Inflation and the business cycle during the postwar period

At this stage of the economic expansion, the moderate rise in consumer prices is consistent with the record for similar cyclical periods since the end of World War II

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Inflation in both retail and primary markets has remained relatively low despite the rapid growth in economic output since the trough of the last recession in November 1982. In the ensuing 22 months of the current expansion, consumer prices have advanced at a 3.6-percent seasonally adjusted annual rate, with the 3 months ended in September increasing at a seasonally adjusted annual rate of 4.5 percent. In this article, we describe the behavior of prices in the current and previous business expansions and examine some of the major factors associated with those changes. It is our objective to provide historical context and perspective within which the reader may evaluate current price behavior and forecasts.

In the post-World War II period, the U.S. economy has undergone eight recessions in business activity.[1] While these periods have evolved from different initial conditions, extended over varying periods of duration, and been subject to different external shocks and economic policies, they have been characterized by similarities in the qualitative behavior of prices. Table 1 summarizes the behavior of several measures of consumer price change for the recession peaks and troughs, and at selected dates of the subsequent business expansion. Tables 2 and 3 present selected changes in producer prices and labor costs for the same times.[2] The first seven columns of the tables provide the data for each of the first seven recessions and expansions in the postwar era. The eighth column of data is the average of all seven recessions and expansions prior to the most recent. The ninth column is the average of the first six periods, because the expansion after the 1980 recession was only 12 months long. Consequently, the "expansion" measures for that period extend into the subsequent recession.

The 1981–82 recession. At the trough of the 1981–82 recession, the Consumer Price Index for All Urban Consumers (CPI-U) was increasing at a seasonally adjusted annual rate of 1.7 percent. (See table 1.) The deceleration in prices had begun, in the fourth quarter of 1981, shortly after the business cycle peak in July. This price slowdown, of course, was not uniform, either among types of items or stages of processing. Analysis of the recovery period since November 1982 is complicated by the fact that the homeowner cost portion of the CPI-U was changed to a rental equivalence basis in January 1983. To facilitate comparisons, we include in table 1 parenthetical data for the 1981–82 recession based on the rental equivalence prototype. That index (CPI–U, X1) essentially shows much less deceleration during the recession but a further drop in inflation since then. After 22 months of economic expansion, price changes are still moderate. This is consistent with postwar experience.

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Table 1. The Consumer Price Index (CPI–U) and key categories, by selected phases of the postwar business cycle

[3-month seasonally adjusted annual rates]

Index and cyclical stage	Dates of recession trough							Cyclical average, Nov. 1948 to July 1980	Cyclical average, Nov. 1948 to Mar. 1975	Recession trough, Nov. 1982[1]
	Oct. 1949	May 1954	Apr. 1958	Feb. 1961	Nov. 1970	Mar. 1975	July 1980			
All items:										
At prerecession business peak	-4.3	1.5	4.1	2.3	6.3	8.2	15.8	4.8	3.0	11.7 (7.8)
At recession trough	-.6	-.8	4.3	.8	5.9	6.6	8.3	3.5	2.7	1.7 (6.2)
22 months after trough	-2.0	.4	.8	-.5	4.2	6.1	4.7	2.0	1.5	4.5 (4.5)
24 months after trough	3.9	2.6	2.3	1.2	4.5	8.5	10.7	4.8	3.8	
30 months after trough	.2	3.0	2.7	3.1	8.7	5.4	.0	3.3	3.9	
Food:										
At prerecession business peak	-12.7	1.0	10.4	6.1	9.7	6.9	9.2	4.4	3.6	4.5
At recession trough	.0	-1.4	11.4	.4	2.5	1.9	9.2	3.4	2.5	1.5
22 months after trough	-6.1	-1.0	-1.4	-2.6	6.7	2.0	2.7	.0	-.4	3.4
24 months after trough	6.5	5.6	6.1	2.2	8.3	11.8	6.1	6.7	6.8	
30 months after trough	-2.3	3.9	5.6	3.6	24.2	4.0	1.8	5.8	6.5	
Shelter:										
At prerecession business peak		1.6	1.5	1.8	7.5	13.4	21.2	7.8	5.2	20.8
At recession trough		3.1	3.4	.9	7.2	8.9	10.4	5.7	4.7	-4.0
22 months after trough		-.5	2.3	-.4	4.5	4.7	9.2	3.3	2.1	7.0
24 months after trough		.0	1.8	.4	2.1	8.6	14.5	4.6	2.6	
30 months after trough		1.0	3.2	.9	4.1	9.8	-5.0	2.3	3.8	
Energy:										
At prerecession business peak			-3.9	1.3	1.5	31.4	33.8	12.8	7.6	-1.2
At recession trough			-4.8	-.4	10.1	10.8	6.3	4.4	3.9	11.2
22 months after trough			.9	.8	9.9	18.5	-8.7	4.3	7.5	1.7
24 months after trough			1.3	.4	8.6	7.6	23.6	8.3	4.5	
30 months after trough			.0	.4	9.1	8.2	-6.6	2.2	4.4	
All items less food, shelter and energy:										
At prerecession business peak					4.8	4.1	10.2	6.4	4.5	11.0
At recession trough					6.7	7.1	7.4	7.1	6.9	4.9
22 months after trough					2.3	6.5	6.3	5.0	4.4	4.8
24 months after trough					3.6	6.2	7.3	5.7	4.9	
30 months after trough					4.2	4.6	4.9	4.6	4.4	
Commodities:										
At prerecession business peak			4.6	1.8	6.4	6.8	14.2	6.8	4.9	6.2
At recession trough			4.1	.4	5.0	5.9	7.0	4.5	3.9	3.0
22 months after trough			-.9	-1.3	4.7	4.9	2.2	1.9	1.9	2.3
24 months after trough		3.3	1.8	.4	5.0	8.3	11.3	5.0	3.8	
30 months after trough		3.3	2.2	3.0	11.7	3.7	1.2	4.2	4.8	
Services:										
At prerecession business peak			4.3	4.0	6.4	11.4	17.9	8.8	6.5	18.1
At recession trough			4.2	1.9	7.4	7.7	10.3	6.3	5.3	.1
22 months after trough			4.0	1.4	3.0	8.3	8.1	5.0	4.2	7.0
24 months after trough		2.8	4.0	2.3	3.3	8.6	9.8	5.1	4.2	
30 months after trough		3.9	2.4	2.3	4.2	8.3	-1.6	3.3	4.2	

[1]Numbers in parentheses are for the then experimental index with a rental equivalence measure for homeownership.

Consumer prices. Examining four major categories of the CPI, we see that food prices moderated before prices of shelter, energy, and a residual factor—all items less food, shelter and energy. After "double digit" increases in the last 2 quarters of 1980, food prices decelerated in the first quarter of 1981 and were increasing at only a 4.5-percent rate at the peak of the business cycle in July 1981. At the cyclical trough (November 1982), they were advancing at a 1.5-percent rate. Despite the impact of the Federal payment-in-kind (PIK) farm program, the 1983 summer drought and the early winter freeze in 1984, food prices have continued to register generally moderate increases.

Energy prices began to slow down after March 1981. Prices for petroleum-based items had risen sharply in the first quarter of 1981 due to announced price increases by the Organization of Petroleum Exporting Countries (OPEC) and domestic price decontrol. These increases, combined with a slowdown in economic activity, led to a reduction in the demand for oil and an oversupply of petroleum and generally lower prices for petroleum products. However, prices for both natural gas and electricity were advancing at "double-digit" rates just prior to the recession. Charges for electricity began to slow in the second quarter of 1982, but natural gas prices continued to increase sharply through the first quarter of 1983. By the trough of the recession, however, the overall energy component had moderated.[3] So far in 1984, energy prices have continued to exert a moderating effect on the overall CPI.

Shelter costs in the period prior to the recession trough were dominated by the behavior of house prices and mortgage interest rates. The increase in house prices had slowed early in 1981 and shelter costs were advancing only slightly at the business cycle peak. Interest rates, however, had continued to advance until 1982. A very sharp drop in mort-

Table 2. Key categories of the Producer Price Index by selected phases of the postwar business cycle[1]

Index and cyclical stage	Dates of recession trough							Cyclical averages, Nov. 1948 to July 1980	Cyclical averages, Nov. 1948 to Mar. 1975	Recession trough, Nov. 1982
	Oct. 1949	May 1954	Apr. 1958	Feb. 1961	Nov. 1970	Mar. 1975	July 1980			
Crude materials:										
At prerecession business peak	−1.1	−6.6	3.3	−3.3	8.5	40.1	13.2	7.7	6.8	10.8
At recession trough	−12.8	0.9	3.3	0.3	−0.6	−9.1	9.4	1.2	−3.0	−0.2
22 months after trough	6.5	−2.8	−3.3	0.4	14.3	1.7	−1.8	2.1	2.8	−0.5
24 months after trough	6.2	2.0	−3.3	−1.9	13.9	8.6	−4.1	3.1	4.3	
30 months after trough	−10.4	5.5	−1.2	−1.5	33.6	0.0	−1.4	3.5	4.3	
Intermediate materials:										
At prerecession business peak	−1.5	7.2	3.0	.0	5.8	3.0	18.3	5.1	2.9	4.3
At recession trough	−4.2	0.9	−1.3	.0	3.7	−2.4	9.8	0.9	−.6	1.2
22 months after trough	−10.3	5.4	.0	−.8	4.5	7.0	−2.5	0.5	1.0	−1.9
24 months after trough	−7.1	7.3	.0	−.4	9.1	7.2	2.0	2.6	2.7	
30 months after trough	−3.7	4.0	−.8	.4	19.8	4.8	−0.6	3.4	4.1	
Finished goods:										
At prerecession business peak	−5.3	2.9	3.6	3.9	6.5	2.1	16.0	4.2	2.3	4.1
At recession trough	−3.6	2.8	1.3	−.4	5.9	1.5	12.1	2.8	1.3	3.7
22 months after trough	−4.1	2.3	1.7	−3.3	5.2	7.4	.0	1.3	1.5	.0
24 months after trough	.9	6.2	3.9	−2.1	3.1	9.0	5.4	3.8	3.5	
30 months after trough	.5	8.0	2.1	.0	15.2	5.9	.3	4.6	5.3	

[1]Crude materials series shows the 12-month change; intermediate materials and finished goods series are 3-months seasonally adjusted annual rates.

gage interest in the fourth quarter of 1982 produced declining shelter costs at the end of the recession. As indicated earlier, a major conceptual change in the treatment of homeowner costs, and consequently, shelter costs, was introduced in January 1983.[4] The new rental equivalence measure of homeowner costs shows less volatility than the former asset approach. Comparing the present official measure in September 1984 with the former official measure overstates the acceleration since the recession trough. A shelter component with a rental equivalence measure was not available, but homeowner costs (the only component within shelter affected by the conceptual change) in the experimental CPI-U, XI were increasing at a 7.6-percent rate in November 1982, compared with 7.3 percent in September 1984.

The residual group—all items excluding food, shelter, and energy, referred to by some analysts as the underlying rate of inflation—exhibits more classical price behavior than the other groups. The maximum rate occurred at the peak of the business cycle and the rate of increase decelerated smoothly until turning slightly upward shortly after the trough of the recession. As of September 1984, however, the rate was still below that of the trough of the recession.

Producer prices. The Producer Price Index (PPI) is structured by stages of processing: crude materials, intermediate materials, and finished goods. In July 1981, at the peak of the business cycle, prices for crude materials were still rising at double-digit levels, while those for intermediate materials and finished goods had just decelerated from these levels. Sixteen months later, at the trough of the cycle, prices for

Table 3. The wage and salary component of the Employment Cost Index and unit labor costs, by selected phases of the postwar business cycle

[Quarterly change at an annual rate]

Index and cyclical stage	Dates of recession trough							Cyclical averages, Nov. 1948 to July 1980	Cyclical averages, Nov. 1948 to Mar. 1975	Recession trough, Nov. 1982
	Oct. 1949	May 1954	Apr. 1958	Feb. 1961	Nov. 1970	Mar. 1975	July 1980			
Employment Cost Index										
Wages and salaries:										
At prerecession business peak							9.7			8.2
At recession trough							8.8			7.3
22 months after trough						7.8	7.5			3.5
24 months after trough						7.8	4.6			
30 months after trough						7.5	4.9			
Unit labor costs										
Private business sector, all persons:										
At prerecession business peak	16.2	.0	3.3	.0	8.5	10.0	9.6	6.8	6.3	7.1
At recession trough	−3.0	5.4	3.2	3.9	2.4	11.1	14.9	5.4	3.8	5.0
22 months after trough	9.9	5.4	3.2	−3.0	.6	7.7	8.1	4.6	4.0	−2.0
24 months after trough	−3.7	10.0	.0	.8	2.8	7.7	9.4	3.9	2.9	
30 months after trough	3.8	3.4	.8	−3.7	4.5	5.0	1.6	2.2	2.3	

NOTE: Data refer to quarter preceding that of the recession period.

crude materials were declining while prices for intermediate materials and for finished goods were advancing at less than the prerecession rate. Twenty-two months into the expansion, crude material and intermediate material prices are now declining slightly (down 0.5 percent and 1.9 percent, respectively) and finished goods prices are stable.

Preceding recessions

1948–49 recession. The first post-World War II recession followed a period of rapid expansion and inflation. In November 1947, the CPI was increasing at a 12.4-percent annual rate, but 12 months later, in November 1948, the prerecession peak, the CPI was declining at a 4.3-percent annual rate. But the abatement of the boom did not bring with it an accelerating decline in prices. At the trough, prices were declining, but at a slower rate than 11 months earlier. The recovery from this mild recession was dominated by military developments. After the outbreak of the Korean conflict in June 1950 and a return to a defense economy, output rose sharply and inflationary pressures were evident. Consumer price increases lagged behind raw material prices, but by late 1950 they too were increasing at double-digit rates. In January 1951, price and wage controls were imposed. The CPI included many items for which controls were lacking, or were only partial, and while prices moderated, all major components continued to advance. The largest increases were in the service sector, reflecting increased charges for rents and medical and transportation services.

1953–54 recession. The contraction after July 1953 was largely in the nature of an inventory adjustment. Producer prices peaked with the sharp increase in crude material prices triggered by the Korean conflict and had either declined or remained unchanged until 1955. Consumer price advances had also been moderate, even after price and wage controls had been lifted. At the prerecession peak in July 1953, the CPI was advancing at an annual rate of only 1.5 percent. Ten months later, at the trough of the recession, consumer prices were declining slightly, largely because of a drop in food prices. Increases in prices for nonfood commodities, reflecting the adjustment to decontrol, advanced more than those for services at both peak and trough periods. Twenty-two months into the recovery, prices were rising slightly. However, by April 1956, after 23 months of recovery and almost a year after the first sharp increase in producer prices, the CPI accelerated. Advances in food prices, resulting from a decline in meat supplies, and in prices for services were primarily responsible.

1957–58 recession. A 4-percent rate of increase in the CPI was recorded for both the prerecession peak and trough periods of the third postwar recession. Double-digit increases in food prices, due to supply shortages resulting from lower marketings of livestock and unfavorable weather conditions, were the principal reasons for the relatively large advances for these periods and the lack of a slowdown in the overall CPI during the recession. At a point 22 months past the trough, however, consumer prices were increasing only slightly, as food prices finally began to slow substantially. Prices in the service sector were increasing at a significantly faster rate than those for commodities which were, on average, unchanged. Despite an advance in food prices, this was still the situation in April 1960, 24 months after the trough of the 1957–58 recession as well as the 1960–61 prerecession peak. Producer prices remained relatively stable from early 1958 through the business cycle peak of the following recession. Thirty-four months after the 1957–58 recession trough, we were at the trough of the 1960–61 recession.

1960–61 recession. At the cyclical peak before the 1960–61 recession, the all-items CPI was increasing at an annual rate of 2.3 percent. Food prices were rising at an annual rate of 6.1 percent. Prices for commodities other than food were declining, while service prices were rising at a 4-percent rate. By the trough of the recession (February 1961), consumer prices were increasing at an annual rate of less than 1 percent. All major components of the CPI had slowed substantially by the end of the recession. The ensuing recovery from this recession, the longest to date of the postwar period, was marked by generally stable prices through 1965, with only minor aberrations. Sharp increases in beef and gasoline prices in September 1962 were largely responsible for the seemingly high rate 22 months after the trough. These increases were temporary, as both beef and gasoline prices declined in the succeeding 12 months to a level lower than that before the advance. Other than food, prices for commodities rose less than 1 percent annually from 1960 through 1965, while the service index was registering increases in the 2-percent range. Prices at the producer level were uniformly well-behaved until early 1965.

1969–70 recession. Consumer prices rose 6.1 percent in 1969, the largest annual increase since 1947. The recession which began late in 1969 caused the rate of inflation to subside only partially. Nonfood commodities, which in the past typically responded to a weakening of demand, continued to advance without abatement. The services index also rose steadily until credit markets eased and mortgage interest rates declined in early 1971. Sharply reduced rates of increase in food prices were responsible for the modest deceleration between peak and trough. Nine months after the trough, on August 15, a wage and price freeze was announced. The Phase I freeze and subsequent Phase II controls were accompanied by lower inflation during the rest of 1971 and 1972. Twenty-two months after the recession trough, prices had slowed to a 4.2-percent annual rate of increase. Coincident with the subsequent easing of controls and the Arab oil embargo, consumer prices started on an upward spiral in late 1973, less than 3 years from the bottom of the recession.

1973–75 recession. The business cycle peak of November 1973 followed on the heels of the relaxation of price controls and the oil embargo. Consumer prices had advanced sharply and were accelerating. From December 1973 through January 1975, double-digit increases were recorded by the CPI. By the recession's end in March 1975, the overall CPI was rising at an annual rate of 6.6 percent. Although high by historical standards, this was still below the prerecession peak of 8.2 percent, not to mention the intervening double-digit rates. During the recession, food, shelter, and energy price increases all slowed. Prices for all other items, on average, however, actually accelerated, reflecting in part the time lag associated with producers passing on their higher energy costs. Twenty-two months into the economic recovery, prices were, on average, still moderating, but a few months later a rapid rise in food prices and higher shelter costs temporarily reversed the gains. The jump in food prices reflected adverse winter weather and its effect on fruit and vegetable supplies, as well as the delayed impact of the July 1975 freeze on the Brazilian coffee crop.

1980 recession. The 1980 recession coincided with unprecedented peacetime inflation. At the prerecession peak (January 1980), consumer prices were surging at a 15.8-percent annual rate. While sharp increases were recorded for energy, shelter, and food costs, the "underlying rate of inflation" was also advancing at double-digit rates. Six months later, at the bottom of the recession, prices were increasing at an 8.3-percent rate. This slowdown was only temporary, as consumer prices continued to move up sharply until October 1981, shortly after the start of the next recession.

The current outlook

The first six expansionary periods since World War II have, on average, shown a slowing of consumer price increases during the first 22 months of recovery. By the 24th month of recovery, prices have *on average* begun to rise faster, returning to the rate of price change of the previous cyclical peak. While the average experience is for price acceleration to set in after 2 years of recovery, there is no inevitability about the process. Note, for example, the expansions beginning in 1958 and 1961.

One reason for this dispersion in the historical record, of course, is that the behavior of prices is not autonomous. Business conditions play a major role in determining the path prices take. Those factors which affect the costs of production—such as material and labor costs—and demand also shape the future pattern of price change. While crude materials prices are currently down (0.5 percent) and prices for intermediate materials are also down (1.9 percent), prices for finished goods are unchanged.

Current measures of labor costs indicate a lack of immediate pressure on prices. The wage and salary component of the Employment Cost Index, peaking in 1980, decelerated steadily through the second quarter of 1984. Although the history of this series is short, its 3.5-percent rate of increase is well below the experience of the last two recoveries. Another variable, unit labor cost, which relates changes in labor costs to changes in output, declined in the second quarter of 1984. This variable had registered increases of 7 and 5 percent at the 1981–82 recession peak and trough periods. The deceleration between the recession trough and 22 months into the recovery is typical, but the magnitude—an actual decline in unit labor costs—occurred only in the recovery from the 1960–61 recession. Recent major collective bargaining agreements and the pressure of foreign competition, derived in part from the rising value of the dollar on foreign exchange markets, would appear to preclude a sharp reversal in these trends.

However, in several recessions the runup in prices has not been a continuous process, but rather a sharp jump in response to rapid contextual changes. In two instances, military conflicts coincided with the acceleration and in two others, the vulnerability to a reduction in the supply of petroleum triggered an inflationary spiral. Such events are, of course, difficult to foresee. □

——*FOOTNOTES*——

[1] As designated by the National Bureau of Economic Research, Inc., the turning points for the eight postwar recessions are:

Recession	*Peak (beginning of recession)*	*Trough (end of recession)*
1948–49	November 1948	October 1949
1953–54	July 1953	May 1954
1957–58	August 1957	April 1958
1960–61	April 1960	February 1961
1969–70	December 1969	November 1970
1973–75	November 1973	March 1975
1980	January 1980	July 1980
1981-82	July 1981	November 1982

[2] Unless otherwise specified, all annual rates are based on 3-month price changes. The PPI for crude materials is highly volatile so annual rates for it are based on full 12-month changes. The unit labor cost and Employment Cost Index series are quarterly rates. Comparisons of turning points between series with different spans for calculating rates must be adjusted for the midpoints of the different spans. The analysis in this article, however, focuses on the comparison of each series to itself in different time periods and so, generally, avoids this problem.

[3] The 3-month seasonally adjusted annual rate for November 1982—up 11.2 percent—is misleading. The change for the 12 months ended in November was 2.1 percent and for the 12 months ended in November 1983, −0.6 percent.

[4] "Changing the Homeownership Component of the Consumer Price Index to Rental Equivalence," *The CPI Detailed Report*, January 1983, pp. 7–11.