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Chapter 5

QUALITATIVE INDICATORS OF GROWTH CYCLE DEVELOPMENTS

The 1966 U.S. list of indicators that served as the initial focus of our efforts to develop growth cycle chronologies in nine foreign countries was composed of "quantitative," as opposed to "qualitative," indicators. Quantitative indicators record cyclical changes in economic magnitudes measured in terms of physical units, constant prices, percentages, and so on. As such, they are designed to reflect the complex of economic interrelationships that constitute the fabric of "aggregate economic activity" on which Mitchell originally based his research.

Qualitative indicators, on the other hand, issue from surveys of entrepreneurs or consumers concerning their attitudes toward either what has happened or what is expected to happen regarding particular economic variables. Thus, the European Economic Commission now coordinates surveys of entrepreneurs in eight of its member countries. These surveys are designed to elicit information concerning production expectations, stocks of finished goods, the state of order books, selling-price expectations, views of production trends, and so forth. The entrepreneurs may be asked to report actual numbers, but usually the information requested is subjective in nature. Businessmen may be asked whether orders have been above or below "normal," or how they expect orders to behave in the coming months. Information of this sort bears a strong resemblance to the

This chapter draws heavily on a report prepared for the European Economic Commission by Philip A. Klein entitled *Monitoring Growth Cycles with Qualitative Indicators: A Study of Business Surveys in EEC Countries* (1980).

index of consumer sentiment long utilized by the University of Michigan's Survey Research Center, which reports the opinions and buying plans of consumers. Just as the EEC surveys reflect the confidence in the immediate economic future held by entrepreneurs, consumer surveys reflect the psychological state of consumers.

Qualitative indicators can be useful in analyzing unfolding cyclical developments and can be related to a number of business cycle theories. While purely psychological theories no longer earn our primary attention, most theories providing insight into the workings of business cycles continue to place some emphasis on subjective appraisals among entrepreneurs. Mitchell's use of changing profit expectations, Keynes's attention to the collapse of the marginal efficiency of investment, Harrod's warranted rate of growth, and Lucas's rational expectations affirm the importance of psychological attitudes among participants in market-oriented economies. Economic analysis in general abounds with discussions of self-fulfilling prophecies—if, for example, enough investors believe the stock market will collapse, then the likelihood that the market will in fact collapse is enormously enhanced. The line between the "objective state of an economy" and the subjective view toward that economy taken by consumers or entrepreneurs has always been a murky one at best.

There is no reason, then, for not marshalling all the information that may augment our understanding of unfolding cyclical developments. This would involve not only tracking the changes in significant economic magnitudes, but tracking the changing attitudes of players in the economic game as well. The degree of subjectivity in these qualitative indicators varies, of course. A survey asking entrepreneurs to state whether their order books are up or down compared to the previous month or quarter will naturally deal in data that is more objective than a survey dependent upon a businessman's notion of "normal" order levels. Between these two extremes are questions concerning plans—for example, a plan to expand a factory or buy new equipment—that reflect the participant's view of the future economy as it affects that participant's own business activity, a view that may or may not conform to what in fact the participant subsequently does. Survey methods and the phrasing of questions must, therefore, be thoroughly understood before responses can be analyzed.

Qualitative indicators have long been popular in European countries, and in recent years they have been effectively adopted by Asian countries as well. In some cases, recourse to qualitative indicators has reflected, no doubt, a paucity of quantitative information. In other cases, a conscious decision to develop attitudinal informa-

tion had been reached. While this chapter will focus on the behavior of cyclical turning points as they are reflected in both qualitative and quantitative indicators, the information contained in the qualitative indicators is frequently regarded as significant in its own right. This, for example, is clearly the belief of the EEC. Knowing what entrepreneurs think about a variety of unfolding economic developments—particularly when their views are “harmonized” by surveying entrepreneurs in a number of countries with the same questionnaire and analyzing the replies by means of common techniques and assumptions—can provide information on developments within the community that is useful in and of itself.

If Mitchell and his co-workers concentrated their attention on quantitative indicators, it was no doubt because their view of what happens during business cycles focused on actual economic interrelationships. But cycles are clearly determined by what participants *think* is going to happen as well. There is merit in collecting and analyzing both quantitative and qualitative indicators. Researchers must be careful, however, in what they claim for either type of indicator. The EEC indicators had their genesis in the business surveys developed after World War II in Munich by the IFO-Institute, and J.-D. Lindlbauer recently described these surveys:

The IFO-Institute has succeeded in creating completely new instruments for cyclical observations by means of its surveys of businessmen. For the first time, they enable the judgments and anticipations of businessmen to be determined and represented in the form of time series . . . the results of the IFO surveys seemed to be predestined to act as business cycle indicators from the onset.¹

The business surveys undertaken by the IFO-Institute became the prototype for similar surveys coordinated in other member countries through the EEC. In the United Kingdom, such surveys have, for the past quarter century, been carried out by the Confederation of British Industry (CBI).

Qualitative indicators may have achieved their greatest popularity in Europe, but they have by no means been neglected in the United States. As long ago as 1957 the National Bureau of Economic Research undertook a conference devoted to “The Quality and Economic Significance of Anticipations Data.”² This conference, analyzing major surveys of consumers and entrepreneurs, dealt specifically with the Federal Reserve Board’s Survey Research Center, the Department of Commerce’s survey of investment intentions, and such private efforts as the McGraw-Hill and Dun & Bradstreet surveys of entrepreneurial anticipations.

In this chapter we shall concentrate on results obtained by surveys collected and coordinated by the EEC and the Confederation of British Industry. Surveys taken by the Japanese Planning Agency, as well as some U.S. agencies, will be referred to briefly. We are also limiting the basis of our discussion to surveys taken of entrepreneurs active in the manufacturing sector of the major EEC countries. The survey questions of immediate concern to us cover the following points:

1. Production trends in the recent past: up, unchanged, down?
2. Production expectations for the month ahead: up, unchanged, down?
3. Order books: above normal, normal, below normal?
4. Export order books: above normal, normal, below normal?
5. Stocks of finished goods: above normal, normal, below normal?
6. Selling-price expectations in the months ahead: up, unchanged, down?

The CBI survey in the United Kingdom asks for essentially the same information, but in slightly different form, and we shall introduce these CBI questions as appropriate. We shall also be concerned with the possibilities of utilizing qualitative indicators in monitoring growth cycles, and for this we shall present charts of the survey data for Germany and make timing comparisons for Germany, France, Italy, and the United Kingdom.

METHODOLOGICAL PROBLEMS

The rest of this chapter will focus on how turning points in time series derived from entrepreneurial responses compare to turning points based on quantitative indicators. In the case of "expected changes in production," for example, how do the turning points in such a survey-derived series compare to the turning points actually exhibited by production?

All of the survey responses dealt with in this chapter are analyzed in the form of "net balances," which are found by subtracting the percentage of respondents who reply "down" or "decrease" or "below normal" from the percent who reply "up" or "increase" or "above normal." This approach also implicitly takes into account the number who reply "no change." For example, if those who reply "up" later reply "no change," the net balance declines.

Two problems must be faced initially. The first involves the question of dating the replies. The EEC surveys refer to "the months ahead," which is ambiguous. Since replies are probably not all re-

ceived at the same time, even if the time interval were precise it would be applied to different periods by the respondents. We have handled this problem by interpreting "the months ahead" in the way explicitly assumed in the CBI surveys, which ask respondents to comment on what they feel has happened during the past four months or what they expect in the next four months. Questions sent out at the end of, say, September, are answered in October and refer, therefore, to the October-February period. We date the replies in the center of the period, that is, December, and label the results as "four months, centered." This is important in determining how to relate the timing of the survey questions to the growth cycle chronologies for each of the four countries under consideration, and to the quantitative data with which the survey data are to be compared. It also enables us to interpret the U.K. data derived from the CBI survey in the same way as the EEC survey results.

Another problem in interpreting the net balances is more complicated. We have noted that some of the questions ask whether the variable is above or below "normal." When the question is so posed we assume that the variable has, in effect, been "trend-adjusted" mentally by the respondent. The net balance of the replies is equivalent to a trend-adjusted level in the corresponding quantitative variable. If we wish to compare survey results to the rate of change in this quantitative variable, it is necessary to take the first difference of the net balances as originally observed. These measures, along with others discussed below, are summarized in Table 5-1.

The above treatment applies to the EEC survey questions concerning finished goods stocks and order books (total and export). But the CBI treats these categories in terms of the trend in the past four months and the expected trend for the next four months, to which respondents are asked to reply "up," "same," or "down." The critical point to note is that when the question is phrased in this way the net balances are *not* equivalent to *levels* of orders or stocks but are analogous to *rates of change* in quantitative indicators of these variables. Thus, if we wish to compare the two kinds of indicators, the qualitative results must first be cumulated. Alternatively, one could take the first difference of the quantitative indicators and compare them with the net balances of the survey replies. Unless these adjustments are made, the lead in turning points reported for qualitative indicators over comparable quantitative indicators may simply reflect the earlier timing of first differences. One can produce earlier turns in most economic series by taking first differences.³

The other questions analyzed (production and prices) take the form of responses indicating that the variable has increased or de-

Table 5-1. Method of Treating Survey Statistics and Corresponding Quantitative Variables.

<i>Variable^a</i>	<i>Survey Question</i>	<i>Survey Statistic</i>	<i>Comparable Quantitative Statistic</i>
1. Order books (stock of unfilled orders)	Above or below normal	1.1. Net balance	1.1.1. Level of unfilled orders 1.1.2. Ratio of unfilled orders to sales 1.1.3. Trend-adjusted level of unfilled orders
		1.2. First difference of net balance	1.2.1. Change in unfilled orders 1.2.2. New orders 1.2.3. New orders, trend-adjusted
		2.1. Net balance	2.1.1. Level of finished goods inventories 2.1.2. Trend-adjusted level of finished goods inventories 2.1.3. Ratio of finished goods inventories to sales
2. Stocks of finished goods	Above or below normal	2.2. First difference of net balance	2.2.1. Change in finished goods inventories 2.2.2. Change in ratio of finished goods inventories to sales
		3.1. Net balance, diffusion index	3.1.1. Change during corresponding interval
3. Production, selling prices, CBI survey of new orders, stocks of raw materials, stocks of finished goods, profits calculated from average prices less average costs, business confidence, Dun & Bradstreet survey of profits.	Up or down, actual in past or anticipated ahead	3.2. Cumulated net balance, placed at the end of interval	3.2.1. Level at end of corresponding interval

Note:

a. Variables refer to the EEC surveys except as indicated.

creased in the recent past, or is expected to do so in the coming months. When so posed the replies in net-balance form are treated as explained above for orders. Either the net balances are compared to the rate of change in production or prices, or the cumulated net balances are compared to the levels of the quantitative variable.

A final difficulty arises from the fact that the EEC survey refers to order books, that is, to total unfilled orders, whereas often the only available quantitative data refer to new orders. We assume that the change in unfilled orders is a proxy for new orders, and use the first differences of the net balances to compare with new orders. Table 5-1 sets forth all these relations.

In all the comparisons in this chapter, therefore, we shall indicate whether survey results are being compared to levels of variables (such as the volume of production) or to rates of change over time. In each case we shall refer to the variables according to the classification of Table 5-1. We shall also analyze the results for Germany in some detail and make summary reports for France, Italy, the United Kingdom, and the United States.

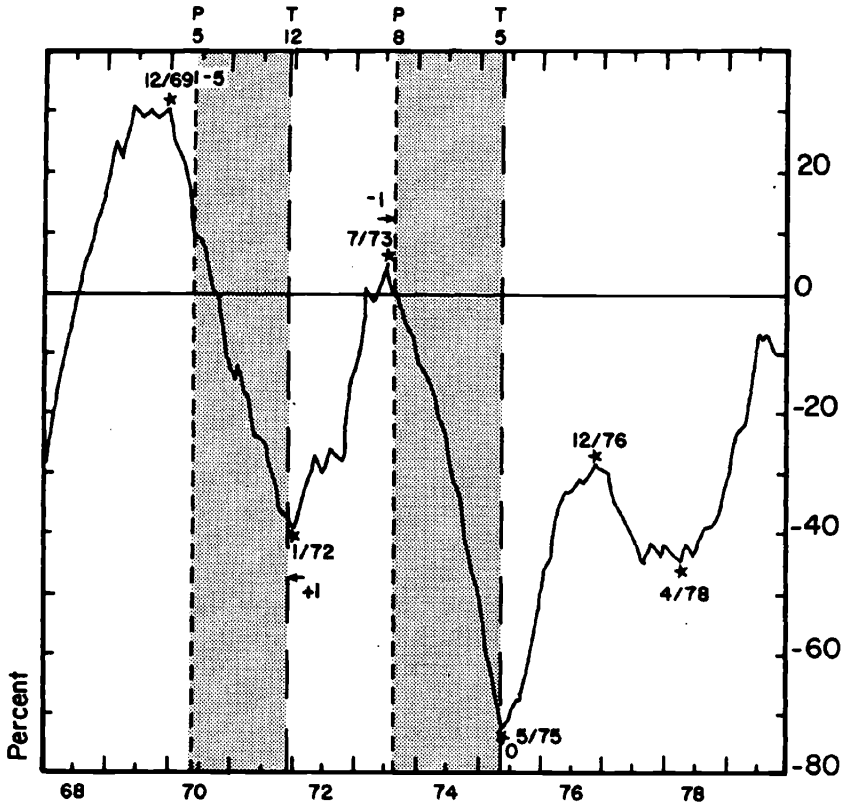
ORDER BOOKS

Since analysis of German order books is typical of the techniques utilized in treating other survey results, it is well to elaborate the approach to data for West Germany at this point. For the "quantitative equivalent" of the survey data we use a series compiled by German government sources regarding *actual* new orders for each month. This quantitative indicator is different from survey results primarily because it is not based on subjective impressions, i.e., whether order books are greater or less than "normal." Furthermore, the EEC questionnaire deals with stocks of unfilled orders (order books), whereas the quantitative series is restricted to new orders. In quantitative form, the change in unfilled orders equals new orders minus sales. By differencing the net balances we have put them into a form as comparable as possible to the flow of new orders.

Figure 5-1 records the level of order books in West Germany according to the EEC survey, and Figure 5-2 shows the first differences derived from this series. Actual new orders, trend-adjusted, appear in Figure 5-3.

It is clear from Figure 5-1 that the level of order books has conformed quite consistently to the growth cycle, with roughly coincident timing. Not surprisingly, the turns are shifted and the series becomes more volatile when the series is first differenced, but it is these turning points (shown in Figure 5-2) to which the quantitative

Figure 5-1. West Germany, Timing at Growth Cycle Turns, Level of Order Books, Total (1.1), Survey Net Balance, 1968-79.

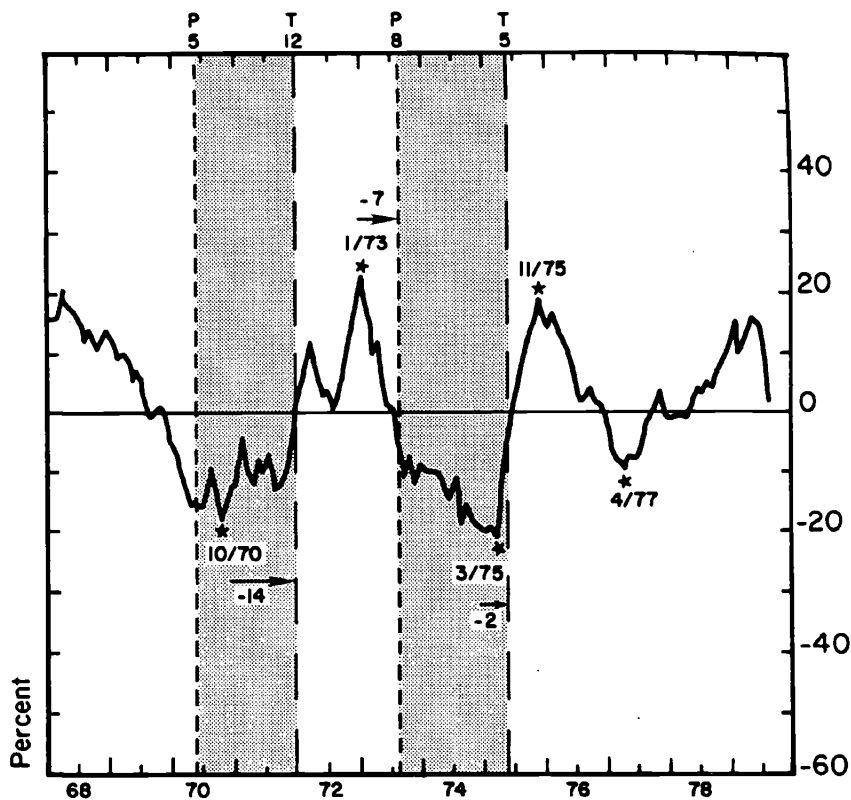


Note:

Vertical lines represent peaks (P) and troughs (T) of growth cycles, and entries above and below the dates on the charts are the number of months lead (-) or lag (+) vis-à-vis the growth cycle. The figure in parentheses in the title refers to the type of statistic described in Table 5-1.

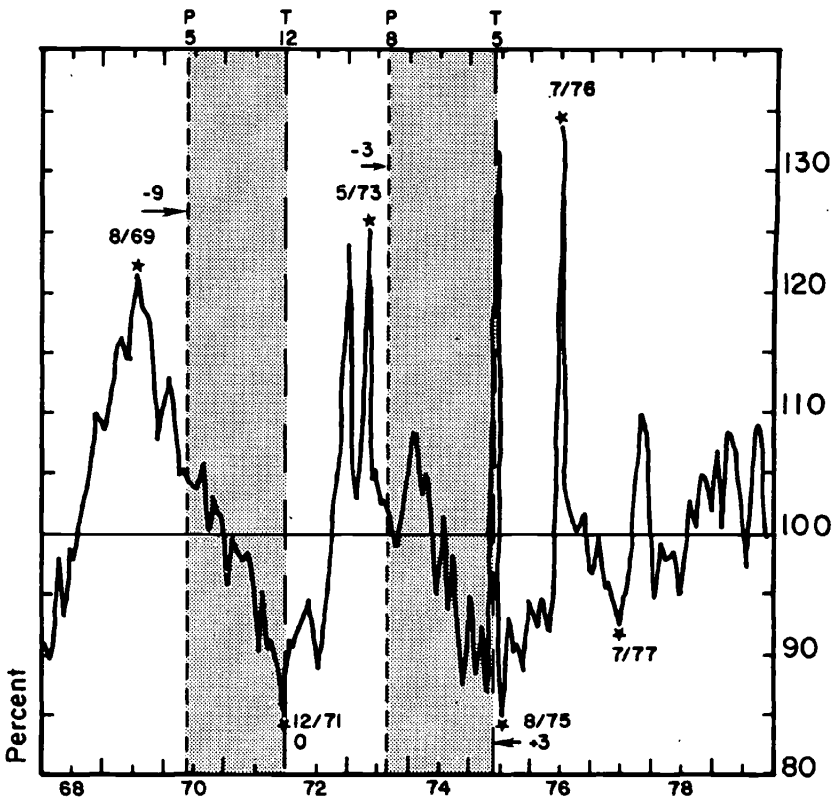
Selected turns are indicated by asterisks. Where they differ from turns selected by the computer, the asterisks are enclosed in a square. Where computer-selected turns have been deleted, the asterisk is circled.

Figure 5-2. West Germany, Timing at Growth Cycle Turns, Change in Level of Order Books, Total (1.2), First Difference of Survey Net Balance, 1968-79.



series (new orders) must be compared. The quantitative series itself leads at peaks but not at troughs (Table 5-2, Col. 7). The number of turning point comparisons between actual new orders and the survey replies on changes in order books is very limited, but suggests that in this case the survey results lead actual new orders (Table 5-2, Col. 8). This is somewhat unexpected because we have found that, in general, survey results do *not* lead their corresponding quantitative indicators. One difficulty, which may account here for the lead, involves the degree to which changes in order books can appropriately be used as a proxy for new orders. Changes in order books are obviously the result of not only new orders, but of the rate at which orders are filled, which may itself be cyclically sensitive. If sales exceed new

Figure 5-3. West Germany, Timing at Growth Cycle Turns, New Orders, Total Trend-Adjusted (1.2.3), Quantitative Series, 1968-79.



orders, the level of order books will drop even though new orders are increasing.

Entrepreneurs may also interpret this question in terms of whether their stock of unfilled orders is high or low relative to sales. In this case the proper comparison of the net balance would be to the ratio of unfilled orders to sales. Unfortunately, such a quantitative series does not exist for West Germany. We raise the possibility of this interpretation because it might explain why the survey results lead the volume of new orders. The ratio might lead new orders also. The survey results do suggest, however, that a generally better forecasting system can be achieved by utilizing both qualitative and quantitative indicators.

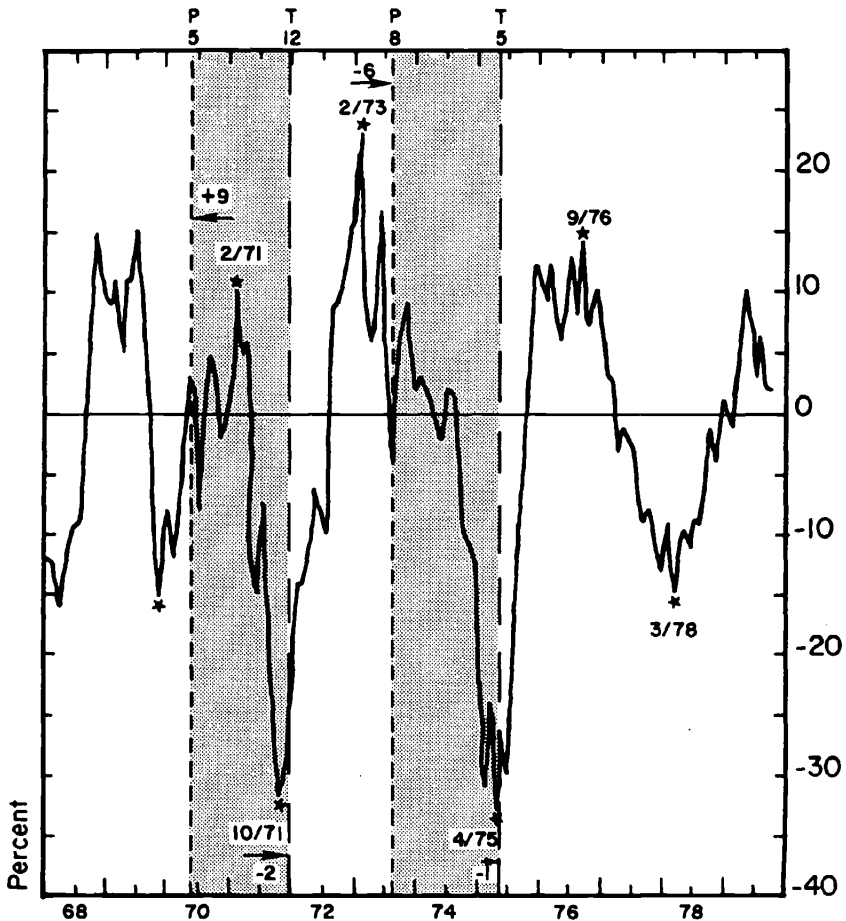
Table 5-2. West Germany, Timing at Growth Cycle Turns, Three Measures of Orders, 1968-79.

Part A. Dates of Peaks and Troughs										
Growth Cycle Chronology (1)	EEC Survey Level of Order Books, Net Balance (1.1) (2)			EEC Survey, Change in Order Books (1.2) (3)			Quantitative Series, New Orders (Trend-Adjusted) (1.2.3.) (4)			
	P	T	P	T	P	T	P	T	P	T
5/65		8/67								
5/70		12/71	12/69	1/72	10/70	8/69		12/71		
8/73		5/75	7/73	5/75	1/73	3/75	5/73	8/75		
			12/76	4/78	11/75	4/77				

Part B. Lead (-) or Lag (+), in Months												
Growth Cycle Chronology (1)	Level of Order Books vs. Chronology (2) vs. (1) (5)			Change in Order Books vs. Chronology (3) vs. (1) (6)			New Orders vs. Chronology (4) vs. (1) (7)			EEC Survey, Change in Order Books (1.2) vs. New Orders (1.2.3.) (3) vs. (4) (8)		
	P	T	P	T	P	T	P	T	P	T	P	T
5/65		8/67										
5/70		12/71	-5	+1	-14	0	-9	0	-14			
8/73		5/78	-1	0	-7	-2	-3	+3	-4	-5		

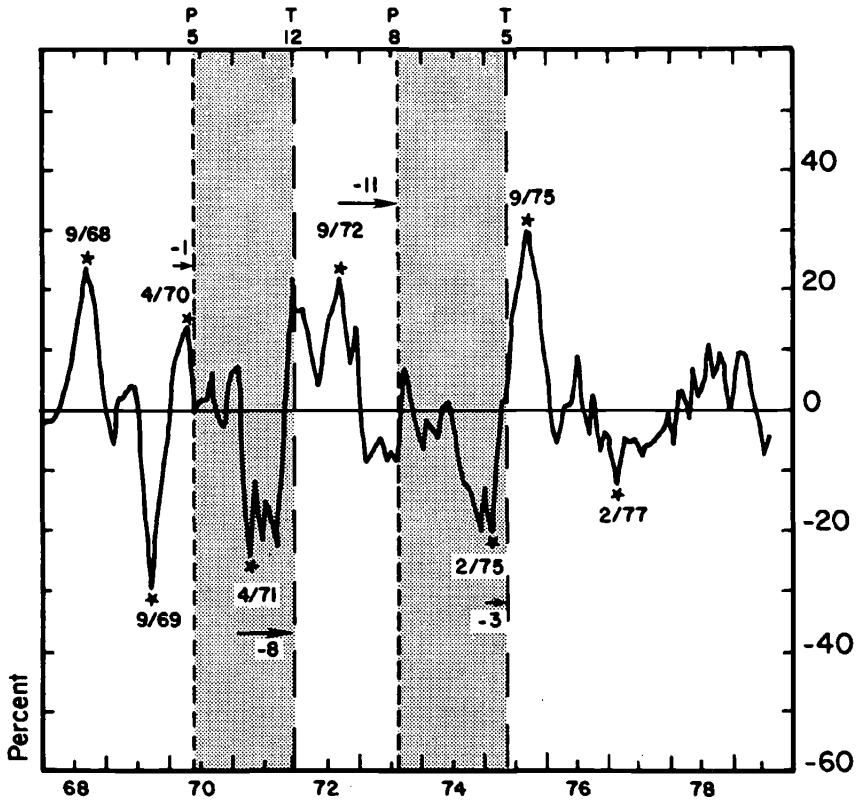
Average Timing at:				
P	-3	-7	-6	-4
T	0	-8	+2	-10
P+T	-1	-8	-2	-8

Figure 5-4. West Germany, Timing at Growth Cycle Turns, Levels of Export Order Books, (1.1), Survey Net Balance, 1968-79.



In the case of export orders for West Germany, we find that EEC survey results conform well to growth cycles but display longer leads than total order books do (Figure 5-4 and Table 5-3). Figure 5-5 and the accompanying Table 5-4 also show that the lead of export orders versus growth cycles is increased when the series is first differenced—that is, by expressing the results in the form of the change in export order books rather than their level. Export orders ought, in principle, to reflect the cycles of one's trading partners, not necessar-

Figure 5-5. West Germany, Timing at Growth Cycle Turns, Change in Level of Export Order Books, (1.2), Survey Net Balance, 1968-79.



ily domestic cycles. The cyclical conformity of West German export orders is probably the result of a general synchronization of growth cycles in EEC countries in recent years.

Our analysis of German order books reveals that when survey results are analyzed as *levels*, the turns in the replies correspond reasonably well to growth cycle turns, but when analyzed as *flows*, replies lead at both peaks and troughs and also lead the quantitative series on new orders.

We do not have actual quantitative series regarding orders in France, so we shall confine our analysis to the survey results for total orders and export orders. Table 5-5 summarizes our findings with respect to the behavior of the net balances (analogous to order book levels—Col. 2), and to changes in the new balances (analogous to new

Table 5-3. West Germany, Timing at Growth Cycle Turns, Level of Export Order Books, (1.1), Survey Net Balance, 1968-79.

Growth Cycle Chronology (1)		Survey (2)		Lead (-) or Lag (+), in Months			
				Survey vs. Chronology (3)		Export Order Books vs. Total Order Books ^a (4)	
P	T	P	T	P	T	P	T
	8/67						
5/70		2/71		+9		+14	
	12/71		10/71		-2		-3
8/73		2/73		-6		-5	
	5/75		4/75		-1		
		9/76				-3	
			3/78				-1
Average Timing at:							
	P			+2		+2	
	T				-2		-2
	P + T			0		0	

Note:

a. Based on Column (2) of Table 5-2.

Table 5-4. West Germany, Timing at Growth Cycle Turns, Change in Level of Export Order Books, (1.2), First Difference of Survey Net Balance, 1968-79.

Growth Cycle Chronology		Survey		Lead (-) or Lag (+), in Months	
				P	T
P	T	P	T	P	T
	8/67				
5/70		4/70		-1	
	12/71		4/71		-8
8/63		9/72		-11	
	5/75		2/75		-3
		9/75			
			2/77		
Average Timing at:					
	P			-6	
	T				-6
	P + T			-6	

orders or the change in unfilled orders—Col. 3). The survey of French total order book levels produces only four cycle comparisons. Three of these do lead the growth cycle turns, but the leads are not consistently long. As was the case with the West German data, the leads can be regarded as significantly long only when viewed as the change in order books, that is, as the net flow of new orders.

Columns 4 and 5 of Table 5-5 summarize the behavior of the export order books. Clearly, there is no strong tendency for the levels to lead or lag, based on the few observations. Overall, the timing behavior is similar to that found for West Germany. The change in the net balances, which are viewed as reflecting the net flow of new export orders, exhibits leads that are considerably longer for France than was the case for West Germany.

For Italy, the results in Table 5-6 are strikingly similar to those for France. The survey on order books analyzed as levels shows an average lead of four months at all growth cycle turns (Col. 2), an average lead of thirteen months at all turns for the change in order books (Col. 3), and an average lead of eleven months for the change in export order books (Col. 5). Only the average timing of the level of export order books in Italy—a three-month lead (Col. 4)—diverges from the timing in France.

For the United Kingdom, it will be recalled that we are utilizing surveys conducted by the Confederation of British Industry.⁴ While the information elicited over the years by the CBI has been essentially similar to that acquired by the EEC (indeed, the CBI now conducts the harmonized survey for the EEC in the United Kingdom), the form of the questions was earlier somewhat different. Regarding orders, for example, the CBI questionnaire asked whether the “trend in the past four months” or “the expected trend for the next four months” was “up, down or unchanged” (3.1 in Table 5-1), instead of whether order books were “above or below normal” (1.1 in Table 5-1), as in the EEC questionnaire. Unlike the EEC surveys, the original CBI surveys produced net balances that were analogous to changes in a quantitative series of new orders. These net balances must be cumulated to be analogous to the level of new orders.

Table 5-7 summarizes our findings based on CBI surveys of order books in the United Kingdom, covering a twenty-year period. The results differ from the West German pattern. In West Germany turns in the survey series precede turns in the quantitative series at peaks and troughs, on average, by eight months (compare Table 5-2). In the United Kingdom the survey tended to lag the quantitative series by about eight months at both peaks and troughs (Table 5-7, Col. 8).

Table 5-6. Italy, Results of Survey Order Book Behavior at Growth Cycle Turns, 1968-79.

Part A. Turning Points												
Growth Cycle Chronology (1)	Level of Order Books (1.1), Total Survey Net Balance (2)			Change in Level of Order Books (1.2), First Difference of Column (2) (3)			Level of Export Order Books (1.1), Survey Net Balance (4)			Change in Level of Export Order Books (1.2), First Difference of Column (4) (5)		
	P	T	P	T	P	T	P	T	P	T	P	T
2/70	9/72	8/69	10/71	10/68	6/70	9/69	10/71	11/68	6/70			
4/74	5/75	11/73	5/75	6/73	11/74	8/73	7/75	6/73	11/74			
12/76	12/77	10/76	3/78	2/76	4/77	9/76	7/78	5/76	8/77			
		3/79		9/78		3/79		9/78				
Part B. Timing Comparisons, Lead (-) or Lag (+), in Months												
(2) vs. (1) (6)												
2/70	9/72	-6	-11	-16	-27	-5	-11	-15	-27			
4/74	5/75	-3	0	-10	-6	-8	+2	-10	-6			
12/76	12/77	-2	+3	-10	-8	-3	-3	-7	-4			
(3) vs. (1) (7)												
										(5) vs. (1) (9)		
Average Timing at:												
P		-4		-12	-14	-5	-1	-11	-12			
T			-3									
P + T		-3	-3	-13	-3	-3	-3	-7	-4			

Table 5-7. United Kingdom, New Orders Behavior at Growth Cycle Turns, 1958-79.

Growth Cycle Chronology (1)		Part A. Turning Points						Change in Volume Index (3.1.1) (5)	
		New Orders Cumulated Net Balance (3.2) CBI Survey (2)		Volume Index (3.2.1) (3)		New Orders Net Balance (3.1), CBI Survey (4)			
P	T	P	T	P	T	P	T	P	T
3/61	11/58	8/60	3/59	2/60	6/58	2/59	12/61	9/59	6/61
2/66	2/63	6/65	4/63	4/64	12/62	4/64	12/66	2/63	2/65
6/69	8/67	5/70	11/67	5/69	1/67	4/68	4/71	2/68	1/71
6/73	2/72	3/74	3/72	12/73	6/71	8/73	2/75	7/73	8/74
	8/75		2/76		10/75	11/76	5/78	5/76	3/77

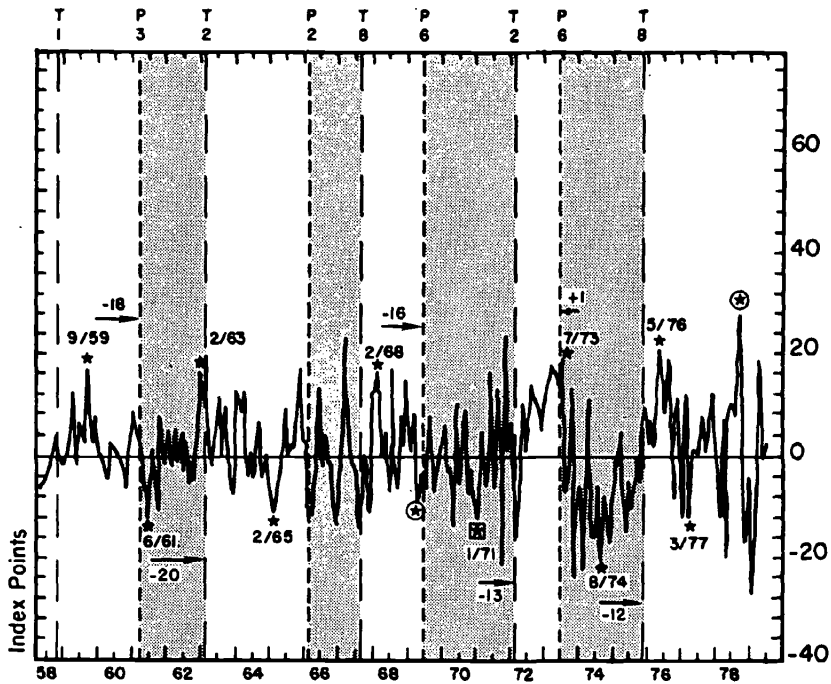
Part B. Lead (-) or Lag (+), in Months

	(2) us. (1) (6)		(3) us. (1) (7)		(2) us. (3) (8)		(4) us. (1) (9)		(5) us. (1) (10)		(4) us. (5) (11)	
	P	T	P	T	P	T	P	T	P	T	P	T
3/61	-7	+4	-13	-5	+6	+9	-25	-14	-18	-20	-7	+6
2/66	-8	+2	-22	-2	+14	+4	-22	-8	n.m. ^a	n.m.	+14	+22
6/69	+11	+3	-1	-7	+12	+10	-14	-10	-16	-13	+2	+3
6/73	+9	+1	+6	-8	+3	+9	+2	-6	+1	-12	+1	+6
8/75		+6		+2		+4					+6	+14
Average Timing at:												
P	+1	+3	+8	-4	+9	+7	-15	-10	-11	-15	+3	+10
P + T	+2		-6		+8	+8	-12	-13	-13	-13	+6	+6

Note:

a. n.m. = No matching turn.

Figure 5-6. United Kingdom, Timing at Growth Cycle Turns, Changes in Volume, Index of New Orders, (3.1.1), 1958-79.



The quantitative series on new orders led growth cycle turns in both countries, but by a somewhat longer margin in the case of Britain. The U.K. survey pattern is also roughly similar to the pattern for France and Italy, although the latter two countries averaged a very slight lead at growth cycle turns.

In terms of changes in the level of new orders over four-month spans, the U.K. experience (Table 5-7, Col. 4) also largely duplicates the pattern in the other countries, with the exception of West Germany: a lead of about a year for both the CBI survey results and the actual order changes.⁵

In the United Kingdom the turns in actual orders precede the survey turns by about six months (Col. 11). Individual turns exhibit a great deal of variation, although the actual order changes lead the surveys at all but one of the ten turns studied. The British actual changes in orders, however, is a highly volatile series, seriously reducing its potential for forecasting growth cycle turns (see Figure 5-6).

One of the principal strengths of the survey replies is their greater smoothness. This characteristic, together with the tendency of survey results to be available before the quantitative equivalents, constitutes one of the major reasons for considering qualitative indicators along with quantitative indicators in developing indicators for forecasting.

FINISHED GOODS INVENTORIES

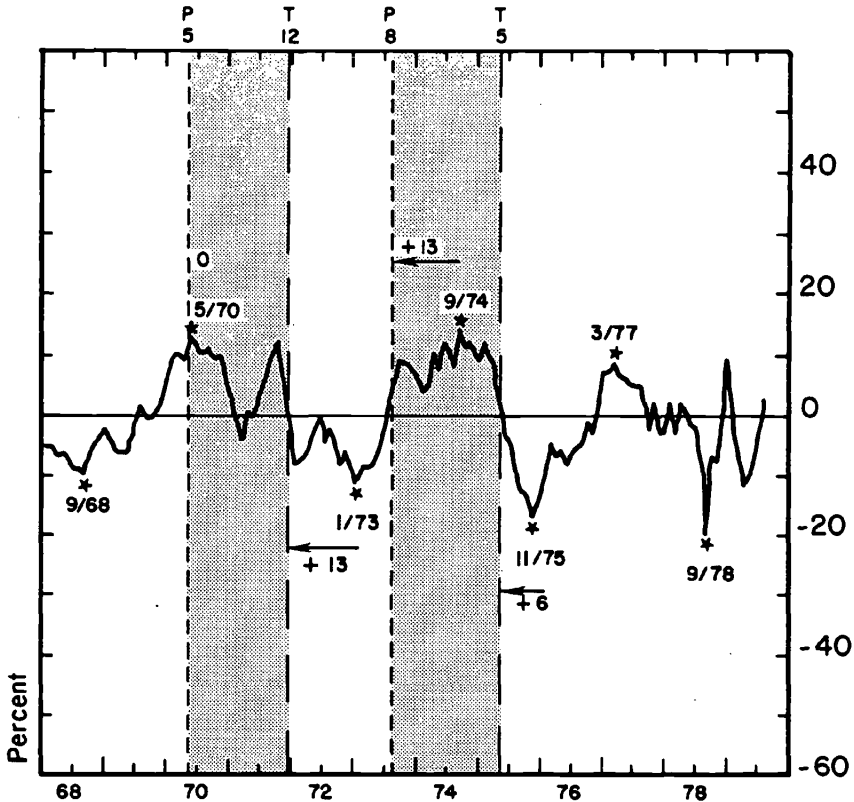
Actual finished goods inventories in the United States tend to lag by long intervals at growth cycle peaks and troughs, while raw materials inventories lag by short intervals or roughly coincide. In the case of West German survey results, which report whether inventories are above or below normal, finished goods inventories also lag at growth cycle turning points. Due to the long length of the interval, the series can best be viewed as "inverted." Figure 5-7 and Table 5-8 reveal that troughs in inventories correspond almost precisely to growth cycle peaks, while inventory peaks correspond to growth cycle troughs.

There is economic logic to this situation. If the survey responses really refer to the ratio of inventories to sales, a peak in this ratio signals the point at which sales finally stop decreasing faster than inventories, thus suggesting to entrepreneurs that they may have reduced production (which is the essence of the recession) sufficiently. The beginning of decline in the inventory/sales ratio makes it feasible for production to increase. When entrepreneurs are no longer worried that production will outrun sales, they anticipate when they might once more expand production. The longer inventory liquidation continues, the more reasonable production increases look to producers. Hence, inventories reflect both the past growth cycle turn and anticipate the subsequent turn.

We should also note that the survey net balances for West Germany, if interpreted as representing the level of inventories, can be transformed to represent inventory investment (the net flow of goods into inventories). Figure 5-8 and Table 5-9 illustrate this transformation and suggest that investment in finished goods stocks lags, but now the lags are relatively short. The rate of change in inventories is, of course, a record of inventory investment, which is a component of output. Inventory change represents a flow of goods, just as total output does.

Tables 5-10 and 5-11 summarize the survey results dealing with inventory behavior in France and Italy. In the case of France, the economic logic detailed in connection with West German inventories can be applied in a similar manner. Levels of finished goods inven-

Figure 5-7. West Germany, Timing at Growth Cycle Turns, Change in Finished Goods Stocks, (2.2), First Difference of Survey Net Balance, 1968-79.



tories, when compared to the growth cycle chronology positively (Table 5-10, Col. 2), show a very long lag, but when compared invertedly to the chronology, they show a lead (Col. 3). Change in finished goods inventories, customarily regarded as a lagging indicator, performed in France (Col. 4) as it did in West Germany.

In Italy, the behavior of finished goods stocks is precisely what one would expect (Table 5-11). If levels of these stocks are related positively to the growth cycle chronology, one finds a lag of more than a year on average (Col. 2), longer at troughs than at peaks. If, however, stock levels are analyzed on an inverted basis, the lag becomes a short lead (Col. 3). On the other hand, changes in finished

Table 5-8. West Germany, Timing at Growth Cycle Turns, Levels of Finished Goods Inventories, (2.1), Survey Net Balance, 1968-79.

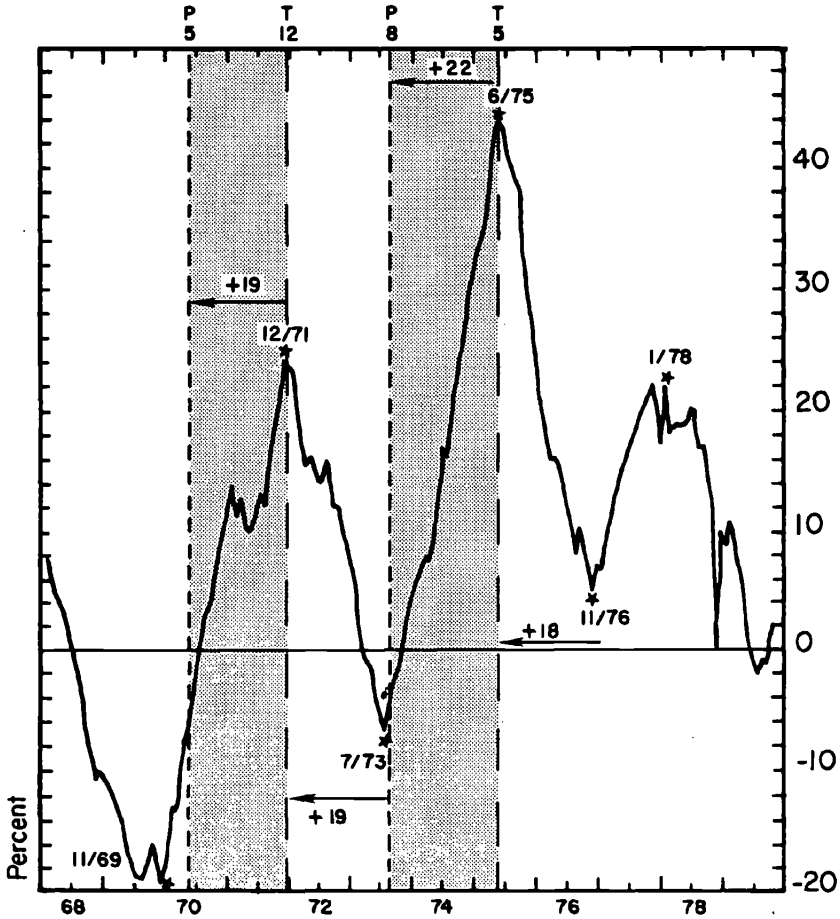
<i>Part A. Results for Survey Related Positively</i>					
Growth Cycle Chronology		Survey		Lead (-) or Lag (+), in Months	
P	T	P	T	P	T
	8/67		11/69		+27
5/70		12/71		+19	
	12/71		7/73		+19
8/73		6/75		+22	
	5/75		11/76		+18
		1/78			
Average Timing at:					
	P			+20	
	T				+21
	P + T			+21	
<i>Part B. Results for Survey Related in Inverted Form</i>					
	8/67				-
5/70		11/69		-6	0
	12/71		12/71		0
8/73		7/73		-1	
	5/75		6/75		+1
		11/76		-	
			1/78		-
Average Timing at:					
	P			-4	
	T				0
	P + T			-2	

goods inventories (Col. 4) lag at both peaks and troughs, with the pattern conforming positively to the growth cycles.

Turning now to inventories in the United Kingdom,⁶ we have somewhat fuller information than was the case in the other countries. The survey results from the Confederation of British Industry cover both finished goods inventories and raw materials inventories.⁷ We also have a quantitative series in constant prices for the United Kingdom, but we have not broken it into stages of the production process. This breakdown would be of considerable importance because of the critical role that inventories at different stages—both levels and changes—assume in many theoretical explanations of cycles.

We have already seen in the other countries that finished goods inventory levels frequently lag; indeed, they lag by so long that they are best analyzed as inverted series, in which case they often lead the

Figure 5-8. West Germany, Timing at Growth Cycle Turns, Level of Finished Goods Stocks, (2.1), Survey Net Balance, 1968-79.



opposite turn. This behavior was quite in line with expectations. Table 5-12 (Cols. 2 and 3) shows that the British finished goods stocks also behave as expected. When viewed as positively conforming to growth cycle turns, the lags average twenty-one months at both peaks and troughs. When considered in inverted form, the timing is reversed, with leads of about three months at both peaks and troughs. On the other hand, raw materials stock levels have customarily been regarded as conforming positively to the cycle, but with a

Table 5-9. West Germany, Timing at Growth Cycle Turns, Change in Finished Goods Inventories, (2.2), First Difference of Survey Net Balance, 1968-79.

<i>Growth Cycle Chronology</i>		<i>Survey</i>		<i>Lead (-) or Lag (+), in Months</i>	
P	T	P	T	P	T
	8/67		9/68		+13
5/70		5/70		0	
	12/71		1/73		+13
8/73		9/74		+13	
	5/75		11/75		+6
Average Timing at:					
	P			+6	
	T				+11
	P + T			+9	

Table 5-10. France, Inventory Behavior at Growth Cycle Turns, 1968-79.

<i>Part A. Turning Points</i>							
<i>Growth Cycle Chronology (1)</i>		<i>Level of Finished Goods Inventories (2.1), Survey Net Balance</i>				<i>Change in Finished Goods Inventories (2.2), First Difference of Level Series (4)</i>	
		<i>Results Related Positively (2)</i>		<i>Results Related Invertedly (3)</i>			
P	T	P	T	P	T	P	T
	5/68		5/69				6/68
11/69		2/71		3/64		8/70	
	8/71		9/73		2/71		3/73
7/74		4/75		9/72		11/74	
	6/75		6/76		4/75		11/75
		12/77				5/77	
<i>Part B. Lead (-) or Lag (+), in Months</i>							
	5/68		+12		-		+1
11/69		+15		-6		+9	
	8/71		+25		-6		+19
7/74		+9		-10		+4	
	6/75		+12		-2		+5
Average Timing at:							
	P	+12		-8		+6	
	T		+16		-4		+8
	P + T	+15		-6		+8	

Table 5-11. *Italy, Inventory Behavior at Growth Cycle Turns, 1968-79.*

<i>Part A. Turning Points</i>							
<i>Growth Cycle Chronology</i> (1)		<i>Level of Finished Goods Inventories (2.1), Survey Net Balance</i>				<i>Change in Finished Goods Inventories (2.2), First Difference of Level Series</i> (4)	
		<i>Results Related Positively</i> (2)		<i>Results Related Invertedly</i> (3)			
P	T	P	T	P	T	P	T
			1/70				6/69
2/70		10/71				6/70	
	9/72		10/73	10/73	10/71		1/73
4/74		4/75				12/74	
	5/75		12/76	4/75			5/76
12/76		10/77		12/76		3/77	
	12/77				10/77		12/78
<i>Part B. Lead (-) or Lag (+), in Months</i>							
2/70		+20		-		+4	
	9/72		+13		-18		+4
4/74		+12		-6		+8	
	5/75		+19		-1		+12
12/76		+10		0		+3	
	12/77				-2		+12
Average Timing at:							
	P	+14		-3		+5	
	T		+16		-7		+9
	P + T	+15		-4		+7	

shorter lag than finished goods. This view is supported by the data in Cols. 8 and 10.

Let us now consider inventory investment, or changes in stocks. We find, as expected, that investment in raw materials stocks as reported in the survey precedes growth cycle turns (Col. 11), while investment in finished goods stocks follows the turns (Col. 12). The quantitative series refers to total inventory investment, not differentiated into production stages. However, it appears that raw materials dominates total inventory investment, so that the timing at growth cycle turns of the total (Col. 13) resembles the survey results for raw materials far more than for finished goods. The fairly short lag in finished goods investment, it may be noted, is in line with the survey results of all three countries previously considered, although the lag is shorter in the United Kingdom than elsewhere.

Table 5-12. United Kingdom, Inventory Behavior at Growth Cycle Turns, 1968-79.

		Part A. Growth Cycle Turning Points																	
		Cumulated Net Balance (3.2)																	
		Survey of Finished Goods Stocks				Survey of Raw Materials Stocks (4)				Survey Net Balance, Raw Materials Stocks (3.1.1) (5)				Survey Net Balance, Finished Goods Stocks (3.1) (6)				Change in Total Stocks ^b (3.1) (7)	
Growth Cycle Chronology (1)	P	Treated Positively (2)		Treated Invertedly (3)		Survey of Raw Materials Stocks (4)		Survey Net Balance, Raw Materials Stocks (3.1.1) (5)		Survey Net Balance, Finished Goods Stocks (3.1) (6)		Change in Total Stocks ^b (3.1) (7)		P	T				
		P	T	P	T	P	T	P	T	P	T	P	T						
3/61	11/58	7/63 ^a	11/60	11/60	9/58	8/61	9/59	4/60	12/62	8/59	11/60	11/58	11/60	11/60	11/58				
2/66	2/63	6/67	11/64	11/64	7/63	6/66	11/63	9/64	12/62	8/63	11/64	2/62	11/64	11/64	2/62				
6/69	8/67	7/71	11/68	11/68	6/67	2/71	4/68	12/68	4/62	12/67	6/68	2/68	6/68	12/67	2/68				
6/73	2/72	5/75	6/74	6/74	7/71	11/74	9/72	5/73	11/71	2/72	5/73	5/71	8/74	2/72	5/71				
	8/75	4/78	11/76	11/76	5/75	4/78	5/76	2/77	6/75	5/27	2/77	2/75	5/27	8/75	2/75				

(Table 5-12. continued overleaf)

Table 5-12. continued

		Part B. Lead (-) or Lag (+), in Months							
	(2) us. (1) (8)	(3) us. (1) (9)	(4) us. (1) (10)	(5) us. (1) (11)	(6) us. (1) (12)	(7) us. (1) (13)			
11/58	+24	-2	+10	-11	+9	+9	0		
3/61	a	-5	+5	+9	-2	+6	-4		
2/66	+16	-15	+4	-22	-4	-10	-15	-12	
6/69	+25	-7	+20	-6	+4	+14	-10	+6	
2/72	+28	-7	+7	-1	-3	+14	0	-9	
6/73	+23	+12	+17	-1	-2	+14	-1	-6	
8/75	+15	-3	+9	-2	-2	0	0		
Average Timing at:									
P	+21	-4	+12	-10	+7	-8	-8	-4	
T	+21	-2	+9	-3	+4	-6	+5	-6	
P + T	+21	-3	+10	-6	+5	-6	-6	-6	

Notes:

a. Crosses opposite turn.

b. In millions of 1975 pounds.

PROFITS

Among the leading indicators for the ten countries considered in earlier chapters, a measure of profits was included for the United States, Canada, Japan, the United Kingdom, and West Germany. Not surprisingly, in all these cases profits led at both peaks and troughs of growth cycles.

Profits have long been recognized as one of the factors likely to presage a change in the direction of cyclical activity.⁸ In a free enterprise system, where the quest for profits motivates entrepreneurial activity, it is the decline of profits (actual or prospective) in the later stages of an expansion that leads entrepreneurs to lay off workers and cut back production, thereby engendering a recession. Likewise, it is the improvement in profits, when costs decline relative to prices during a recession, that encourages entrepreneurs to increase production and turn recession into recovery. The role played by widening and narrowing profit margins in the ebb and flow of business cycles was emphasized by Mitchell many years ago when he spoke of the way in which costs "encroached" on prices in late expansion and the reversal of this process in late contraction.⁹

One of the problems in dealing with leading indicators is that, in order to be useful in forecasting, the indicators need to be available sufficiently promptly so that their average lead is not offset by the lag in data availability. In the United States, for example, the comprehensive figures for corporate profits are not available for as much as seven weeks after the end of the quarter to which the data apply. Hence, there is often a gap of four or five months between the latest available figure and the current date. The situation is similar, or worse, in other countries. We have seen in our consideration of orders and stocks that the prompt availability of qualitative indicators enhances their forecasting potential. This can be the case even when survey data exhibit shorter leads at growth cycle turning points than their quantitative equivalents. We are therefore interested in comparing the timing of qualitative measures of profit with their quantitative equivalents where possible, as well as the promptness with which these two types of indicators for profits become available.

In making these assessments we can extend our comparisons by examining the changing relationship between selling prices and labor costs per unit output. Ratios of price to unit labor cost are available for many countries on a monthly basis. We have found that this ratio is a very good proxy for profit margins. In part, this is true because

labor costs figure heavily in total costs and their movement over the cycle proves to be typical of the movement of total costs. A related proxy for profit change can be obtained by subtracting changes in unit labor cost from changes in selling price.¹⁰

We shall now examine the possibility of utilizing qualitative data for getting an early line on the trend of profit margins in market-oriented economies, concentrating on three countries: the United States, United Kingdom, and Japan.¹¹ Unfortunately, the EEC surveys, which cover many countries, question entrepreneurs on their view of selling-price changes but not on unit labor cost changes. Therefore, the technique for estimating views on implicit profit changes discussed earlier cannot be employed for the EEC surveys. Were a question on cost changes included, the value of the EEC surveys for cyclical analysis would be greatly enhanced.

Let us consider first the comparative behavior of qualitative and quantitative measures of total profits. Dun & Bradstreet, Inc., has for some thirty years conducted a quarterly survey of U.S. manufacturers, wholesalers, and retailers, which includes a question concerning the actual and expected trend of profits as compared to the same date the previous year: The Dun & Bradstreet surveys are available within about two months of the date the survey is conducted. This means that data for past changes from, say, Q_4 -1979 to Q_4 -1980 (based on a survey conducted in February 1981) are available in April 1981, while expected changes from Q_2 -1980 to Q_2 -1981 are also available in April 1981. Thus, the reporting lag for actual changes is about four months, while the expected changes are reported about two months before the end of the quarter to which they refer. This reduction in reporting lag might be of considerable assistance when utilizing profit data for forecasting.

Figure 5-9 presents the percent change of the quantitative data on corporate profits after taxes over four quarters, along with two measures of Dun & Bradstreet data similarly calculated. In Table 5-13 the turns in both quantitative and qualitative measures are compared to the U.S. growth chronology. It is clear that the movements of the measures of profit are similar. Moreover, all three measures of profits are quite consistent leaders at both peaks and troughs of growth cycles. Whether one relies on the mean or the median as a measure of the average tendency, it is further clear that the turns in the quantitative figures lead at both peaks and troughs by about as much as the Dun & Bradstreet survey of past profit changes. On the other hand, as is frequently the case, the survey data of expected profits turn with few exceptions after the turns in both the actual profits survey and the quantitative data. Entrepreneurs apparently expect profits to

Table 5-13. United States, Timing of Three Measures of Profits at Growth Cycle Peaks and Troughs, 1949-80.

		Part A. Turning Points					
		Date of Peak or Trough					
Growth Cycle Chronology (1)	Index of Past Change in Profits, Manufacturing, and Trade (3.1), Dun & Bradstreet (2)		Index of Expected Change in Profits, Manufacturing, and Trade (3.1), Dun & Bradstreet (3)		Change in Corporate Profits after Taxes (3.1.1), Department of Commerce (4)		
	P	T	P	T		P	T
3/51	10/49	2/51	2/52	11/50	8/52	11/50	5/49
3/53	7/52	5/53	2/54	11/53	2/54	5/53	11/51
2/57	8/54	11/55	2/58	11/55	5/58	2/55	11/53
2/60	4/58	5/59	2/61	11/59	2/61	5/59	2/58
5/62	2/61	2/62	2/63	5/62	2/63	2/62	2/61
6/66	10/64	11/65	2/67	5/66	2/63	11/65	2/63
3/69	10/67	5/69	8/70	5/68	5/67	5/68	2/67
3/73	11/70	11/72	2/75	5/73	11/70	5/73	5/70
12/78	3/75	2/79		8/78	6/75	2/79	2/75

Part B. Lead (-) or Lag (+), in Months

Growth Cycle Chronology (1)		Past vs. Growth Cycles, Dun & Bradstreet (4)		Expected vs. Growth Cycles, Dun & Bradstreet (3)		Change in Corporate Profits vs. Growth Cycles (5)	
P	T	P	T	P	T	P	T
3/51	10/49	-1	n.m. ^a	-4	n.m.	-4	-5
3/53	7/52	+2	-5	+8	+1	+2	-8
2/57	8/54	-15	-6	-15	-6	-24	-9
2/60	4/58	-9	-2	-3	+1	-9	-2
5/62	2/61	-3	0	0	0	-3	0
6/66	10/64	-7	-20	-1	-20	-7	-20
3/69	10/67	+2	-8	-10	-5	-10	-8
3/73	11/70	-4	-3	+2	0	+2	-6
12/78	3/75	+2	-1	-4	+2	+2	-1
Mean Timing at:							
P		-4		-2		-6	
T			-6		-3		-7
P + T		-5		-2		-6	
Median Timing at:							
P		-3		-3		-4	
T			-4		0		-6
P + T		-3		-2		-6	

Note:

a. n.m. = No matching turn.

In Japan the two measures of profit changes also lead at growth cycle turning points, and again the lead for the quantitative series exceeds that for the survey, by about four months on average.¹² The volatility of the survey series is marginally smaller than that of actual profit changes. Hence, in Japan, as in the United States, survey results may aid in monitoring profit changes by virtue of their potentially more prompt availability.

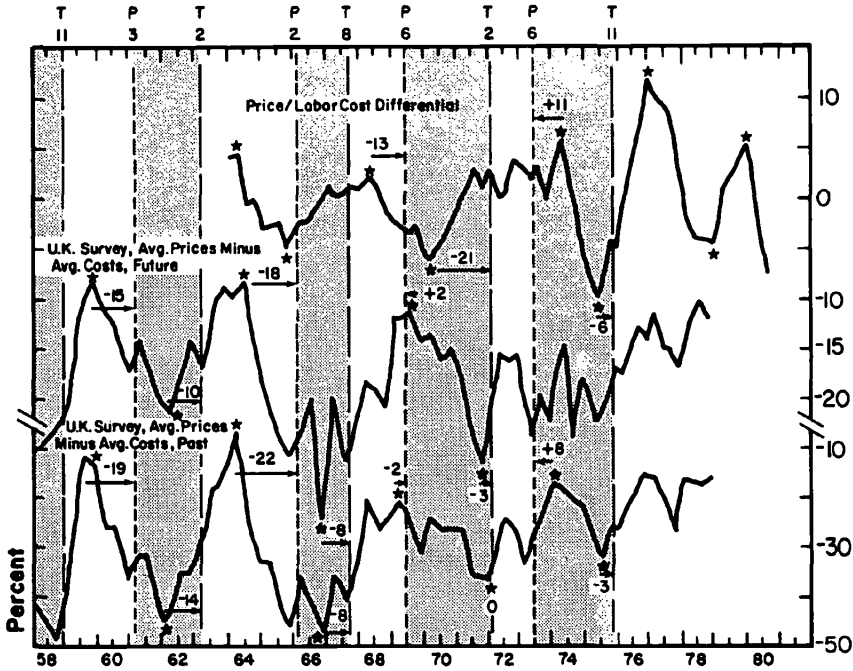
As noted earlier, we can also measure quantitative changes in profit margins with reasonable accuracy by calculating price changes minus cost changes. Moreover, this technique for estimating changes in profit margins can be duplicated using qualitative data. We shall illustrate the possibilities with data from the United Kingdom.

Evidence from Great Britain is particularly effective in illustrating this technique because the survey data can be considered in both a retrospective fashion (the net balance of average cost change during the past four months) and a prospective fashion (considering the next four months). Figure 5-10 and Table 5-14 set forth the U.K. results.

If we first compare the quantitative indicator (Table 5-14, Col. 2) with the survey results based on the retrospective view of price/cost changes (Col. 3), we find that both indicators of profit change lead virtually all U.K. growth cycle turning points. Moreover, the quantitative measure of the price/labor cost differential leads the qualitative measure based on the survey net balances by eight months, on average (see Col. 8). Greater promptness in availability would not offset this discrepancy. There are only four turns, however, and this would not suffice for any firm conclusion. We may note, finally, that the differences in volatility between the two indicators shown in Figure 5-10 are not significant.

Let us now turn to a comparison of the quantitative indicator with the survey results based on the prospective view of price/cost changes. Oftentimes it is argued that surveys of expected changes are of greater use in forecasting than are surveys of past changes. In the United Kingdom the average leads at growth cycle turns of the two survey series are about the same. One leads by an average of seven months, the other by nine months at all turns (Cols. 6 and 7). However, at most of the individual turns the expected changes lag behind the past changes by about four months. Clearly, entrepreneurs' views of what will happen are largely conditioned by what has just happened—a conclusion often reached in similar examinations of retrospective and prospective net balances of survey results. Unfortunately, there are few turns in common (Table 5-14, Part A) between the quantitative and qualitative indicators, but the scant evidence

Figure 5-10. United Kingdom, Price/Labor Cost Differential, Net Balances (Prices less costs), Trend in the Past Four Months and Expected Trend in the Next Four Months, (3.1), 1958-81.



Note:
Shaded areas indicate growth cycles.

available would suggest that the lag in survey turns in retrospective form over the lag in the quantitative indicator will certainly not be eliminated by substituting prospective survey results. Although the prospective results for a given four-month period are available about four months before the retrospective results for the same period, there is no gain from using the prospective series. Its irregular behavior during the 1974-75 recession, where it deviates sharply from the quantitative series, raises a question as to its dependability as an indicator of profit changes.

In sum, profits, whether measured as totals or as margins, lead at growth cycle turns in all the countries for which any information exists. Changes in profits, therefore, lead by even longer intervals. Surveys of profit changes in the form of net balances tend to lead as well, but customarily by shorter intervals than the quantitative data.

Part B. Lead (-) or Lag (+), in Months

Growth Cycle Chronology (1)	Change in Price/Labor Cost Differential vs. U.K. Cycles (3.1.1) (2) vs. (1) (5)		Survey Net Balance, Price Less Cost (3.1) (Past) vs. U.K. Cycles (3) vs. (1) (6)		Survey Net Balance, Price Less Cost (3.1) (Expected) vs. U.K. Cycles (4) vs. (1) (7)		Survey (Past) vs. Differential (3) vs. (2) (8)		Survey (Expected) vs. Differential (4) vs. (2) (9)	
	P	T	P	T	P	T	P	T	P	T
11/58			-19	-14	-15	-10				
3/61			-22	-8	-18	-8				
2/66			-2	0	+2	-3				
8/67			+8	0	n.m.	n.m.				
6/69			-13	-21	-3	-3				
2/72			+11	-3						
6/73										
8/75										
Average Timing at:										
	P		-1	-9	-9	-10	-7	+8	+15	+18
	T		-12	-6	-6	-9	-7	+12	+16	+18
	P + T		-6	-7	-7	-9	-9	+8	+16	+18

Note:
a. n.m. = No matching turn.

The timing of prospective profit changes usually lags somewhat behind that of survey reports on recently experienced profit changes, but the fact that prospective data for a given period are available earlier than quantitative data for the same period means that the former can be usefully employed in the forecasting of growth cycle changes. One frequent advantage of survey data that we have not found in the case of profits involves the greater smoothness in the survey data. The volatility in the survey data on profits is as great, or nearly so, as in the quantitative data, despite the limited evidence.

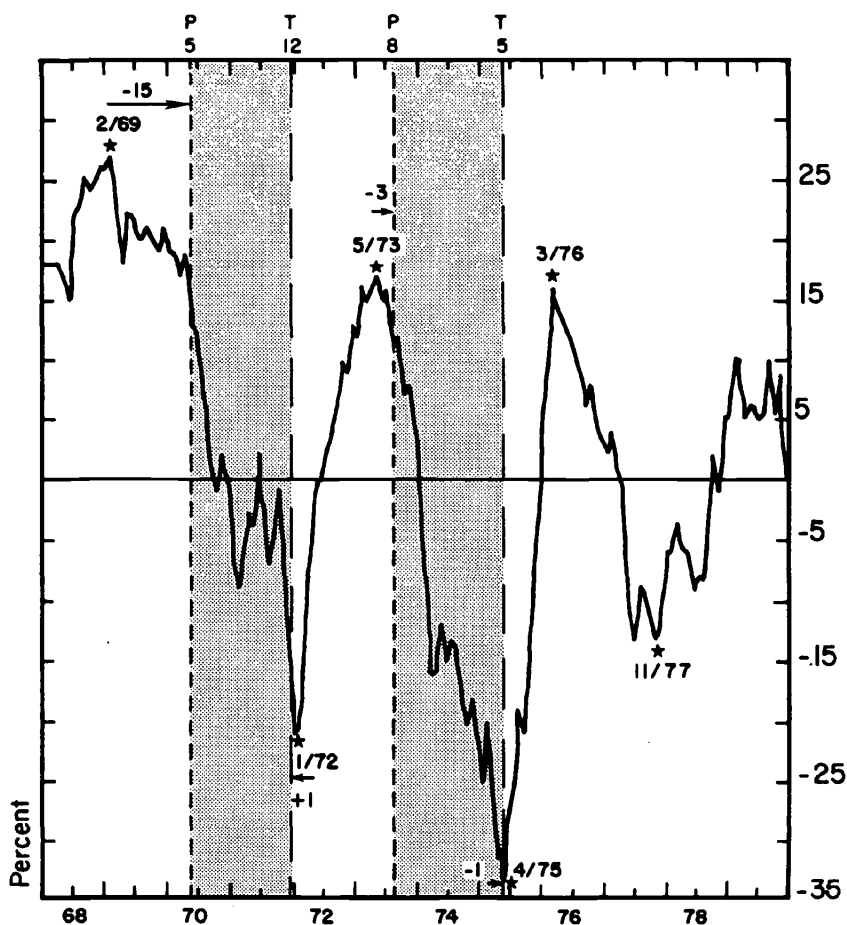
We have noted that the trend in profits can be approximated by subtracting a measure of costs from a measure of prices. Both in qualitative and quantitative terms, these calculations produce series that conform moderately well to the behavior of actual profit changes (where such evidence was available). And the relative behavior of the quantitative and qualitative indicators of profits has been very consistent from country to country whenever comparisons could be made. We conclude that monitoring both quantitative and qualitative indicators of profit changes will enhance our understanding of business cycles and our ability to predict their future course.

PRODUCTION EXPECTATIONS

Before embarking on an analysis of production expectations as recorded by the EEC surveys, the reader should recall our simple convention of assuming that a January survey asking about "the months ahead" is referring to a four-month interval and is, therefore, placed in the middle month—in this case March—which is where the survey net balance would be centered for purposes of comparison with production changes or selling price changes. In addition to comparing expected changes with actual changes in production over four-month intervals, we compare expected levels of production at the end of the interval with the corresponding actual levels. Cumulative net balances at the end of the four-month interval (May, in this case) will then be compared to the index of industrial production.

Figures 5-11 and 5-12 show the net balances of production expectations reported in the West German surveys for each month and the corresponding actual changes in the index of industrial production. As is always the case, series of changes are more volatile than series that reflect levels, and the possibility of false signals is increased. The comparisons are summarized in Table 5-15 (Cols. 9 and 10). While the leads are substantial, as we have come to expect in series reflecting first differences, the relationship of survey results to actual production is similar to what we have found before: the turns in the rate

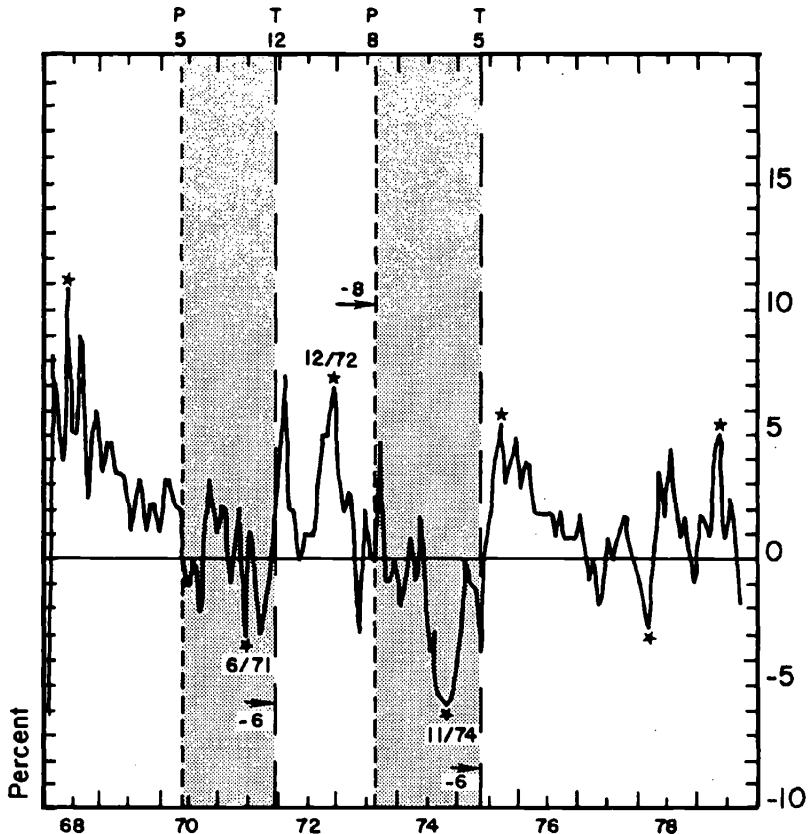
Figure 5-11. West Germany, Timing at Growth Cycle Turns, Expected Change in Production, (3.1), Survey Net Balance, 1968-79.



of change in the production index tend to precede expected changes reported in the survey.

In order to make comparisons with the level of industrial production, it is necessary to cumulate the survey net balances, even though the procedure we use is not strictly appropriate.¹³ The results are shown in Figures 5-13 and 5-14, and summarized in Table 5-15. The German evidence suggests that entrepreneurs expect production levels to be in line with those they are currently experiencing. Thus,

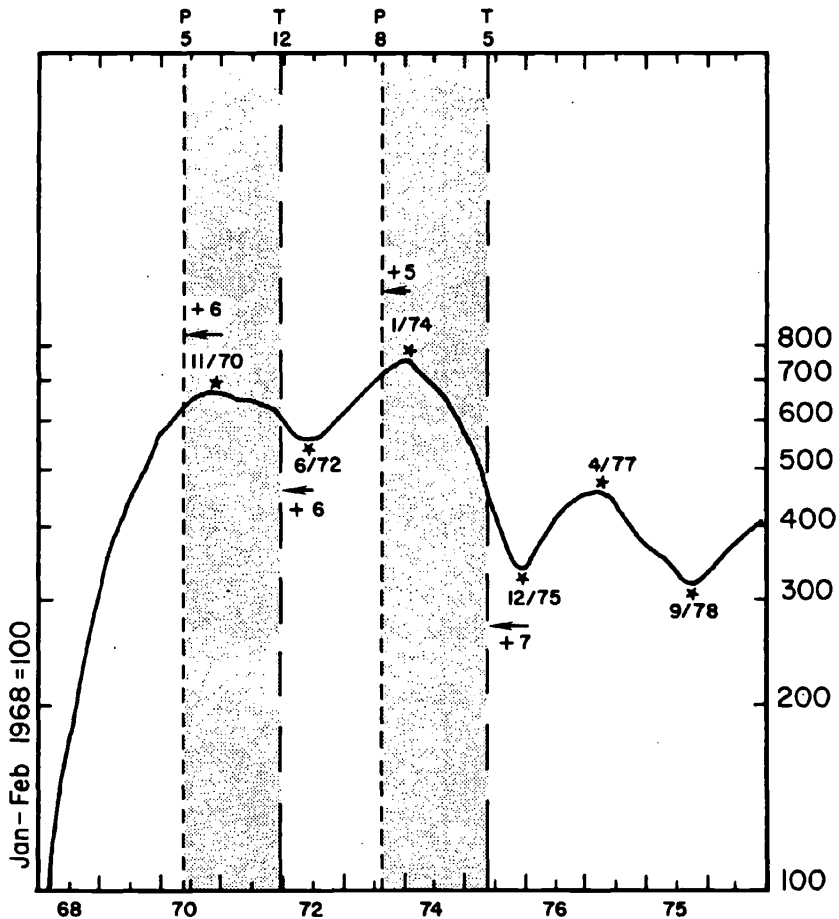
Figure 5-12. West Germany, Timing at Growth Cycle Turns, Percent Change in the Index of Industrial Production, (3.1), 1968-79.



survey results lag actual production turns by some months, although there are few comparisons possible in West Germany.

Comparison of Figures 5-11 through 5-14 suggests that the survey net balances are much smoother than the actual changes in the index of industrial production. There are fewer "false signals." Moreover, the survey results are available sooner. The EEC surveys are available about six weeks after the questionnaires are circulated so expected levels pertain to a date about two months ahead. In the case of West German industrial production, data are available about two months after the month to which they apply. If one takes the greater smoothness of the survey results into account (along with their relatively prompt availability), the seven-month lag of the sur-

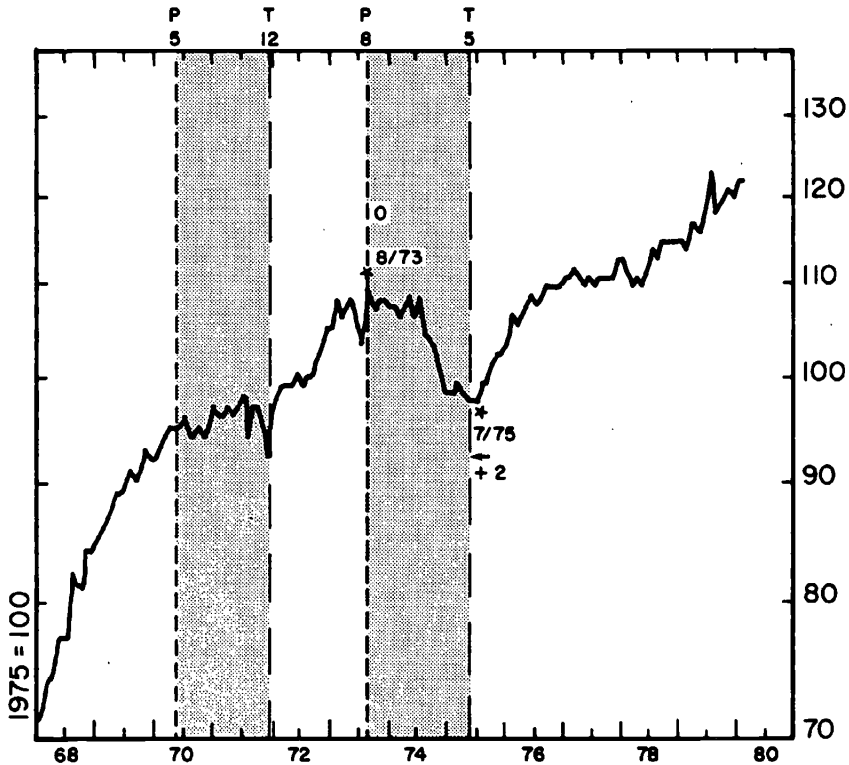
Figure 5-13. West Germany, Timing at Growth Cycle Turns, Level of Production Expectations, Cumulated Survey Net Balance, (3.2), 1968-79.



veys behind the turns in actual production is substantially offset. Hence utilizing both sorts of indicators may give more reliable results than relying on either alone.

In short, having established the possibilities of the surveys in the case of Germany, we confine ourselves to what appears to be the most meaningful comparison for France and Italy, namely the relationship between the cumulated net balances in survey replies and the production index levels. In Table 5-16 there is a lag in Italian

Figure 5-14. West Germany, Timing at Growth Cycle Turns, Level of Industrial Production, (3.2.1), 1968-79.



survey result turns relative to both the growth cycle turns and to the actual production turns. While few comparisons are available for France (Table 5-17), the lagging pattern of survey results behind production turns is clearly evident. Nevertheless, the cumulated survey results are far smoother than the actual production index in both France and Italy, a characteristic they share with the German data.

SELLING PRICES

If we now consider how entrepreneurs report their expectation of changes in selling prices, again we find similar results in West Germany, Italy, and France. Figures 5-15 and 5-16 pertain to West Germany as an example, and Tables 5-18 through 5-20 provide a

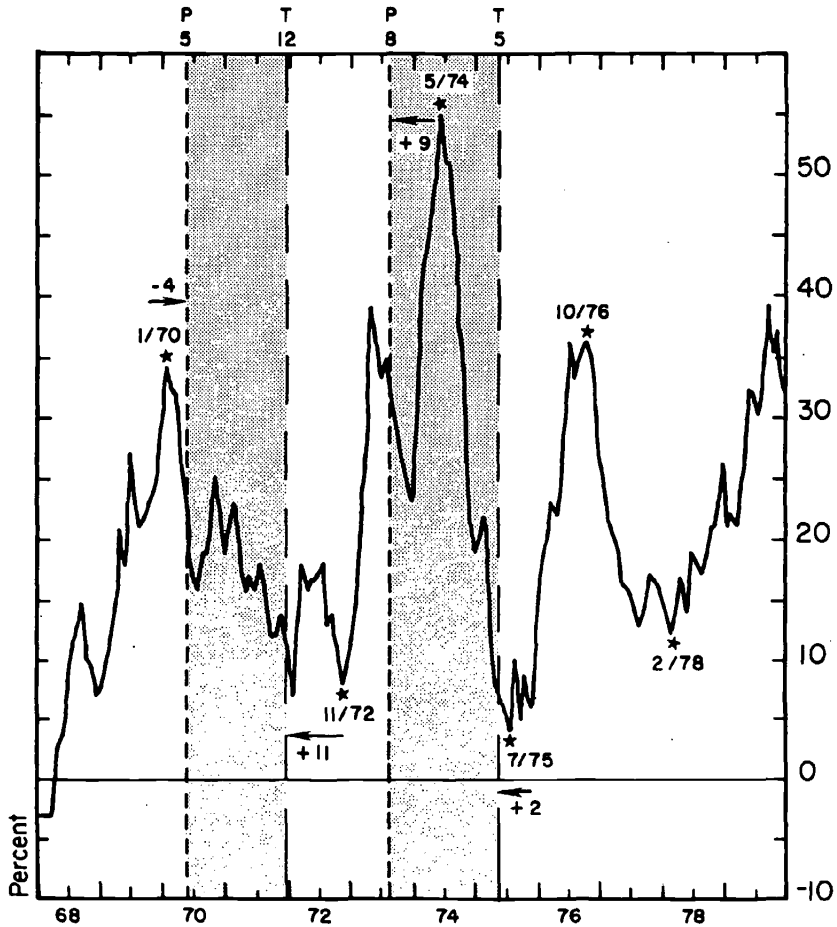
Table 5-16. Italy, Timing at Growth Cycle Turns, Actual and Expected Level of Production, 1970-78.

Growth Cycle Chronology (1)	Cumulated Survey Net Balance, Expected (3.2) (2)			Industrial Production Index (3.2.1) (3)			Leads or Lags					
	P	T	T	P	T	T	Survey vs. Chronology (4)		Production Index vs. Chronology (5)		Survey vs. Production Index (6)	
2/70	3/71	7/72	9/70	7/71	7/71	7/71	+13	-2	+7	-14	+4	+10
4/74	11/74	10/76	4/74	5/75	5/75	5/75	+7	+17	0	0	+5	+15
12/76	6/77	11/78	12/76	12/77	12/77	12/77	+6	+11	0	0	+4	+9
Average Timing at:												
P							+9	+9	+2	-5	+6	+13
T												
P+T							+9	+9	+2	-1	+6	+10

Table 5-17. France, Timing at Growth Cycle Turns, Level of Industrial Production, (3.2), Survey Cumulated Net Balance, 1974-79.

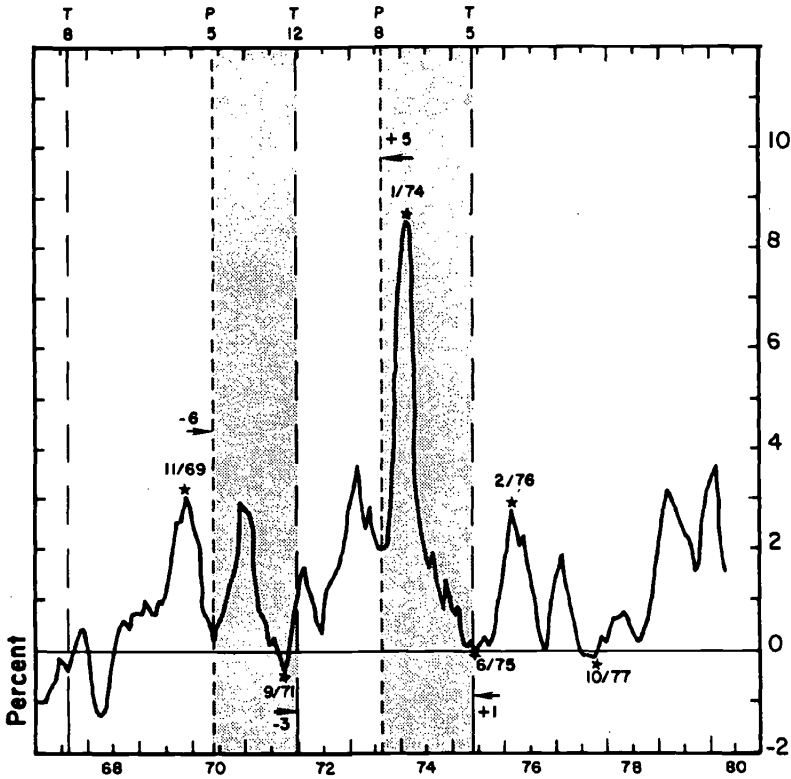
Growth Cycle Chronology (1)	Cumulated Survey Net Balance, Expected (3.2) (2)		Industrial Production Index (3.2.1) (3)		Leads or Lags							
	P	T	P	T	Survey vs. Chronology (4)		Production Index vs. Chronology (5)		Survey vs. Production Index (6)			
7/74	12/74	2/76	8/74	5/75	P	T	P	T	P	T	P	T
6/75	7/77	6/78	6/77	12/77	+5	+8	+1	-1	+4	+9	+1	+6
			8/79									
Average Timing at:												
					+5	+8	+1	-1	+2	+8		
P								0				
T												
P + T					+6						+5	

Figure 5-15. West Germany, Timing at Growth Cycle Turns, Expected Changes in Selling Price (3.1), Survey Net Balance, 1968-79.



summary for the three countries. We have in each case associated the survey net balances with the rate of change in the most appropriate price index available—the wholesale price index. The evidence of the graphs suggests a major difference between these survey results and those previously covered: Selling-price expectations are no less volatile than the actual changes in equivalent price indexes. With respect to timing we find that in all three countries the survey results lag the growth cycle, whereas the actual turns in the rate of price changes

Figure 5-16. West Germany, Timing at Growth Cycle Turns, Percent Change in Producer Price Index, (3.1.1), 1968-80.



lead the growth cycle (although by an extremely short period in West Germany). In addition, the selling-price expectations lag turns in actual prices. This suggests perhaps that entrepreneurs look to the past in considering price changes and that they continue to maintain their old expectations for some months after there has been a change. (We are examining rates of change in prices. Absolute declines in prices in the recent past have neither been expected nor recorded.)

BUSINESS CONFIDENCE

The notion that tracking the ebb and flow of business confidence can augment one's insight into business cycle developments is not new. Pigou's theory of "errors of judgment" leading alternatively to ex-

Table 5-19. Italy, Timing at Growth Cycle Turns, Expected Change in Prices, Survey Net Balance, 1968-79.

		Part A. Turning Points				Part B. Lead (-) or Lag (+), in Months					
Growth Cycle Chronology (1)		Survey Net Balance, Expected Change in Selling Prices (3.1) (2)		Percentage Change in Wholesale Price Index (3.1.1) (3)		Survey us. Chronology (4)		Price Index vs. Chronology (5)		Survey us. Price Index (6)	
P	T	P	T	P	T	P	T	P	T	P	T
2/70	9/72	3/70	8/71	9/67	5/68	+1	-13	-1	-16	+2	+3
4/74	5/75	5/74	9/75	1/74	5/71	+1	+4	-3	-1	+4	+5
12/76	12/77	11/76	2/78	3/76	4/75	-1	+2	-9	-6	+8	+8
Average Timing at:											
P						0		-4		+5	
T						-1		-8		+5	
P + T								-6		+5	

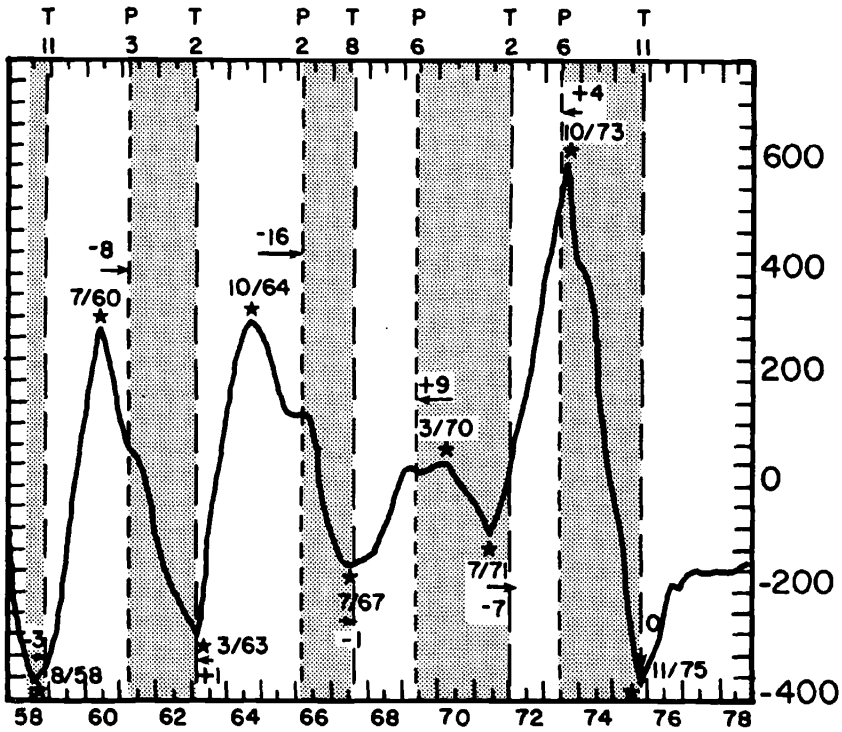
Table 5-20. France, Timing at Growth Cycle Turns, Expected Change in Prices, Survey Net Balance, 1968-79.

		Part A. Turning Points						Part B. Lead (-) or Lag (+), in Months					
Growth Cycle Chronology (1)		Survey Net Balance, Expected Change in Selling Prices (3.1) (2)		Percentage Change in Wholesale Price Index (3.1.1) (3)		Survey us. Chronology (4)		Price Index us. Chronology (5)		Survey us. Price Index (6)			
P	T	P	T	P	T	P	T	P	T	P	T		
11/69	5/68	3/70	-	9/67	2/68	+4	-9	-2	-3	+6	+5		
7/74	8/71	9/74	11/70	2/74	6/70	+2	+3	-5	-14	+7	+9		
	6/75	11/76	9/75	5/76	12/74				-6	+6	+5		
			11/77	1/79	6/77								
Average Timing at:													
P						+3		-4		+6			
T						-3		-8		+6			
P+T						+3		-6		+6			

cesses of optimism or pessimism is an early example of such thinking. More recently, and in connection with the IFO-Institute's development of qualitative indicators, much attention has been paid to what is called the "business climate indicator." This indicator is based on both retrospective and prospective survey results pertaining to the following replies: "We currently evaluate our business situation for X (the product) as good, substantially unchanged, or poor," and "Our business situation for X (the product) in the next six months in the cyclical respect (that is, excluding seasonal factors) will tend to be more favorable, the same, or less favorable." Net balances based upon these replies make up the "business climate," and it is not surprising that the indicator tracks growth cycle turns with considerable fidelity. The IFO-Institute averages these responses geometrically and has found that the resulting series is relatively smooth ($MCD = 1$). The Institute's business climate indicator led their production index at the seven cyclical turns for which data were available in the late 1970s, and by an average of six months. This is a significant lead, by comparative standards, and they concluded that in the business climate indicator "... a sensitive and early responding indicator has probably been found, which appears to be quite suitable for an early recording of change in the cyclical forces of the macroeconomy."¹⁴ Because the climate indicator is, in effect, a measure of the rate of change, while the production index reflects a level, this result is not surprising.

A similar measure of business confidence in the United Kingdom is available from the Confederation of British Industry in London. The CBI question is retrospective rather than prospective and asks, "Are you more, or less, optimistic than you were four months ago about the general business situation in your industry?" The respondents reply "more," "same," or "less." Both the IFO and CBI survey net balances are analogous to rates of change, and if one wishes them to reflect the *level* of confidence rather than the *rate of change* in confidence the net balances must be cumulated. We have earlier in this chapter suggested that the survey net balances may be useful for a variety of purposes, including—in this case—finding out how business confidence is changing. But if the objective is to compare the *level* of confidence to the growth cycle turns, which reflect the *level* of activity (after allowing for long-run trend), then the net balances must be cumulated. Accordingly, we have cumulated the survey net balances for the United Kingdom, and the resulting series on business confidence is presented in Figure 5-17. Cumulating the results does not obscure the clear cyclical behavior of the series: it is highly conforming and quite smooth. But the leads are short. On balance the

Figure 5-17. United Kingdom, CBI Business Confidence Index, Cumulated Net Balance, (3.2.1), 1958-78.



business confidence indicator has a mean lead of three months at peaks, and one month at troughs, with two months reflecting best the lead at all turns. This is well within the parameters traditionally set for roughly coincident indicators—that is, plus or minus three months of the cyclical turn.¹⁵

CONCLUSIONS

In this chapter we have examined the cyclical behavior of qualitative indicators based on survey responses covering orders or order books, inventories, production expectations, profits, selling prices, and business confidence. We have been at pains to distinguish between measures of level and measures of change in each variable. The difference is crucial in evaluating the net balance for analytical or forecast-

ing purposes. The graphic evidence presented throughout Chapter 5 suggests that survey data can provide indicators that match growth cycles with notable fidelity and give relatively few false signals.

The major findings concerning cyclical timing are summarized in Table 5-21. When analyzed in terms of levels, the qualitative indicators exhibit few systematic and substantial leads vis-à-vis growth cycles. An exception is the level of finished goods inventories when treated invertedly. When analyzed as changes, more and longer leads emerge, both in the survey data and in their quantitative equivalents. In most instances the survey changes lag behind the quantitative changes.

This does not, of course, mean that the qualitative indicators are not useful for forecasting purposes. They are often available more promptly than the quantitative indicators. Hence, qualitative indicators may be needed to get an early notion of what is likely to happen to quantitative indicators for which information is not yet available. If the evidence in this chapter explains a tendency among researchers to overlook this source of information in the United States (where the quantitative data are reported relatively promptly), it is nevertheless true that all market-oriented economies interested in developing early-warning systems for cyclical developments would do well to consider both types of indicators.

Clearly, entrepreneurs' views of the future are profoundly conditioned by the immediate past. Hence, the prospective form of many survey questions yields responses that are either coincident with or lag behind the retrospective form. Nonetheless, the results of this chapter suggest that indicator systems can be enriched by efforts to utilize both types of indicator.

Table 5-21. Summary of Cyclical Timing of Qualitative Indicators and Quantitative Equivalents, Market-Oriented Economies.

Comparisons	West	France	Italy	United Kingdom	United States	Japan
	Germany	France	Italy	United Kingdom	United States	Japan
Average Lead (-) or Lag (+), in Months, at Peaks and Troughs						
<i>Analyzed as Levels (1.1, 2.1, 3.2)</i>						
Order Books, Total (1.1)						
Survey vs. Chronology	-1	-4	-3	-	-	-
Quantitative Measure vs. Chronology	-	-	-	-	-	-
Survey vs. Quantitative Measure	-	-	-	-	-	-
Order Books, Export (1.1)						
Survey vs. Chronology	-	+1	-3	-	-	-
Finished Goods Inventories (2.1) and (3.2)						
Survey vs. Chronology	+21	+15	+15	+21	-	-
Survey (Inverted) vs. Chronology	-2	-6	-4	-3	-	-
Raw Materials Inventories (3.2)						
Survey vs. Chronology	-	-	-	+10	-	-
Production Expectations (3.2)						
Survey vs. Chronology	+8	+6	+9	-	-	-
Quantitative Measure vs. Chronology	+1	0	-1	-	-	-
Survey vs. Quantitative Measure	+7	+5	+10	-	-	-
Business Confidence (3.2)						
Survey vs. Chronology	-	-	-	-2	-	-
<i>Analyzed as Changes (1.2, 2.2, 3.1)</i>						
Order Books, Total (1.2, 3.2)						
Survey vs. Chronology	-8	-13	-13	+2	-	-
Quantitative Measure vs. Chronology	-2	-	-	-6	-	-
Survey vs. Quantitative Measure	-8	-	-	+9	-	-
Order Books, Export (1.2)						
Survey vs. Chronology	-6	-11	-12	-	-	-

Finished Goods Inventories (2.2) and (3.1) Survey vs. Chronology	+8	+8	+7	+5	-	-
Raw Materials Inventories (3.1) Survey vs. Chronology	-	-	-	-6	-	-
Profits (3.1) Survey vs. Chronology	-	-	-	-	-3	-5
Quantitative Measure vs. Chronology	-	-	-	-	-6	-8
Survey vs. Quantitative Measure	-	-	-	-	+1	+4
Price Less Cost (3.1) Survey vs. Chronology	-	-	-	-7	-	-
Quantitative Measure vs. Chronology	-	-	-	-6	-	-
Survey vs. Quantitative Measure	-	-	-	+3	-	-
Production Expectations (3.1) Survey vs. Chronology	-4	-	-	-8	-	-
Quantitative Measure vs. Chronology	-11	-	-	-7	-	-
Survey vs. Quantitative Measure	+6	-	-	+3	-	-
Selling Price Expectations (3.1) Survey vs. Chronology	+4	+3	-1	-	-	-
Quantitative Measure vs. Chronology	-1	-6	-6	-	-	-
Survey vs. Quantitative Measure	+6	+6	+5	-	-	-

Source: Tables 5-2 through 5-20.

NOTES TO CHAPTER 5

1. J.-D. Lindlebauer, "The Business Climate as Leading-Indicator" (*Lecture Notes in Economics and Mathematical Systems*, No. 146), in W. H. Strigel, ed., *In Search of Economic Indicators, Essays on Business Surveys* (Berlin: Springer-Verlag, 1977), p. 62.

2. The results were published in 1960 as a Universities-NBER Conference report, *The Quality and Economic Significance of Anticipations Data* (Princeton, N.J.: Princeton University Press, 1960).

3. Recently, the CBI has introduced a question regarding order books, which is in the same form as the EEC question. But this question is too new to have produced a series long enough to accommodate cyclical analysis.

4. These results were originally presented at the fourteenth CIRET Conference held in Lisbon in September 1979 and were subsequently published in Philip A. Klein and Geoffrey H. Moore, "Industrial Surveys in the United Kingdom, Part I, New Orders," *Applied Economics* 13 (June): 315-17.

5. The averages in Table 5-7 are a bit misleading because of the failure of one pair of turns in the actual series to match growth cycle turns. The average lag of the survey, relative to the quantitative series, is six months, but the difference in the averages for both peaks and troughs, between the survey results and the actual series, is only one month. Closer inspection shows the expected difference between the two at troughs, but not at peaks. The set of turns, which can be compared to the survey results but not to the growth turns (turns are not compared where they cross an opposite turn), occurred in the mid-1960s. The trough in the quantitative series can be compared with the cycle trough in 1967 only by crossing the intervening peak. This anomaly causes the difference in the averages we are comparing.

6. The material in this section, as well as in the subsequent sections on profits and business confidence, pertaining to the United Kingdom was originally published in Philip A. Klein and Geoffrey H. Moore, "Industrial Surveys in the United Kingdom, Part II, Stocks, Profits and Business Confidence Over the Business Cycle," *Applied Economics* 13 (December 1981): 465-80.

7. As was the case with orders, the EEC question asks how stocks are related to "normal" levels (2.1 in Table 5-1), while the CBI asks whether the trend for the past four months has been "up" or "down" (2.1 in Table 5-1). By taking the first difference of the EEC net balances (2.2 in Table 5-1), we can obtain a net balance equivalent to the change in inventories, and by cumulating the CBI net balances (3.2) we can obtain the level equivalent. We can then consider the relationships of levels and changes in inventories to the growth cycle. While the procedures are reversed analytically, both surveys produce information that can be manipulated to relate it to quantitative data for inventory changes and levels.

8. Our discussion of profits draws heavily on Philip A. Klein and Geoffrey H. Moore, "Monitoring Profits During Business Cycles" (Paper presented at the 15th CIRET Conference held in Athens in October 1981, and published in Helmut Laumer and Maria Ziegler, eds., *International Research on Business*

Cycle Surveys [Aldershot, England: Gower Publishing Co., Ltd., 1982], pp. 55-92).

9. Wesley C. Mitchell, *Business Cycles and Their Causes* (Berkeley: University of California Press, 1941), p. 61. Reprinted from Mitchell's 1913 volume, *Business Cycles*.

10. At U.S. growth cycle turns, 1948 to 1978, these measures behaved as follows:

	Mean Lead (-) or Lag (+), in Months		
	Peaks	Troughs	Peaks and Troughs
Corporate Profits	-3	-2	-3
Corporate Profit Margins	-5	0	-3
Ratio, Price to Unit			
Labor Cost	-11	-5	-8
Price Change Less Unit			
Labor Cost Change	-6	-6	-5
Profit Margin Change	-7	-5	-6

Source: P. A. Klein and G. H. Moore, "Monitoring Profits During Business Cycles," Tables 1 and 3.

11. We have obtained and analyzed comparable qualitative data for Australia and the results are similar to those summarized here. See Klein and Moore, "Monitoring Profits During Business Cycles."

12. The findings for Japan, based on analysis of the relevant figures (not shown) are as follows: The survey of trade profitability leads the growth cycle chronology by nine months at peaks, by one month at troughs, and by five months at both (there is, however, only one comparison for each turn). Actual operating profits lead by an average of nine months at peaks, eight months at troughs, and eight months at both peaks and troughs. The survey lags actual profits by eight months at peaks, two months at troughs, and four months at both.

13. The expected changes should be cumulated with the previously reported cumulated *actual* changes in order to derive the expected level four months ahead, since respondents presumably know the actual level of production at the time they report prospective changes. Our procedure does not take this into account.

14. Werner H. Strigel, "The 'Business Climate' as Leading Indicator" in W. H. Strigel, ed., *In Search of Economic Indicators*, p. 76.

15. The CBI also includes a question in which replies are not in net-balance form. This question asks what factors are most likely to limit output in the next four months. One possible constraint, the availability of skilled labor, could in principle be a reliable leader by anticipating changes in production. However, the turns in the series are virtually coincident (plus two months at peaks, minus one month at troughs, or zero overall timing). In effect, then, the replies reinforce the conclusion just reached concerning the coincident character of business confidence—by the time entrepreneurs regard skilled labor as the most (or least) likely constraint on production in the immediate future, the peak (or trough) in the cycle has been reached as well.