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12 The Anatomy of Double-Digit Inflation in the 1970s

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12.1 Introduction and Summary

The 1970s was the decade of inflation in the United States. While it may be surprising to some that the average inflation rate for the decade as a whole was only 6.8%, this rate is double the long-run historical average and nearly triple the rate of the previous two decades (see table 12.1). In addition to the high *average* inflation rate, we were plagued by extremely *variable* inflation rates during the 1970s. In both respects, the 1970s had much in common with the 1940s and were very different from the 1960s (see table 12.1 again).

This paper seeks to explain inflation in the 1970s, and especially the two episodes of "double-digit" inflation: 1974 and 1979–80. There are many parallels between the 1973–75 period and the 1978–80 period. The underlying nature of the two inflationary episodes was much the same; food and energy "shocks" precipitated both. In both periods, inflation was very uneven; some prices rose extremely rapidly while others rose moderately. Thus the inflation of the 1970s was accompanied by substantial changes in relative prices. The direction of causation here is not obvious; indeed, causation is unlikely to have been entirely unidirectional. While it is now part of the conventional wisdom that high rates of inflation cause changes in relative prices, I wish to propound the view here that the lines of causation during the 1970s ran mostly the other way: large unavoidable adjustments in relative prices bred inflation.

Table 12.1   Historical Inflation Data, 1930–80

Period	Mean Inflation Rate	Standard Deviation
1930–40	−1.10%	5.73
1940–50	6.35%	3.47
1950–60	2.38%	1.52
1960–70	2.56%	1.29
1970–80	6.85%	2.20
1930–80	3.41%	4.38

Source: Bureau of Economic Analysis.
Note: Based on implicit deflator for personal consumption expenditures, annual data.

The paper is organized as follows. After some general introductory remarks on analyzing inflation (section 12.2), section 12.3 offers a brief rundown of the major events that conspired to produce double-digit inflation in 1974. For the most part, this section is an overly terse summary of a recent book of mine on the Great Stagflation of the mid-1970s (Blinder 1979, especially chapters 5 and 6). Readers seeking further details are referred to the book. Section 12.4, by far the longest of the paper, chronicles in much more detail—because it has not been chronicled before—the burst of inflation in 1978–80, pointing out similarities to and contrasts with the earlier episode. Finally, section 12.5 deals with an objection that has often been raised to the type of inflation analysis presented here: if relative price shocks "caused" the inflation of the 1970s, why did they not also cause rapid inflation in the 1950s and 1960s? I will argue that, the theorist's desire for tidiness and uniformity notwithstanding, the 1970s really were different.

A list of some of the major conclusions may be useful at the outset.

1. The dramatic acceleration of inflation between 1972 and 1974 can be traced mainly to three "shocks": rising food prices, rising energy prices, and the end of the Nixon wage-price controls program. Each of these can be conceptualized as requiring rapid adjustments of some relative prices.

2. The equally dramatic deceleration of inflation between 1974 and 1976 can be traced to the simple fact that the three factors just named were not repeated. In other words, double-digit inflation went away "by itself."

3. The state of demand thus had precious little to do with either the acceleration or the deceleration of inflation between 1972 and 1976. This is not to say that aggregate demand management was irrelevant to inflation, but only that it effects were minor compared to the supply shocks.

4. While the rate of inflation as measured in the cpi rose about eight percentage points between 1977 and early 1980, the "baseline," or "underlying," rate may have risen by as little as three percentage points. The rest of the inflationary acceleration came from "special factors."

5. The initial impetus for accelerating inflation in 1978 came mainly from the food sector, with some help from mortgage interest rates. The further acceleration into the double-digit range in 1979 mainly reflected soaring energy prices and, once again, rising mortgage rates. Finally, mortgage interest carried the ball almost by itself in early 1980.

6. The 1970s really were different. Energy shocks are quite clearly a product of the brave, new post–opec world. Food shocks are not new. We experienced them in the 1940s, but somehow managed to get away without them in the 1950s and 1960s.

12.2   The Two Inflations

Before marshaling the evidence, it will be useful to outline a conceptual framework into which the facts can be fitted. I claim, and will try to document in what follows, that the data support a story about inflation in the contemporary United States that goes something like this.[1]

1. At any given moment, there is a normal, or "baseline," inflation rate toward which the actual inflation rate tends to gravitate. (This rate is also referred to as the "underlying," or "core," rate of inflation.) This baseline rate is determined by fundamental economic forces, basically as the difference between the growth rates of aggregate demand and aggregate supply.

2. On the demand side, the weight of the historical evidence is that the growth rate of money is the dominant factor in the long run. It is in this very limited sense that Milton Friedman's famous dictum "Inflation is always and everywhere a monetary phenomenon" has some validity. However, other factors like fiscal policy also influence the growth rate of aggregate demand. On the supply side, the fundamental long-run force is the trend rate of change of productivity, though occasional abrupt restrictions in aggregate supply (so-called supply shocks) can dominate the supply picture over short periods.

3. For empirical purposes, the baseline rate of inflation can be measured either by the rate of change of wages minus the trend rate of change of productivity[2] or by the rate of change of prices exclusive of food prices, energy prices, and mortgage interest rates. The latter measure of baseline inflation is relied upon here.

4. The observed rate of inflation can deviate markedly from the baseline rate over short periods. The major reasons for such deviations are obvious from the empirical definition of the baseline rate. Rapid in-

creases in food or energy prices, or run-ups in mortgage interest rates, can push inflation above the baseline rate for a while. Conversely, unusual moderation or declines in food or energy prices, or a serious recession, can pull inflation below the baseline rate. There are other special one-shot factors as well. For example, the Nixon price controls played a major role in the 1973–75 episode.

Despite the cacophony of complaints about "ruinous" budget deficits and "excessive" monetary growth, the headline-grabbing double-digit inflations of 1974 and 1979–80 were mainly of the special-factor variety. Only a minor fraction of each inflationary acceleration can be attributed to changes in the baseline rate; the rest came from supply shocks from the food and energy sectors, from mortgage interest rates, and from the end of price controls—a whole host of special one-shot factors. It is precisely this aspect of the recent inflation that this paper seeks to document.

Since the paper focuses on the special factors to the exclusion of the baseline rate, it is worth pointing out at the outset that the two inflations are not really independent. Inflation from special factors can "get into" the baseline rate if it causes an acceleration of wage growth. At this point policymakers face an agonizing choice—the so-called accommodation issue. To the extent that aggregate nominal demand is *not* expanded to accommodate the higher wages and prices, unemployment and slack capacity will result. There will be a recession. On the other hand, to the extent that aggregate demand *is* expanded (say, by raising the growth rate of money above previous targets), inflation from the special factor will get built into the baseline rate.

This analysis of the interaction between special factors and the baseline rate, I believe, helps us understand why baseline inflation, which was perhaps 1–2% in the early 1960s, rose to perhaps 4–5% by the early 1970s, and to perhaps 9–10% by 1980. But the evolution of the baseline rate is not the subject of this paper. My focus here is squarely on understanding the sudden accelerations of inflation into the double-digit range in 1974 and again in 1979, and the subsequent decelerations. For this purpose, I shall argue, it is almost unnecessary to worry about changes in the (slowly evolving) baseline rate.

12.3 The Inflationary Bulge of 1973–75

Though we have now become somewhat inured to such things, I think it fair to say that Americans were stunned by the first bout of double-digit inflation, the one that took place in 1974. The Consumer Price Index (CPI) is without a doubt the most closely watched barometer of prices, and the northwest quadrant of table 12.2 shows that inflation as measured by the CPI skyrocketed from only 3.4% in 1972 to 12.2% in 1974. Then it fell

Table 12.2   Inflation Rates in United States, 1972–80

	All Items		Excluding Food and Energy	
	CPI[a]	PCE[b]	CPI[a]	PCE[b]
1972	3.4%	3.7%	3.0%	3.3%
1973	8.8%	7.3%	4.7%	4.4%
1974	12.2%	11.0%	11.3%	9.6%
1975	7.0%	6.0%	6.7%	5.7%
1976	4.8%	5.0%	6.1%	6.0%
1977	6.8%	5.9%	6.4%	6.1%
1978	9.0%	7.8%	8.5%	6.8%
1979	13.3%	9.5%	11.3%	7.1%
1980:				
First half	14.8%	11.0%	14.6%	9.7%
Second half	9.9%	9.1%	9.6%	8.5%

[a]Twelve months ending in December of given year.

[b]Four quarters ending in fourth quarter of given year.

almost as rapidly as it had risen, reaching 4.8% in 1976. The deflator for personal consumption expenditures (PCE) from the National Income Accounts exhibits similar behavior.

The reasons for this performance can be summarized in three words, none of which is "money": food, energy, and decontrol. The boom of 1972–73 and the bust of 1974–75 notwithstanding, these three shocks *alone* can account for almost all of the acceleration *and* deceleration of inflation in that period. While aggregate demand did play some role in the accelerating inflation of 1973–74 and the decelerating inflation of 1975–76, its role was minor compared with that of the three aforementioned factors.

12.3.1   The Food Shock

Bad weather conditions both in the United States and, more importantly, in much of the rest of the world sent retail food prices soaring in 1973. The CPI for food, which had risen less than 5% during 1972, increased 20% during 1973 and 12% during 1974. This constituted a major supply shock whose importance, I believe, has still not been adequately appreciated.

Compare, for example, the inflation rates in the northwest and northeast quadrants of table 12.2. Using the CPI, the inflation rate increased 5.4 percentage points from 1972 to 1973. But if food and energy prices are excluded, the remaining acceleration was only 1.7 percentage points. When we remember that energy prices became a factor only in the closing months of 1973, it becomes clear that food prices accounted for most of

this large discrepancy. In fact, the impact of food price increases on overall inflation probably is even larger than table 12.2 suggests. Food price increases, we may assume, get reflected in higher wages, and the resulting wage-price spiral pushes prices still higher. In Blinder (1979), I made some rough estimates of the *total* effects of food prices on inflation, including both the *direct* effects that result from the fact that food is an important component of the CPI and the *indirect* effects operating through the wage-price spiral. These estimates suggest that food prices accounted for about 5 percentage points of the overall annual rate of inflation between mid-1973 and mid-1975. Some perspective on this is provided by recalling that a 5% *total* inflation rate was, until quite recently, considered extraordinarily high for the United States.

12.3.2   The Energy Shock

As is well known, the solidification of the Organization of Petroleum Exporting Countries (OPEC) following the Arab-Israeli conflict in October 1973 led to a quadrupling of the price of imported crude oil within a very few months. While this was an inflationary shock of the first rank, I think it important, especially in drawing comparisons with 1979, not to exaggerate the inflationary impact of the 1973–74 energy shock.

A direct comparison between the 1974 and 1979 OPEC shocks is postponed to section 12.4, but a hint that the direct inflationary consequences of the energy shock were not nearly as great as those of the food shock can be seen in table 12.2. Inflation rates with and without food and energy prices are much closer together in 1974 (when energy was the major factor) than in 1973 (when food was the major factor).

Having issued this disclaimer, I feel compelled to repeat the obvious: energy prices *were* a major engine of inflation in late 1973 and early 1974. Calculations I made in Blinder (1979) suggest that the *direct* effects of higher energy prices on the PCE deflator raised the latter about 2.4% between 1973:3 and 1974:3. Most of this effect came within two quarters. To this must be added an (admittedly crude) estimate of the energy costs "embodied" in other consumer goods. Perry (1975) estimated this to be another 1% or so, bringing the total energy shock to the overall price level up to about 3.5%. Indirect effects through the wage-price spiral appear to have been roughly canceled out by the downward pull of the recession on inflation, so that my final estimates of the effects of higher energy prices on the *level* of the PCE deflator were 3%, 3.5%, and 4.5% as of the third quarter of 1974, 1975, and 1976, respectively.[3] Other researchers have come up with similar estimates.

12.3.3   Wage-Price Controls

Despite their obvious importance, it is quite clear from table 12.2 that food and energy prices alone cannot explain the acceleration and decel-

eration of inflation in 1974–75; the ups and downs are just as pronounced when food and energy prices are excluded as when they are included. However, it is not hard to find the culprit behind the gyrating inflation rate for nonfood, nonenergy prices: the imposition and subsequent demise of wage-price controls.

The United States began its first, and up to now its only, experiment with mandatory controls over prices and wages in peacetime when President Nixon announced a three-month "freeze" on 15 August 1971. The controls subsequently evolved through several phases before lapsing at the end of April 1974.

William Newton and I (Blinder and Newton 1981) recently published a detailed econometric study of the effects of controls on nonfood, nonenergy prices. The results are easy to summarize. If we consider a four-year period beginning just before controls started and ending in mid-1975 (long enough after the end of controls to allow for a postcontrols "catch-up" period), it appears that controls had very little effect on the *average* rate of inflation. They did, however, alter the time pattern of inflation rates considerably—lowering inflation when it would otherwise have been low (especially in 1972) and raising inflation when it would otherwise have been high (especially in 1974). Specifically, we estimate that the rate of increase of nonfood, nonenergy prices was from 1.1 to 1.6 percentage points lower in 1972 and from 0.9 to 1.3 points lower in 1973 as a consequence of controls. Importantly, however, the end of controls then lifted inflation in 1974 some 1.7 to 3.1 percentage points *higher* than it would have been without controls, as artificially depressed prices snapped back. Since the extra catch-up inflation was concentrated in the period from February to October or November 1974, this phenomenon explains why the overall inflation rate remained in the double-digit range despite the rapid drop in the rate of increase of energy prices.[4]

The estimates cited above are based on a conventional econometric wage-price model, a tool whose validity has justifiably been questioned in recent years. In this case, however, the results of the econometric model can be buttressed by more impressionistic (but model-free) evidence.

If we study the detailed monthly time structure of the CPI purged of food and energy prices, it becomes quite apparent that double-digit inflation took place *only* during the nine-month period beginning in February 1974. During these nine months the annual rate of inflation was 13.4%. During the preceding nine months the annual rate of inflation was only 5.5%, and during the following nine months it was 6.4%. In a word, the rate of inflation of nonfood, nonenergy prices rose sharply and abruptly in February 1974, and fell almost as precipitously after November 1974. The symmetry of the rise and fall of the inflation rate is notable here, but is even more extreme if we look at quarterly data on the PCE deflator purged of food and energy. According to this index, the annual

inflation rate during the period of peak inflation (1974:1 to 1974:4) was 10.4%, while the inflation rates of both the preceding and following three-quarter periods were 5.4%. If the end of controls was not the reason for this symmetry, we have quite a coincidence to explain.

More nails are added to the coffin by disaggregating the indexes to see which specific prices experienced the sharpest accelerations and decelerations during this period. This exercise singles out automobile prices (both new and used) and prices of certain "other nondurable goods," especially paper goods, as the main culprits.

Used car prices *fell* at an annual rate of 12% during the prepeak period, *rose* at an annual rate of 38% during the period of peak inflation, and then rose at only a 10% rate during the postpeak period. This remarkably volatile price performance, which was quite obviously a side effect of the oil crisis of 1974, accounts for a significant share of the total acceleration and deceleration of the nonfood, nonenergy CPI.

New car prices were virtually unchanged during the prepeak period, rose at a 14% annual rate during the peak period (February–November 1974), and then rose at only a 5% rate during the postpeak period. It is no coincidence, I suggest, that the auto industry was released from controls—subject to a pledge not to raise prices rapidly—in December 1973. The winter of 1973–74, when the oil crisis was at its height, was hardly a propitious time to raise car prices, so the automakers waited until spring and new car prices shot up between May and September 1974. Since sales were way down and inventories (relative to sales) were way up during this period, it seems most unlikely that this was a case of demand pulling up prices. Instead, it has all the earmarks of a postcontrols catch-up.

Various paper goods displayed even more dramatic price behavior. Noting that "the paper industry faced problems in early 1974 that went well beyond controls, " that "the most difficult problem was a severe world-wide shortage of raw materials, causing world prices to soar above controlled domestic prices," and that "new capacity was needed as well,"[5] the Cost of Living Council (COLC) lifted controls on the industry in March 1974. But COLC insisted on written commitments from the big producers that they would exercise restraint until summer. Then, between August and December 1974, retail prices of paper napkins rose at a 43% annual rate while prices for toilet tissue skyrocketed at a 77% pace.

I conclude from this that more than regression estimates implicate decontrol as the primary culprit responsible for the sharp acceleration and deceleration of nonfood, nonenergy prices in 1974.

12.3.4 Summary

The rate of inflation increased tremendously between 1972 and 1974. Three factors accounted for this stunning acceleration of inflation: food prices, energy prices, and the end of price controls. Then, from 1974 to

1976, the inflation rate tumbled almost as rapidly as it had climbed. The reasons for the deceleration were the mirror images of the reasons for the acceleration: food price increases slowed, the OPEC shock was not repeated, and the extra catch-up at the end of price controls was completed.

12.4   Accelerating Inflation, 1977–80

How does the recent experience compare with this history? Once again, inflation mounted rapidly from 1977 to early 1980.[6] Once again, three factors led the way, and none of them was money. Two of these were repeat offenders from 1972–74: food prices and energy prices. The third was a newcomer: mortgage interest rates. The "special factors" nature of the 1977–80 acceleration of inflation is every bit as clear as it was in 1972–74.

My examination of the recent inflation is organized as follows. First, I look briefly at each of the phenomena mentioned just above: food prices, energy prices, and mortgage interest rates, in each case stressing similarities and contrasts with the experience of the mid-1970s. Then I try to put the three culprits together in order to lay bare the anatomy of the recent recession.

12.4.1   The 1978–79 Food Shock

Table 12.3 presents data on the annual rate of increase of food prices, as measured in the National Income Accounts, for the period 1977–80. For comparison, corresponding data for the period 1972–75 are presented in the lower half of the table. This juxtaposition of the data illustrates two points:

Table 12.3   **Rates of Increase of Food Prices, 1977–80 and 1972–75**

	1977	1978	1979	1980
1st quarter	6.1	10.9	15.2	3.6
2d quarter	6.0	17.3	6.2	5.8
3d quarter	4.5	9.6	4.9	16.7
4th quarter	5.6	9.9	10.1	16.0
	1972	1973	1974	1975
1st quarter	6.7	14.0	16.8	5.0
2d quarter	2.5	17.8	7.4	3.0
3d quarter	5.4	18.3	5.9	12.2
4th quarter	6.5	15.1	13.5	5.0

Source: Bureau of Economic Analysis.
Note: Quarter to quarter change, seasonally adjusted, expressed at annual rates.

1. The 1978–79 food shock, while it looked very similar at the outset, proved not to be nearly as severe as the 1973–74 shock. PCE food prices rose 22% between 1977:4 and 1979:4 versus 29% between 1972:4 and 1974:4.

2. While the 1978–79 food shock lasted about as long as its precursor (five quarters), the 1973–74 shock was followed by a period of blissful tranquillity in food prices. (Data for 1975 are in table 12.3. Food prices during 1976 were virtually constant.) By contrast the second half of 1980 was a bad one for food prices.

Another interesting aspect of the recent food price performance is concealed by the rather aggregated PCE data. It turns out that the problems emanating from the food sector were remarkably concentrated. The "food inflation" was in large part a "meat inflation." Meat prices as measured in the CPI rose at extraordinarily high and variable rates during 1978–79. During 1978 and the early part of 1979, the number of cattle on United States farms continued a decline that had started in early 1975. The size of the drop in the total cattle herd (over 16%) was the largest ever recorded. Expectations that falling beef production in 1978 would be offset by higher output of pork and poultry were dashed by severe weather in the winter of 1977–78, disease, rising feed costs, and uncertainty over government regulations on the use of nitrites. When ranchers finally started rebuilding their herds in 1979, their actions reduced current marketings even further and prices continued to soar.[7]

The result of all these goings on was that meat prices dominated the food price picture. During the eight quarters of 1978 and 1979, the mean annual inflation rate of food prices was 10.3% and the standard deviation was 4.9%. However, if we remove the extraordinary behavior of meat prices, the remaining index (for food exclusive of meat) displays a mean inflation rate of only 8.4%. More significantly, the standard deviation drops to only 1.6%.

One final point worth noting can be seen in table 12.3. While food prices played a substantial role in the acceleration of inflation in the first half of 1978, they played little role in the subsequent acceleration into the double-digit range in 1979.

12.4.2   The 1979 Energy Shock

The energy price run-up of 1979 had its origins in the political turmoil in Iran early in the year. The consequent disruption in supply, coupled with desperate efforts to build inventories, led to chaos in the world oil market and rapidly escalating spot-market prices in the second quarter. OPEC followed with a series of price increases in April, July, and December. Queues at gasoline stations were common in various locales in the spring and summer months.

Between December 1978 and March 1980, the average cost per barrel

of imported crude oil to United States refiners rose from about $15 to over $33. On a dollars per barrel basis, this shock was far greater than the 1973–74 OPEC shock, though on a percentage basis the earlier shock was obviously much larger. The prices of retail petroleum prices responded with very little lag in both cases. The CPI energy component, for example, rose 26% (a 58% annual rate) between September 1973 and March 1974 and 56% (a 43% annual rate) between December 1978 and March 1980. Looking at the two shocks this way shows that while the earlier shock was more rapid and abrupt, the later shock was substantially more severe—driving retail energy prices up about twice as much.

This margin increases when we translate these hikes in energy prices into effects on the overall CPI. Because the relative importance of energy items in the CPI has increased greatly since 1973—averaging about 0.065 during the first OPEC shock and about 0.10 during the second—any given percentage increase in energy prices now has a far greater effect on the overall CPI.[8] In round numbers, the 26% increase in retail energy prices in 1973–74 pushed the all-items CPI up directly by about 1.5–2 points in six months while the 56% increase in energy prices in 1979–80 pushed the all-items CPI up by about 5–6 points in fifteen months.[9]

Another way to appraise the relative sizes of the two shocks is to ask how much the American consumer's oil bill would have increased in each case had consumption not declined. In 1973, United States petroleum consumption averaged 17.3 million barrels per day. Since refined petroleum products increased in price by about $5.50 per barrel between September 1973 and May 1974, the implied increase in the United States oil bill (the "oil tax") was roughly $35 billion. In 1978, United States petroleum usage averaged 18.8 million barrels per day, and the increase in product prices between December 1978 and March 1980 was roughly $21 per barrel. Thus the more recent oil tax was about $144 billion. Computed in this way, the first OPEC shock amounted to a levy of about 2½% of gross national product while the second shock amounted to about 6½%—quite a bit more.

12.4.3 Mortgage Interest Rates

It is hard to know what to say about mortgage interest rates, though it is impossible to discuss the 1978–80 inflation without them. Certainly the rise in home mortgage rates cannot be considered an exogenous inflationary shock, like food and energy. Mortgage rates, like all interest rates, are influenced in a fundamental way by inflation; so it is more than a little awkward to speak of rising mortgage rates as a "cause" of inflation. More likely, they are an effect.

Yet the way mortgage rates are treated in the CPI does make them an important component of inflation as measured by this index.[10] Since the CPI is an index of current transactions prices—not a "cost-of-living"

index, as it is commonly treated—the mortgage rate included in it is a current market rate.[11] This rate, needless to say, is a price that precious few consumers pay. Yet it can have a dramatic effect on the CPI.

A simple back-of-the-envelope example will illustrate how this works. Suppose mortgage rates increase from 9% per annum to 10% per annum. Monthly payments on new mortgages will increase about 11%. If mortgage payments have a 9% relative importance in the overall CPI, this will increase the CPI by a full percentage point (0.09 times 11% = 0.99%). If this occurs within a few months, the effect on the *annual rate of increase* of the CPI can be astronomical.

Because of this, it is probably wise to pay more attention to the PCE deflator than to the CPI during periods in which mortgage interest rates are rising (or falling) rapidly. Yet it is far from clear that the PCE deflator is the "right" index to look at. Certainly mortgage interest rates should get *some* weight in any proper index of the prices actually paid by consumers, even though these rates do not count in the GNP.[12]

Mortgage interest rates were quite stable throughout 1977, holding at about 9% per annum.[13] Consequently, the CPI excluding mortgage interest rates rose at almost the same rate as the all-items CPI (see table 12.4). Things changed dramatically in 1978. Mortgage rates rose throughout the year, reaching roughly 10% by December, and the overall CPI rose noticeably faster than the CPI excluding mortgage interest (table 12.4). Then mortgage rates rose even more rapidly in 1979 and early 1980, and this surge had correspondingly dramatic effects on the CPI. As table 12.4 shows, by the first half of 1980 the gap between the inflation rates of the CPI and the CPI excluding mortgage interest rates reached 3.7 percentage points. But rates peaked in May 1980 and fell rapidly through August. As a result, the whipsaw effect of mortgage rates on the CPI became extreme in mid-year: the seasonally adjusted CPI actually recorded a *zero* rate of inflation between June and July! For the second half of 1980 as a whole, the CPI including mortgage interest rates rose slightly slower than the CPI excluding them.

Table 12.4   **Alternative Annual Inflation Rates, 1977–80**

Period	All-Items CPI	CPI Excluding Mortgage Interest
Dec. 1976–Dec. 1977	6.8	6.6
Dec. 1977–Dec. 1978	9.0	8.2
Dec. 1978–Dec. 1979	13.3	11.6
Dec. 1979–Jun. 1980	14.8	11.1
Jun. 1980–Dec. 1980	9.9	10.9

12.4.4   The Anatomy of Inflation in 1978–80

We are now in a position to put the pieces together and analyze the 1978–80 acceleration of inflation. But first a word on methodology.

By some simple arithmetic it is possible to decompose the overall inflation rate into the parts contributed by food, energy, and all other factors.[14] In making this split, 1977 provides a useful reference point because in that year "special factors" inflation was unimportant, so the actual and baseline rates of inflation coincided (see table 12.1). By comparing the years 1978–80 with 1977, we can get an impression of how much of the recent acceleration of inflation was due to special factors and how much represented an increase in the baseline rate. I should stress that the analysis that follows is not "causal"; there is no model behind it. However, as we shall see, the data seem to be consistent with a model in which inflation from special factors passes directly into the overall inflation rate on a one-for-one basis in the short run.[15]

Consider first the composition of inflation according to the CPI, the index most in the public eye. As row 1 of table 12.5 shows, inflation mounted steadily from 6.8% during 1977 to 14.8% during the first half of 1980 (over 18% during the first quarter). The food and energy shocks we have discussed can be seen quite clearly in rows 2 and 3. The contribution of food price increases to overall inflation rose by 0.7 points from 1977 to 1978, and then stayed almost level between 1978 and 1980 (though the two halves of 1980 were quite different in this respect). As suggested earlier, and in marked contrast to 1973–74, the food shock was transitory and rather minor.

The same cannot be said of energy. Energy inflation made only "normal" contributions to overall inflation in 1977 and 1978, but then really took off. Fully 2.5 points of the total 4.3 point acceleration of inflation from 1978 to 1979 can be traced directly to energy prices, as can a fraction

Table 12.5   **Composition of CPI Inflation, 1977–80**

	1977	1978	1979	1980 (first half)	1980 (second half)
1. Rate of inflation of CPI	6.8%	9.0%	13.3%	14.8%	9.9%
Contributions of					
2. Food	1.4	2.1	1.9	0.8	2.8
3. Energy	0.6	0.7	3.2	3.9	0.1
4. Mortgage interest cost	0.7	1.4	2.5	4.6	0.5
5. Everything else	4.1	4.8	5.8	5.5	6.4
6. Rate of inflation of "everything else"	6.0%	7.2%	8.7%	8.7%	10.1%

of the further acceleration in early 1980. Stable energy prices then played a major role in the deceleration of inflation in the second half of 1980. Further disaggregation (not shown in the table) reveals that gasoline prices accounted for the lion's share of the total contribution of energy.

Row 4 shows what many observers believe to be a serious measurement problem in the CPI—its extreme sensitivity to changes in mortgage interest rates. Mortgage rates, we see, accounted for about one-third of the total acceleration from 1977 to 1978 (0.7 points out of 2.2), about one-quarter of the acceleration from 1978 to 1979 (1.1 points out of 4.3), and more than 100% of the acceleration from 1979 to early 1980 (2.1 points out of a total of 1.5). The situation was just as extreme on the downside. The contribution of mortgage interest rates to inflation declined by 4.1 percentage points from the first to the second half of 1980, whereas the overall inflation rate declined by 4.9 percentage points.

Looking at the acceleration period as a whole, we see that while the overall inflation rate increased by 8 percentage points (from 6.8% to 14.8%) between 1977 and the first half of 1980, fully 7.2 of these points can be traced directly to energy prices and mortgage interest costs. Fewer than 1½ points can be attributed to the catchall "everything else" category that constitutes about two-thirds of the index. On the downside, the deceleration of mortgage costs and energy prices was so extreme that they alone were sufficient to bring the inflation rate down about 8 percentage points from the first half of 1980 to the second half. The actual deceleration was limited to 5 percentage points by the misbehavior of food prices and by an ominous rise in the inflation rate of "everything else." This latter rate, which I take to approximate the baseline rate, rose gradually from 6% in 1977 to 8.7% in 1979, remained at that level during the first half of 1980, and then accelerated to a 10.1% annual rate during the second half of 1980.

Table 12.6 shows a similar decomposition for the PCE deflator, and its conclusions are similar in most respects (except, of course, for the absence of mortgage interest). The predominant role of food in the 1977–78 acceleration (1.2 points out of 1.8)[16] and the even more predominant role of energy in the 1978–79 acceleration (2.3 points out of 2.5) come shining through in these data. However, differences emerge in the first half of 1980, when the PCE deflator registers substantial acceleration in the prices on "everything else" while the CPI does not (compare the bottom rows of tables 12.5 and 12.6). According to the PCE numbers in table 12.6, the baseline rate of inflation, which had risen only 1.7 percentage points from 1977 to 1979, jumped 2 points from 1979 to the first half of 1980 and then receded slightly in the second half to 9%. Though the quarterly patterns are quite different, both indexes yield an estimate of the baseline rate of inflation for 1980 of about 9.4%.

Table 12.6   **Composition of PCE Inflation, 1977–80**

	1977	1978	1979	1980 (first half)	1980 (second half)
1. Rate of inflation of					
a) PCE deflator	5.9%	7.8%	9.5%	11.0%	9.1%
b) PCE chain index	6.0%	7.8%	10.3%	10.8%	10.0%
Contributions of					
2. Food	1.2	2.4	1.8	1.0	3.3
3. Energy	0.6	0.6	2.9	3.0	0.4
4. Everything else	4.3	4.8	5.5	6.8	6.3
5. Rate of inflation of					
"everything else"	6.0%	6.7%	7.7%	9.7%	9.0%

Note: Except for rounding error, rows 2, 3, and 4 add up to row 1*b*.

The lesson to be learned from this exercise is pretty apparent. To the extent that inflation was propelled upward by special factors, we would expect the inflation rate to fall of its own accord. This appears to be just what happened from the first half of 1980 to the second half: the "special factors" contributed -6 points to the *change* in the inflation rate (-8 points from energy and mortgage rates, $+2$ points from food). A diminution of inflation of this type should be expected even in the absence of a recession. We should strive to avoid in 1980–81 the *post hoc, ergo propter hoc* fallacy into which so many observers fell in 1975. In 1974–75 a steep recession followed a sharp acceleration of inflation, and a stunning drop in the inflation rate quickly followed the recession. Many people continue to this day to give credit to the recession for breaking the back of the double-digit inflation whereas, in fact, it was the waning of special factors that did the trick. A similar scenario seems to have unfolded in 1980. For reasons just outlined, the inflation rate fell from the dizzying 18% rates of early 1980 back to the 8–10% baseline range. Simultaneously, we experienced a recession. We ought to avoid the temptation to credit the recession with knocking 8–10 points off the inflation rate—something no recession can do so quickly. Furthermore, to the extent that a recession works on inflation, its effects ought to show up in the baseline rate. This is something that at this writing (March 1981), it is still too early to see.

12.5   Were the 1970s Really Different?

A common criticism of the analysis of inflation presented here, in my book (Blinder 1979), and elsewhere,[17] runs as follows. There are "special factors" every year. In every year, some components of any price index are rising faster than the average. Thus, would it not be possible to use this methodology to brand all inflation as "special factor" inflation?

I have two answers to this criticism, one brief and one protracted. First, my concern here and in my 1979 book is with the *acceleration* of inflation well above the economy's "baseline" rate. No attempt is made to explain why the baseline rate itself increased. Such an explanation would focus on excessive aggregate demand (from money creation and other sources), lagging productivity growth, and so on, and there is little doubt that the rate of growth of money would play a prominent role. But there is equally little doubt that the behavior of the money supply tells us almost nothing about the bursts of double-digit inflation in 1974 nd 1979–80.

Now for the longer rebuttal. The explanation of inflation in the 1970s that I and others have propounded fundamentally revolves around food shocks (in 1973–74 and 1978) and energy shocks (in 1973–74 and 1979).[18] But have there not been food shocks and energy shocks before? It there were, why was there not double-digit inflation then?

In the case of energy shocks, the answer is straightforward: we simply did not have them until 1973. It is well known that the postwar period through 1972 was characterized by cheap energy growing cheaper. From January 1957 (when it starts) until January 1973, the CPI energy index rose at an annual rate of 1.7% while the all-items CPI rose at an annual rate of 2.7%. The greatest year-to-year change in the energy index was 4.5% in 1970. By contrast, the annual rate of increase of CPI energy prices from December 1972 to December 1979 was 15.2% (versus 8.8% for the all-items CPI). Energy prices rose 21.6% during 1974 and 37.4% during 1979. The 1970s really *were* different, and I fail to see why a theory of inflation is more "scientific" if it ignores this fact.

Things are far less clear with respect to food shocks, however. We have no OPEC to latch on to as a watershed, and it is difficult to understand what made weather conditions so much more adverse in the 1970s than in the 1960s and 1950s. Using CPI data since 1940, it is in fact possible to identify several earlier "food shocks" (see table 12.7).

In 1941 and 1942, for example, the rates of increase of food prices were respectively 16.4% and 17.5%. (It is probably no mystery why this occurred!) As a consequence, the rate of increase of the all-items CPI exceeded that of the CPI stripped of food items by 3.2 and 5.4 percentage points respectively. The *acceleration* of inflation between 1940 and 1942 was 8.3 percentage points in the overall CPI, but only 3.3 points if food items are excluded. Similarly, the *deceleration* between 1942 and 1943 was 6.1 percentage points including food but merely 0.5 percentage points excluding food.

Another severe food shock apparently occurred in late 1946 and early 1947 as the wartime controls over food prices were dismantled.[19] In 1946, the rate of inflation including food exceeded the rate of inflation excluding food by 9.1 percentage points. From 1945 to 1946, the CPI inflation rate accelerated by an astounding 15.9 percentage points. But without

Table 12.7   Rates of Change of the CPI
                        and Selected Components, 1940–51

Year	Food Prices	All-Items CPI	CPI less Food
1940	2.6	1.0	0.6
1941	16.4	9.7	6.5
1942	17.5	9.3	3.9
1943	3.1	3.2	3.4
1944	0.2	2.1	3.5
1945	3.0	2.3	1.8
1946	31.5	18.2	9.1
1947	11.2	9.0	7.5
1948	−0.8	2.7	5.5
1949	−3.7	−1.8	−0.8
1950	9.6	5.8	4.1
1951	7.4	5.9	5.0

Note: From December of previous year to December of stated year.

Table 12.8   Rates of Change of the CPI
                        and Selected Components, 1952–72

Year	Food Prices	All-Items CPI	CPI less Food
1952	−1.1	0.9	1.7
1953	−1.3	0.6	1.7
1954	−1.6	−0.5	0
1955	−0.9	0.4	0.9
1956	3.1	2.9	2.6
1957	2.8	3.0	3.2
1958	2.2	1.8	1.6
1959	−0.8	1.5	2.3
1960	3.1	1.5	1.0
1961	−0.9	0.7	1.1
1962	1.5	1.2	1.2
1963	1.9	1.6	1.6
1964	1.4	1.2	1.0
1965	3.4	1.9	1.6
1966	3.9	3.4	3.3
1967	1.2	3.0	3.5
1968	4.3	4.7	4.9
1969	7.2	6.1	5.7
1970	2.2	5.5	6.5
1971	4.3	3.4	3.1
1972	4.7	3.4	3.0

Note: From December of previous year to December of stated year.
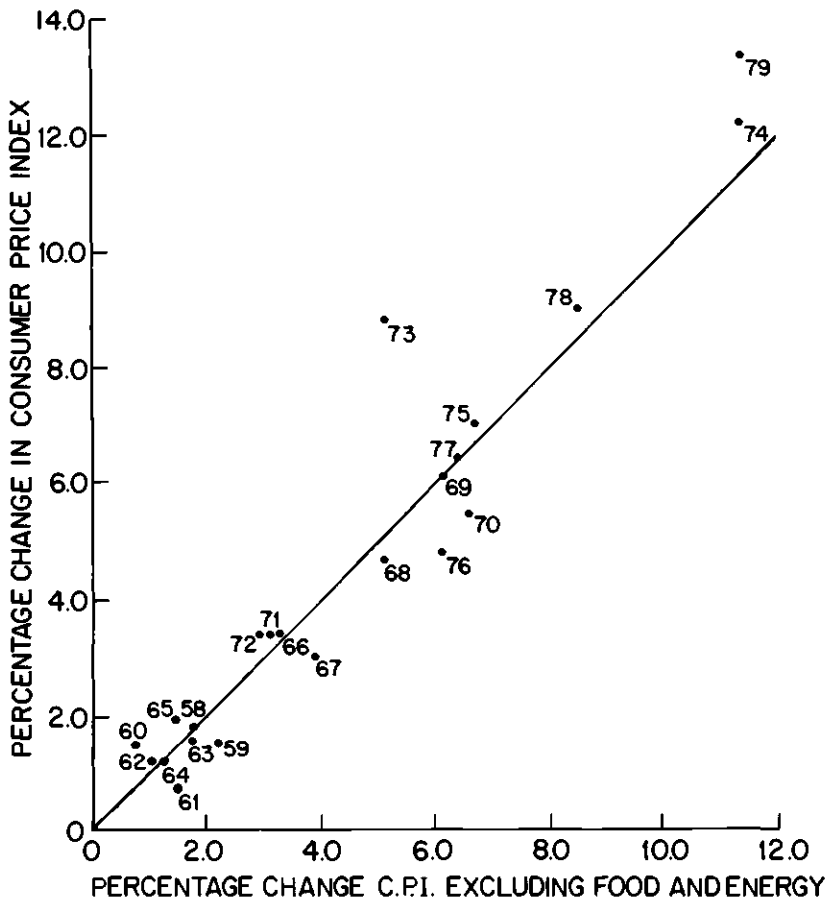
Fig. 12.1a   Percent change in CPI (excluding food and energy) versus percent change in CPI.

food prices this acceleration was only 7.3 points. Similarly, the deceleration from 1946 to 1948 was 15.5 points when food is included versus 3.6 points when it is not.

A similar shock in 1950–51 can be dimly perceived in table 12.7. During the winter of 1950–51, food prices rose at a 32% annual rate for a single quarter. In a word, shocks emanating from the volatile food sector have indeed been with us in the past.

What is striking in the data is the total absence of such shocks between 1952 and 1972 (see table 12.8). During these twenty-one years, the rate of increase of food prices exceeded 5% only once. The maximum amount by which inflation in the all-items CPI ever exceeded inflation in the CPI excluding food was 0.5 percentage points in 1960. I do not claim to know
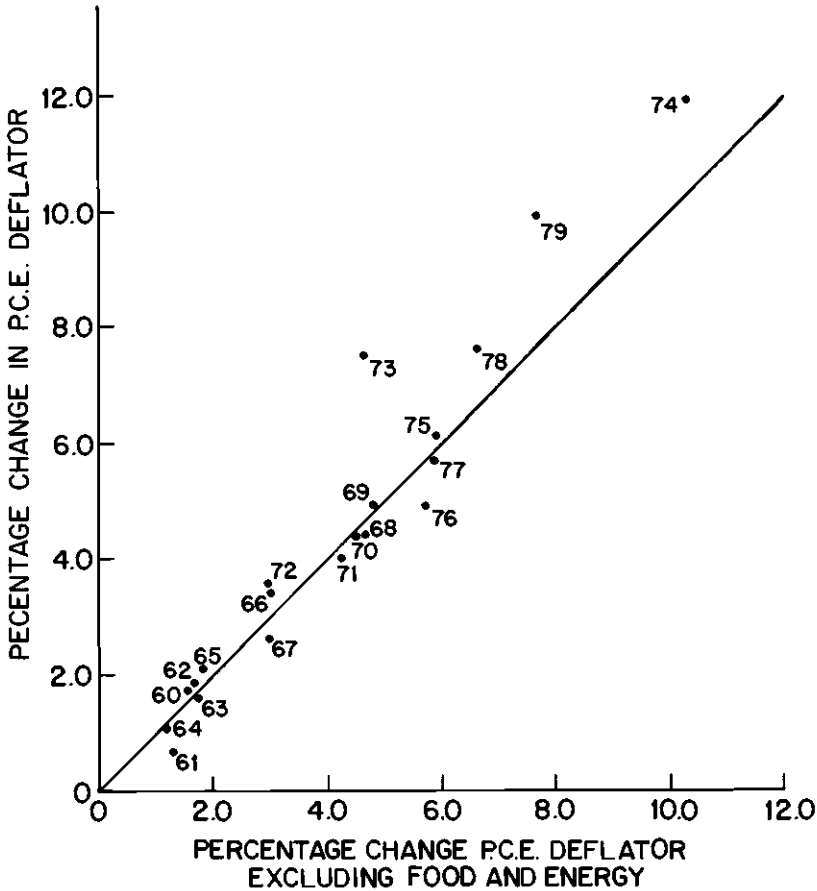
Fig. 12.1*b*   Percent change in PCE (excluding food and energy) deflator versus percent change in PCE deflator.

which state of affairs is the norm and which is an aberration—the volatile decades of the 1940s and 1970s, or the calm decades of the 1950s and 1960s. What is clear, however, is that food-price behavior was very different during the 1970s than during the 1950s or 1960s. It is not obvious that we get a better understanding of inflation by ignoring this fact.

More evidence that the 1970s differed dramatically from the 1960s in this regard is presented in figure 12.1. In panel *a*, which pertains to CPI data from 1958 through 1979, I have plotted percentage changes in the all-items CPI on the vertical axis and percentage changes in the CPI excluding food and energy on the horizontal axis.[20] Food and energy "shocks" thus stand out as vertical displacements from the 45 degree line in the diagram, and it is clear that these are a phenomenon of the 1970s. Panel *b*

presents exactly parallel data for the PCE deflator covering 1960–79.[21] The conclusions are precisely the same. Serious supply shocks are apparent in 1973, 1974, 1979, and, to a lesser extent, 1978; none are apparent before 1973. The 1970s were indeed special.

Notes

1. Although there are important similarities, it would be a mistake to apply the following scenario mechanically to other countries or to other historical epochs. My focus is squarely on the contemporary United States.

2. These days it is hardly necessary to point out that *trend* productivity has proved to be an elusive concept.

3. See Blinder (1979), pp. 78–88.

4. Energy prices in the CPI rose at an annual rate of 58% between September 1973 and March 1974, and then at only a 10.3% annual rate between March and November 1974.

5. United States Cost of Living Council (1974), p. 54.

6. I start in 1977 rather than 1976 because the overall inflation rate was distorted in 1976 by the unusually moderate behavior of food prices. Excluding food and energy, the inflation rate was essentially constant in 1975–77, as table 12.2 shows.

7. United States President, *Economic Report of the President, 1979*, p. 40; ibid., *Economic Report of the President, 1980*, p. 33.

8. This is a good place to define the concept of "relative importance." The CPI is a fixed-weight index. Hence, if P_t is the CPI and P_{it} are the individual components in month t, then

$$P_t = \sum_i w_i P_{it},$$

where w_i are the fixed weights. The proportionate rate of change of P is therefore

$$\frac{P_t - P_{t-1}}{P_{t-1}} = \frac{\sum_i w_i (P_{it} - P_{i,t-1})}{P_{t-1}}$$
$$= \sum_i \left(w_i \frac{P_{i,t-1}}{P_{t-1}} \right) \left(\frac{P_{it} - P_{i,t-1}}{P_{i,t-1}} \right).$$

The *relative importance* of item i at time t is defined as

$$r_{it} = w_i \frac{P_{i,t-1}}{P_{t-1}},$$

and hence it can be seen that the rate of change of the CPI is a weighted average (with weights r_{it}) of the rates of change of its individual components. The useful point to note is that an item's relative importance in the CPI automatically increases (decreases) as its price rises (falls) relative to the CPI as a whole.

9. These calculations measure only the direct contribution of energy prices to the CPI. They do not include either the indirect effects of increased energy costs on nonenergy products (e.g. higher gasoline prices make the cost of transporting food higher) or the eventual reverberations through the wage-price spiral.

10. For a fuller treatment of the issue, see Blinder (1980).

11. Because of certain economic and accounting lags, the rate actually used is a weighted average of market rates quoted in recent past months.

12. This is not quite true. Imputed rents on owner-occupied housing are included in the GNP, and hence the "price" of this service is tacitly part of the PCE deflator. Imputed rents depend on observed rents, which in turn depend on mortgage rates (and many other factors). So the mortgage rate creeps in through the back door, though very slowly. The issue is really one of timing.

13. The mortgage rate cited in this paragraph is the Federal Home Loan Bank Board's series on yields on new conventional mortgages. Monthly data can be found in United States President, *Economic Report of the President, 1980*, table B-64, p. 279.

14. When using the CPI, a fourth component is distinguished: mortgage interest costs.

15. This is quite different from the implications of a classical quantity theory model in which the overall inflation rate is controlled by the growth rate of money and special factors cause changes only in *relative* prices.

16. Reference is to the PCE chain index.

17. See, for example, Gordon (1975, 1977) or Eckstein (1980).

18. The Nixon price controls of 1971–74 also played a role, but primarily one of distorting the time pattern of inflation in 1971–75. See above, section 12.3.3.

19. I am grateful to Walter Salant for useful information on the decontrol process.

20. Inflation rates recorded are from December of the previous year to December of the stated year.

21. Inflation rates here are for the four quarters ending in the fourth quarter of the stated year.

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