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Volume Title: Forecasting and Recognizing Business Cycle Turning Points

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Volume Publisher: UMI

Volume ISBN: 0-870-14479-0

Volume URL: <http://www.nber.org/books/fels68-1>

Publication Date: 1968

Chapter Title: PART 1 The Recognition Pattern: A Chronological Review

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Chapter URL: <http://www.nber.org/chapters/c1089>

Chapter pages in book: (p. 24 - 35)

reference date. Four out of eleven achieved an average score of 95 five months after the reference date (counting peaks and troughs together),²⁵ none earlier. If all scores for all months are averaged for each forecaster, the scores range from 44 to 71. The same publication that scored highest for timing also scored highest for degree of certainty. Panel B of Chart I-5 compares the "best" and the "worst" analysts for 1948-61. It also shows the average pattern for 1957-61 of the two publications that depended heavily on business cycle indicators.

All the average scores, for both accuracy of dating and degree of certainty, are subject to a serious limitation. As Charts I-6 and I-7 show, there is great variation among the scores for different turning points, not only the systematic differences between peaks and troughs already noted, but also differences among individual peaks and individual troughs. Discussion of each turn is in order.

6

The Recognition Pattern: A Chronological Review

The 1948 Peak

Scores for both dating and certainty run lower for peaks than for troughs, and among the four peaks since World War II, they run lower for 1948 than for any other year except 1960. Although there is nothing to choose between the certainty patterns for 1948 and 1957 shown in Chart I-7, the 1948 scores for dating are noticeably lower (see Chart I-6). Of the 80 scores for dating near the 1948 peak (eight forecasters, ten months), 75 were zero. (Seventy-one were zero because no forecast was made.)

²⁵ This includes one publication not used in the averages shown in Charts I-4 and I-5. The omission of this publication reduces the number with an average of 95 five months after the reference date to three in ten.

A reading of the quotations suggests that, although contemporary observers were prompt to recognize signs of cyclical weakness, they were slow to realize that a cyclical recession had begun. At the peak of the reference cycle in November 1948, comments ranged from, "The cyclical outlook has become more weighted in the direction of recession sometime in 1949" to "The boom will probably continue." During December, January, and February, there was a slow drift toward more pessimistic comments. Not until four and a half months after the peak of the business cycle did any of the sources studied decide that a recession was under way. In April, recession talk became more definite, but doubts persisted. Something like unanimity was reached only in May. It should be noted that the NBER method of dating peaks and troughs gives preference to the later of two equal months. In this case, October 1948 was a close runner-up to November for reference cycle peak. Historically, contractions have sometimes been as short as seven or eight months, and under the NBER definition of business cycles, a contraction might be even shorter. Even with allowance for the information lag, there was enough data by the end of June to establish that the contraction was a historical fact without any element of prediction. All in all, recognition of the 1948 peak hardly constituted a triumph for the art of forecasting.

Low scores for dating and certainty, however, do not of themselves prove that the performance of business analysts was poor. Some contractions start so slowly, as in 1960, that they are inherently difficult to distinguish from lulls until four or five months after the peak. But the turn of 1948 was not of that sort. Information that could have been available three months after the peak was more clear-cut and decisive than for most peaks and troughs since World War II.²⁶

Why, then, did contemporary observers have so much trouble recognizing what was going on? Statistical reporting and analysis were not so highly developed then as now. The postwar work on business cycle indicators by Moore, Shiskin, and others had not been published. But the 1948 recognition record does not look good even in comparison with the earlier case of 1929. There must be some more basic explanation.

²⁶ Compare the charts for three months after each peak and trough of Julius Shiskin, *Signals of Recession and Recovery, An Experiment with Monthly Reporting*, Occasional Paper 77, New York: National Bureau of Economic Research, 1961, pp. 93-99 (see also pp. 57-58 and 100-105). Cf. Chart I-1 of this paper, especially the leads of some of the series.

When conditions change violently, the forecaster is at a disadvantage. He cannot tell to what extent his past knowledge is still valid. The later 1940's followed a decade and a half of unusually rapid change in American economic life. The experience of living through a depression of unprecedented depth changed people's conduct. The structure of the economic system had been transformed, and the war had altered economic variables in ways that had only distant parallels with the previous world war. At first, forecasters did not realize how much more difficult their problem had become, and they plunged confidently ahead with predictions. But the widely publicized forecasts of severe depression to follow World War II turned out to be ingloriously wrong. Those forecasters who in 1945 had assumed that the consumption function of the 1930's would still hold good came to grief, as did those who assumed that chronic stagnation of investment would reassert itself. So too did those who thought in terms of primary and secondary postwar depressions. Later, in 1947, a decline in industrial production was widely misinterpreted as the beginning of recession. Instead, it was followed by another bout of inflation. Again, in early 1948, a break in farm prices raised the question of recession prematurely. By the time the downturn actually came, commentators and forecasters had learned to be cautious. Their uncertainty was reinforced by the President, who continued to advocate an anti-inflationary program. But slow recognition was more than just a matter of caution born of experience. Analysts faced a genuinely difficult problem. The inflation that followed the 7 per cent drop in the index of industrial production in 1947 (a drop that was largely obliterated as a result of the 1953 revision of the seasonal adjustment) gave them ample reason to wonder if the comparatively small decline in the winter of 1949 might not have a similar sequel. Knowledge that government expenditures were to rise sharply worked in the same direction. The structural changes in the economy raised the question of whether the business cycle was a thing of the past. And finally, the experience of 1929-48 had led observers to think in terms of deep depression and rapid inflation, not of business cycles with the mild contractions that have characterized postwar experience.

The 1949 Trough

Among troughs, the scores for 1949 are lowest, though the difference from 1958 is slight. (To be precise, the averages of the certainty scores

for the two years are virtually the same, with the average for dating somewhat higher for 1958.) The scores might have been even lower for 1949, especially the certainty scores, had the trough not been double-bottomed.²⁷ The first bottom came in July. The expansion that ensued was soon interrupted by strikes in coal and steel. The second bottom, in October, is the one designated by the NBER as the reference cycle trough.

Contemporary observers were quick to note the end of cyclical contraction but slow to predict cyclical expansion. Although in July some commentators were expecting further contraction, others noted signs of recovery. In the next two or three months there was a gradual increase in optimism tempered by fears the recovery would be short-lived. In November, as the country began recovering from the strikes, the comments on the outlook either were ambiguous or portended a sidewise movement. In December the typical view was optimistic about the first half of 1950 and doubtful about the second half. In January, a future chairman of the Council of Economic Advisers, though expecting business to improve over the next few months, felt the contemporary CEA's conclusion that the economy was definitely recovering from the contraction was "based on very slight evidence." During the next few months, the general pessimism about the second half of 1950 gave way to optimism.

In the neighborhood of the 1948 peak, contemporary observers did not seem to be thinking in business cycle terms. The same is true of 1949-50. In 1949, observers were rather quicker than in 1948 to perceive what had just happened, but they were slower to draw inferences of a cyclical nature. In fact, so far as I have been able to discover, none of the publications in my sample used cyclical language.

The 1953 Peak

Among peaks, the highest scores for both timing and recognition were given for 1953, as Charts I-6 and I-7 indicate, even though these

²⁷ The effect of the double bottom on dating scores was mixed, since one of the publications dated the trough in July and suffered lower scores accordingly, perhaps undeservedly. But the belief that the "true" trough had been in July made for greater certainty that expansion was under way once the October strikes were over, a circumstance reinforcing the purely mechanical effects that a later reference date has in raising certainty scores by shifting forward the ten-month period used for scoring purposes.

scores run lower than for any trough. The NBER has dated the 1953 peak in July, a decision that has not been challenged. A number of sources gave early warning. In June every member of a group of forecasters studied by Zarnowitz predicted that industrial production would decline in the second half of the year. Moreover, the amplitude of the mean of their forecasts approximated what actually happened. In July comments generally pointed downward though they were not unanimous. In August they were rather definite about expecting decline but indefinite or conflicting about whether the decline would constitute a cyclical contraction or recession. In September they were still indefinite. Insofar as recognition of the contraction increased in October, it revealed itself mainly in the expressed expectation that the decline would be mild. But at the end of the month, one source used the expression, "now that the decline has come. . . ." During November, most of the others made similar statements, though the language was often indirect or ambiguous.

Improvement in recognition over 1948 was marked. During the month of the peak, and even before, there was widespread knowledge, or at least fear, that business activity was about to head downward. From then on, however, the conviction that that was indeed what was happening strengthened slowly. Although, in terms of confirmation, they did scarcely any better than in 1948 in giving early warning, the sources studied, with few exceptions, did well.

Why the improvement? Between the peaks of 1948 and 1953, Geoffrey H. Moore, C. Ashley Wright, and Thor Hultgren had published results of their investigations of business cycle indicators.²⁸ One of the sources studied made direct use of Wright's analyses. There is evidence that the Council of Economic Advisers made use of the NBER indicators. Other publications on business cycles together with the experience of 1948-49 may have made observers more sensitive to cyclical downturns. But it is hard to believe that the growth of knowledge, which is slow, could account for more than part of the improvement.

The 1953 turning point was inherently easier to anticipate than the one in 1948. Although the inflation of 1946-48 was bound to come to

²⁸ Geoffrey H. Moore, *Statistical Indicators of Cyclical Revivals and Recessions*, New York, NBER Occasional Paper 31, 1950; C. Ashley Wright, "Business Cycle Research and Business Policy," *Conference on Business Cycles*, New York, NBER, 1951, pp. 339-368; Thor Hultgren, *Cyclical Diversities in the Fortunes of Industrial Corporations*, New York, NBER Occasional Paper 32, 1950.

an end as rising prices reduced the value of liquid assets, as rising civilian output alleviated the most pressing shortages, and as the proportion of disposable income saved returned to normal, nevertheless the time when inflationary pressures would subside was difficult to foretell; and diagnosis in November 1948 was made especially difficult by continuing shortages of automobiles, the tax cut of 1948, and the prospective rise in government expenditures. Moreover, there was no reason in 1948 to think inventories were out of line with output or sales. The Korean war, in contrast, left no legacy of shortages and accumulated liquid assets. The end of the war was easy to foresee, as was the lag of tax cuts behind the reduction of government expenditures. Before the peak, inventories built up unintentionally. That the Federal Reserve System had tightened credit too much was so obvious that it moved to relax credit even before the downturn. In 1953, unlike early 1949, no one questioned whether or not there would be another burst of inflation simply because there was no reason to raise the question. Consequently, the signals of impending cyclical contraction were easier to believe.

The 1954 Trough

The scores for degree of certainty in the vicinity of the 1954 trough average higher than for any other turn between 1948 and 1961; the scores for accuracy of dating were second highest. To some extent the seemingly good performance of the business analysts may be the result of a close decision on the date of the trough. The trough was flat-bottomed. In the successive revisions of GNP, its low has shifted from the second quarter of 1954 to the first, then to the third, back again to the first, and finally to the second. The FRB index of industrial production has twice had its trough relocated through revision. The NBER has dated the reference cycle trough in August. The date may get changed to May, June, or July when it is re-examined in the light of the latest statistics, although the troughs in the various series of employment and unemployment (inverted) came in July, August, and September. An earlier date for the reference trough would shift the pattern shown in Chart I-7 downward to the right and alter the relative standing of 1954. Dating the trough in May would make the certainty pattern the lowest of the four instead of the highest.

As early as May, or even earlier, some contemporary observers thought

that the cyclical contraction was coming to an end. They correctly anticipated a prolonged period of bottoming out but underestimated the speed the recovery would attain thereafter. Although many observers continued to be indecisive about expansion (as distinct from the ending of contraction), more and more of them became definite during September, October, and November, and they were more inclined to think in business cycle terms than in 1949.

The 1957 Peak

Though the improvement in scores in 1953 over 1948 was partly the result of a situation inherently easier to diagnose, it seems also to reflect improvement in the ability of business analysts to recognize downturns. The scores fell off in 1957, and fell still further in 1960. Did the falling off result from a decline in ability to recognize peaks when they occur or from cyclical developments that were harder to assess?

The NBER dates the 1957 peak in July, a close choice over August. Many forecasters gave warning of a cyclical turn misleadingly early, well before the first month for which we have assigned scores. Though the initial scores for certainty averaged higher than at any other peak, warnings of recession were less frequent three months before the peak than they had been earlier and increased very slowly during the next several months. At the peak in July, commentators were universally aware that business had slowed down but, with certain exceptions to be discussed later, did not conclude that a recession was beginning. Many were noncommittal, others optimistic. There was a shift toward pessimism in August, September, and October, but the tenor of reports on the outlook was still indecisive. On October 30, President Eisenhower acknowledged publicly, "the economy is, in effect, taking a breather." After that, one might have expected recognition of the cyclical downturn to become universal quickly. Actually, though certainty scores for November spurted upward, there were at least two holdouts (scores of 35 and 50), with the lowest score going to the publication with the best over-all recognition record for 1948-61.

Why was the certainty record of the eight poorer in 1957 than in 1953? Testimony in early June of 1957 by a panel of forecasters before a Congressional committee is revealing. No member of the panel was

expecting recession. Their testimony shows that they were misinformed about investment in inventories, investment in plant and equipment, and federal spending. Surveys misled them into thinking spending on plant and equipment would continue to rise slightly during the remainder of the year. The forecasters thought government spending was rising. One of them feared inflation. He thought net disinvestment in inventories was taking place during the current (second) quarter. He concluded that by the end of the year cessation of inventory liquidation would give demand a boost. Events turned out just the opposite. Instead of liquidation, there was net accumulation of inventories during the first three quarters of the year; decumulation instead of accumulation took place in the fourth. A sharp cut in defense procurement (which the panel could hardly have known was about to begin) and a downward slide of capital investment helped precipitate the recession.

Forecasters always have to work with inaccurate information. Usually some of the errors offset each other. In this case, they all worked in the same direction. Of the three errors, one was of decisive importance. In May the Department of Commerce had published an estimate for the first quarter showing a substantial negative figure for inventory investment, leading forecasters to think the economy had already weathered an inventory adjustment. Revised figures now show substantial positive inventory investment.

Failure to give clearer warning that a contraction might be under way was also associated with the persistence of inflation, in the form of rising consumer prices, after the cyclical peak was passed. The concern for fighting inflation, felt during the summer and early fall by prominent government officials including the President and the Federal Reserve Board (which raised discount rates in August), communicated itself to the public and permeated the background of all discussions of the outlook. Professional forecasters presumably were familiar with the fact that consumer prices lag behind wholesale prices. But the climate of opinion can influence them too.²⁹

If the President's influence depressed certainty scores during the three months after the peak, it also contributed to their rapid rise in

²⁹ It can also affect what they are willing to say in print. If, as I suspect, most of the publications reviewed were sympathetic with Eisenhower's efforts to stop inflation, they might have been reluctant to embarrass him.

November. Seldom is it possible to pinpoint so definitely the time at which knowledge of a cyclical turning point became general. Prior to October 30, nearly everybody had hesitated to say definitely that there was a recession. After Eisenhower's "breather" remark and the reduction of discount rates by the Federal Reserve two weeks later, there was less hesitation. But most of the credit belongs to the Council of Economic Advisers (whose briefing led to the "breather" remark), to the statistical indicators they made use of,³⁰ and to the Federal Reserve Board.

The 1958 Trough

The scores for the 1958 trough were lower than those for 1954, especially with respect to certainty, and lower than those for 1961, especially with respect to dating. In late 1957, almost as soon as the existence of recession became confirmed, a number of forecasters predicted that it would be brief and mild. In a loose and vague way, therefore, they gave early warning of the trough of April 1958. But the actual upturn came sooner than expected. When it came, commentators were reasonably prompt to confirm it.

At the end of February, a prominent economist thought there was "real danger . . . of a cumulative breakdown in the economy." During the trough month of April, there was general recognition that the contraction was slowing down but little realization that it was about to give way to expansion. Comments in May resembled those of April, yet conveyed an air of greater hopefulness. By the middle of June, improvement was widely recognized, but views diverged as to whether it would continue. Five out of the ten certainty scores were less than 50. Only one of the sources studied said flatly, "the upturn is now a fact and not just an expectation." July brought many converts to the view that expansion was under way, though none put it as unqualifiedly as the passage just quoted. Only one score was now below 50. In August the remainder of the sources studied became converted. The lowest score was 65, with two scores of 100.

³⁰ In the fall of 1957, the chairman of the Council of Economic Advisers asked the Census Bureau to develop a monthly report on indicators. The request led eventually to publication of *Business Cycle Developments*. (Julius Shiskin, *Signals of Recession and Recovery: An Experiment with Monthly Reporting*, New York, NBER Occasional Paper 77, 1961, p. 1.)

The 1960 Peak

The scores for both dating and certainty were lower in the vicinity of the 1960 peak than for any other turning point, peak or trough, of the eight between 1948 and 1961. Although all turning points are hard to predict, the 1960 reversal was harder than most.³¹ A severe steel strike in 1959 interfered with interpretation of the business cycle indicators, many of which exhibited early peaks that were obviously spurious. When some of them again showed local peaks in the restocking period after the strike, the signals were neither unmistakable nor unambiguous.

A bulge in inventory investment was expected to give the economy a strong upward thrust in the first half of 1960. The aftermath of the restocking period was expected to be a decline in inventory investment with unfavorable repercussions on the economy as a whole. But forecasters drew the conclusion that the outcome would be a slower rate of expansion rather than an immediate downturn, with a strong possibility of a recession beginning late in 1960 or early in 1961. Their logic seems at fault. Their diagnoses implied that the danger point would come at midyear rather than at year's end.

Expectation of a continued advance in the second half of 1960 resulted from specific analysis of the forces at work, particularly from surveys showing that businesses were planning to increase spending on plant and equipment. Some forecasters also expected that inventory accumulation would continue, though at a reduced rate, in the second half of the year.³²

The NBER has designated May as the reference cycle peak. The date

³¹ These statements are subject to an important qualification. Two economists as early as the spring of 1959 were expecting a downturn in the spring of 1960, and a third warned Vice President Nixon in February 1960 of the danger. The predictions of all three were strongly influenced by the tight money policy of the Federal Reserve System.

³² The forecast of continued expansion throughout 1960 was not unreasonable. The upper turning point was so flat and the ensuing contraction was so mild that, one may infer, absence of any of the deflationary forces actually at work would have prevented the cyclical turn. One of the factors at work was the failure of consumer spending to rise in the third quarter in spite of a rise in disposable personal income. This development and its consequences could hardly have been predicted with the forecasting tools available in 1960 (or now, for that matter). Nevertheless, the forecasters ought to have been able to give clearer warning to the effect that, though the outlook was favorable, the odds in favor of recession were by no means negligible. (I am indebted to Dennis R. Starleaf's unpublished study of the 1960 turn in this connection.)

is reasonable, although a critic has proposed July as a possible alternative.³³ A July date would make the certainty pattern shown in Chart I-7 look better but not especially good. Even among minor cycles, the contraction of 1960-61 was unusually short and mild. As might be expected from these characteristics, the turn was flat rather than sharp, making it intrinsically hard to recognize.

At the beginning of 1960, as already noted, the standard forecast called for vigorous expansion in the first half of the year. As early as February, there were expressions of mild disappointment. "High plateau" was the common expression in March. In the following month comments were, on the whole, indecisive. During May, the peak month, comments ranged from considerable optimism through mild optimism to dubiousness. During the next three months, there were numerous revisions of views, some in one direction, some in the other. On balance there was some shift toward pessimism, but the eight publications for which scores are available from 1948 on did not achieve an average score greater than 50 for certainty till September. Despite the difficulties of recognizing a flat turning point, it is surprising that recognition did not become general during October. To what extent the political campaign inhibited facing facts is hard to say. Not until election day could recognition of the contraction be considered general, and then only on the assumption that some sources knew more than they had put into print.

The 1961 Trough

The turn for which scores ran lowest was followed by the one for which they ran highest. The scores for degree of certainty in the vicinity of the 1961 trough, though good, averaged lower than in 1954, but the dating scores were much higher (see Charts I-6 and I-7).

The circumstances that made recognition of the 1960 peak difficult helped make recognition of the 1961 trough easy. The flat top of the 1960 peak and the mildness of the ensuing contraction made it difficult to know whether there was a contraction at all but made it natural to expect that, if there were one, it would end soon. Moreover, the 1960-61 contraction was something of an accident. In a situation basically

³³ In the latest revision of the national income accounts, the peak in GNP in constant dollars comes in the first quarter, making a date for the reference cycle peak as late as July implausible. (*Survey of Current Business*, August 1965, p. 27.) The quarter-to-quarter variations, however, are so slight that little confidence can be put in the estimate of where the peak in real GNP belongs.

favorable to continued expansion, exogenous disturbances barely sufficed to set in motion the mechanism of inventory contraction. The contraction could not get very far in the face of automatic stabilizers, reversal of monetary policy, increasing net exports, and an early rise in defense orders. The basically favorable situation made it easy to anticipate an early upturn. The trough, however, came sooner than most observers expected; hence, the dating scores shown in Chart I-6 were not especially high until one month before the trough.

The favorable circumstances resulted in a sharp upturn, helping to make the trough easy to date and recognize. The bottom started like a U and ended like a V. Since, under NBER procedures, the later date is preferred in doubtful cases, a trough that is half U and half V, in that order, does not give rise to difficulties. The NBER reference date of February has not been challenged.

In November and December, almost as soon as the various commentators declared a recession was under way, they predicted that it would be short and mild. In January the most common expectation was still for a mild recession, with an upturn by midyear. During the month of the cyclical trough, there was, with some exceptions, a tendency to advance the date of the expected upturn. In March, with varying degrees of certainty, all the sources surveyed expressed the view that the upturn was at hand or, at the least, not far off. During April, they became more certain, week by week. During the first part of May, lingering doubts about the reality of the upturn tended to disappear. The question shifted to how fast recovery was proceeding. The answer given was that it was proceeding more rapidly than most observers had expected.

7

False Warnings

False warnings may be considered reverse recognition. This chapter examines some of the most flagrant cases. Our method of scoring for accuracy of dating cannot, of course, be readily adapted to false warn-