the economic changes during 1969-70 are mutually exclusive, of course. Nor, as I have already suggested, are the several views equally valid. The one to be preferred, in my opinion, is the view based on the definition of a business-cycle recession as a sustained and widely diffused decline in the rate of growth of real economic activity, relative to its long-term trend. We have been experiencing a recession that, so far, is mild; but nevertheless it is, I believe, a member of the same species as the recessions already identified—without reference to a rate of growth criterion—in the National Bureau's chronology.

However, I add a reservation. Perhaps a subspecies needs to be distinguished, or a special label—"growth recession" or "slowdown"?—attached to recessions that involve little or no absolute contraction in aggregate economic activity. But I also add that whatever the classification or the terminology, any persistently low rate of growth that widens the gap between potential and actual output is a matter for concern; as, indeed, is widely recognized in an age in which the standards by which the performance of the economy is judged are high, and the costs and benefits of every economic policy are subjected to close scrutiny and argument.

I should point out that if the definition I have just stated is accepted, far-reaching implications follow. Not only 1969-70, but also 1966-67 and perhaps even 1962, not to mention still other fluctuations in the rate of growth of aggregate economic activity listed by Mintz, Mack, and others, might be identified as recessions.<sup>4</sup>

The definition, then, requires testing, as would any modification of a definition found useful in the past. My application of the definition to 1969-70 should be viewed as a step in the essential task of acquiring experience in the use of the definition—a task to which Mintz has already made a substantial contribution.

Since identification of 1969-70, or of any of the earlier fluctuations I have mentioned, as a recession or even as a growth recession, may convey to some readers unwarranted political implications, as well as what I hope are warranted scientific implications, a further caveat is in order. Such an identification cannot, in and of itself, validly imply that government stabilization policy was mistaken either before, during, or after 1969 or 1966 or 1962. A slowdown in the rate of economic growth is a matter for concern, but it does not thereby follow that every slowdown must be avoided or

<sup>4</sup> Ilse Mintz, "Dating American Growth Cycles," in this volume; Ruth P. Mack, "Notes on Subcycles in Theory and Practice," *American Economic Review*, May 1957; Julius Shiskin, "The 1961-69 Economic Expansion in the United States: The Statistical Record," *Business Conditions Digest* (formerly *Business Cycle Developments*), January 1970; and G.H. Moore, Foreword to Ilse Mintz's *Dating Postwar Business Cycles: Methods and Their Application to Western Germany, 1950-67*, O.P. 107, New York, NBER, 1970.

promptly stopped at any price (that is, without any regard for the future stability of the economy or for the attainment of other national goals). What price is "required," and what price is "worth paying," are issues that extend well beyond the scope of the present discussion.

Maybe I had better be even more explicit. To identify 1969-1970 as a recession is not to say that the present Administration's anti-inflation policy is incorrect. Nor is it to say that the policy is correct. To judge the policy, one must weigh its benefits in dampening inflationary pressures and in improving the likelihood of sustainable rapid growth at high levels of employment in the future, against its current costs in lost production and unemployment. This would require estimating the trade-off between these competing objectives, and deciding what their relative social values are—taking into account also the risks involved in pursuing or not pursuing the policy.

The 1969-70 episode, as well as the fundamental scientific question to which it leads, will be examined under the light shed by observation of a much broader experience. We shall be profiting from the studies undertaken with the aid of the National Bureau's definition and the research procedures adapted to it—however obsolete their features may now appear to be. The discussion may serve, therefore, to apprise or remind those concerned with current economic affairs of the practical value of scientific research on the problem of economic instability.

### III

Before we take a close look at the economic changes of 1969-1970, it will be helpful to recall the main features of the broader experience against which we shall want to judge it. A first view is provided by the indicators of aggregate economic activity collected in Chart 1.

A variety of indicators is presented because no single indicator, even one as comprehensive as GNP, can provide a rounded view of aggregate economic activity. Nor can composites covering various kinds of activities be entirely free of doubts concerning the representativeness of the series covered, the weight given to each, and the method by which they were combined. It goes without saying, also, that no statistical series is so accurate that information from other sources is unnecessary.

The chart covers only the period beginning with 1948, but the series in the first panel suffice to remind us of two of the dominant characteristics of our country's economic development—its growth and its instability. In both these regards, there are many interesting similarities and differences among the various series and periods covered in the chart. All would repay careful

Chart 1  
Indicators of Economic Activity in the United States, 1948-1970

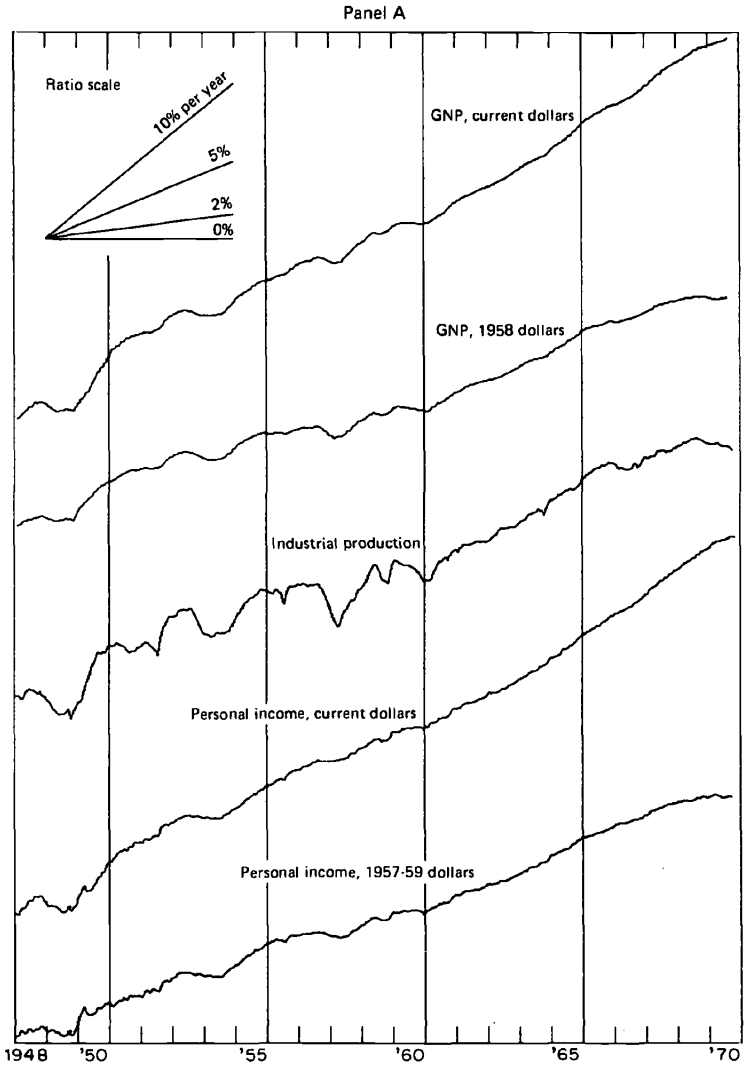


Chart 1 (continued)

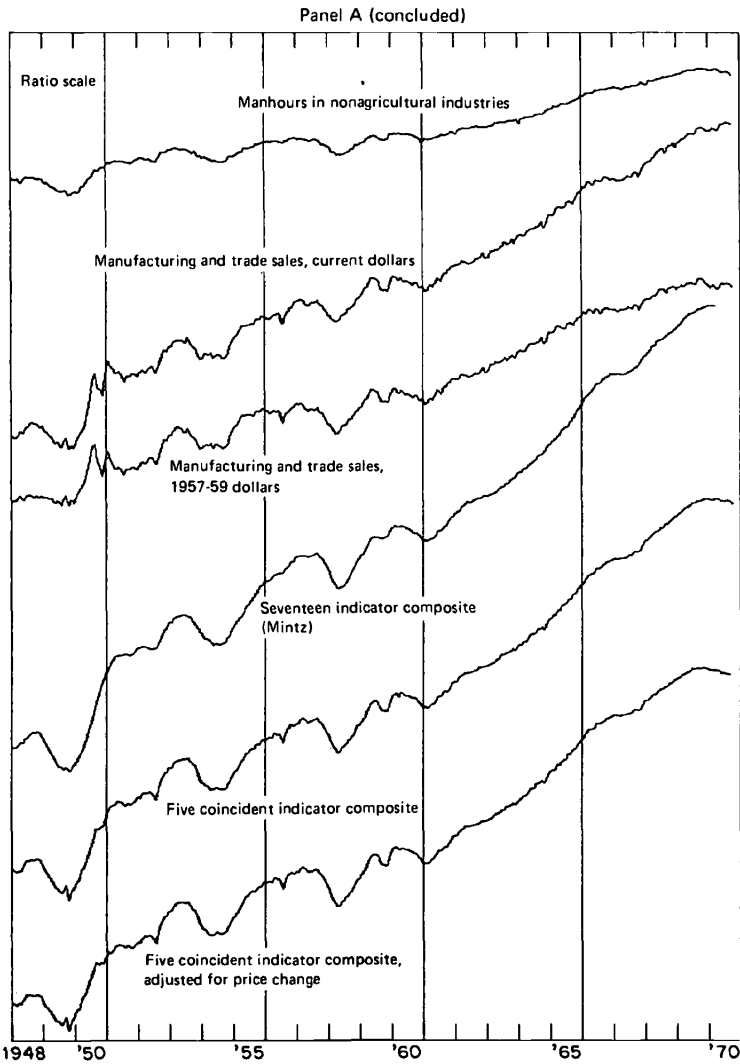


Chart 1 (continued)

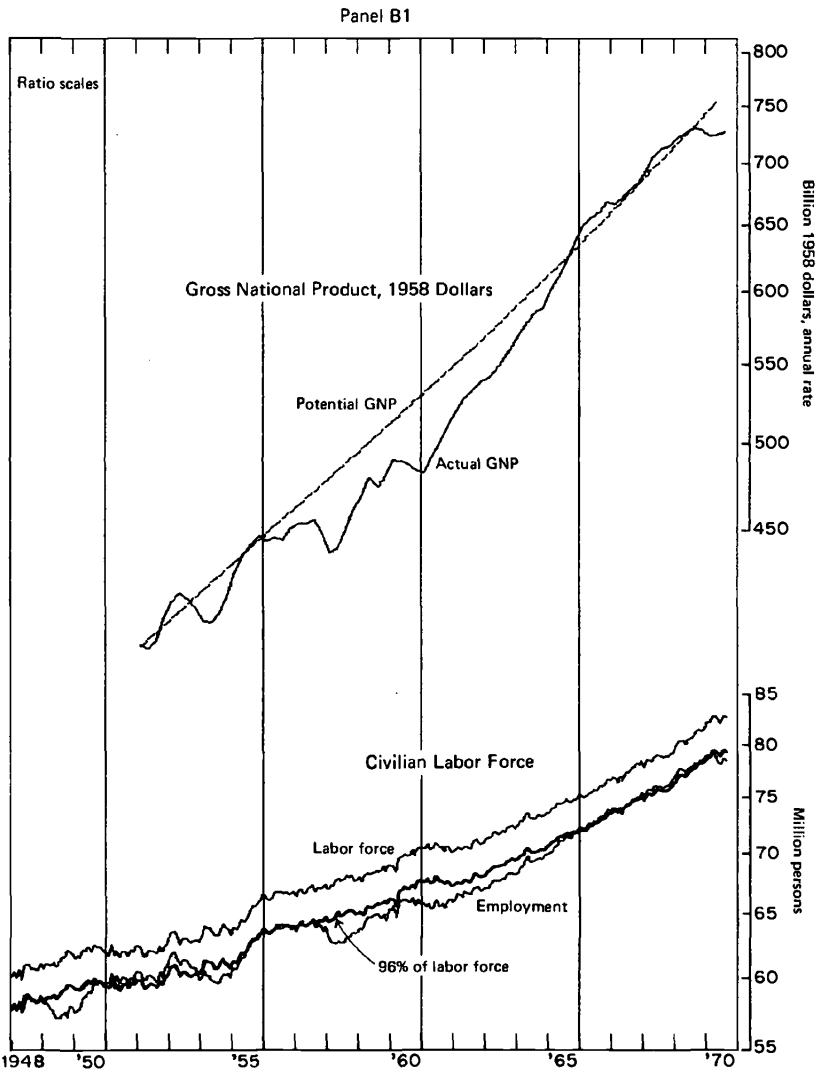
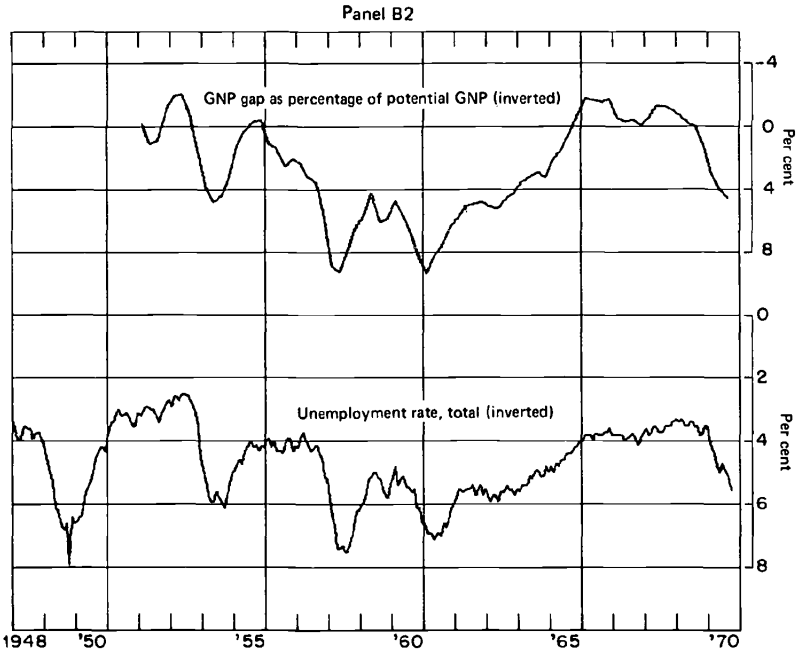
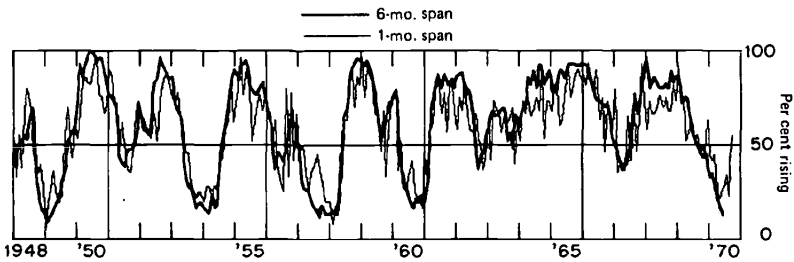


Chart 1 (concluded)



Panel C

Diffusion Indexes: Employment on Nonagricultural Payrolls – 30 Industries



study but I take the time to note those of most importance for our present purpose.

First, the fluctuations are of all shapes and sizes, but even those common to the various series—the fluctuations of particular interest to us—range over a wide gamut. Nor is there any obvious clustering of these cycles into distinctly different groups, in terms of duration and amplitude. They fall into an array that seems to be fairly continuous, allowing for the limited size of the sample. To make the point more specific, any line drawn between the fluctuations that have been identified as business cycles in the past and those not so identified, would appear to be somewhat arbitrary. As those familiar with *Business Conditions Digest* (and various National Bureau publications) will have noticed, the usual vertical lines marking off business cycle peaks and troughs have been omitted from the chart. This was done deliberately, to encourage the reader to judge the matter for himself.

Second, there has been a tendency for the fluctuations to diminish in severity with the passage of time. This trend would be more pronounced were the chart to cover the pre-World War II period, but it is evident even over the past quarter-century. At any rate, fluctuations during the second half of the postwar period were clearly of smaller amplitude than those during the first half.

Third, even continued growth, when below the secular trend rate, could—and most often did—mean a widening gap between potential and actual performance. This is shown in the second panel of the chart by two overlapping sets of data: one, the difference between potential and actual GNP; the other, the difference between the number in the labor force and the number employed. Similar calculations that are (or could be made) available for other series in the chart would tell much the same story.<sup>5</sup> As we shall see, difficult questions can be raised about the meaning and measurement of “potential” output and “full” employment—and some also about actual output and actual employment—and therefore about the gaps. Nevertheless, these measurements provide a useful if rough way of judging the economy’s performance.

Fourth, both growth and fluctuation in growth were widely diffused throughout the economy. In most years, as Panel C illustrates for employment, the number of persons at work in the great majority of industries generally rose from month to month or over longer spans, such as

<sup>5</sup>For industrial output, see Chart 2, below.

the six-month spans traced in the chart. During periods of slow growth in total employment, the majority fell or even tended to vanish. When total employment actually declined, the majority swung the other way: the fraction of industries with rising employment dropped well below the 50 per cent mark and remained there for months.

Fifth, the indicators based on pecuniary values, and the measurements free of price change, usually tell much the same story. But there are differences. Peaks usually come earlier and troughs later in the indicators of "real" economic activity, and declines are usually greater. These differences are not insignificant in the recent years and some earlier ones as well.

#### IV

Of the various fluctuations in aggregate economic activity noticeable in the chart, four are included in the National Bureau's chronology of business cycles. These are the general declines that began in 1948, 1953, 1957, and 1960. They are listed as recessions because they appeared to conform to the working definition of business cycles formulated to guide the National Bureau's researches, as it was revised in 1946.<sup>6</sup> (The date is important: the definition could not take into account the post-World War II experience.)

We can begin to understand this definition if we read it with an eye on the measured characteristics of the identified recessions listed in Table 1.

Business recessions were assumed, on the basis of the experience to 1946 (revealed by, or presumed from, business annals, statistical time-series analyses and business-cycle hypotheses) to be a distinct type of change in aggregate economic activity.<sup>7</sup> More specifically, recessions were taken to be a type of contraction in aggregate economic activity. So viewed, a recession is not a decline in the rate of growth of aggregate economic activity to a lower but still positive rate of growth; nor, more particularly, is it a decline to a rate

<sup>6</sup>There have been some shifts in terminology. "Recession" was formerly used to denote the downturn phase of the business cycles, that is, the peak or the zone surrounding the peak, and "contraction," to denote the declining phase. In recent years the declining phase has come to be labeled "recession," perhaps with the connotation of a relatively mild contraction of the kind experienced in the post-World War II period. In the present discussion, the current usage is adopted. "Peak" or "downturn," then, takes the place of "recession" in denoting the phase during which expansion of aggregate economic activity is converted into decline.

<sup>7</sup>In what follows I have borrowed freely the language used by Burns and Mitchell, p. 3.

TABLE 1

Selected Measures of Duration, Depth, and Diffusion of Business-Cycle Contractions, 1920-70  
(by dates of contractions)

|  | 1/20-7/21 | 5/23-7/24    | 10/26-11/27 | 8/29-3/33   |
|--|-----------|--------------|-------------|-------------|
| <i>1. Dates of Corresponding Specific-Cycle Contractions</i> |           |              |             |             |
| GNP, current dollars<br>(quarterly)                          | IV21      | I24-III24 *  | IV26-IV27 * | III29-133   |
| GNP, constant dollars<br>(quarterly)                         | IV21      | II24-III24 * | I26-II26 *  | III29-III32 |
| Index of industrial production                               | 2/20-4/21 | 5/23-7/24    | 3/27-11/27  | 7/29-7/32   |
| Employees in nonagric. estab.                                |           |              |             | 8/29-3/33   |
| Man-hours in nonagric. estab.                                |           |              |             |             |
| Personal income, current dollars                             |           | I24-II24     | II26-IV26   | 8/29-3/33   |
| Personal income, constant dollars                            |           | I24-II24     | III26-IV26  | 4/29-3/33   |
| Department store sales                                       | 7/20-3/22 | **           | **          | 9/29-3/33   |
| Retail sales, current dollars                                |           |              |             |             |
| Retail sales, constant dollars                               |           |              |             |             |
| Mfg. & trade sales, current dollars                          |           |              |             |             |
| Mfg. & trade sales, constant dollars                         |           |              |             |             |
| Unemployment rate, civilian workers (inverted)               |           |              |             | 8/29-5/33*  |
| Composite index [Shiskin] :                                  |           |              |             |             |
| 6 coincident indicators                                      |           |              |             |             |
| unweighted   | 1/20-7/21 | 6/23-7/24    | 3/27-10/27* | 8/29-3/33   |
| weighted   |           |              |             |             |
| Composite index :  |           |              |             |             |
| 5 coincident indicators                                      |           |              |             |             |
| weighted [BCD]   |           |              |             |             |
| weighted and deflated [NBER]                                 |           |              |             |             |
| Composite index [Mintz] :                                    |           |              |             |             |
| 17 indicators, unweighted                                    |           |              |             |             |

(Continued)

| 5/37-6/38   | 2/45-10/45  | 11/48-10/49 | 7/53-8/54  | 7/57-4/58  | 5/60-2/61  | 11/69-8/70 <sup>a</sup> |
|-------------|-------------|-------------|------------|------------|------------|-------------------------|
| III37-II38  | II45-IV45   | IV48-IV49   | II53-II54  | III57-I58  | II60-IV60  | **                      |
| III37-I38   |             | IV48-II49   | II53-II54  | III57-I58  | I60-I61    | III69-I70               |
| 5/37-5/38   | 11/43-2/46  | 7/48-10/49  | 7/53-4/54  | 2/57-4/58  | 1/60-2/61  | 7/69-8/70               |
| 7/37-6/38   | 11/43-9/45  | 9/48-10/49  | 4/53-8/54  | 3/57-5/58  | 4/60-2/61  | 3/70-8/70               |
|             | 11/43-12/45 | 7/48-10/49  | 3/53-9/54  | 12/56-4/58 | 4/60-12/60 | 12/69-8/70              |
| 6/37-5/38   | 6/45-9/45   | 10/48-7/49  | 10/53-4/54 | 8/57-12/57 | **         | **                      |
| 6/37-5/38   | 2/45-9/45   | 11/48-7/49  | 5/53-1/54  | 8/57-4/58  | **         | 3/70-6/70               |
| 10/37-10/38 | **          | 10/48-7/49  | 5/53-1/54  | 8/57-2/58  | **         |                         |
| 9/37-5/38   | **          | **          | 3/53-1/54  | 8/57-3/58  | 4/60-4/61  | **                      |
|             |             | **          | 3/53-12/53 | 8/57-3/58  | 4/60-4/61  | 2/69-12/69              |
|             | 3/45-9/45   | 8/48-10/49  | 7/53-8/54  | 2/57-3/58  | 1/60-1/61  | 10/69-1/70              |
|             |             | 7/48-10/49  | 4/53-12/53 | 2/57-4/58  | 1/60-1/61  | 9/69-4/70               |
| 7/37-6/38   | 10/44-5/46  | 12/47-10/49 | 6/53-9/54  | 3/57-7/58  | 6/59-5/61  | 2/69-8/70               |
| 7/37-5/38   |             | 10/48-10/49 | 7/53-5/54  | 8/57-4/58  | 5/60-2/61  |                         |
|             |             | 10/48-10/49 | 7/53-5/54  | 8/57-4/58  | 4/60-2/61  |                         |
|             |             | 10/48-10/49 | 7/53-8/54  | 8/57-4/58  | 2/60-2/61  | 12/69-8/70              |
|             |             | 10/48-10/49 | 7/53-5/54  | 3/57-4/58  | 2/60-2/61  | 10/69-8/70              |
|             |             | 10/48-10/49 | 6/53-7/54  | 8/57-5/58  | 4/60-2/61  |                         |

(Continued)

TABLE 1 (Continued)

|   | 1/20-7/21 | 5/23-7/24 | 10/26-11/27 | 8/29-3/33 |
|---|-----------|-----------|-------------|-----------|
| <i>2. Duration of Corresponding Specific-Cycle Contractions (in months)</i> |           |           |             |           |
| Reference cycle   | 18        | 14        | 13          | 43        |
| GNP, current dollars (quarterly)  |           | 6         | 12          | 42        |
| GNP, constant dollars (quarterly)   |           | 3         | 3           | 36        |
| Index of industrial production  | 14        | 14        | 8           | 36        |
| Employees in nonagric. estab.   |           |           |             | 43        |
| Man-hours in nonagric. estab.   |           |           |             | 43        |
| Personal income, current dollars  |           | 3         | 6           | 43        |
| Personal income, constant dollars   |           | 3         | 3           | 47        |
| Department store sales  | 20        | **        | **          | 42        |
| Retail sales, current dollars   |           |           |             |           |
| Retail sales, constant dollars  |           |           |             |           |
| Mfg. & trade sales, current dollars   |           |           |             |           |
| Mfg. & trade sales, constant dollars  |           |           |             |           |
| Unemployment rate, civilian workers (inverted)                              |           |           |             | 45        |
| Composite index [Shiskin]:  |           |           |             |           |
| 6 coincident indicators unweighted  | 18        | 13        | 7           | 43        |
| 6 coincident indicators weighted  |           |           |             |           |
| Composite index:  |           |           |             |           |
| 5 coincident indicators weighted [BCD]                                      |           |           |             |           |
| 5 coincident indicators weighted and deflated [NBER]                        |           |           |             |           |
| Composite index [Mintz]:  |           |           |             |           |
| 17 indicators, unweighted   |           |           |             |           |

(Continued)

| 5/37-6/38 | 2/45-10/45 | 11/48-10/49 | 7/53-8/54 | 7/57-4/58 | 5/60-2/61 | 11/69-8/70 <sup>a</sup> |
|-----------|------------|-------------|-----------|-----------|-----------|-------------------------|
| 13        | 8          | 11          | 13        | 9         | 9         | 9                       |
| 9         | 6          | 12          | 12        | 6         | 6         | **                      |
| 6         |            | 6           | 12        | 6         | 12        | 6                       |
| 12        | 27         | 15          | 9         | 14        | 13        | 13                      |
| 11        | 22         | 13          | 16        | 14        | 10        | 5                       |
|           | 25         | 15          | 18        | 16        | 8         | 8                       |
| 11        | 3          | 9           | 6         | 4         | **        | **                      |
| 11        | 7          | 8           | 8         | 8         | **        | 3                       |
| 12        | **         | 9           | 8         | 6         | **        |                         |
| 8         | **         | **          | 10        | 7         | 12        | **                      |
|           |            | **          | 9         | 7         | 12        | 10                      |
|           | 6          | 14          | 13        | 13        | 12        | 3                       |
|           |            | 15          | 8         | 14        | 12        | 7                       |
| 11        | 19         | 22          | 15        | 16        | 23        | 18                      |
| 10        |            | 12          | 10        | 8         | 9         |                         |
|           |            | 12          | 10        | 8         | 10        |                         |
|           |            | 12          | 13        | 8         | 12        | 8                       |
|           |            | 12          | 10        | 13        | 12        | 10                      |
|           |            | 12          | 13        | 9         | 10        |                         |

(Continued)

TABLE 1(Continued)

|   | 1/20-7/21 |       | 5/23-7/24 |       | 10/26-11/27 |       | 8/29-3/33 |       |
|---|-----------|-------|-----------|-------|-------------|-------|-----------|-------|
|   | Cycle     |       | Cycle     |       | Cycle       |       | Cycle     |       |
|   | Ref.      | Spec. | Ref.      | Spec. | Ref.        | Spec. | Ref.      | Spec. |
| <i>3. Total Percentage Change<sup>b</sup></i>       |           |       |           |       |             |       |           |       |
| GNP, current dollars (quarterly)                    |           |       | -2.3      | -4.9  | +0.4        | -3.0  | -49.6     | -49.6 |
| GNP, constant dollars<br>(quarterly)                |           |       | -0.4      | -4.1  | +2.3        | -2.0  | -28.0     | -32.6 |
| Index of industrial production                      | -31.7     | -32.4 | -17.9     | -17.9 | -5.9        | -7.0  | -51.8     | -53.4 |
| Employees in nonagric. estab.                       |           |       |           |       |             |       | -31.6     | -31.6 |
| Man-hours in nonagric. estab.                       |           |       |           |       |             |       |           |       |
| Personal income, current<br>dollars                 |           |       | 0.0       | -3.6  | +0.9        | -2.5  | -50.8     | -50.8 |
| Personal income, constant<br>dollars                |           |       | -0.5      | -2.9  | +1.7        | -3.0  | -32.1     | -32.7 |
| Department stores sales                             | -4.8      | -17.4 | -4.4      | **    | 0.0         | **    | -44.0     | -46.2 |
| Retail sales, current dollars                       |           |       |           |       |             |       |           |       |
| Retail sales, constant dollars                      |           |       |           |       |             |       |           |       |
| Mfg. & trade sales, current<br>dollars              |           |       |           |       |             |       |           |       |
| Mfg. & trade sales, constant<br>dollars             |           |       |           |       |             |       |           |       |
| Unemployment rate,<br>civilian workers <sup>c</sup> |           |       |           |       |             |       | +25.3     | +25.6 |
| Composite index [Shiskin]:                          |           |       |           |       |             |       |           |       |
| 6 coincident indicators                             |           |       |           |       |             |       |           |       |
| unweighted  | -42.3     | -42.3 | -14.3     | -14.9 | -1.2        | -2.4  | -67.0     | -67.0 |
| weighted  |           |       |           |       |             |       |           |       |
| Composite index:                                    |           |       |           |       |             |       |           |       |
| 5 coincident indicators                             |           |       |           |       |             |       |           |       |
| weighted [BCD]                                      |           |       |           |       |             |       |           |       |
| weighted and deflated [NBER]                        |           |       |           |       |             |       |           |       |
| Composite index [Mintz]:                            |           |       |           |       |             |       |           |       |
| 17 indicators, unweighted                           |           |       |           |       |             |       |           |       |

(Continued)

| 5/37-6/38<br>Cycle | 2/45-10/45<br>Cycle | 11/48-10/49<br>Cycle | 7/53-8/54<br>Cycle | 7/57-4/58<br>Cycle | 5/60-2/61<br>Cycle | 11/69-8/70 <sup>a</sup><br>Cycle |
|--------------------|---------------------|----------------------|--------------------|--------------------|--------------------|----------------------------------|
| Ref. Spec.         | Ref. Spec.          | Ref. Spec.           | Ref. Spec.         | Ref. Spec.         | Ref. Spec.         | Ref. Spec.                       |
| -11.9 -16.2        | -10.9 -11.9         | -3.4 -3.4            | -0.8 -1.9          | -1.8 -2.6          | -0.2 -0.3          | +3.5 **                          |
| -8.9 -13.2         |                     | -1.6 -1.9            | -2.2 -3.4          | -3.4 -3.9          | -1.4 -1.6          | -0.2 -1.0                        |
| -31.7 -32.4        | -31.4 -38.3         | -8.5 -9.9            | -9.0 -10.0         | -14.1 -14.3        | -5.7 -7.2          | -1.5 -3.3                        |
| -10.4 -10.8        | -7.9 -10.1          | -5.1 -5.2            | -3.4 -3.4          | -4.0 -4.3          | -1.8 -2.2          | -0.6 -1.2                        |
|                    | -11.6 -15.3         | -6.1 -6.6            | -4.5 -5.2          | -5.2 -6.1          | -2.0 -3.2          | -1.3 -1.5                        |
| -11.0 -12.6        | -4.0 -6.8           | -4.6 -5.7            | 0.0 -1.5           | +0.4 -0.5          | +1.0 **            | +4.7 **                          |
| -9.3 -10.8         | -5.6 -7.5           | -2.7 -3.0            | -0.2 -1.5          | -1.8 -2.1          | 0.0 **             | +0.5 -0.9                        |
| -12.5 -12.5        | +6.7 **             | -4.4 -12.3           | 0.0 -7.2           | -1.0 -8.1          | +1.0 **            |                                  |
| -15.0 -16.7        | +9.9 **             | 0.0 **               | -0.7 -4.9          | -1.6 -3.8          | -2.4 -4.6          | +4.1 **                          |
|                    |                     | +3.9 **              | +0.5 -5.0          | -3.5 -5.4          | -3.1 -5.0          | +1.1 -4.2                        |
|                    | -10.6 -16.5         | -7.5 -8.7            | -7.2 -7.2          | -6.8 -8.2          | -3.2 -5.2          | +2.5 -1.6                        |
|                    |                     | -2.8 -3.6            | -7.0 -7.6          | -7.9 -10.2         | -3.6 -5.7          | -0.2 -3.6                        |
| +8.8 +9.0          | +2.2 +3.4           | +4.1 +4.8            | +3.4 +3.6          | +3.2 +3.8          | +1.8 +2.1          | +1.6 +1.8                        |
| -23.8 -24.9        |                     | -9.4 -10.0           | -8.0 -8.4          | -8.5 -8.9          | -4.7 -4.7          |                                  |
|                    |                     | -10.7 -11.4          | -8.1 -8.2          | -8.9 -9.3          | -3.7 -4.0          |                                  |
|                    |                     | -13.5 -14.0          | -11.0 -11.0        | -11.2 -11.7        | -4.8 -5.3          | -0.7 -0.7                        |
|                    |                     | -12.2 -12.6          | -11.4 -11.6        | -12.5 -13.4        | -5.4 -6.1          | -2.2 -2.3                        |
|                    |                     | -12.9 -13.2          | -9.5 -10.4         | -11.4 -12.1        | -5.0 -5.4          |                                  |

(Continued)

TABLE 1 (Continued)

|  | 1/20-7/21 |       | 5/23-7/24 |       | 10/26-11/27 |       | 8/29-3/33 |       |
|--|-----------|-------|-----------|-------|-------------|-------|-----------|-------|
|  | Cycle     |       | Cycle     |       | Cycle       |       | Cycle     |       |
|  | Ref.      | Spec. | Ref.      | Spec. | Ref.        | Spec. | Ref.      | Spec. |
| <i>4. Percentage Change per</i>                  |           |       |           |       |             |       |           |       |
| <i>Month (at annual rate)</i>                    |           |       |           |       |             |       |           |       |
| GNP, current dollars (quarterly)                 |           |       | -1.8      | -9.9  | +0.3        | -3.0  | -14.2     | -14.2 |
| GNP, constant dollars (quarterly)                |           |       | -0.3      | -16.4 | +1.8        | -7.9  | -8.0      | -10.9 |
| Index of industrial production                   | -21.1     | -27.8 | -15.3     | -15.3 | -5.4        | -10.4 | -14.4     | -17.8 |
| Employees in nonagric. estab.                    |           |       |           |       |             |       | -8.8      | -8.8  |
| Man-hours in nonagric. estab.                    |           |       |           |       |             |       |           |       |
| Personal income, current dollars                 |           |       | 0.0       | -14.5 | +0.7        | -5.0  | -14.2     | -14.2 |
| Personal income, constant dollars                |           |       | -0.4      | -11.4 | -1.3        | -12.1 | -9.0      | -8.3  |
| Department store sales                           | -3.2      | -10.4 | -3.7      | **    | 0.0         | **    | -12.8     | -13.2 |
| Retail sales, current dollars                    |           |       |           |       |             |       |           |       |
| Retail sales, constant dollars                   |           |       |           |       |             |       |           |       |
| Mfg. & trade sales, current dollars              |           |       |           |       |             |       |           |       |
| Mfg. & trade sales, constant dollars             |           |       |           |       |             |       |           |       |
| Unemployment rate, civilian workers <sup>c</sup> |           |       |           |       |             |       | +7.1      | +6.8  |
| Composite index [Shiskin]:                       |           |       |           |       |             |       |           |       |
| 6 coincident indicators                          |           |       |           |       |             |       |           |       |
| unweighted                                       | -28.2     | -28.2 | -12.3     | -13.8 | -1.1        | -4.0  | -18.7     | -18.7 |
| weighted   |           |       |           |       |             |       |           |       |
| Composite index:                                 |           |       |           |       |             |       |           |       |
| 5 coincident indicators                          |           |       |           |       |             |       |           |       |
| weighted [BCD]                                   |           |       |           |       |             |       |           |       |
| weighted and deflated [NBER]                     |           |       |           |       |             |       |           |       |
| Composite index [Mintz]:                         |           |       |           |       |             |       |           |       |
| 17 indicators, unweighted                        |           |       |           |       |             |       |           |       |

(Continued)

| 5/37-6/38 |       | 2/45-10/45 |       | 11/48-10/49 |       | 7/53-8/54 |       | 7/57-4/58 |       | 5/60-2/61 |       | 11/69-8/70 <sup>a</sup> |       |
|-----------|-------|------------|-------|-------------|-------|-----------|-------|-----------|-------|-----------|-------|-------------------------|-------|
| Cycle     |       | Cycle      |       | Cycle       |       | Cycle     |       | Cycle     |       | Cycle     |       | Cycle                   |       |
| Ref.      | Spec. | Ref.       | Spec. | Ref.        | Spec. | Ref.      | Spec. | Ref.      | Spec. | Ref.      | Spec. | Ref.                    | Spec. |
| -11.9     | -21.5 | -14.5      | -23.8 | -3.4        | -3.4  | -0.6      | -1.9  | -2.4      | -5.2  | -0.3      | -0.6  | +4.7                    | **    |
| -8.9      | -26.4 |            |       | -1.6        | -3.8  | -1.8      | -3.4  | -4.6      | -7.8  | -1.9      | -1.6  | -0.3                    | -1.9  |
| -29.2     | -32.4 | -47.1      | -17.0 | -9.3        | -7.9  | -8.4      | -13.3 | -18.8     | -12.3 | -7.6      | -6.7  | -1.9                    | -3.0  |
| -9.6      | -11.8 | -11.9      | -5.5  | -5.5        | -4.8  | -3.1      | -2.5  | -5.3      | -3.7  | -2.4      | -2.7  | -0.8                    | -2.9  |
|           |       | -17.4      | -7.3  | -6.7        | -5.3  | -4.2      | -3.4  | -7.0      | -4.5  | -2.6      | -4.7  | -1.7                    | -2.2  |
| -10.1     | -13.8 | -6.0       | -27.2 | -5.1        | -7.6  | 0.0       | -3.0  | +0.5      | -1.5  | +1.3      | **    | +6.3                    | **    |
| -8.6      | -11.8 | -8.3       | -12.9 | -2.9        | -4.5  | -0.2      | -2.6  | -2.4      | -3.2  | 0.0       | **    | +0.6                    | -3.6  |
| -11.5     | -12.5 | +10.0      | **    | -4.7        | -16.4 | 0.0       | -10.8 | -1.4      | -16.2 | +1.3      | **    |                         |       |
| -13.9     | -25.0 | +14.9      | **    | 0.0         | **    | -0.6      | -5.9  | -2.1      | -6.5  | -3.3      | -4.6  | +5.5                    | **    |
|           |       |            |       | +4.3        | **    | +0.4      | -6.7  | -4.7      | -9.2  | -4.1      | -5.0  | +1.5                    | -5.0  |
|           |       | -15.9      | -32.9 | -8.1        | -7.5  | -6.7      | -6.7  | -9.0      | -7.6  | -4.3      | -5.2  | +3.3                    | -6.2  |
|           |       |            |       | -3.0        | -2.9  | -6.5      | -11.4 | -10.5     | -8.7  | -4.8      | -5.7  | -0.3                    | -6.2  |
| +8.1      | +9.9  | +3.3       | +2.1  | +4.5        | +2.6  | +3.1      | +2.9  | +4.3      | +2.8  | +2.4      | +1.1  | +2.1                    | +1.2  |
| -22.0     | -29.9 |            |       | -10.2       | -10.0 | -7.4      | -10.1 | -11.4     | -13.3 | -6.3      | -6.3  |                         |       |
|           |       |            |       | -11.7       | -11.4 | -7.5      | -9.9  | -11.8     | -14.0 | -4.9      | -4.8  |                         |       |
|           |       |            |       | -14.7       | -14.0 | -10.1     | -10.1 | -14.9     | -17.5 | -6.5      | -5.3  | -1.0                    | -1.1  |
|           |       |            |       | -13.3       | -12.6 | -10.5     | -13.9 | -16.7     | -12.4 | -7.3      | -6.1  | -3.0                    | -3.4  |
|           |       |            |       | -14.1       | -13.2 | -8.8      | -9.6  | -15.3     | -16.1 | -6.7      | -6.4  |                         |       |

(Continued)

Table 1 (Concluded)

|  | 1/20-7/21 | 5/23-7/24 | 10/26-11/27 | 8/29-3/33 |
|--|-----------|-----------|-------------|-----------|
| <i>5. Diffusion</i>  |           |           |             |           |
| Maximum % of industries declining (6-month span)   |           |           |             |           |
| nonfarm employment,  |           |           |             |           |
| 30 industries  |           |           |             |           |
| industrial production, 15-24 industries  | 88        | 78        | 72          | 100       |
| Number of consecutive months when 75% or more of industries are declining (6-month span) |           |           |             |           |
| nonfarm employment,  |           |           |             |           |
| 30 industries  |           |           |             |           |
| industrial production, 15-24 industries  | 2         | 1         | 0           | 27        |

Note: Blanks indicate data not available; \*, not recognized as a specific cycle according to the standard NBER procedure; \*\*, no specific cycle.

Source: Series are seasonally adjusted, except those series that appear to contain no seasonal movement. The table is based, with modifications and extensions, on a table prepared by G. H. Moore, "What is a Recession?," *The American Statistician*, October 1967.

*GNP*: H. Barger and L. R. Klein, 1921-29; Department of Commerce (OBE) 1929-70.

*Index of industrial production*: Federal Reserve Board.

*Employees in nonagricultural establishments*: Department of Labor, Bureau of Labor Statistics.

*Manhours in nonagricultural establishments*: Department of Labor, Bureau of Labor Statistics.

*Personal income*: H. Barger and L. R. Klein, 1923-29; Department of Commerce (OBE) 1929-70. Adjusted by the NBER for retroactive Social Security and federal pay increases. In constant dollars: NBER; deflated by the Consumer Price Index.

*Index of department store sales*: Federal Reserve Board. Discontinued January 1964.

|     | 5/37-6/38 | 2/45-10/45 | 11/48-10/49 | 7/53-8/54 | 7/57-4/58 | 5/60-2/61 | 11/69-8/70 <sup>a</sup> |
|-----|-----------|------------|-------------|-----------|-----------|-----------|-------------------------|
|     |           |            | 90          | 87        | 88        | 83        | 88                      |
| 100 |           | 92         | 96          | 100       | 88        | 88        | 75                      |
|     |           |            | 8           | 10        | 10        | 7         | 3                       |
| 8   |           | 4          | 7           | 8         | 5         | 5         | 1                       |

*Retail sales:* Department of Commerce, Bureau of the Census. In constant dollars: NBER; deflated by the CPI, all commodities (which excludes services). For 1937-55, the monthly deflator series is a straight-line interpolation of the quarterly series.

*Manufacturing and trade sales:* Department of Commerce, Office of Business Economics and Bureau of the Census. In constant dollars: NBER. Each of the major components was deflated separately by the appropriate BLS price index: retail trade sales, as above; wholesale trade sales - durable, by the WPI, all commodities, durable goods; wholesale trade sales - nondurable, by the WPI, all commodities, nondurable goods; and manufacturers' sales, by the WPI, total manufacturers.

*Unemployment rate, all civilian workers (14 years old and over, 1929-46; 16 years old and over, 1947-70):* NICB, 1929-40; Department of Commerce, Bureau of the Census, 1940-70.

*Composite index (Shiskin), 6 coincident indicators (unweighted):* Julius Shiskin, *Signals of Recession and Recovery: An Experiment with Monthly Reporting*, New York, NBER, 1961, and an unpublished table.

*Composite index (Shiskin), 6 coincident indicators (weighted):* Same as the preceding, but weighted by conformity score, Geoffrey H. Moore and Julius Shiskin, *Indicators of Business Expansions and Contractions*, New York, NBER, 1967; unpublished NBER table.

(Continued)

*Notes to Table 1 (Concluded)*

*Composite index (BCD), 5 coincident indicators (weighted): BCD.* Personal income is unadjusted for retroactive pay.

*Composite index (NBER), 5 coincident indicators, (weighted and deflated):* This is the BCD composite of 5 coincident indicators deflated by the NBER. The deflation applies to personal income and manufacturing and trade sales (see above). Deflated manufacturing and trade sales were not available for August 1970, when the computation was made.

*Composite index (Mintz), 17 indicators (unweighted):* See Mintz's paper, included in this volume. 12 of the indicators are "roughly coincident" indicators; one is a "leading" indicator; 3 are "lagging" indicators; and one is an indicator not classified by timing.

*Diffusion index, nonfarm employment, 30 industries: BCD.*

*Diffusion index, industrial production, 15-24 industries:* unpublished NBER table, 1919-38; BCD, 1948-70.

<sup>a</sup>Assumed.

<sup>b</sup>Based on one-month standings at peaks and troughs.

<sup>c</sup>In percentage points.

of growth still positive but inferior to the secular rate. A recession is characterized by a *negative* rate of growth in aggregate economic activity. No recession included in the chronology fails to have this characteristic.<sup>8</sup>

No specification of amplitude—severity of decline, either total or per month—is given in the definition. It is simply recognized that the amplitude is highly variable as, indeed, are many other business cycle characteristics. The measurements collected in Table 1 show that for the recessions recognized as having occurred between 1920 and 1961, the smallest decline in aggregate economic activity is no more than 2 or 3 per cent. During the recession of 1926–27, according to a composite made up of six "coinciding" series measuring both pecuniary and real activity, aggregate activity fell by

<sup>8</sup>It is barely possible—this is mere surmise—that one or two of the pre-World War I recessions included in the National Bureau's chronology involved no absolute decline. Some of the monthly data used in developing the earlier reference cycles related to trend-adjusted indexes of business activity. These indexes could show declines when, in fact, aggregate economic activity continued to rise, though less rapidly than the trend. (The same can obviously be said of the unemployment rate, one of the indicators used in identifying the more recent recessions.)

Contributing to this possibility may have been other deficiencies of the earlier data. In particular, the amplitude of fluctuations in the earlier periods may be overstated relative to the amplitude in recent periods, as a result of improvements in the data.

about 2.5 per cent; GNP in constant prices, by 2 per cent; and GNP in current prices, by 3 per cent. Industrial production declined by more, 7 per cent; and unemployment (omitted from the table because available only on an annual basis) rose by 2.2 percentage points. As I have already emphasized, the figures are very rough and not entirely consistent, but they seem sufficient to put 1926-27 at or close to the bottom of the list. The recession of 1960-61 is a close contender, however. In this recession, the six-series composite fell over 4.5 per cent, but GNP in constant prices declined only 1.5 per cent, and in current prices, less than a half per cent. In this recession, also, occurred the smallest rise in the unemployment rate (on a monthly basis)—somewhat more than 2 percentage points.

Further, a recession consists of contractions occurring at about the same time in many economic activities. That is, the declines are widely diffused throughout the economy. If only because the contractions in various economic activities occur at about the same time, not at exactly the same time, the scope of a recession is typically narrowest at its beginning and end, and widest between. In all recessions, of course, the minimum proportion of activities that join in the decline is in excess of 50 per cent; otherwise aggregate economic activity, measured in any reasonable way, could not be declining. But recessions vary also with regard to the maximum. Even in the most widely diffused recession, the fraction has never reached 100 per cent, for many new industries, and some old as well, continue to expand their markets even when business is generally shrinking<sup>9</sup>. The most narrowly diffused recession, according to the maximum percentage of industries with declining output, was 1926-27 with a maximum of 72 per cent. In the recession of 1960-61, next in this regard, the percentage was 88.

While milder in the other respects mentioned, in duration the 1926-27 recession, which lasted about thirteen months, was not greatly below average. In the full record, there are five recessions with a much shorter duration: the 1960-61 and 1957-58 recessions, nine months; and three with even shorter durations (the very shortest being the postwar recession of 1918-19 which lasted only seven months). Business recessions in the National Bureau's list have varied in duration from seven months to sixty-five months (1873-79),

<sup>9</sup>During the recessions of 1929-33 and 1937-38, production in every one of the fifteen to twenty-four mining and manufacturing industries distinguished declined over at least one six-month span. But this unanimity probably reflects only the gross character of the industrial classification. Were monthly records available for production in the many more narrowly defined industries distinguished in the SIC, it is very likely that there would be a significant number of industries with rising output.

with an average of about nineteen months over the period since 1854.<sup>10</sup> The recessions have usually been shorter than the expanding phases of business cycles, which have averaged about thirty months in the United States.

Moreover, business recessions are a phase of business cycles, a type of economic fluctuation in which recessions are followed by similarly general upturns, expansions, and downturns that merge into the recession phase of the next cycle. Implicit here is the notion—of which we shall make use later—that business recessions are identified not only by the characteristics already mentioned, but also by the developments that typically precede and follow them. While this sequence of changes is recurrent, it is not periodic, as the variety of durations has already made evident.

We shall have to come back, at a later point, also to another, related, part of the 1946 definition of business cycles: the requirement that they not be “divisible into shorter cycles of similar character with amplitudes approximating their own.” For the moment, however, we concentrate on the three characteristics first mentioned. We ask how developments during 1969–70 compare, with respect to these characteristics, with the recessions already recognized.

## V

The recession that began in 1969—if we may call it a recession—may or may not have ended. We should take this uncertainty into account when we compare the changes in aggregate economic activity during 1969–70 with the changes during past recessions. That is, we should not confine ourselves to a comparison of the changes during 1969–70 with the changes during the *full* run of past recessions. A useful supplement is a comparison of the average rates (or amounts) of change per month, over the period that has elapsed since the presumed peak in 1969, with the corresponding average monthly changes during the earlier recessions. There is evidence that after a recession or pause has run some six months or more, its characteristics will have been fairly firmly established.<sup>11</sup> We can therefore make a good, though hardly perfect, estimate of its eventual intensity and pervasiveness relative to series of events identified as recessions in the past. There are several ways to

<sup>10</sup>G.H. Moore (ed.), *Business Cycle Indicators*, Princeton for NBER, 1961, vol. I, App. A; updated in *Business Conditions Digest*.

Different indicators give somewhat different results, as is easily seen in the chart. The reference-cycle chronology may be thought of as representing the average values of these results.

<sup>11</sup>G.H. Moore, “Measuring Recessions,” in *Business Cycle Indicators*, vol. I, pp. 120–161.

make this comparison. The results differ very little, however, so we limit our attention here to comparisons of changes over periods of identical length, counting from the peak (or assumed peak). We make the comparisons using about the same proportion of real and pecuniary series that were used in deciding on the past recessions.

A reference peak in 1969 must be assumed. Which month seems most appropriate? To answer this question we follow the procedure of studying the behavior of each of the indicators of aggregate economic activity and noting if and when it reached a high point, in 1969–70 (or earlier), from which it has receded (Table 2). We find, what is not surprising, that the real series generally peaked before the pecuniary series. Every one of the real series has already shown some decline from its high point. For industrial production and GNP in 1958 dollars, the peak was as early as July 1969 and the third quarter of 1969, respectively. For the five-coincider composite (with all components in real terms), it was October; and for employment and man-hours worked, it was around the turn of the year.<sup>12</sup> In contrast, some of the pecuniary series had not peaked as of September 1970 (GNP in current dollars, for example, and most of the price series) and those that did, peaked late.

This wide dispersion of turning points raises more than the usual difficulties in choosing a reference peak. My tentative choice is November 1969 although it so happens that none of the individual series in Table 2 actually reached a peak in that month. December seems to be an almost equally good candidate, but the declines from the peak are much the same whether one or the other of these (or of still other possible alternatives) is taken as the month of the turn.<sup>13</sup>

The latest quarter for which GNP and other quarterly series are available is the third quarter of 1970, which we may take as centered at August—nine months after November 1969. We therefore make our comparison of 1969–70 with changes over the first nine months of past recessions. As Chart 1 and Table 1 have already made clear, 1969–70 was so mild that the

<sup>12</sup>Inclusive of proprietors and unpaid family workers, man-hours worked in the private economy reached a peak in the third quarter of 1969; see the Bureau of Labor Statistics release on "Productivity, Wages, and Prices: Second Quarter, 1970," issued August 4, 1970. (However, the difference between the third and fourth quarters is very small, whether or not proprietors and family workers are included.) Inclusive also of government workers, man-hours reached a peak in the fourth quarter.

<sup>13</sup>According to the indicators of "real" economic activity, the turn would probably be dated October, or perhaps even September, 1969. Mintz's composite of seventeen real and pecuniary series reached its peak in April 1970 at the earliest; the *BCD* composite, in December 1969.

TABLE 2  
 "Roughly Coincident" Cyclical Indicators,  
 by Month of Most Recent Peak  
 (as of September 30, 1970)

| Peak       | Indicator |   | Type of Series |        |
|------------|-----------|---|----------------|--------|
|            | BCD No.   | Series  | "Pecuniary"    | "Real" |
| May 1968   | 49        | Nonagric. job openings unfilled                                     |                | X      |
| Feb. 1969  | 43        | Unemployment rate, total  |                | X      |
|            | *54d      | Sales of retail stores, deflated                                    |                | X      |
| March 1969 | 40        | Unemployment rate, married males                                    |                | X      |
| May 1969   | 45        | Avg. wkly. insured unempl. rate, state programs                     |                | X      |
|            | 96        | Mfrs. unfilled orders, dur. goods indus.                            | X              |        |
|            | *-        | Merchant wholesalers' sales, deflated                               |                | X      |
| July 1969  | 47        | Index of industrial production                                      |                | X      |
| III/1969   | 205       | GNP, in 1958 dollars  |                | X      |
| Sept. 1969 | 46        | Index of help-wanted advertising in newspapers                      |                | X      |
|            | *56d      | <i>Mfg. and trade sales, deflated</i>                               |                | X      |
| Oct. 1969  | *-        | Mfrs. sales, deflated   |                | X      |
|            | *-        | Wage & salary personal income, commodity producing indus., deflated |                | X      |
|            | *820d     | <i>Composite index, 5 coinciders, deflated</i>                      |                | X      |
| IV/1969    | 97        | Backlog of capital appropriations, mfg.                             | X              |        |
| Dec. 1969  | 48        | Man-hours in nonagric. establishments                               |                | X      |
|            | 820       | <i>Composite index, 5 coinciders</i>                                | X              |        |
| Jan. 1970  | 42        | Persons engaged in nonagric. activities, labor force survey         |                | X      |
|            | 114       | Treasury bill rate  | X              |        |
| March 1970 | 41        | No. of employees on nonagric. payrolls, establishment survey        |                | X      |
|            | *52d      | Personal income, deflated (adjusted)                                |                | X      |
|            | 53        | Wages & salaries in mining, mfg. & construction                     | X              |        |
| May 1970   | 117       | Municipal bond yields   | X              |        |
| June 1970  | 116       | Corporate bond yields   | X              |        |
|            | 115       | Treasury bond yields  | X              |        |
| July 1970  | 93        | Free reserves   | X              |        |

*Series with latest available item the highest:*

Table 2 (concluded)

|           |     |   |   |
|-----------|-----|---|---|
| II/1970   | 200 | GNP, in current dollars                 | X |
|           | 57  | Final sales                             | X |
| July 1970 | 54  | Sales of retail stores                  | X |
|           | 56  | Mfg. and trade sales                    | X |
| Aug. 1970 | 52  | Personal income (adjusted)              | X |
|           | 55  | Index of wholesale prices, indus. comm. | X |
|           | 58  | Index of wholesale prices, mfd. goods   | X |

Source: *Business Conditions Digest*, September 1970, with exceptions indicated by an asterisk. Deflated pecuniary coinciding series were assumed to be coinciding series, in the absence of an analysis. Peak period is as given in *BCD*, or as determined by us. No. is the *BCD* number: with "d" added, it is the *BCD* series deflated by the NBER. Series not in *BCD* are unnumbered.

Interest rate series and the composite (#820), which includes two series in current prices, are treated as pecuniary series.

Composites and aggregates for which components are shown separately are italicized.

The personal income series, #52d, was adjusted for retroactive payments before deflation.

comparison need not extend beyond the recessions of 1926-27 and 1960-61. (Since the recession of 1960-61 lasted only nine months, the changes in Table 3 relate to its full run.) To these we add the "slowdown" in 1966-67.<sup>14</sup>

Of the series included in the comparison (Table 3) none declined between November 1969 and August 1970 more than during the 1960-61 recession. Industrial production, for example, fell by only 1.7 per cent after November 1969 as compared with the 5.6 per cent decline in 1960; GNP in constant dollars, by 0.2 per cent, as compared with 1.4 per cent; and man-hours worked in nonagricultural establishments, by 1.3 per cent as compared with 2.0. GNP in current prices rose by 3.5 per cent during the recent period, but fell minutely during 1960-61. Personal income, also in current prices, rose by over 4.5 per cent, but by only about 1 per cent during 1960-61. Retail sales rose during 1969-70, fell during 1960-61. The composite of five-coinciding indicators declined by little more than half a per cent, as

<sup>14</sup>GNP (in 1958 dollars) and industrial production declined from the fourth quarter of 1966, so we take November 1966 as the "peak." If the slowdown that dates from November 1966 is viewed as being over before August 1967, which is not unreasonable, the nine-month changes in Table 3 "bridge the valley" and therefore provide too favorable a picture of what happened during 1966-67. But any reasonable comparison of 1966-67 with 1969-70 would yield much the same conclusion.

TABLE 3

Changes in Selected Indicators of Economic Activity Between November 1969 and August 1970, Compared with Corresponding Nine-Month Changes during the Business Cycle Contractions of 1926-27 and 1960-61 and the "Pause" of 1966-67

|  | Reference Peaks |             |              |              |
|--|-----------------|-------------|--------------|--------------|
|  | Oct.<br>1926    | May<br>1960 | Nov.<br>1966 | Nov.<br>1969 |
| GNP, current dollars (quarterly)                                     | +0.5            | -0.2        | +3.9         | +3.5         |
| GNP, constant dollars (quarterly)                                    | +1.7            | -1.4        | +1.6         | -0.2         |
| Industrial production  | -2.4            | -5.6        | -0.6         | -1.7         |
| Nonagricultural employment   |                 | -1.9        | +1.6         | -0.6         |
| Man-hours in nonagric. establishments                                |                 | -2.0        | +0.9         | -1.3         |
| Personal income <sup>a</sup>   |                 | +1.1        | +5.0         | +4.6         |
| Personal income, deflated <sup>a</sup>                               |                 | +0.2        | +3.0         | +0.5         |
| Retail sales   |                 | -2.9        | +3.1         | +4.3         |
| Retail sales, deflated   |                 | -3.5        | +1.6         | +1.3         |
| Manufacturing and trade sales  |                 | -3.6        | +2.0         | +2.3         |
| Manufacturing and trade sales, deflated                              |                 | -3.8        | +1.3         | -0.4         |
| Unemployment rate (inverted) <sup>b</sup>                            |                 | +1.7        | +0.1         | +1.5         |
| Ampl. adj. composite index, 6 coin.<br>series <sup>c</sup>           | -0.9            | -4.5        |              |              |
| Ampl. adj. composite index, 5 coin.<br>series <sup>d</sup>           |                 | -4.8        | +3.4         | -0.8         |
| Ampl. adj. composite index, 5 coin.<br>series, deflated <sup>d</sup> |                 | -5.4        | +2.8         | -2.1         |

Source: See Table 1. Blank spaces indicate data not available.

<sup>a</sup>Data adjusted for retroactive (Social Security and Federal) pay increases.

<sup>b</sup>Change in percentage points.

<sup>c</sup>Unweighted by score. Includes BCD series nos. 41, 43, 47, 51, 52, 54.

<sup>d</sup>Weighted by score. Includes BCD series nos. 41, 43, 47, 52, 56. Personal income unadjusted for retroactive (Social Security and Federal) pay increases. The deflated series does not include manufacturing and trade sales for August 1970.

compared with over 4.5 per cent in 1960-61. In fact, in these terms *none* of the aggregate activity series shows a decline greater than the least recorded in *any* postwar recession. The diffusion indexes are consistent with this picture. The only exception is deflated retail sales; this series rose, but not quite as much as it had during 1948-49.

We cannot be as definite about the comparison with the very mild recession of 1926-27. Industrial output fell a little more during the first nine months of the 1926-27 recession than during the 1969-70, and GNP in current prices rose less. On the other hand, GNP in constant prices fell in only one quarter during 1926-27, as Table 1 showed; over the nine months after the peak in October 1926, this series rose. However, prewar GNP data, in current or constant dollars, and even the other data, are far too rough for fine comparisons. About all we can say, even with the help of data not included in the tables here, is that 1969-70 may have been milder even than 1926-27.

To conclude: Measured in this way—using pecuniary as well as physical volume series—up to the latest date for which information is available (mainly August 1970), aggregate economic activity fell less from November 1969 than during the first nine months of any postwar recession. This can be said, but with less confidence, also of the 1969-70 record in comparison with the interwar recession of 1926-27. It is very clear, however, that 1969-70 has not been as mild as 1966-67, which was not recorded as a recession.

If such declines in aggregate pecuniary and real activity as occurred during 1969-70 came to an end during the summer of 1970, as some economists surmise, this conclusion about its mildness is strengthened. The decline from 1969 would then have lasted only about eight or nine months. The *total* decline during 1969-70, relative to the total decline during 1960-61 (which lasted nine months), would have been no greater and could have been less than the equal-period comparison made above. Relative to 1926-27, which lasted thirteen months, the total decline could also have been less (Table 1).

Two questions immediately arise. First, what would happen if we abandon the use of pecuniary series, or more correctly, deflate them before making our comparisons? Second, why accept 1960 (or 1926) as setting a lower bound? We consider these questions in turn.

## VI

As everybody knows, the general price level has been rising more sharply in recent years than at any other time since the outbreak of the Korean war. Statistical series measuring economic activity in terms of current-price values will be affected by these price changes to a greater degree now than in most earlier periods.

As we expect, then, more of the indicators of activity declined during 1969–70, and the declines were greater, measured in real terms. The changes during 1969–70 bear a closer resemblance to those that occurred during the mildest of the recessions recorded since World War I than those during the pause of 1966–67, from which it differs sharply. The shift in relative position is small when measured in absolute terms, but not relative to the “distance” between 1969–70 and the mildest recorded recessions.

Further, the replacement of the pecuniary indicators by their deflated counterparts usually means a shift in the dating of the reference peaks, a shift that will be greater for some cycles than for others. Changes in reference dates, in turn, can alter the results of the comparisons we have been making. In particular, the decline in real aggregate economic activity during 1969–70 (from September 1969, rather than November 1969) would become slightly larger while the decline during 1960–61 would not be changed significantly.

But why should we deflate, when we ask whether a given series of events constitute a recession?

Consider an extreme case, when the price level is moving up very rapidly. If the inflation were ignored, recessions would never be found; not because a rising price level is always “good for business,” but rather because many of the individual indexes of aggregate economic activity, and the indexes taken as a whole, are biased upward by the shrinking purchasing power of the monetary unit. Declines in the physical volume indicators would be offset or even swamped by rapid rises in the pecuniary indicators: an average of real and pecuniary indicators would not fall.<sup>15</sup>

Obviously, when price levels change but slowly or recessions are of considerable amplitude, as was usually the case before World War II, the deflation question is of small importance. Pecuniary indicators are only slightly affected by price level changes; they provide only slightly biased information on real changes. When price levels change rapidly and recession amplitudes are small, however, this is no longer true.

One can, of course, think of objections to concentrating on real indicators, when we ask whether a recession is under way and how severe it is. I do not find these objections convincing, but they deserve some discussion.

First, changes in price-cost relationships and fluctuations in the rate of change of the general price level constitute major elements in the process by

<sup>15</sup>The BCD type of composite involves a “standardization” adjustment to put each component “on an equal basis.” So, in effect, does a cumulative diffusion index. But these adjustments cannot entirely avoid the problem caused by a rising price level.

which a business expansion attains momentum and gradually develops the restrictive forces that tend to bring it to an end. Similarly, prices and costs play a part in the process by which recessions breed revivals. We cannot adequately describe what happens during business cycles, or adequately explain what happens, without referring to price changes. However, it seems to me that neither of these is our present objective. We ask, only, whether a recession is under way and how severe it is.

True, we can reduce our uncertainty about the answer, when we are uncertain, by taking account of the developments that occurred in prices, costs, and profits (and other aspects of economic life) during the period prior to the slowdown in question, as well as those that occur during the recession itself. To take these into account in this way, however—as I do at a later point—does not preclude or argue against concentration on measures of real economic activity for our present purpose.

There is an alternative procedure that may go some distance towards taking care of the measurement problems created by inflation, and yet at the same time help meet the objection I have been describing. We could limit ourselves to "deflating out" only the *trend*, and particularly the trend in the general price level, and thus avoid deflating out the cyclical changes in prices, if these are believed essential to a proper judgment on the course of aggregate economic activity.<sup>16</sup> Applying such a procedure would yield a result that, roughly speaking, falls somewhere between the result obtained by following the full deflation procedure and that obtained by completely ignoring the deflation problem. However, I find this alternative more attractive when our question is what happens during business cycles.

It may be said, second, that when we worry about recessions, we worry about the changing distribution of real income and wealth, as well as about changes in the aggregate. When the general price level changes, large transfers of real income and wealth take place. Should not these changes in the general price level, therefore, be taken into account? There is good reason to worry, for these (and other) serious effects of recessions are not distributed evenly. It would probably be desirable, in fact, to include among the criteria used to determine the severity of a recession some series that are designed to measure

<sup>16</sup>Deflating out the trend in the general price level would also avoid deflating out the trends in relative prices, when the value or price series being deflated relate to sectors—not the whole—of the economy.

To deflate interest rates means, of course, to *subtract* the annual percentage trend rate of change in the general price level.

the distribution effects. However, the undeflated series do not serve this purpose. Nor do price indexes.<sup>17, 18</sup>

Quite different is the objection that physical volume data, or data on the prices required for reducing pecuniary to volume series, are insufficient in quantity and quality for our purpose, even in an economy as rich in statistics as the United States is today. That is, we simply cannot afford to neglect pecuniary series. However, to measure aggregate economic activity in real terms hardly means to neglect undeflated series. Pecuniary series may and should be used, as has already been indicated, when price data are scarce and there is reason to believe that price changes are probably small in relation to the changes in the undeflated series. The latter will be good approximations to the deflated series. When price changes are large, however, and good price data are scarce, the use of a crude deflator tailored to the series, or even of an

<sup>17</sup>It might be desirable, also, to take account—somehow—of the fact that a given percentage decline in output or employment from a high level is, in a significant sense, less severe than the same percentage decline from a low level. The changes during the 1960–61 recession were worse than in 1969–70 because the rise in unemployment started from a peak in 1960 of 5 per cent, and in 1969, from a peak of only 3.5 per cent. Further, a given rate of unemployment in 1969–70 should not be considered “equal” to the same rate in 1960–61 because of the increased relative importance in the labor force of women and young people—“secondary” workers generally characterized by high rates of entry into and exit from the labor force, which are associated with high rates of unemployment. See J. Mincer, “Research in Labor Force and in Unemployment,” *47th Annual Report* of the NBER, New York, June 1967, pp. 16–22.

<sup>18</sup>There is another objection to concentrating on real indicators that deserves a word, although it is of minor significance for the United States today. Consider an industry such as agriculture, the physical volume of whose output (apart from fluctuations due to the weather, pests, and similar factors) tends to be stable. Is this industry free of business cycles? To concentrate on its physical volume of output would be to overlook the effects of fluctuations in relative prices. Indeed, the major determinant of shifts between good and bad business in this industry will be change in its selling prices relative to its buying prices. The solution is simple: to deflate the industry’s gross or net income by the prices it pays, not by the prices it receives.

When such an industry is dominant in a country that exports the industry’s produce in order to obtain by import the goods and services it wants, the physical volume of production in the country as a whole will also tend to be stable. Fluctuations in business conditions will be largely caused by changes in export prices relative to import prices. The United States was not far from being such a country a century or more ago, as are many developing countries today. In this case, too, the solution offered in the preceding paragraph applies. In fact, real GNP is not—or should not be—measured by the physical volume of production. Real GNP is the aggregate of real consumption and real investment; and these, on the assumptions made, are largely dependent on the volume of exports and the foreign terms of trade. In effect, current dollar GNP is, or should be, deflated by import prices, not by export prices.

index of the general price level such as the GNP implicit price index, would be better than no deflation at all. (This kind of approximation is more often used in production indexes than their consumers realize.)

To return to the main point: with any reasonable deflation, there appears to have been a sustained and absolute, though slight, contraction in real aggregate economic activity during 1969-70. To judge by data currently available, then, 1969-70 was not a case of a decline to a low but still positive rate of growth.<sup>19</sup>

But if 1969-70 is taken to be a recession, it will be the mildest in the list, at least as far as the information available through August 1970 indicates. Does this argue against identifying 1969-70 as a recession?

## VII

The 1946 definition requires that business cycles not be "divisible into shorter cycles of similar character with amplitudes approximating their own." In a comment on this, Burns and Mitchell mention that the "expansion and contraction of many cycles seem to be interrupted by movements in the opposite direction. . . When the irregularities are slight they do not seriously

<sup>19</sup>Revisions of currently available data are bound to occur. Whether and how much they will alter the above conclusion remains to be seen. In the meantime, it is well to keep in mind that some of the declines during 1969-70 were very small. The rather minute changes in real GNP are especially noteworthy; a later revision could conceivably change even the signs of these changes.

In this connection, see Rosanne Cole, *Errors in Provisional Estimates of Gross National Product*, New York, NBER, 1970, p. 70. The current-dollar estimates of change in GNP during each of the four postwar contractions (1948-49, 1953-54, 1957-58, and 1960-61) were later revised upward; that is, the later estimates of the declines from peak to trough were smaller than the earlier estimates. This was true also of the estimates of change in constant dollar GNP for 1957-58 and 1960-61, for which I have made a comparison similar to Cole's. The initial estimate of the decline during 1957-58, was 5.7 per cent; the final estimate, 3.9 per cent. For 1960-61, the two estimates were 2.3 and 1.6, respectively.

Another qualification on the GNP series is worth noting. The GNP series based largely on expenditures (the "official" estimate) differs from the GNP series based largely on income, by the amount of the "statistical discrepancy" between the two sides of the account. The income-side estimate in real terms declined (very slightly) between the first and second quarters of 1970, while the expenditure-side estimate rose (very slightly).

Further, alternatives to the usual GNP implicit price deflator prepared in the Department of Commerce, when applied to either of the two estimates of current-dollar GNP, yield constant-dollar estimates of GNP that decline between the first and second quarters of 1970. See A.H. Young and C. Harkins, "Alternative Measures of Price Change for GNP," *Survey of Current Business*, March 1969, and the later "Alternative Measures of Price Change for GNP, 1967-1970," in *Survey of Current Business*, August 1970.

complicate the task of identifying business cycles; but in some instances, notably in this country since 1930, they attain considerable proportions. Hence the need of criteria for deciding what reversals in direction mark the end of a cyclical phase. Most brief movements are excluded by the clause that business cycles “ ‘cover more than one year.’ ” By adding the clause concerning amplitudes, “a rule is laid down for deciding when to treat movements lasting several years as a single cycle and when to recognize two or more cycles,” But, they note, “this rule cannot be applied without knowing at least approximately what amplitudes are characteristic of business cycles.”<sup>20</sup>

This point is made with reference to the amplitude of the cycle as a whole and not separately to the amplitude of the recession or expansion. But it implies an upper limit to the amplitude and duration of the expansion phase when recessions are of small amplitude or duration. Specifically, it suggests that if the expansion that has been taking place since the last previously recognized trough has exceeded the amplitude of the largest expansion on the record, and this expansion was interrupted by one or more “movements in the opposite direction,” or pauses, not recognized as recessions, there is reason to reconsider the earlier decisions. If this does not lead to a revision, it indicates the action of an extraordinary “exogenous” factor or factors that have stretched out the expansion (a great war, for example); or the need to ask whether a mutation in the character of business cycles should be recognized.

The expansion that stopped in 1969 was, in fact, the longest expansion included in the U.S. record. Dating it from February 1961 to November 1969, it lasted 105 months. The longest previous expansion was that of June 1938–February 1945, eighty months. The longest previous peacetime expansion was that of March 1933–May 1937, fifty months. The expansion that began in 1961, even if we date its end in 1969, then, had already been so long that it probably exceeds that of any previous expansion. Since aggregate economic activity did show a decline during 1969–70, slight though it was, this exceptionally large amplitude provides a ground for accepting 1969 as the end of the expansion, and thereby accepting 1969–70 as a recession. Put a little differently, if one is willing to accept 1961–69 as a single expansion, despite the fact that it falls outside the historical range of amplitude and duration, why should one not accept 1969–70 as a recession, despite the

<sup>20</sup>Burns and Mitchell, pp. 3 and 7–8.

fact that it falls on the other side of the historical range of amplitudes (though not of duration)?<sup>21</sup>

But this argument is not yet very persuasive. It is necessary to pursue it further, as we shall now do, by going to the restrictive forces bred by the process of expansion—forces that tend to grow stronger the longer an expansion persists.

### VIII

I have been backing into the question that might perhaps have been better faced directly and at the very outset: what our conception of "the business cycle today" contributes to the interpretation of 1969–70. If what happened during 1969–70 constitutes a recession, it is a phase in a recurrent sequence of changes in which expansions occurring at about the same time in many economic activities are followed by similarly general downturns, recessions, and revivals that merge into the next expansion phase. Any doubts about the nature of the economic changes during 1969–70 can therefore be resolved, or at least lessened, by considering what came before the pause in 1969, as well as whether changes typical of a recession have been occurring since.

Following Mitchell and Burns, we may usefully conceive of business cycles as resulting from economic processes "that of themselves tend to generate cyclical movements"; and these, however, can be strengthened or opposed, speeded up or slowed down (sometimes even reversed) by episodic or erratic disturbances. This conception is consistent with the repetitive features of business cycles, as well as with the variations among business cycles, uncovered by many years of quantitative research. Economists differ in the relative importance of the roles they assign to particular economic processes and particular external factors when they think of business cycles generally or when they try to explain differences among business cycles. But I expect that all or most of us here would find the general conception congenial to our thinking. Any of its variants provides a basis on which the economic changes since 1969 can reasonably be characterized as a recession.

<sup>21</sup>It might be argued that the expansion that began in 1961 did not, in fact, continue until 1969, and thus did not reach 105 months in length. This would be to suppose that, for example, 1966 marked the end of the expansion that began in 1961, not merely an interruption in the expansion. The expansion that paused in 1969 would then be only about thirty months long and the question of its amplitude would no longer be disturbing. But by the same token, we would be counting 1966–67 as a recession. We would have to count 1969–70 as a recession also. There are indeed grounds for regarding 1966–67 as a recession, but this too involves a discussion of the causes of recession.

Consider, first, the accumulation of restrictive forces generated by the expansion prior to the pause of 1969. Output, we may recall, had risen to levels that exceeded even "potential" output, as it is measured by the index shown in Chart 1. The unemployment rate had dropped below the 4 per cent level usually supposed to indicate "full" employment. It is not surprising, therefore, that—as in other, less exuberant, expansions—signs appeared of these restrictive forces. One such sign was the narrowing of the scope and reduction in the pace of expansion. Another was the rise in costs, which eventually exceeded the rise in selling prices and reduced profits per unit of sales and then, also, aggregate profits. A third was the increase in construction costs and interest rates, which sharply depressed home building and dampened state and local government construction plans. Coupled with the slowdown in expected profits, these increases eventually led also, and on a widening front, to a reduction in the establishment of new businesses and the postponement of ambitious plans for investment by existing firms in business plant and equipment, measured in real terms. A fourth was the depressant effect of these developments on the stock market; the decline in stock prices became, in turn, another restrictive force on business investment, home building, and the purchase of large items of durable consumer goods. In time, as we now know, these and other developments, many of which are summarized in the composite of leading indicators,<sup>22</sup> led to further retardation in the rate of growth, and then to actual decline of aggregate production, and to a widening gap between a continually growing number in the labor force and a stable or declining number employed.

Too many people, I suspect, have been ignoring the fact that these restrictive forces had been gathering strength in our economy for some time before 1969. It is reasonable to suppose that even by themselves, had subsequent policy been neutral, they would eventually have caused a substantial decline in the rate of growth, if not an absolute contraction, of aggregate economic activity.

Contributing to such an eventuality—to the extent that it has not already been counted among the restrictive factors generated by the expansion—was the halt to further increase, and then the sharp cut, in the rate of expansion of the money supply (defined broadly or narrowly) that came in 1968 and early 1969. The halt would of itself have probably served sooner or later to bring about a reduction in the rate of growth of aggregate economic activity, even apart from the sharp decline in the rate of growth of money supply that

<sup>22</sup>This composite, like the composite of coincident indicators, should be adjusted for the rise in the general price level. And if a "reverse-trend adjustment" is applied to it, the trend used should be the trend of the adjusted coincider composite.

followed it. With the tightening of monetary policy the restrictive forces already pressing on the rate of growth of aggregate economic activity were strengthened. Much the same can be said of the federal government's budgetary policy, as it is reflected in the federal surplus on the national accounts basis.

What I concluded from the survey of changes in aggregate economic activity during 1969-70—that these do constitute a recession—is, then, supported by this brief review of antecedent developments.

## IX

It may be asked whether the conception of business cycles outlined above is consistent with just a decline in the rate of growth of aggregate economic activity to a level below its trend level. Does it not require, or imply, an absolute contraction?

As I have already indicated, such a decline, measured in real terms—though very modest by historical standards—did in fact occur during 1969-70. However, the statistics are admittedly rough and subject to revision. It is possible, though I believe rather unlikely, that at a later date when all the information is finally available, we shall find that aggregate economic activity during 1969-70 did not actually decline; that what happened was a decline in the rate of economic growth during this period to a level of about zero. If so, will this mean that 1969-70 was not a recession; that it was not the declining phase of a business cycle?

I can find nothing in the conception of business cycles that requires an absolute contraction in aggregate economic activity as an invariant feature of a business-cycle recession. The National Bureau's 1946 definition of business cycles does speak of a contraction. But I have already noted that it was formulated in the light of observations on pre-World War II business cycles and that Burns and Mitchell took pains to emphasize that the definition was tentative, subject to revision if not borne out by further observation. What is essential in the conception of the business cycle as an endogenous process is a tendency for expansion to gather momentum and "for a time become a self-reinforcing process," but eventually to generate restrictive forces that finally push down the rate of increase of aggregate activity to a low or even negative level; and for recession, when it comes, to spread at first, but then to release corrective forces that "combine with the more persistent forces of growth"<sup>23</sup> to bring the recession to a halt.

I have expressed the process in terms of rates of change because the corrective forces can be released, it seems to me, even when aggregate

<sup>23</sup>The quoted phrases are from Burns, p. 41.

economic activity does not decline absolutely. A decline in the rate of growth of aggregate activity, for example, is inevitably accompanied by an absolute decline in the business of many enterprises, as the diffusion indexes make clear. These enterprises, and also those still growing but making smaller rates of return, will be impelled to seek ways to restore efficiency and cut costs.

As for the conception of the business cycle that stresses external factors, it may be sufficient to mention that in his latest publication Friedman sketches the adjustment process following a "monetary disturbance" entirely in terms of rates of change. Indeed, he is quite explicit in saying that "there must. . . be a cyclical reaction, an overshooting, in the rates of change in nominal [money] income and prices, though not necessarily in their levels."<sup>24</sup>

### X

A number of questions have been accumulated during our discussion of how the definition of a recession might be revised. These questions will have to be dealt with in the tests to which any revised definition should be subjected. I take a moment, therefore, to pose two of the questions explicitly.

One concerns the determination of the long-term trend. If a recession is defined as a sustained decline in the rate of growth of aggregate economic activity relative to its long-term trend, then to recognize a recession one must know what the trend is. When the decline is sharp, the difficulty is minor; any rough estimate of the trend based on any reasonable rationale will serve. But not so when the decline is slight.

Further, the usual method gives the trend at a moment in time essentially as some sort of moving average of rates of change subsequent to the moment as well as prior to it. But when we wish to determine the *current* trend, we do not know just what subsequent changes will be. These have to be assumed. In addition to the methods discussed by Mintz, consideration might be given to measuring the trend by some average of past rates of changes—perhaps adjusted (or qualified) by reference to current and prospective developments in the factors that determine changes in the trend—as in essence is done in measuring potential GNP.<sup>25</sup>

<sup>24</sup>M. Friedman, "A Theoretical Framework for Monetary Analysis," *Journal of Political Economy*, March/April 1970, p. 232; reprinted as O.P. 112, New York, NBER, 1971.

<sup>25</sup>On the question of trends, it is still worth referring to the studies by Edwin Frickey, *Economic Fluctuations in the United States*, Harvard, 1942. See also Burns and Mitchell, p. 38. The use of a moving average of variable span is described in Gerhard Tintner's *Prices in the Trade Cycle*, Vienna, Julius Springer, 1935, pp. 22-24. Important among more recent discussions is Simon Kuznets' *Capital in the American Economy: Its Formation and Financing*, Princeton for NBER, 1961, Ch. 2.

This brings us to the second question: Why would it not be better to define a recession as a decline in the proportion of available resources employed in production, or as a widening of the gap between potential and actual output, rather than as a decline in aggregate economic activity relative to its trend? The idea is attractive.<sup>26</sup> The difficulty arises in measuring the volume of available resources, or alternatively, the volume of potential GNP, over which there has been some controversy.<sup>27</sup> Estimation of the trend of potential GNP is difficult enough; the gap estimate requires, in addition, an estimate of the *level* of potential GNP, which is another matter. What is involved, of course, is an old and very difficult problem: How to determine the "optimum" rate of unemployment (of all resources, not only labor), or the optimum volume of output; and this shades into the problem of the optimum rate of economic growth.

For the present, it may be of some comfort (to economic diagnosticians) to note that the slowdown during 1969-70 was in fact sufficiently sharp and sustained so that various ways of determining the long-term trend yield not altogether inconsistent results. This is illustrated by the trends and deviations from trend in GNP and industrial production traced in Chart 2 and summarized in Table 4. Although there are striking differences among the trends, for our present purposes the resemblances are more important than the differences. The turning points in the growth cycles agree closely. Also, differences among the several "growth recessions," measured relative to any of the trends, are much the same. The coefficients of rank correlation between alternative measurements of duration, or total decline, or rate of decline, are high: of the order of 0.8 or even 0.9. Specifically, the decline relative to trend during 1968-70 was more severe than during 1966-67, and 1966-67 was more severe than 1962-63, according to any of the measurements in Table 4.

<sup>26</sup>A subsidiary question (and answer) is implied here, and has been implied elsewhere in the paper. Explicitly, to define a recession, for the present purpose, in terms of an output gap or a rate of unemployment of resources is to define aggregate economic activity more narrowly than it usually has been in the National Bureau's business cycle studies. The objective, in these studies, has been broader: to describe what happens during business cycles and why.

<sup>27</sup>See, for example, the discussion between Burns and the Council of Economic Advisers headed by W.W. Heller, in *The Morgan Guaranty Survey*, May and August, 1961; and Burns' 1936 review (reprinted in *The Frontiers of Economic Knowledge*, NBER, 1954) of the Brookings study by E.G. Nourse and associates, *America's Capacity to Produce*. The CEA gap analysis originated in the 1961 study by Arthur Okun, "Potential GNP: Its Measurement and Significance," reprinted in his *The Political Economy of Prosperity* New York, 1969, Appendix. See also J.W. Knowles, *The Potential Economic Growth in the United States*, Study Paper No. 20, Joint Economic Committee, Washington, D.C., Government Printing Office, 1960.

TABLE 4

Selected Measures of Duration and Depth of Specific  
 "Growth-Cycle" Expansions and Contractions, 1948-70

|   | 1948-49         | 1949-52          |                   | 1952-54         |                 |
|---|-----------------|------------------|-------------------|-----------------|-----------------|
|   | Contraction     | Exp.             | Contr.            | Exp.            | Contr.          |
| <i>GNP in 1958 Dollars</i>                            |                 |                  |                   |                 |                 |
| <i>1. Deviation from moving-average trend (Mintz)</i> |                 |                  |                   |                 |                 |
| Dates   | II/48-<br>IV/49 | IV/49-<br>III/51 | III/51-<br>III/52 | III/52-<br>I/53 | I/53-<br>II/54  |
| Duration (months)                                     | 18              | 21               | 12                | 6               | 15              |
| Rate of change (% per year)                           |                 |                  |                   |                 |                 |
| trend   | 4.3             | 4.4              | 4.5               | 4.9             | 3.6             |
| actual  | 0.1             | 11.6             | 1.3               | 9.2             | -1.9            |
| deviation   | -4.2            | 7.2              | -3.2              | 4.3             | -5.5            |
| Total change (%)                                      |                 |                  |                   |                 |                 |
| trend   | 6.5             | 7.6              | 4.5               | 2.5             | 4.5             |
| actual  | 0.1             | 20.2             | 1.3               | 4.6             | -2.4            |
| deviation   | -6.4            | 12.6             | -3.2              | 2.1             | -6.9            |
| <i>2. Deviation from trend in potential GNP</i>       |                 |                  |                   |                 |                 |
| Dates   | n.a.            | n.a.             | n.a.              | II/52-<br>II/53 | II/53-<br>II/54 |
| Duration (months)                                     |                 |                  |                   | 12              | 12              |
| Rate of change (% per year)                           |                 |                  |                   |                 |                 |
| trend   |                 |                  |                   | 3.5             | 3.5             |
| actual  |                 |                  |                   | 6.9             | -3.4            |
| deviation   |                 |                  |                   | 3.4             | -6.9            |
| Total change (%)                                      |                 |                  |                   |                 |                 |
| trend   |                 |                  |                   | 3.5             | 3.5             |
| actual  |                 |                  |                   | 6.9             | -3.4            |
| deviation   |                 |                  |                   | 3.4             | -6.9            |

(Continued)

| 1954-58         |                 | 1958-61         |                | 1961-63        |                 | 1963-67         |                 | 1967-70 <sup>a</sup> |                   |
|-----------------|-----------------|-----------------|----------------|----------------|-----------------|-----------------|-----------------|----------------------|-------------------|
| Exp.            | Contr.          | Exp.            | Contr.         | Exp.           | Contr.          | Exp.            | Contr.          | Exp.                 | Contr.            |
| II/54-<br>IV/55 | IV/55-<br>II/58 | II/58-<br>II/59 | II/59-<br>I/61 | I/61-<br>II/62 | II/62-<br>II/63 | II/63-<br>I/66  | I/66-<br>IV/67  | IV/67-<br>II/68      | II/68-<br>III/70  |
| 18              | 30              | 12              | 21             | 15             | 12              | 33              | 21              | 6                    | 27                |
| 2.3             | 2.6             | 2.6             | 3.4            | 4.5            | 4.9             | 5.3             | 4.6             | 4.6                  | 4.8               |
| 7.3             | -0.6            | 9.2             | 0.3            | 7.5            | 3.5             | 6.9             | 3.0             | 6.4                  | 1.4               |
| 5.0             | -3.2            | 6.6             | -3.1           | 3.0            | -1.4            | 1.6             | -1.6            | 1.8                  | -3.4              |
| 3.4             | 6.5             | 2.6             | 5.9            | 5.7            | 4.9             | 14.5            | 8.1             | 2.3                  | 10.8              |
| 11.0            | -1.5            | 9.2             | 0.6            | 9.3            | 3.5             | 18.9            | 5.3             | 3.2                  | 3.1               |
| 7.6             | -8.0            | 6.6             | -5.3           | 3.6            | -1.4            | 4.4             | -2.8            | 0.9                  | -7.7              |
| II/54-<br>IV/55 | IV/55-<br>II/58 | II/58-<br>II/59 | II/59-<br>I/61 | I/61-<br>IV/62 | IV/62-<br>II/63 | II/63-<br>IV/66 | IV/66-<br>IV/67 | IV/67-<br>III/68     | III/68-<br>III/70 |
| 18              | 30              | 12              | 21             | 21             | 6               | 42              | 12              | 9                    | 24                |
| 3.5             | 3.5             | 3.5             | 3.5            | 3.5            | 3.8             | 3.8             | 4.0             | 4.0                  | 4.2               |
| 7.3             | -0.6            | 9.2             | 0.3            | 6.6            | 2.9             | 6.4             | 2.3             | 5.7                  | 1.0               |
| 3.8             | -4.1            | 5.7             | -3.2           | 3.1            | -0.9            | 2.6             | -1.7            | 1.7                  | -3.2              |
| 5.3             | 9.0             | 3.5             | 6.2            | 6.2            | 1.9             | 14.0            | 4.0             | 3.0                  | 8.4               |
| 11.0            | -1.5            | 9.2             | 0.6            | 11.5           | 1.4             | 22.4            | 2.3             | 4.2                  | 2.1               |
| 5.7             | -10.5           | 5.7             | -5.6           | 5.3            | -0.5            | 8.4             | -1.7            | 1.2                  | -6.3              |

(Continued)

TABLE 4 (Concluded)

|  | 1948-49        | 1949-52        |               | 1952-54       |               |
|--|----------------|----------------|---------------|---------------|---------------|
|  | Contraction    | Exp.           | Contr.        | Exp.          | Contr.        |
| <i>Industrial Production</i>                                     |                |                |               |               |               |
| <i>1. Deviation from moving-average trend (Mintz)</i>            |                |                |               |               |               |
| Dates  | 6/48-<br>10/49 | 10/49-<br>3/51 | 3/51-<br>6/52 | 6/52-<br>5/53 | 5/53-<br>8/54 |
| Duration (months)  | 16             | 17             | 15            | 11            | 15            |
| Rate of change (% per year)                                      |                |                |               |               |               |
| trend  | 4.7            | 4.9            | 4.6           | 6.6           | 4.0           |
| actual   | -7.3           | 22.2           | -1.6          | 17.0          | -6.8          |
| deviation  | -12.0          | 17.3           | -6.2          | 10.4          | -10.8         |
| Total change (%)   |                |                |               |               |               |
| trend  | 6.3            | 7.0            | 5.8           | 6.1           | 5.0           |
| actual   | -9.8           | 31.5           | -1.9          | 15.6          | -8.5          |
| deviation  | -16.1          | 24.5           | -7.7          | 9.5           | -13.5         |
| <i>2. Deviation from AT&amp;T trend</i>                          |                |                |               |               |               |
| Dates  | 6/48-<br>10/49 | 10/49-<br>3/51 | 3/51-<br>7/52 | 7/52-<br>7/53 | 7/53-<br>8/54 |
| Duration (months)  | 16             | 17             | 16            | 12            | 13            |
| Rate of change (% per year)                                      |                |                |               |               |               |
| trend  | 4.2            | 4.2            | 4.3           | 4.1           | 4.2           |
| actual   | -7.3           | 22.2           | -2.9          | 18.7          | -8.4          |
| deviation  | -11.5          | 18.0           | -7.2          | 14.6          | -12.6         |
| Total change (%)   |                |                |               |               |               |
| trend  | 5.6            | 5.9            | 5.7           | 4.1           | 4.6           |
| actual   | -9.8           | 31.5           | -3.9          | 18.7          | -9.1          |
| deviation  | -15.4          | 25.6           | -9.6          | 14.6          | -13.7         |
| <i>3. Deviation from trend in Wharton estimate of "capacity"</i> |                |                |               |               |               |
| Dates  |                | 10/49-<br>8/50 | 8/50-<br>7/52 | 7/52-<br>5/53 | 5/53-<br>8/54 |
| Duration (months)  |                | 10             | 23            | 10            | 15            |
| Rate of change (% per year)                                      |                |                |               |               |               |
| trend  |                | 5.3            | 6.9           | 3.4           | 3.9           |
| actual   |                | 33.4           | -0.6          | 21.5          | -6.8          |
| deviation  |                | 28.1           | -7.5          | 18.1          | -10.7         |
| Total change (%)   |                |                |               |               |               |
| trend  |                | 4.4            | 13.2          | 2.9           | 4.9           |
| actual   |                | 27.8           | -1.1          | 18.0          | -8.5          |
| deviation  |                | 23.4           | -14.3         | 15.1          | -13.4         |

| 1954-58              |                      | 1958-61             |                     | 1961-63             |                     | 1963-67               |                       | 1967-70              |                     |
|----------------------|----------------------|---------------------|---------------------|---------------------|---------------------|-----------------------|-----------------------|----------------------|---------------------|
| Exp.                 | Contr.               | Exp.                | Contr.              | Exp.                | Contr.              | Exp.                  | Contr.                | Exp.                 | Contr. <sup>a</sup> |
| 8/54-<br>10/55<br>14 | 10/55-<br>4/58<br>30 | 4/58-<br>5/59<br>13 | 5/59-<br>3/61<br>22 | 3/61-<br>3/62<br>12 | 3/62-<br>1/63<br>10 | 1/63-<br>10/66<br>45  | 10/66-<br>10/67<br>12 | 10/67-<br>6/68<br>8  | 6/68-<br>9/70<br>27 |
| 2.1                  | 3.1                  | 2.7                 | 3.6                 | 6.0                 | 5.4                 | 6.3                   | 5.2                   | 5.3                  | 5.5                 |
| 14.7                 | -4.9                 | 22.7                | -2.7                | 13.0                | 2.3                 | 8.8                   | -1.4                  | 8.4                  | 0.0                 |
| 12.6                 | -8.0                 | 20.0                | -6.3                | 7.0                 | -3.1                | 2.5                   | -6.6                  | 3.1                  | -5.5                |
| 2.5                  | 7.6                  | 3.0                 | 6.6                 | 6.0                 | 4.5                 | 23.7                  | 5.2                   | 3.5                  | 12.4                |
| 17.1                 | -12.2                | 24.6                | -4.9                | 13.0                | 2.0                 | 33.1                  | -1.4                  | 5.6                  | 0.0                 |
| 14.6                 | -19.8                | 21.6                | -11.5               | 7.0                 | -2.5                | 9.4                   | -6.6                  | 2.1                  | -12.4               |
| 8/54-<br>10/55<br>14 | 10/55-<br>4/58<br>30 | 4/58-<br>6/59<br>14 | 6/59-<br>2/61<br>20 | 2/61-<br>4/62<br>14 | 4/62-<br>1/63<br>9  | 1/63-<br>10/66<br>45  | 10/66-<br>10/67<br>12 | 10/67-<br>7/69<br>21 | 7/69-<br>9/70<br>14 |
| 4.3                  | 4.4                  | 4.1                 | 4.5                 | 4.1                 | 4.0                 | 3.9                   | 3.5                   | 3.6                  | 3.5                 |
| 14.7                 | -4.9                 | 21.6                | -3.4                | 11.9                | 2.0                 | 8.8                   | -1.4                  | 6.3                  | -4.2                |
| 10.4                 | -9.3                 | 17.5                | -7.9                | 7.8                 | -2.0                | 4.9                   | -4.9                  | 2.7                  | -7.7                |
| 5.1                  | 11.0                 | 4.7                 | 7.5                 | 4.7                 | 3.0                 | 14.8                  | 3.5                   | 6.2                  | 4.1                 |
| 17.1                 | -12.2                | 25.2                | -5.7                | 13.9                | 1.5                 | 33.1                  | -1.4                  | 11.1                 | -4.9                |
| 12.0                 | -23.2                | 20.5                | -13.2               | 9.2                 | -1.5                | 18.3                  | -4.9                  | 4.9                  | -9.0                |
| 8/54-<br>10/55<br>14 | 10/55-<br>4/58<br>30 | 4/58-<br>5/59<br>13 | 5/59-<br>2/61<br>21 | 2/61-<br>4/62<br>14 | 4/62-<br>12/62<br>8 | 12/62-<br>10/66<br>46 | 10/66-<br>10/67<br>12 | 10/67-<br>7/69<br>21 | 7/69-<br>9/70<br>14 |
| 3.2                  | 4.7                  | 3.2                 | 5.2                 | 3.5                 | 4.0                 | 3.8                   | 4.5                   | 3.6                  | 3.8                 |
| 14.7                 | -4.9                 | 22.7                | -3.0                | 11.9                | 1.8                 | 8.7                   | -1.4                  | 6.3                  | -4.2                |
| 11.5                 | -9.6                 | 19.5                | -8.2                | 8.4                 | -2.2                | 4.9                   | -5.9                  | 2.7                  | -8.0                |
| 3.7                  | 11.7                 | 3.5                 | 9.0                 | 4.1                 | 2.7                 | 14.6                  | 4.5                   | 6.4                  | 4.4                 |
| 17.1                 | -12.2                | 24.6                | -5.3                | 13.9                | 1.2                 | 33.5                  | -1.4                  | 11.1                 | -4.9                |
| 13.4                 | -23.9                | 21.1                | -14.3               | 9.8                 | -1.5                | 18.9                  | -5.9                  | 4.7                  | -9.3                |

*Notes to Table 4*

Source: The Mintz moving-average trends are based on a 25-quarter moving average of actual GNP in 1958 dollars, and a 75-month moving average of the FRB index of industrial production — see Mintz's paper in this volume. Mrs. Mintz's series were extended from the first quarter of 1970 (in the case of GNP) or March 1970 (in the case of industrial production) to August 1970 on the assumption of a continuation of the trend in the immediately preceding period.

Potential GNP is based on a trend line of 3.5 per cent per year (intersecting actual line in middle of 1955) from 1st quarter 1952 to 4th quarter 1962, 3.75 per cent from 4th quarter 1962 to 4th quarter 1965, 4 per cent from 4th quarter 1965 to 4th quarter 1969, and 4.3 per cent from 4th quarter 1969 to 3rd quarter 1970 — see *Economic Report of the President*, 1965 and current issues of BCD.

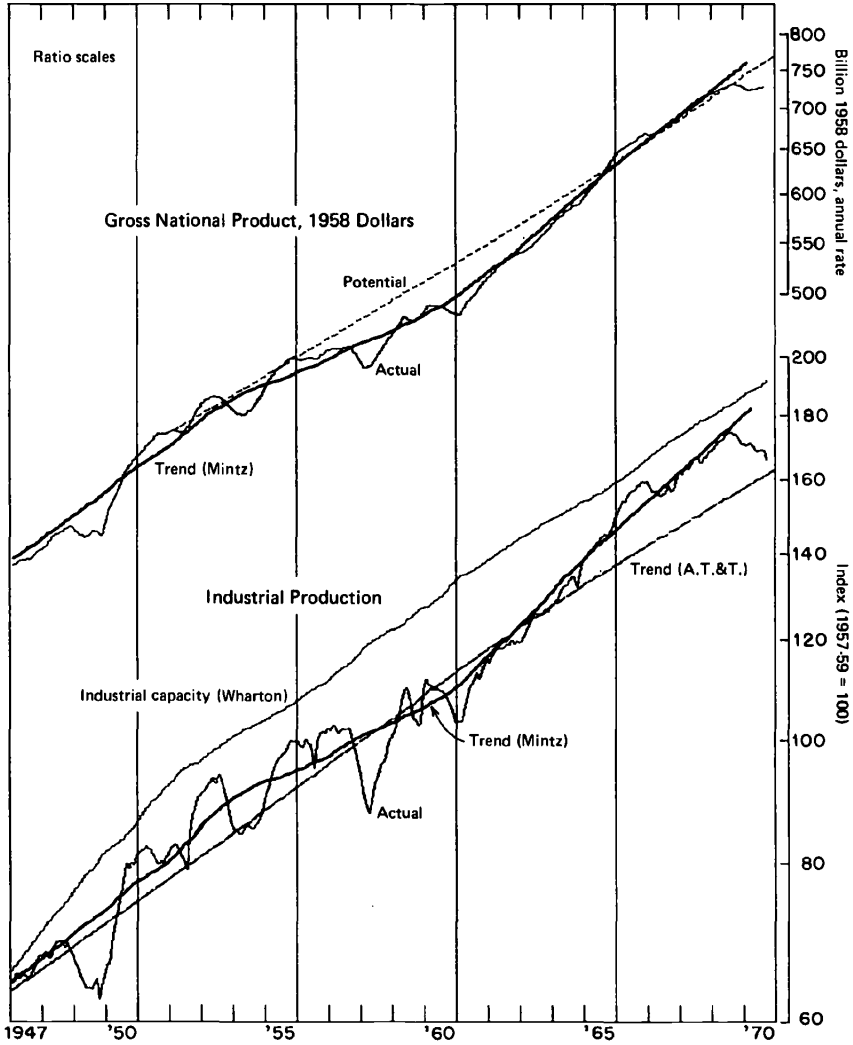
The AT&T trend in industrial production is based on an exponential trend fitted to the per capita data, for 1869 through 1968, and then multiplied by population — see Supplement to *Business Conditions*, Economic Analysis Section, American Telephone and Telegraph Company, New York, February 1970.

The Wharton estimate of industrial production "capacity" was derived from the Wharton quarterly index of rate of utilization of industrial capacity divided into the FRB index of industrial production. The monthly series is a straight-line interpolation of the quarterly data. See *The Wharton Index of Capacity Utilization*, Lawrence R. Klein and Robert Summers, Economics Research Unit, Department of Economics, Wharton School of Finance and Commerce, University of Pennsylvania, 1966, and the quarterly *Wharton Economic Newsletter*. The peak in the growth cycle of 1948-1949 in industrial production, measured as a deviation from the Wharton index of industrial capacity, apparently came before 1947, the first year for which the Wharton series is available.

<sup>a</sup>Through fourth quarter or December 1970.

To repeat an earlier warning, however, these comparisons should not be taken as measuring the relative social "costs" of the growth recessions. In judging the "cost" of a recession, whether absolute or relative to trend, it is desirable to take account (among other things) of the level from which the recession began. While the growth recession of 1968-70 is more severe than that of 1959-61, in terms of amount of decline in real GNP relative to the trends, given in Table 4, the latter decline started from a lower level, if the estimates are anywhere near the mark. Indeed, if the initial phase of the decline relative to trend during 1968-70 is taken as a movement towards rather than away from the optimum level of output—as it would be, on the basis of the gap estimates used—the social "cost" of the initial decline (between the second quarter of 1968 and the third quarter of 1969) was offset or more than offset by a "benefit." But there are questions about the gap measurements, and these must therefore also appear on our list of questions requiring further study. Whatever our doubts about them, however, the gap measurements help to remind us that there is no simple one-to-one

Chart 2  
Alternative Measure of Trend and Deviation from Trend,  
National and Industrial Output, 1947-1970



relationship between the measurements given in the table, and measurements of change in the performance of the economy or the economic welfare of our people.

## XI

It is now almost sixty years since Wesley Mitchell closed his book on *Business Cycles* with a discussion of the "wider aspects of business cycles." The cumulative changes that take place in economic organization, he saw, must react upon the character of business cycles and make for changes in the phenomena of business cycles—changes that stand out clearly "in the lapse of years." "Hence, " he concluded, "economists of each generation will probably see reason to recast the theory of business cycles they learned in their youth."<sup>28</sup>

There is little doubt that our generation has good reason to recast the theory of business cycles "we learned in our youth."

On the basis of "further observations" made after 1946, Burns pointed to the progress that had been made towards stabilizing the economy.<sup>29</sup> The many changes, planned and unplanned, that had occurred in the structure, organization and institutions of the economy now tend to limit the spread of the forces making for recession. The greater importance of the relatively stable service industries is an example. So is our improved financial system, with bank-deposit insurance among other things. The unemployment and social security systems now act as "built-in stabilizers" by helping to maintain incomes. So does the progressive income tax, since the tax authorities absorb part of every rise or decline in income. Not least in importance is the widely accepted governmental responsibility for supporting stable economic growth at high levels of employment. With a stronger role by government recognized, government policy can now join—as it already did, earlier this year—with the corrective forces generated by the recession, and the persistent forces of growth present in the private economy, to prevent a decline in the rate of growth from continuing until a serious absolute contraction occurs in aggregate economic activity. As a consequence, expansions have tended to become longer and recessions shorter and milder.

On this view of the business cycle today, recessions may sometimes turn out to be only declines in the rate of economic growth and not absolute contractions.

<sup>28</sup>W. C. Mitchell, *Business Cycles*, University of California, 1913, pp. 582–583; reprinted in *Business Cycles and Their Causes*, University of California, 1941, p. 168.

<sup>29</sup>A. F. Burns, Presidential Address before the American Economic Association, 1959, *American Economic Review*, March 1960, reprinted in *The Business Cycle in a Changing World*, New York, NBER, 1969, Ch. 3.

What has been seen since Burns gave his address on "Progress Towards Economic Stability" in 1959—further changes in the structure and organization and institutions of our economy, a still wider acceptance of governmental responsibility for supporting stable economic growth at high levels of employment, and even more, a rate of economic growth remarkably stable by historical standards—has provided additional support for this view. There is little doubt, therefore, that the business cycle of today differs in important respects from the business cycle of the pre-World War II period.

It is for this reason that in my introductory remarks I added a reservation: that the recession of 1969-70 may perhaps equally well be viewed as a member of a subspecies different in several important respects from the parent species identified in the National Bureau's chronology of business cycles, and that this subspecies may deserve a name of its own.

Whether we should designate the developments of 1969-70 as something other than a recession is, from a scientific point of view, a matter of convenience. The causes of business cycles have not vanished. The fact that today's business cycles may run a course different from the course business cycles ran in the economy of earlier days does not of itself compel us to stop thinking of them as members of the same species. A tiger caged is not the same as a tiger loose in the streets, but neither is it a paper tiger. There are good reasons for not forgetting that important fact.

On the other hand, it may help to avoid misunderstanding on the part of the public if a distinction is drawn between the business cycles and recessions of yesterday and those of today, and a distinctive terminology applied to the latter. Perhaps the terms "growth cycle," and "growth recession" (or "slowdown"), may serve.

What we economists must be sure to convey to the public is that it would be foolish to forget all that has been learned in studies of prewar business cycles. Whatever changes we may choose to make in the language in which we address them, we must remind our listeners that while the business cycle of today is not quite the same as the business cycle of yesterday, it is by the same token not altogether different. We and they need to keep in mind the admonition with which Arthur Burns closed his *Encyclopedia* article on business cycles: "It would, nevertheless, be premature to conclude that the older hazards of the business cycle belong to the past. . . . It is possible that in the future a 'recession' will mean merely a reduced rate of growth or aggregate activity instead of an actual and sustained decline, but there is as yet insufficient ground for believing that economic developments will generally conform to this model in the near future.

"Hence," Burns went on to say, "the wise course for economists is to continue basic research on the nature and causes of business cycles, to remain

watchful of developments that seem likely to bring on a slump in activity, and to extend the search for acceptable pathways to prosperity without inflation.”<sup>30</sup> Close study of the 1969–70 “recession”—or “growth recession” or “slowdown”—and of the expansion and pauses preceding it, when more of the facts are in, should provide a valuable addition to the empirical information essential for a sound theory of the business cycle of today.

<sup>30</sup> Arthur F. Burns, “Business Cycles: General,” in David L. Sills (ed.), *International Encyclopedia of the Social Sciences*, Vol. 2, New York, 1968, p. 244; and reprinted as “The Nature and Causes of Business Cycles,” in Arthur F. Burns, *The Business Cycle in a Changing World*, New York, NBER, 1969.