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Chapter 8

MONITORING INFLATION RATES DURING GROWTH CYCLES

There is no economic problem more widely discussed and more perplexing for policymakers in modern market-oriented economies than bringing down inflation rates. For many years and in many countries inflation rates have appeared to be impervious to efforts aimed at reducing them. Some indication of the variety of experience in different countries is provided by Table 8-1. The first two columns show the long-run tendency, while the third column shows the rate of inflation in a short period in the recent past.

Economists have speculated at length over the differences in inflation rates of modern economies. Here we are concerned with the relation between inflation and growth cycle experience. Inflation rates

Table 8-1. Inflation Rates in Seven Market-Oriented Economies.

	Consumer Price Index		
Country	*Index, December 1982 (1967 = 100)*	*Annual Rate, 1967 to December 1982*	*Change Over 12 Months, December 1982*
United States	292.4	7.2	3.9
Japan	306.0	7.5	2.1
West Germany	199.4	4.6	4.6
United Kingdom	522.9	11.3	5.4
France	386.4	9.1	9.7
Italy	594.4	12.1	16.3
Canada	313.4	7.6	9.3

Source: *Business Conditions Digest*, Dept. of Commerce (May 1983): 95-96.

Table 8-2. Inflation Rate Cycles in Seven Market-Oriented Economies vs. the United States, 1949-80.

Part A. Inflation Rate Cycles[a]

United States		*West Germany*		*Italy*		*France*		*United Kingdom*		*Japan*		*Canada*	
P	T	P	T	P	T	P	T	P	T	P	T	P	T
	7/49		3/50		3/50		8/49		n.m.[b]		4/50		2/50
2/51		6/51		4/51		6/51		8/51		3/51			
	3/53		11/53		9/53		n.m.		n.m.		10/52		10/52
10/53		n.m.		7/54		n.m.		n.m.		10/53		8/54	
	10/54		n.m.		5/57		11/53		1/54		12/54		7/55
8/57		3/56		5/58		3/58		11/55		7/57		12/56	
	3/59		5/59		4/59		n.m.		7/59		3/58		n.m.
10/59		n.m.		n.m.		n.m.		n.m.		2/60		n.m.	
	6/61		n.m.		n.m.		6/61		n.m.		11/60		10/61
10/66		10/65		2/63		6/62		4/65		4/65		n.m.	
	5/67		12/67		9/68		7/67		10/67		7/67		n.m.
2/70		n.m.		n.m.		3/69		6/71		7/69		6/69	
	6/72		n.m.		n.m.		1/71		4/72		4/72		12/70
10/74		12/73		10/74		7/74		6/75		2/74		12/74	
	6/76		9/78		9/75		1/78		5/78		8/75		8/76
3/80		5/80		2/80		3/80		4/80		6/80		6/81	

Part B. Lead (-) or Lag (+), in Months, at U.S. Inflation Rate Turns

United States Inflation Rate Chronology		*West Germany*		*Italy*		*France*		*United Kingdom*		*Japan*		*Canada*	
P	T	P	T	P	T	P	T	P	T	P	T	P	T
	7/49		+8		+11		+1		n.m.		+9		+7
2/51		+4		+2		+4		+6		+1		+1	
	3/53		n.m.		+6		n.m.		n.m.		-5		-5
10/53		n.m.		+9		n.m.		n.m.		0		+10	
	10/54		-11		+31		-9		-9		+2		+9
8/57		-17		+9		+7		-21		-1		-8	
	3/59		+2		+1		n.m.		+4		-12		n.m.
10/59		n.m.		n.m.		n.m.		n.m.		+4		n.m.	
	6/61		n.m.		n.m.		0		n.m.		-7		+4
10/66		-12		-41		-52		-18		-18		n.m.	
	5/67		+7		+16		+2		+5		+2		n.m.
2/70		n.m.		n.m.		n.m.		-11		+16		-8	
	6/72		n.m.		n.m.		-17		-2		-2		-18
10/74		-10		0		-3		-8		-8		+2	
	6/76		+27		-9		+19		+23		-10		+2
3/80		+2		-1		0		+1		+3		+15	
Mean at:													
P		-7		-4		-9		-8		0		+2	
T			+7		+9		-1		+4		-3		0
P + T		0		+3		-4		-3		-2		+1	
Median at:													
P		-10		+1		0		-10		0		+2	
T			+7		+9		+1		+4		-4		+3
P + T		+2		+4		0		-2		0		+2	

Notes:
a. Based on turning points in the rate of change in the consumer price index.
b. n.m. = No matching turn.

may be analyzed for evidence of cyclical behavior, which can be related to growth cycle turns, in precisely the same way that the other variables we have considered can be studied. We have chosen to measure inflation rates by examining the movements in the consumer price index for seven countries, and the results of this analysis are summarized in Table 8-2.

We shall turn our attention to the relationship between real growth cycles and inflation rate cycles in each country shortly, but before doing so it is useful to compare the timing of turns in the inflation rates for other countries to turns in the U.S. inflation rate cycles, just as we did with respect to growth cycles in Chapter 6. The evidence is shown in Part B of Table 8-2. If it is difficult to argue convincingly that any one country consistently leads other countries into or out of real growth cycles, it is equally difficult to prove that inflation rates move earlier in one country than in another. One might expect the Common Market countries to influence one another's inflation rates more strongly than any influence from the United States. But the evidence in the table does not support this notion very strongly.

Indeed, the table suggests that no particular country invariably initiates inflationary outbursts or retreats from such outbursts. If we compare the turning points in inflation rate cycles for any particular country with those of the United States, we find great variation in the timing of both peaks and troughs.

In the general frustration over unacceptably high inflation rates in recent years, it is easy to overlook the fact that inflation rates themselves are cyclical. It is possible to examine these cycles in inflation rates in much the same way we considered cycles in indicators of instability. In Figure 8-1 and Tables 8-3 to 8-9 we compare inflation rate cycles with the growth cycle chronologies developed in earlier chapters. The evidence shows that reductions in inflation rates have continued to occur in the 1970s, and that these reductions have almost always been associated with growth recessions.

Taking the seven countries as a group, there have been a total of forty-six growth recessions since 1950, and there have been thirty-six periods during which inflation rates fell. Only two reductions in inflation rates were not accompanied by growth recessions. Inflation rates usually began falling after the onset of recession.

In the United States there have been nine declines in the inflation rate since 1948 and each has been accompanied by a growth recession (Table 8-3). Only twice during this period did the decline in inflation rate precede the onset of recession. During the 1962-64 growth recession there was no decline in inflation. The actual infla-

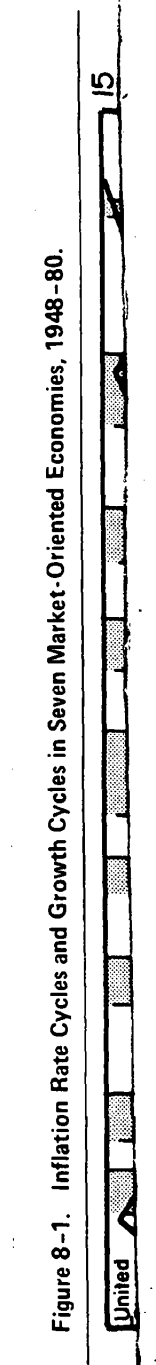
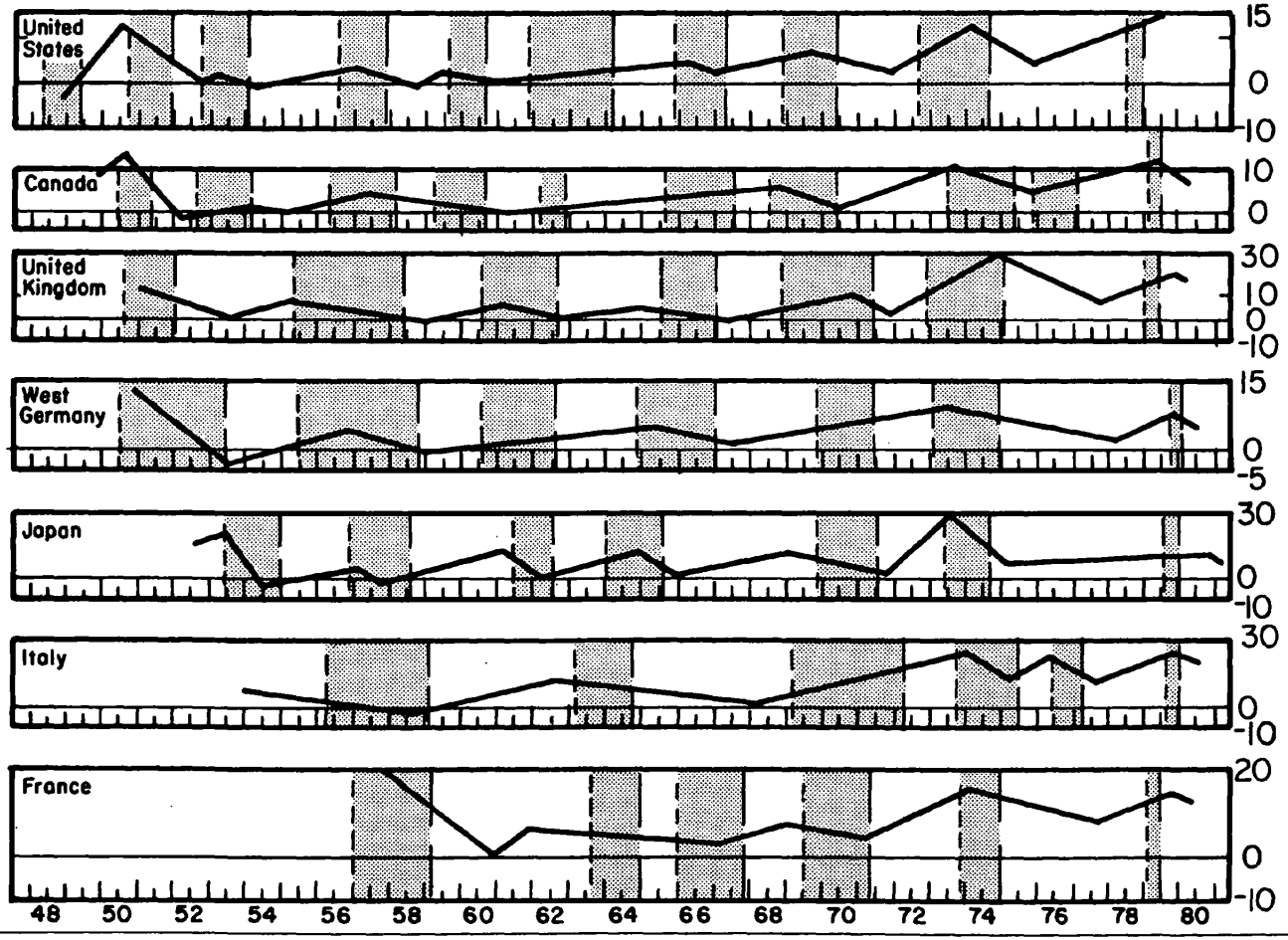


Figure 8-1. Inflation Rate Cycles and Growth Cycles in Seven Market-Oriented Economies, 1948-80.

Figure 8-1. Inflation Rate Cycles and Growth Cycles in Seven Market-Oriented Economies, 1948-80.



Note: Shaded areas represent the growth cycle recessions in each country.

Table 8-3. United States, Behavior of Inflation at Growth Cycle Turns.

Date of Growth Cycle[a]		*Rate of Change in Consumer Price Index*[b]			
		Date of Turn and Lead (-) or Lag (+), in Months		*Percentage Rate at Inflation*	
Peak	*Trough*	*Peak*	*Trough*	*Peak*	*Trough*
(1)		*(2)*		*(3)*	
7/48					
	10/49		7/49 (-3)		-3.1
3/51		2/51 (-1)		12.8	
	7/52		3/53 (+8)		0.2
3/53		10/53 (+7)		1.7	
	8/54		10/54 (+2)		-1.2
2/57		8/57 (+7)		3.7	
	4/58		3/59 (+11)		0.2
2/60		10/59 (-4)		1.9	
	2/61		6/61 (+4)		0.6
5/62		n.m.[c]		—	
	10/64		n.m.		—
6/66		10/66 (+4)		4.0	
	10/67		5/67 (-5)		2.1
3/69		2/70 (+11)		6.3	
	11/70		6/72 (+19)		2.9
3/73		9/74 (+18)		12.4	
	3/75		6/76 (+15)		4.9
12/78		3/80 (+15)		15.2	
Average Timing at:					
P		+7 mos.		+7.2%	
T			+5 mos.		+0.8%
P + T		+6 mos.		+4.0%	

Notes:
a. Based on the consensus of turning points in trend-adjusted data for selected measures of aggregate output, income, sales, and employment.
b. Change over six months, smoothed (not centered). Centering the rates would increase the leads by three months and reduce the lags by three months.
c. n.m. = No matching turn.

tion rate was negative at two of the inflation rate troughs. The top U.S. inflation rates remained relatively modest during the 1950s and 1960s but attained double-digit levels in the 1970s.

There is greater disparity between inflation rate cycles and growth recessions in Canada (Table 8-4) than for any other country considered here. A number of recessions occurred without a corresponding decline in the inflation rate. Nevertheless, the average lag of the inflation rate at growth cycle turns is about the same in Canada as in the United States, and the average size of the swings in inflation also have been about the same.

Table 8-4. Canada, Behavior of Inflation at Growth Cycle Turns.

Date of Growth Cycle[a]		*Rate of Change in Consumer Price Index*[b]			
		Date of Turn and Lead (-) or Lag (+), in Months		*Percentage Rate at Inflation*	
Peak	*Trough*	*Peak*	*Trough*	*Peak*	*Trough*
(1)		(2)		(3)	
4/51		4/51 (0)		13.3	
	12/51		12/52 (+12)		-1.9
3/53		8/54 (+17)		1.3	
	10/54		7/55 (+9)		0.0
11/56		11/56 (0)		3.9	
	8/58		n.m.		—
10/59		n.m.[c]		—	
	3/61		10/61 (+8)		0.0
3/62		n.m.		—	
	5/63		n.m.		—
3/66		n.m.		—	
	2/68		n.m.		—
2/69		6/69 (+4)		5.8	
	12/70		12/70 (0)		0.9
2/74		12/74 (+10)		12.3	
	10/75		n.m.		—
5/76		n.m.		—	
	7/77		8/76 (-11)		5.5
9/79		n.m.		—	
	6/80		n.m.		—
Average Timing at:					
P		+6 mos.		+7.3%	
T			+4 mos.		+0.9%
P + T		+5 mos.		+4.1%	

Notes:
a. Based on the consensus of turning points in trend-adjusted data for selected measures of aggregate output, income, sales, and employment.
b. Change over six months, smoothed (not centered). Centering the rates would increase the leads by three months and reduce the lags by three months.
c. n.m. = No matching turn.

In the United Kingdom (Table 8-5), as in the United States, inflation rate declines normally follow growth recessions, although there was a decline in inflation in 1976 (see Figure 8-1) unaccompanied by recession. There were also two inflation rate declines that preceded the onset of recession, although in general recessions preceded inflation rate declines. Inflation rates, moreover, continued to decline for more than a year after an upturn in the growth cycle. The inflation rates themselves are highly cyclical, rising to far higher levels at peaks than in the United States.

Table 8-5. United Kingdom, Behavior of Inflation at Growth Cycle Turns.

Date of Growth Cycle[a]		*Rate of Change in Consumer Price Index*[b]			
		Date of Turn and Lead (-) or Lag (+), in Months		*Percentage Rate at Inflation*	
Peak	*Trough*	*Peak*	*Trough*	*Peak*	*Trough*
(1)		*(2)*		*(3)*	
3/51		8/51 (+6)		13.8	
	8/52		1/54 (+17)		0.3
12/55		11/55 (-1)		7.6	
	11/58		7/59 (+8)		0.0
3/61		8/61 (+6)		6.3	
	2/63		7/63 (+5)		0.6
2/66		4/65 (-10)		5.6	
	8/67		10/67 (+2)		0.7
6/69		6/71 (+24)		10.6	
	2/72		4/72 (+2)		4.7
6/73		6/75 (+24)		30.1	
	8/75		5/78 (+33)		7.0
6/79		4/80 (+10)		20.8	
Average Timing at:					
P		+8 mos		+13.5%	
T			+11 mos.		+2.2%
P + T		+10 mos.		+8.3%	

Notes:
a. Based on the consensus of turning points in trend-adjusted data for selected measures of aggregate output, income, sales, and employment.
b. Change over six months, smoothed (not centered). Centering the rates would increase the leads by three months and reduce the lags by three months.

In West Germany (Table 8-6), where perhaps the memory of the staggering inflation levels of the 1920s has been instrumental in motivating policies to keep inflation down, a reduction in inflation accompanied five of the seven recessions. Recoveries from recessions were also usually accompanied within a short time by a renewed rise in inflation. The peak inflation rates were modest compared to the other countries considered here, with the trough rates either negative or very low.

In Japan (Table 8-7) all the reductions in the inflation rate were accompanied by growth recessions. Here, however, we note that peaks of the inflation rate cycles often preceded the onset of growth recessions, and in half of the recoveries the inflation rate began to rise before the growth cycle turned around. The Japanese inflation rates at cyclical peaks were high in comparison to other countries, but the declines from peak to trough were large.

Table 8-6. West Germany, Behavior of Inflation at Growth Cycle Turns.

Date of Growth Cycle[a]		*Rate of Change in Consumer Price Index*[b]			
		Date of Turn and Lead (-) or Lag (+) in Months		*Percentage Rate at Inflation*	
Peak	*Trough*	*Peak*	*Trough*	*Peak*	*Trough*
(1)		*(2)*		*(3)*	
2/51		6/51 (+4)		12.4	
	2/54		11/53 (-3)		-3.2
10/55		4/56 (+6)		3.7	
	4/59		5/59 (+1)		-0.2
2/61		n.m.[c]		—	
	2/63		n.m.		—
5/65		10/65 (+5)		4.6	
	8/67		12/67 (+4)		0.6
5/70		n.m.		—	
	12/71		n.m.		—
8/73		12/73 (+4)		8.5	
	5/75		10/78 (+41)		2.1
2/80		5/80		6.0	
Average Timing at:					
P		+5 mos.		+7.0%	
T			+11 mos.		-0.2%
P + T		+8 mos.		4.3%	

Notes:
a. Based on the consensus of turning points in trend-adjusted data for selected measures of aggregate output, income, sales, and employment.
b. Change over six months, smoothed (not centered). Centering the rates would increase the leads by three months and reduce the lags by three months.
c. n.m. = No matching turn.

In Italy (Table 8-8) the inflation rate/growth cycle relationship is similar to the pattern found in other countries except that there was one recession—the rather lengthy one from late 1969 to September 1972—during which the inflation rate continued to rise. There were no declines in inflation rate unaccompanied by a growth recession. A decline in inflation either coincided with or preceded a growth recession in every case but one. The tenacity of Italian inflation rate difficulties can be seen in the high rates attained at peaks and the high (if somewhat lower) rates at inflation cycle troughs since the mid-1970s.

France, like Canada, provides an example in 1965-66 of a growth cycle expansion without a matching rise in the inflation rate (Table 8-9). On the whole, however, the correspondence between growth cycles and inflation in France resembles experience elsewhere. Growth recessions and declines in inflation match. At turning points leads have occurred about as frequently as lags.

Table 8-7. Japan, Behavior of Inflation at Growth Cycle Turns.

Date of Growth Cycle[a]		*Rate of Change in Consumer Price Index*[b]			
		Date of Turn and Lead (-) or Lag (+), in Months		*Percentage Rate at Inflation*	
Peak	*Trough*	*Peak*	*Trough*	*Peak*	*Trough*
(1)		*(2)*		*(3)*	
12/53		10/53 (-2)		18.1	
	6/55		12/54 (-6)		-3.2
5/57		7/57 (-2)		5.4	
	1/59		3/58 (-10)		-1.2
1/62		11/61 (-2)		10.2	
	1/63		9/62 (-4)		2.7
7/64		4/65 (+9)		10.0	
	2/66		6/67 (+17)		1.5
6/70		7/69 (-11)		9.8	
	1/72		4/72 (+3)		3.5
11/73		2/74 (+3)		30.0	
	3/75		8/75 (+5)		7.9
2/80		6/80 (+4)		9.2	
Average Timing at:					
P		0 mos.		+13.2%	
T			+1 mo.		+1.9%
P + T		0 mos.		+8.0%	

Notes:
a. Based on the consensus of turning points in trend-adjusted data for selected measures of aggregate output, income, sales, and employment.
b. Change over six months, smoothed (not centered). Centering the rates would increase the leads by three months and reduce the lags by three months.

The record for the seven countries as a group, therefore, establishes a close association between growth cycles and inflation (see Figure 8-1). Altogether 98 growth cycle peaks and troughs occurred in the seven countries, and at 78 of these, or 80 percent, there was a matching turn in the inflation rate. In 51 instances the inflation turn occurred after the growth cycle turn. In 5 instances the turns coincided, while in 22 the inflation turn occurred first. Inflation lagged the growth cycle more than twice as often as it led. Slow growth has been conducive to slower inflation, rapid growth to faster inflation.

This relationship is well founded in the theory underlying business cycle indicators reviewed in Chapter 1. Periods of rapid growth produce conditions that lead to rising rates of inflation, while periods of slow growth have the opposite effect. When ordering is brisk and order backlogs accumulate, sellers have more opportunities and incentives to raise prices, and buyers are less adverse to paying them.

Table 8-8. Italy, Behavior of Inflation at Growth Cycle Turns.

Date of Growth Cycle[a]		*Rate of Change in Consumer Price Index*[b]			
		Date of Turn and Lead (-) or Lag (+), in Months		*Percentage Rate at Inflation*	
Peak	*Trough*	*Peak*	*Trough*	*Peak*	*Trough*
(1)		*(2)*		*(3)*	
10/56		7/54 (-27)		5.8	
	7/59		4/59 (-3)		-2.5
9/63		2/63 (-7)		9.4	
	3/65		9/68 (+42)		0.5
8/69		n.m.[c]		—	
	9/72		n.m.		—
4/74		9/74 (+5)		26.0	
	5/75		10/75 (+5)		10.4
12/76		12/76 (0)		22.2	
	10/77		4/78 (+6)		11.3
2/80		2/80 (0)		22.3	
Average Timing at:					
P		-6 mos.		+17.1%	
T			+12 mos.		+4.9%
P + T		+2 mos.		+11.7%	

Notes:
a. Based on the consensus of turning points in trend-adjusted data for selected measures of aggregate output, income, sales, and employment.
b. Change over six months, smoothed (not centered). Centering the rates would increase the leads by three months and reduce the lags by three months.
c. n.m. = No matching turn.

Costs of production tend to creep up, labor turnover increases, control over efficiency and waste tends to decline. New commitments for investment are made in an optimistic environment, building up the demand for limited supplies of skilled labor and construction equipment. Credit to increase inventories is more readily available and is also in greater demand, even if higher interest rates must be paid for it, thus raising costs. Labor unions see better opportunities to obtain favorable contract settlements, and their members are more willing to strike to get them. These conditions apply to more and more firms and industries and produce upward pressure on more and more prices. Indeed, one of the principal factors underlying a rising rate of inflation in the general price level is not just that some prices rise in big jumps but that more prices rise at more frequent intervals.

During periods of slow growth or actual decline in aggregate economic activity, the opposite conditions prevail. Firms and industries cut back their output, reduce or eliminate overtime, shave costs, give

Table 8-9. France, Behavior of Inflation at Growth Cycle Turns.

Date of Growth Cycle[a]		*Rate of Change in Consumer Price Index*[b]			
		Date of Turn and Lead (-) or Lag (+), in Months		*Percentage Rate at Inflation*	
Peak	*Trough*	*Peak*	*Trough*	*Peak*	*Trough*
(1)		(2)		(3)	
8/57		3/58 (+7)		20.5	
	8/59		6/61 (+22)		0.8
2/64		5/62 (-21)		6.2	
	6/65		n.m.		—
6/66		n.m.[c]		—	
	5/68		7/67 (-10)		2.2
11/69		5/69 (-5)		6.5	
	11/71		1/71 (-10)		4.4
5/74		7/74 (+2)		15.3	
	6/75		1/78 (+33)		8.0
8/79		3/80 (+7)		14.2	
Average Timing at:					
P		-5 mos.		+12.5%	
T			+9 mos.		+3.8%
P + T		+2 mos.		+9.0%	

Notes:
a. Based on the consensus of turning points in trend-adjusted data for selected measures of aggregate output, income, sales, and employment.
b. Change over six months, smoothed (not centered). Centering the rates would increase the leads by three months and reduce the lags by three months.
c. n.m. = No matching turn.

bigger discounts off list prices, reduce inventories, repay bank debt, and postpone new investment projects or stretch out existing ones. Quit rates decline and labor demands for pay raises become more conservative. Interest rates drop. As price increases become less widespread and less frequent, and as more price cutting occurs, the rate of inflation declines.

Price pressures are, therefore, part of the overall set of interrelationships that make up the aggregate economic activity under study. The cyclical variation in rates of inflation is clearly part of the process indicators attempt to monitor. As such, the conclusions based on Figure 8-1 are to be expected. But they do not address the efficacy (or futility) of any of the policies pursued in any of the countries under review to moderate inflation. We find inflation rate fluctuations occurring among the seven countries during periods of governmental intervention as well as during periods of governmental inaction; inflation rates fluctuate in countries pursuing monetarist

policies, incomes policies, or traditional monetary-fiscal countercyclical policies. The cycles appear in countries with a relatively large public sector and in those with relatively small public sectors. They occur when governmental deficits are large relative to GNP and when they are small (or even replaced by a surplus). Under all these diverse circumstances the link between inflation rate reduction and recessions appears to be strong.

Careful analysis of the pattern reflected in movements in leading, roughly coincident, and lagging indicators can find quite as legitimate a place in the study of inflation rates as it does in the study of fluctuations in real aggregate economic activity. The conclusion to be drawn from the evidence in this chapter is mainly that fluctuations in both real and price phenomena are distinctly part of the same process, and we might expect, therefore, that a system of indicators that proves helpful in monitoring fluctuations in real activity can readily be adapted to monitoring fluctuations in inflation rates. Research in this area ought, therefore, to have a high priority.