# Why New England Went the Way of Texas Rather Than California

*Lynn E. Browne*

*Deputy Director of Research for Regional Affairs, Federal Reserve Bank of Boston.* *David P. Mann provided valuable research assistance.*

When the New England economy first started to slow in 1988, a few prescient individuals would occasionally raise the possibility of the region going the way of Texas, which was suffering a serious economic downturn and a real estate bust at the time. Such an outcome seemed most unlikely, however, even to pessimistic prognosticators. The Texas experience was unusual. The decline in the Texas economy and the associated collapse of the real estate market were precipitated by an adverse economic shock, falling oil prices, on an undiversified state economy. New England had suffered nothing comparable. Its economy was diversified. Moreover, in real estate, what goes up does not always come down. California had experienced a real estate boom in the late 1970s that had driven housing prices to remarkable levels; but while the recessions of the early 1980s caused prices to level off, no bust occurred.

Today New England looks more and more like Texas. Real estate woes have been devastating and, in terms of job loss, the overall regional decline surpasses the Texas downturn in severity. Why were the New England and Texas booms in real estate followed by busts, whereas the California boom was not? Where were the signs of problems ahead? What lesson might New England have learned from the Texas experience, had closer attention been paid? And what lessons might other parts of the country learn from the common difficulties of these two very different areas? These questions are particularly relevant now, as some are starting to ask whether other parts of the country, including California, might be going the way of New England.

Part I provides an overview of the economic and real estate booms and busts in New England. Part II compares construction and real estate activity in New England with that in Texas in the mid 1980s. Part III examines the composition of employment growth and its significance for the health of real estate markets. The experience of New England and Texas is compared with California's in the late 1970s and early

1980s. Part IV concludes that early signs of overbuilding are far from obvious. Those concerned about potential excesses should not place much reliance on low vacancy rates or high home sales but instead should focus on whether construction activity seems consistent with developments in other sectors of the economy.

## I. Boom and Bust in New England

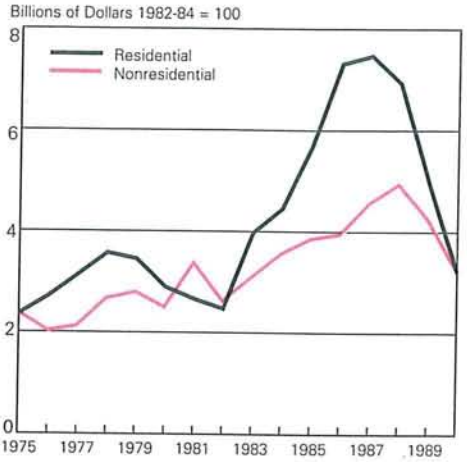
New England has suffered a striking change of fortunes. In the late 1980s, the region's prosperity was the envy of the country. The regional unemployment rate fell to 3 percent in 1988. Per capita income reached 123 percent of the national average, up from 106 percent in 1980. Since then, however, it has been all downhill. Total employment fell 2.4 percent between 1988 and 1990 and more timely data on nonagricultural payroll employment show a further decrease of 4 percent between mid-1990 and mid-1991.[1] By the summer of 1991, the New England unemployment rate had risen to 8 percent, and would have been even higher had the number of people seeking employment not declined. Nominal income growth was barely positive; per capita income was down to 118 percent of the national average and likely to fall further.

Construction and real estate played a major role in New England's rise and also in its fall. Employment in these two industries rose by 50 percent between 1984 and 1988. Construction employment then fell 15 percent between 1988 and 1990; real estate employment dropped 6 percent. Although they are relatively small industries, making up less than 7 percent of overall New England employment in 1984, the number of jobs added in construction and real estate during the mid 1980s accounted for roughly 25 percent of the region's overall job growth; and the subsequent employment losses in these industries represented almost 50 percent of the overall job loss between 1988 and 1990.[2]

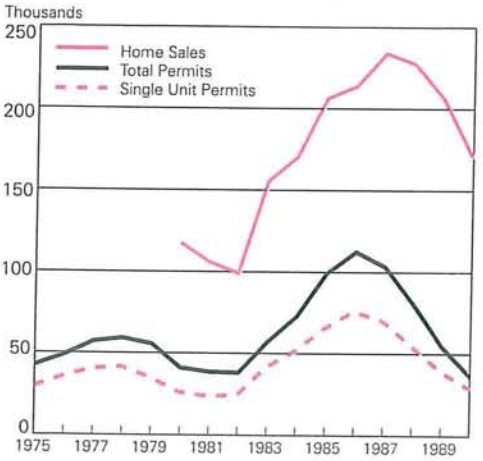
The rapid expansion in construction employment was the result of a tremendous surge in homebuilding, coupled with strong growth in nonresidential building. The upper panel of Figure 1 shows the growth in the value of privately owned residential and nonresidential construction, deflated by the U.S. Consumer Price Index. Because rising land and construction costs caused New England property values to rise faster than prices generally in the mid 1980s, these deflated series should be interpreted as an

Figure 1

*Construction Contract Awards in New England*




*Home Sales and Housing Permits in New England*




Source: National Association of Realtors; U.S. Bureau of the Census; F.W. Dodge- McGraw Hill.
Note: 1990 Home sales have been adjusted for missing value for Maine and construction contract award amounts have been deflated by U.S. CPI.

[1] Annual data on total employment were obtained on tape from the U.S. Bureau of Economic Analysis, Regional Economic Measurement Division. Monthly data on nonagricultural payroll employment are from the U.S. Bureau of Labor Statistics.

[2] Some industries, notably various services industries, continued to grow between 1988 and 1990. Thus, the job losses in shrinking industries total more than the net loss in overall employment. The employment reductions in construction and real estate represented almost 50 percent of the net loss of jobs.

Table 1
*Median Sales Price of Existing Single-Family Homes, United States and Selected Metropolitan Areas*
Thousands of Dollars

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| United States | 62.2 | 66.4 | 67.8 | 70.3 | 72.4 | 75.5 | 80.3 | 85.6 | 89.3 | 93.1 | 95.5 |
| Boston | n.a. | n.a. | 80.2 | 82.6 | 100.0 | 134.2 | 159.2 | 177.2 | 181.2 | 181.9 | 174.2 |
| Hartford | 72.9 | 81.4 | 82.9 | 81.2 | 87.4 | 99.6 | 129.0 | 157.4 | 167.6 | 165.9 | 157.3 |
| Dallas | n.a. | n.a. | 76.7 | 80.9 | 86.8 | 94.0 | 93.8 | 94.2 | 90.8 | 93.4 | 89.5 |
| Houston | 65.6 | 72.7 | 77.2 | 79.9 | 77.6 | 78.6 | 69.9 | 65.9 | 61.8 | 66.7 | 70.7 |
| Los Angeles | 104.9 | 111.4 | 119.6 | 118.9 | 121.6 | 125.2 | 135.8 | 147.1 | 178.9 | 214.8 | 212.8 |
| San Francisco | 110.2 | 121.6 | 128.0 | 133.7 | 134.1 | 145.1 | 166.2 | 176.7 | 212.9 | 260.6 | 259.3 |

n.a. = not available.
Source: National Association of Realtors, *Home Sales Yearbook: 1990.*

indication of the dollars flowing into construction over and above what might be expected, given inflation, rather than as a measure of physical units.

Although the numerous "for lease" signs currently adorning office buildings and retail outlets throughout the region might suggest otherwise, it is apparent from Figure 1 that the construction boom was predominantly a housing phenomenon with nonresidential building playing an important but definitely secondary part.[3]

Home sales jumped in 1983 and continued to rise at a rapid rate until 1987 (lower panel of Figure 1). Although housing construction responded quickly and strongly to the increased demand, new construction accounts for less than half of the homes sold in any year—considerably less in most years—and the increased supply was not sufficient to prevent a runup in prices. As can be seen from Table 1, housing prices in New England doubled between 1982 and 1988. In 1985 alone, Boston area prices increased by one-third.[4]

By 1987 the pace of construction activity began to slow, even though the volume of sales remained very high and housing prices continued to rise. Two years later, however, sales were slowing, prices were showing signs of weakness, and construction was plummeting. Nonresidential building was also declining.

Even with hindsight, the signals generated by the New England real estate market do not seem to have pointed to impending doom. Home sales did not weaken until after housing construction had started to slow. And when home sales did weaken, they remained high by historic standards. Indeed, they are still high today. Home prices were still rising when construction started to fall off. And vacancy rates for both rental and owner-occupied housing were relatively low until the end of the decade (Appendix Table A1).

The nonresidential real estate market is also puzzling. Vacancy rates in New England's major office and industrial markets were not high in the mid 1980s compared to rates in the rest of the country (Appendix Table A2). In particular, while office vacancy rates in New England had increased since the early 1980s, they were not markedly different in 1988—at the end of the boom—from what they were in 1984—at the start.

Where were the clues to New England's downfall? What were the warning signals that might have prompted an earlier and, therefore, milder curtailment in construction and real estate activity? To shed

[3] Given that housing accounted for the bulk of the construction spending in the 1980s, the question arises: why are financial institutions' problem loans dominated by commercial rather than residential real estate? One possibility is that the boom and bust in commercial real estate values was more extreme than the swings in construction spending. Another is that owners of commercial properties are more highly leveraged than homeowners and thus more vulnerable to an economic downturn. Commercial properties are also less liquid. The differential nature of the risks associated with residential and nonresidential real estate lending warrants study.

[4] These price figures are not standardized for quality and thus may reflect a shift to larger, higher-quality homes as well as increases in the price of a home of given quality. However, the public perception, supported by work by Case (1986), is that prices rose very rapidly for properties of constant quality.

Table 2
*Employment in the Texas and New England Downturns*
Thousands

| | Texas | | | | New England | | |
|---|---|---|---|---|---|---|---|
| | 1985 | 1987 | % Change 1985–87 | 1988 | 1988 | 1990 | % Change 1988–90 |
| Total Employment | 8,547 | 8,340 | −2.4 | 8,461 | 8,080 | 7,889 | −2.4 |
| Construction | 601 | 480 | −20.1 | 462 | 500 | 423 | −15.4 |
| Real Estate | 303 | 287 | −5.3 | 281 | 226 | 212 | −6.2 |

Note: More current data sources show that employment in New England continued to fall in 1991.
Source: U.S. Bureau of Economic Analysis, Regional Measurement Division.

some light on what went wrong in New England, the next two sections compare developments in New England with those in Texas. What did these seemingly different areas have in common that caused both to experience such severe construction and real estate difficulties?

## *II. New England and Texas Compared*

The broad outlines of Texas' economic and real estate woes are well known. Oil prices, which had soared in the 1970s, began to fall in 1982 and in 1986 they dropped by half. Oil and gas exploration and development and related industries, which had been a key engine of growth for the state, contracted. Weakness rippled throughout the economy, triggering a collapse of the Texas real estate market. Stories soon abounded of see-through office buildings and falling home prices. Many of the banks and thrift institutions that had financed the state's rapid development failed.

While the construction and real estate difficulties of Texas were severe, they were no more severe than those suffered by New England. And the overall downturn was shorter-lived. Moreover, contrary to popular belief, Texas' experience, like that of New England, suggests that the real estate market does not give much warning before it sours. By the time the most familiar indicators of health begin to look jaundiced, corrective action is long overdue.

Both total employment and construction employment in Texas peaked in 1985. By 1987 construction employment had fallen 20 percent and total employment 2.4 percent (Table 2). Of the net reduction in total employment, construction, together with real estate, accounted for two-thirds. Construction continued to decline over the next two years, although at a much slower rate. Despite these losses, overall employment started a slow recovery in 1988. Thus, the downturn in Texas was shorter than the New England decline, which was already two and one-half years old in mid-1991.

Both residential and nonresidential construction contracts plummeted in Texas; but as in New England, the housing bust started earlier and was even more severe than the decline in nonresidential building. Construction of multi-unit housing quite literally stopped. In 1983, 276,000 housing permits were issued in Texas, 175,000 for units in structures with more than one unit. The following year, 140,000 permits were issued for units in multi-unit structures, in 1988 only 4,000 (out of a total of 40,000 permits).

That construction of multi-unit housing dried up is not surprising. Referring to Appendix Table A1, one sees that vacancy rates for rental housing in the Houston area jumped from roughly 7 percent in 1981 and 1982 to 14 percent in 1983. Houston is the center of Texas' oil and gas industry, and it bore the initial brunt of declining oil prices. By 1985 vacancy rates in Houston had reached 18 percent and rates in Dallas had climbed to double digits.

Although the rise in vacancy rates preceded the downturn in housing permits, the lead time was short. In 1982 vacancy rates were not especially problematic. The next year they soared—just as new housing construction hit its peak. Vacancy rates in Texas were still around 10 percent in 1990. Even with a virtual cessation of construction, Texas had not grown into its stock of rental units after six years.

Until Texas' difficulties, many people assumed that housing prices could only increase. Now the popular impression is that prices in Texas plummeted. In New England as well, prices are thought to

have fallen sharply. However, the statistics on housing prices present a mixed picture. Housing prices softened much more in some parts of Texas than others. Prices fell first and most in Houston (Table 1). Between 1985 and 1988 the median price of homes sold in Houston dropped more than 20 percent. In Dallas the decline came several years later and was a much smaller 5 percent. This is similar to the situation in the Boston area. Prices in the Hartford area have fallen a little more; but in both Hartford and Boston the decreases are smaller than the public perception.

Some of this discrepancy between the price statistics and the public's perception may reflect shifts in quality. Additionally, public perception may be shaped by the prices at which properties are offered rather than by the prices at which transactions occur. It is clear, however, that changes in housing prices or at least changes in price statistics are not a reliable guide to when to cut back construction. As in New England, prices in Texas weakened after construction was being curtailed.

Prior to their decline, housing prices in Texas were above national levels but not outrageously high. While the median home price in the Boston area was double the national median at the peak of New England's real estate boom, the median price in Dallas was never more than 25 percent above the national median during its boom years, never more than 15 percent higher in Houston. As other areas had similar or higher prices at the time, it is doubtful that high prices were a key cause of the Texas collapse. Higher prices may still be a source of vulnerability for other regions, including New England; but Texas' sufferings show that problems can arise even when prices are unremarkable.

*Until Texas' difficulties, many people assumed that housing prices could only increase.*

Although the eventual decline in home prices in Texas would suggest that the housing market there was "slow," the actual number of home sales remained as high as it had been during the more prosperous early 1980s. Of course, one must bear in mind that the high interest rates of the early 1980s had dampened home sales everywhere. (Unfortunately the National Association of Realtors' series on sales by state begins in 1980, so one cannot make comparisons with earlier years.) Nevertheless, given other indicators of what was happening in Texas real estate markets, one might have expected more of a falloff in home sales. That home sales held up is consistent with New England's recent experience, however. Although sales have fallen, they remain high by historic experience. Perhaps a more appropriate characterization of the New England and Texas housing markets than "slow" is that they are "buyers' markets," with more people wanting to sell than buy. The accompanying box describes how a high volume of home sales may not always be a sign of health.

Looking at the pattern of home sales and housing prices in Texas in the early 1980s, most people would not have seen—and did not see—that disaster lay ahead. Home sales fell sharply from 1980 to 1982, but no more sharply than sales nationwide. It would not have been unreasonable to think that a return to lower interest rates would remedy that problem. Housing vacancies in the early 1980s were similar to those elsewhere. Housing prices were not extraordinarily high, nor were they showing any weakness.

In the case of nonresidential construction and real estate, Texans did have some warning. Referring to Appendix Table A2, downtown office vacancy rates had risen above the national average in both Houston and Dallas by the end of 1983. Suburban area vacancy rates were quite a bit higher.[5] However, nonresidential construction did not fall until 1986.

Table 3 summarizes the timing of the changes in construction activity in New England and Texas and in various real estate indicators. In both areas, new residential construction was curtailed before or coincident with the deterioration in most indicators of the health of the housing market.[6] Nonresidential construction adjusted more slowly, possibly because so much time and effort is involved in lining up financing and arranging for permitting. Construction employment also reacted slowly as work continued on projects that were already underway. But the

[5] In December 1983 the suburban vacancy rate for Dallas was 27.9 percent and the rate for Houston was 34.0 percent, compared to a national suburban average of 18.7 percent.

[6] Presumably, some individual developers began to sense that these areas were becoming overbuilt or began to encounter some resistance in the marketplace and, therefore, started cutting back even though the aggregate indicators remained favorable.

### *Operation of the Housing Market*

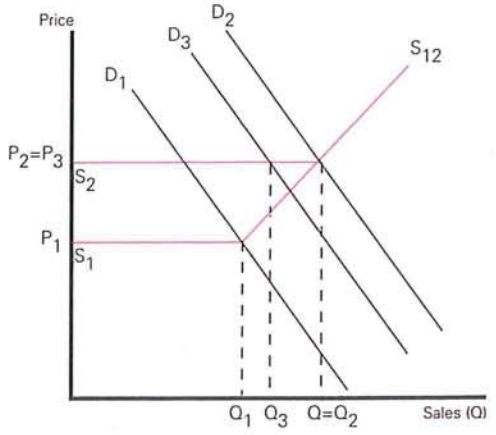
The experience of New England and Texas suggests that in periods of severe economic distress housing sales will be stronger and prices will be weaker than under more typical bad times.

The standard view of the housing market is shown, in very simplified fashion, in the upper panel of Figure 2. Increased demand ($D_1D_1$ to $D_2D_2$) raises prices and increases the number of sales transactions. A fall in demand ($D_2D_2$ to $D_3D_3$) reduces transactions. Prices generally do not fall because homeowners view the true value of their homes as the value at the previous peak. Rather than sell for anything less, they prefer to wait for the market to strengthen. Accordingly, the supply curve is horizontal at the most recent peak price ($S_2S_{12}$). This downward stickiness in prices causes the reduction in sales to be greater than it would be otherwise.

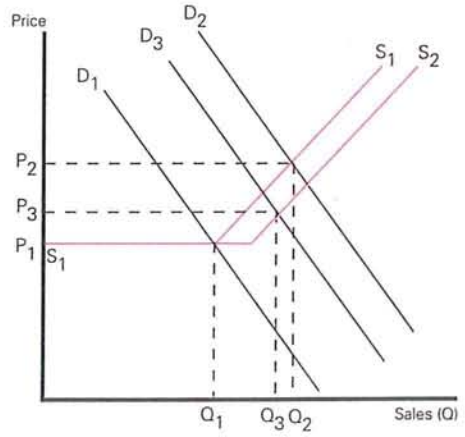
In truly difficult times, such as suffered by Texas and New England, prices will not be so sticky and sales may be stronger as a consequence. Some homeowners may not have the luxury of waiting for the good times to recur. They will be willing to sell at prices below the last peak. In addition, if economic pressures are severe enough, the supply curve may even shift to the right ($S_1S_1$ to $S_1S_3$) as distressed homeowners offer their homes for sale and move into rental housing or leave the region. This rightward shift in supply further reduces prices.

Figure 2

*Standard View of Housing Market*




*Housing Market in Very Hard Times*




bottom line is that the signs of overbuilding in New England and, to some extent, in Texas were simply not obvious—until after construction was already being cut back.

If vacancy rates and prices do not provide clearly discernible clues to the future, what about the volume of construction activity? Should it have been clear that New England and Texas could not absorb all the new homes and all the office and industrial buildings and retail outlets that were being added? Both Moscovitch (1990) and Sherwood-Call (1990) have suggested that the share of employment engaged in construction should be a warning signal.

### *Construction's Share of Employment*

Construction accounted for a larger fraction of employment in New England than the nation for a

Table 3

*Timing of Changes in Construction Activity and Real Estate Indicators in New England and Texas*

| New England | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Construction Activity | | | | | | | | | | | |
| Construction Employment | + | + | + | + | + | + | + | + | + | − | − |
| Housing Permits | − | − | − | + | + | + | + | − | − | − | − |
| Construction Contracts—deflated | | | | | | | | | | | |
| Residential | − | − | − | + | + | + | + | + | − | − | − |
| Nonresidential | − | + | − | + | + | + | + | + | + | − | − |
| Real Estate Indicators | | | | | | | | | | | |
| Median Sales Price—Existing Homes[a] | | | | | | | | | | | |
| Boston | n.a. | n.a. | n.a. | + | + | + | + | + | + | = | − |
| Hartford | n.a. | + | + | − | + | + | + | + | + | − | − |
| Home Sales | n.a. | − | − | + | + | + | + | + | − | − | − |
| Vacancy Rate—Rental Homes[b] | | | | | | | | | | | |
| Boston | n.a. | n.a. | = | −[c] | =[c] | −[c] | +[c] | −[c] | =[c] | =[c] | +[c] |
| Hartford | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | +[c] | +[c] | + | + |
| Vacancy Rate—Homeowners[b] | | | | | | | | | | | |
| Boston | n.a. | n.a. | −[c] | =[c] | −[c] | =[c] | =[c] | +[c] | −[c] | =[c] | =[c] |
| Hartford | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | + | = | + | − |
| Office Vacancy Rate (downtown)[b] | | | | | | | | | | | |
| Boston | n.a. | +[c] | +[c] | −[c] | +[c] | −[c] | −[c] | −[c] | +[c] | =[c] | +[c] |
| Hartford | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | −[c] | −[c] | +[c] | +[c] | + |
| Industrial Vacancy Rate[b] | | | | | | | | | | | |
| Boston | n.a. | −[c] | +[c] | −[c] | =[c] | +[c] | +[c] | −[c] | +[c] | + | + |
| Hartford | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | − | = | + | + |

| Texas | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Construction Activity | | | | | | | | | | | |
| Construction Employment | − | + | + | + | + | + | − | − | − | − | + |
| Housing Permits | − | + | + | + | − | − | − | − | − | + | + |
| Construction Contracts—deflated | | | | | | | | | | | |
| Residential | − | + | + | + | − | − | − | − | − | + | + |
| Nonresidential | + | + | − | − | + | + | − | − | − | + | − |
| Real Estate Indicators | | | | | | | | | | | |
| Median Sales Price—Existing Homes[a] | | | | | | | | | | | |
| Dallas | n.a. | n.a. | n.a. | + | + | + | = | = | − | + | − |
| Houston | + | + | + | + | − | = | − | − | − | + | + |
| Home Sales | n.a. | − | − | + | + | + | − | + | + | − | + |
| Vacancy Rate—Rental Homes[b] | | | | | | | | | | | |
| Dallas | n.a. | n.a. | −[c] | + | − | + | + | − | + | − | − |
| Houston | n.a. | n.a. | + | + | + | + | = | + | − | − | − |
| Vacancy Rate—Homeowners[b] | | | | | | | | | | | |
| Dallas | n.a. | n.a. | −[c] | + | = | − | + | + | = | = | − |
| Houston | n.a. | n.a. | + | − | + | − | = | − | − | = | − |
| Office Vacancy Rate (downtown)[b] | | | | | | | | | | | |
| Dallas | n.a. | = | +[c] | + | + | + | + | + | − | − | + |
| Houston | n.a. | = | +[c] | + | + | − | = | + | − | − | − |
| Industrial Vacancy Rate[b] | | | | | | | | | | | |
| Dallas | n.a. | + | − | − | −[c] | + | + | = | + | − | + |
| Houston | n.a. | + | −[c] | + | + | + | + | − | − | = | − |

[a]Changes in housing prices of $ 1000 or less are classified as no change (=).

[b]Changes in vacancy rates of 0.2 percentage points or less are classified as no change (=).

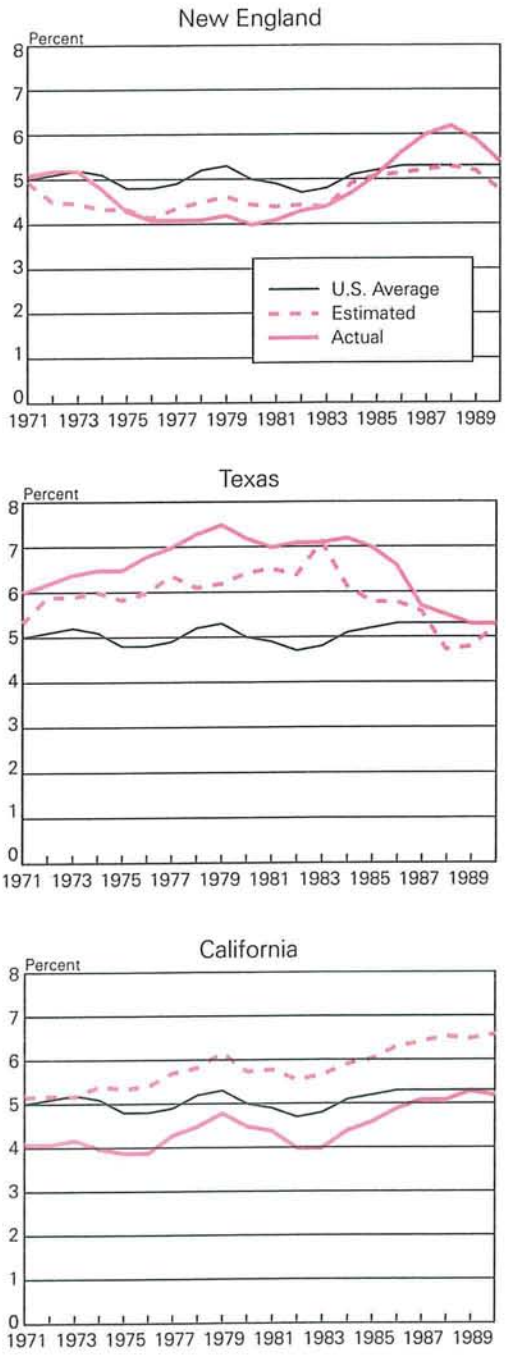
[c]Vacancy rate is below the national average.

n.a. = not available.

Source: See the Appendix.

Figure 3

*Construction as a Share of Employment*




Source: U.S. Bureau of Economic Analysis and author's calculations. See Table 4.

brief period during the mid 1980s. Texas' share of employment in construction was above the national average throughout the late 1970s and early 1980s. However, an area that is growing rapidly will have more need for new homes and new office and industrial facilities than one that is growing more slowly; and Texas grew rapidly in the late 1970s, while New England's employment growth in the 1980s was vigorous even though its population growth was slow.

Figure 3 presents a simple attempt to gauge whether the levels of construction activity in New England and Texas were "excessive" before their downturns. Using national data, a regression was estimated relating the share of employment in construction to mortgage rates, the previous year's rates of growth in employment and population, and a time trend. The time trend was included to capture an observed upward drift in construction's share of employment. The resulting equation is shown in Table 4. Employment and population figures for New England and Texas were then plugged into the equation to see what fraction of employment would have been engaged in construction if the relationship between construction's employment share and the growth in population and overall employment were the same in these areas as in the country as a whole. These estimated shares are compared with actual shares in Figure 3. Also shown are estimates for California, a state that some thought might be a better model for New England than Texas.

As can be seen from the upper panel of Figure 3, construction's share of employment was generally lower in New England than the nation until the mid 1980s, reflecting the region's relatively low rate of population and employment growth. In the mid 1980s, stronger employment growth and some pickup in population growth should, in the normal course of events, have resulted in a substantial increase in the share of employment engaged in construction. However, New England seems to have overshot. The share of employment actually devoted to construction surpassed what would have been expected, based on national patterns.

In Texas, rapid population and employment growth throughout the 1970s and into the early 1980s should have resulted in a relatively high fraction of employment in construction. However, construction's share of employment was even higher than might have been expected, given the national relationship between construction and growth.[7] During the second half of the 1970s, moreover, the share of

employment in construction diverged more and more from what one might expect, based on national patterns. And when the Texas economy began to slow, construction adjusted too slowly.

In contrast to Texas, the share of employment in construction in California has been below the national average for most of the past 20 years despite rapid growth in employment and population. Construction's share of employment in California rose quite rapidly during the second half of the 1970s, the period when housing prices really began to escalate. Then, as overall growth slowed in the 1980 and 1982 recessions, the share of employment in construction contracted sharply. Through the rest of the 1980s construction's share increased steadily, but the increase was consistent with the state's strong growth.

In summary, construction activity in New England does appear to have overshot. Although stronger growth in the mid 1980s justified a substantial pickup in construction, the actual pickup was more than warranted. New England built too much, given its growth rate. Moreover, the steep decline in the New England economy in recent years has required a further contraction of construction employment. In other words, to the problem of too much construction has been added that of too little growth. In the case of Texas, the share of employment engaged in construction during the 1970s was higher than might be expected, based on national patterns, even taking into account the state's rapid employment and population growth; and when growth slackened in the early 1980s, construction was slow to adjust. In California, which did not experience a real estate bust despite extraordinary housing prices, the share of employment engaged in construction was fairly low, given its growth rate.

Thus, the share of employment engaged in construction may be a useful guide to whether an area risks becoming overbuilt, provided that differences in population and employment growth are taken into account. In addition, the composition, as well as the rate, of growth is important. In the case of New England, an examination of the composition of employment growth in the mid to late 1980s would have raised questions about its sustainability and revealed unexpected similarities to the Texas experience.

Table 4
*Relationship between Construction's Share of Employment and the Growth in Population and Employment for the United States, 1971 to 1990*
Dependent variable = construction employment/total employment (percent)

| | Coefficient |
|---|---|
| Constant | 2.206 |
| | (5.3) |
| New home mortgage yields | −.054 |
| | (−6.5) |
| Percent change total employment lagged 1 year[a] | .074 |
| | (7.3) |
| Percent change population, lagged 1 year[a] | .699 |
| | (4.7) |
| Time trend | .032 |
| | (8.1) |
| $\bar{R}^2$ | .89 |

Annual data, 20 observations.
Figures in parentheses are t-statistics.
[a]Construction's share of employment in year t is a function of employment and population changes between t − 2 and t − 1.
Source: Employment, income and population from U.S. Bureau of Economic Analysis, Regional Economic Measurement Division. New home mortgage yields from the *Economic Report of the President*, 1991, p. 368.

## *III. Composition of Growth*

It is common in the analysis of regional and state economies to distinguish between "export" oriented and locally oriented industries, with export in this case referring to sales outside the region. The performance of a region's export-oriented industries is thought to be especially critical to its prosperity. While the growth of locally oriented industries is governed largely by changes in local income and population, export-oriented industries can tap national and international markets and can grow by increasing their shares of these markets. At the same time, export industries may find themselves challenged by competitors from other regions and other countries.

Additionally, most of the industries traditionally regarded as export-oriented, notably manufacturing, mining, and agriculture, are subject to other forms of

[7] Such high rates of construction may be linked to the state's industrial composition: Texas has a much larger fraction of its construction work force involved in heavy construction, which includes such things as pipeline and petrochemical plant construction, as well as public works.

external influence, such as technological progress and government policy. In contrast, most industries classified as locally oriented are in the service-producing sector, which is commonly seen as relatively invulnerable to abrupt shifts in demand arising from changing tastes, policy, or technology. While most locally oriented industries are service-producing, not all service-producing industries are locally oriented. Examples of individual service sector companies that serve national or even international markets are numerous.

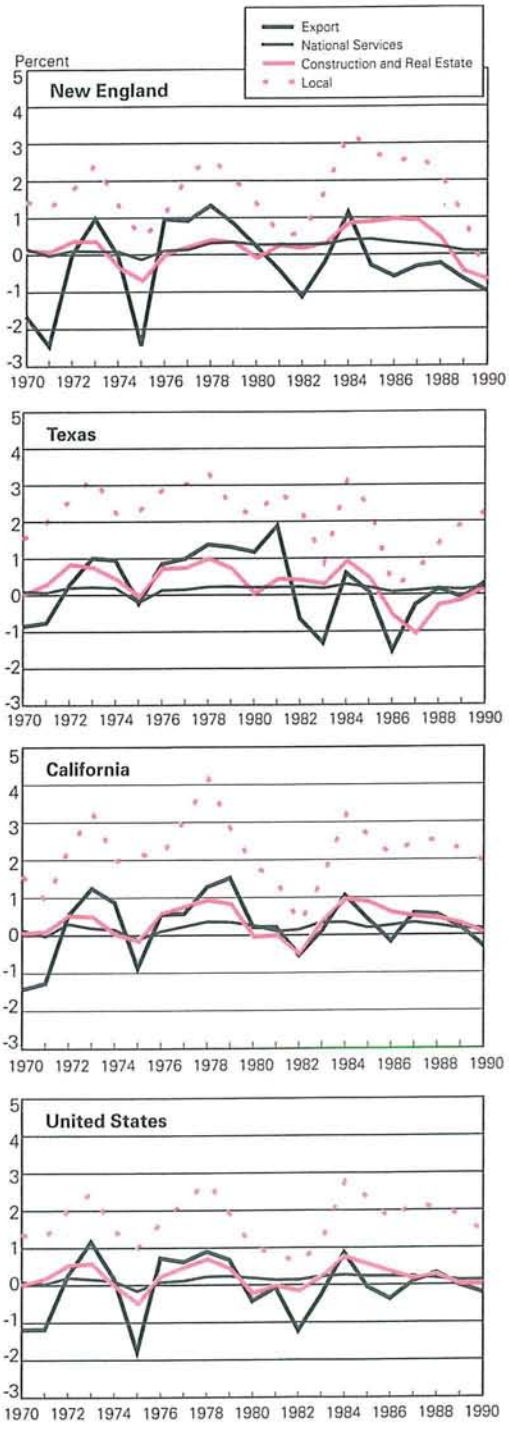
Construction is an important exception to the characterization of locally oriented industries as relatively stable services industries. Although construction activity is linked to local population and employment growth, it also is subject to external shocks, for example changes in interest rates, that can cause sharp fluctuations.

Accordingly, the following analysis divides employment into four categories. Construction, together with real estate, is a category unto itself. Manufacturing, mining, farming, agriculture, forestry and fisheries represent the traditional "export" sector. Federal government employment is also included in this category because changes are determined by national policy rather than state or regional economic conditions. A third category consists of those financial and other services identified as most national in their market orientation in a recent study (Browne 1991).[8] All the remaining industries are classified as "local"; the largest of these local industries are retail trade, state and local government, health services, locally oriented business services, wholesale trade, and transportation and public utilities. Banks are included in the local sector.

Figure 4 shows employment patterns in these four sectors over the past two decades for New England, Texas, California, and the nation; the yearly changes in each sector's employment are expressed

Figure 4

*Change in Employment by Sector, as a Share of Total Employment*




Source: U.S. Bureau of Economics Analysis.

[8] The industries in this category are security and commodity brokers, insurance carriers, educational services, and 25 percent of the total of business services, engineering and management services, and miscellaneous services. Using location quotients as an indicator of market orientation, a recent study by Browne (1991) found that the first three industries had a national market orientation comparable to that of a number of manufacturing industries. Business, engineering, and management and miscellaneous services appeared primarily local in their markets, but a more detailed analysis found that roughly 25 percent of U.S. employment in these services in 1989 was in more nationally oriented segments. For New England the nationally oriented share was a little higher, but the 25 percent figure was used here—and for Texas and California—for simplicity.

relative to total employment. Through 1984, the employment changes in New England were generally consistent with the traditional model of regional growth: a volatile export sector provided the impetus to expansion or decline for the other sectors and the economy as a whole. In 1985, however, New England's experience began to deviate from the traditional model. The export sector weakened, while the rest of the economy and especially construction remained very strong.

The cause of the weakness in New England's export industries was nothing so dramatic as falling oil prices had been in Texas. Indeed, a plethora of causes can be found. The computer industry, a regional specialty, began to face a more competitive environment and New England firms found themselves with products and strategies that did not fit the changing marketplace. The region's defense contractors faced the end of the Reagan defense buildup. Also, prosperity had driven up the cost of doing business in the region, causing some manufacturers to expand or consolidate elsewhere. None of these factors seemed especially damaging in itself. The job losses in any one year were not shocking. But over time they added up. Between 1984 and 1988, New England saw its manufacturing employment decrease by 140,000 jobs or about 9 percent.

Despite the weakness in manufacturing, construction continued to grow. Perhaps demand for new industrial buildings had fallen off, but there was plenty of demand for new office buildings, new stores, and certainly for housing. The problem, however, was that many of the tenants for the office buildings, the patrons of the stores, and the new homebuyers worked in construction and real estate. Many others worked in banks, law firms, retail operations, and other locally oriented industries that depended, to a significant degree, upon the continued growth in construction.

As long as the boom continued and locally oriented industries grew rapidly in response, the expansion could continue. But a faltering in the growth of either construction or the local sector would remove the underpinnings of both. Indeed, one of the ironies of New England's situation may be that, as developers and lenders and others began to recognize in 1987 and 1988 that New England was becoming overbuilt and began to scale back, they may have brought on the downturn. For without continued growth in construction to fuel the expansion, the more locally oriented industries could not maintain their vigor. And without the continued rapid growth of the local sector, a large construction industry could not be supported.

Turning to Texas, one again sees the four sectors of the Texas economy moving more or less in sync during the 1970s. Around 1980, however, they began to diverge. A spike in interest rates brought the growth in construction and real estate to a halt even as soaring oil prices caused a surge in export employment. Two years later, construction and real estate were growing again, but falling oil prices and a recession sent the export sector plunging. Growth in construction and real estate remained strong for a another two years, even though the export sector made only a partial recovery before further declines in oil prices caused employment to plummet again.

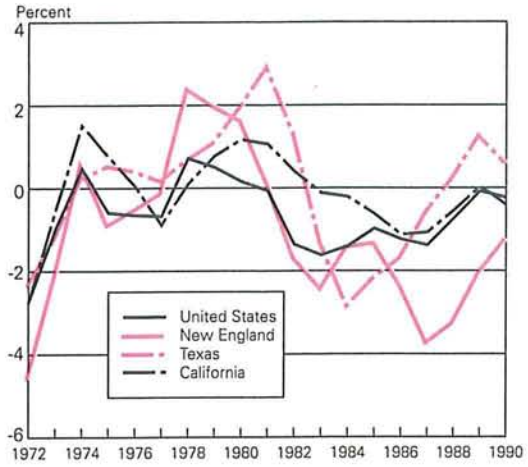
Here, as in New England, construction and real estate did not react to weakness in the export sector. The divergence is not as striking as in New England: the growth in construction and real estate in Texas was less in the early 1980s, when the export sector was weak, than it had been when the export sector was performing strongly. Nevertheless, when employment in the export sector, which had been growing strongly and presumably fueling much of the need for construction, fell off, construction and real estate continued to expand. As in New England, however, this growth proved unsustainable, and employment in construction and real estate underwent a very sharp contraction in the mid 1980s.

*Perhaps the deviation of construction and real estate from the performance of the export sector should be viewed as a warning signal of troubles ahead.*

In contrast, the various sectors of the California economy, and also the U.S. economy, moved together throughout most of the 1970s and the 1980s, with weakness in the export sector leading to declines or at least markedly slower growth in construction and real estate and the local sector. The mid 1980s was something of an exception, with construction and real estate continuing to grow while employment in the export sector dipped. This was also the period when construction and real estate in New England

Figure 5

*Divergence between Export Employment and Constrution and Real Estate Employment*




Note: Calculations described in text and accompanying footnote.

diverged so sharply from the export sector, suggesting some common element may have buoyed construction and real estate activity throughout the country. The divergence in New England was especially pronounced, however.

Perhaps the deviation of construction and real estate from the performance of the export sector should be viewed as a warning signal of troubles ahead. It would be an imprecise indicator at best, since New England's construction and export sectors diverged for some years. The situation is reminiscent of the stock market: unusually high price-earnings ratios may be an indicator that stock prices will fall some day, but they say nothing about what prices will do tomorrow.

If one were attempting to create a rule of thumb that might serve as an early warning signal, New England's experience indicates that the rule should take into account both the length of the divergence and its magnitude. Accordingly, Figure 5 shows the change in export sector employment over three years less the change in construction and real estate, all expressed relative to total employment.[9] Reflecting the weakness in New England's manufacturing industries in the mid to late 1980s and the continued growth in construction and real estate, the warning signal is strongly negative for New England during this period. Similarly, the falloff in mining and manufacturing in Texas in the early and mid 1980s and the slow response of construction cause the indicator to fall sharply into the negative in 1984. California and the United States experienced nothing so severe—until one goes back to the very early 1970s. Although export employment declined in the 1970–71 recession, construction employment was sustained by the Housing and Urban Development Act of 1968, which subsidized home ownership by moderate-income households and bolstered housing construction.

The experience of the early 1970s highlights an important qualification to our simple rule of thumb. The effect of a divergence between construction and the export sector on real estate markets depends upon what is being built. If a previously unsatisfied need is filled, in this case for modestly priced homes, no downward pressure on other segments of the market may be created. Taking the extreme example, high volumes of public works construction should not have a negative impact on the values of houses and office buildings. Indeed, property values could be enhanced.

Of course, once the need has been met, construction employment must adjust downward. Thus, the problem of declining construction employment and its impact on other sectors of the economy still exists. However, if this is a national problem, monetary and fiscal policy tools can be brought to bear to bolster overall demand and ease the transition. Since the problems in Texas and New England were regional, they did not prompt the same policy actions that a national problem might have done.[10]

New England and Texas are not the only parts of the country that have seen construction and real estate employment diverge from the path taken by the export sector. Table 5 identifies states in which the change over a three year-period in export employment, less the change in construction and real estate, fell below 2.5 percent of total employment. Based on the experience of New England and Texas, such a

[9] Calculated as $[(X_t - X_{t-3}) - (CR_t - CR_{t-3})]/E_t$
where $X_t$ is export employment
$CR_t$ is employment in construction and real estate
$E_t$ is total employment, all in year t

[10] Of course, the export sector in Texas should have derived some benefit from the fact that national demand was continuing to grow.

Table 5

*States Where the Change in Export Employment over Three Years Diverged from the Change in Construction and Real Estate by More than 2.5 Percent of Total Employment*

| | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alabama | | | | | | | | | | | | | | | | | | | |
| Alaska | xxxxxxxxxxxxxxxxxxxxxx | | | | | | | | | | | xxxx | | | | | | | |
| Arizona | | | | | | | | | | | | | xxxxxxxxx | | | | | | |
| Arkansas | | | | | | | | | | | | | | | | | | | |
| California | xxxx | | | | | | | | | | | | | | | | | | |
| Colorado | xxxx | | | | | | | | | | | | | | | | | | |
| Connecticut | xxxx | | | | | | | | | | | xxxx | | | | | xxxxxxxxxxxx | | |
| Delaware | | | | | | | | | | | | | | | | | | | |
| Florida | xxxxxxxxx | | | | | | | | | | | | | | | | | | |
| Georgia | xxxxxxxxx | | | | | | | | | | | | | | | | | | |
| Hawaii | | | | | | | | | | | | | | | | | | | |
| Idaho | | | | | | | | | | | | | | | | | | | |
| Illinois | xxxx | | | | | | | | | | xxxxxxxxxxxxx | | | | | | | | |
| Indiana | | | | xxxxxxxxx | | | | | | xxxxxxxxx | | | | | | | | | |
| Iowa | | | | | | | | | | | xxxx | | | | | | | | |
| Kansas | | | | | | | | | | | | | | | | | | | |
| Kentucky | | | | | | | | | | | | | | | | | | | |
| Louisiana | | | | | | | | | | | | | | | | | | | |
| Maine | xxxx | | | | | | | | | | | | | xxxxxxxxxxxxxxxxx | | | | | |
| Maryland | xxxxxxxxx | | | | | | | | | | | | | | xxxx | | | | |
| Massachusetts | xxxx | | | | | | | | | | | | | | xxxx | | xxxxxxxxx | | |
| Michigan | xxxx | | xxxx | | | | | | xxxxxxxxxxxxx | | | | | | | | | | |
| Minnesota | | | | | | | | | | | | | | | | | | | |
| Mississippi | | | | | | | | | | | xxxxxxxxx | | | | | | | | |
| Missouri | | | | | | | | | | | | | | | | | | | |
| Montana | | | | | xxxx | | | | | | | | | | | | | | |
| Nebraska | | | | | | | | | | | | | | | | | | | |
| Nevada | | | | | | | xxxxxxxxx | | | | | | | | | | | | |
| New Hampshire | xxxx | | | | | | | | | | | xxxx | | | | | xxxxxxxxx | | |
| New Jersey | xxxx | | | | | | | | | | | | | | | | xxxx | | |
| New Mexico | | | | | | | | | | | | | | | | | | | |
| New York | xxxx | | | | | | | | | | | | | | | | | | |
| North Carolina | | | | | | | | | | | | | | | | | | | |
| North Dakota | | | | | xxxx | | | | | | | | | | | | | | |
| Ohio | xxxx | | | | | | | | | | xxxxxxxxx | | | | | | | | |
| Oklahoma | xxxx | | | | | | | | | | | | xxxx | | | | | | |
| Oregon | | | | | | | | | | | | | | | | | | | |
| Pennsylvania | xxxx | | | | | | | | | | xxxxxxxxxxxxxx | | | | | | | | |
| Rhode Island | xxxxxxxxxxxxxxxxxxxxxx | | | | | | | | | | xxxxxxxxx | | | | | | | xxxxxxxxxxxxx | |
| South Carolina | | | | | | | | | | | | | | | xxxx | | | | |
| South Dakota | | | | | xxxx | | | | | | | | | | | | | | |
| Tennessee | | | | | | | | | | | xxxx | | | | | | | | |
| Texas | | | | | | | | | | | | | xxxx | | | | | | |
| Utah | | | | | | | | | | | | | | | | | | | |
| Vermont | xxxx | | | | | | | | | | | xxxxxxxxx | | | | xxxx | | | |
| Virginia | xxxx | | | | | | | | | | | | | | | | | | |
| Washington | xxxx | | | | | | | | | | | | | | | | | | |
| West Virginia | | | | | | | | | | | | xxxxxxxxxxxxxx | | | | xxxx | | | |
| Wisconsin | | | | | | | | | | | xxxxxxxxxx | | | | | | | | |
| Wyoming | | | | | | | | | | | | | | xxxxxxxxxx | | | | | |

Source: Refer to text and the Appendix.

divergence should have been a signal of troubles ahead. Appendix Table A-3 provides a brief summary of the developments in each state highlighted in Table 5.

In general, divergences were followed by painful adjustments. For example, Arizona appears as a trouble spot in the mid 1980s. Overall growth was strong at the time and the unemployment rate was below the national average. However, booming construction employment was outstripping the expansion in export employment. Construction employment subsequently fell sharply and overall growth slowed to half its earlier rate. Florida's experience in the early 1970s was somewhat similar. Export employment was strong but construction employment was even stronger. The 1975 recession brought a harsh end to the boom. Construction cutbacks were much sharper in Florida than the nation; overall employment declined more steeply.

Michigan and a number of midwestern states appear as troubled in the early 1980s for a different reason. Their problem was not too much construction but too little export activity. Job losses in the export sector simply dominated construction cutbacks. However, with the unemployment rate in Michigan well into double digits, developers and investors probably did not need a measure of the divergence between export and construction employment to tell them that Michigan was not an ideal location for new construction. The time to look carefully at the composition of growth is when the economy appears to be doing well.

## *IV. Summary and Conclusions*

When New England's growth first began to slow in the late 1980s and difficulties in real estate markets were beginning to surface, the possibility of a Texas-like experience was occasionally raised but almost always dismissed. The Texas economy was very different from the New England economy. Also, Texas was populated by wild and crazy speculators who had been oblivious to the signs of overbuilding. New Englanders were much more prudent. Or so we thought.

By a number of measures New England's construction and real estate difficulties have been as severe as those in Texas. Home prices, while still very high, have fallen. Vacancy rates, for both homes and office buildings, were still lower in 1990 in New England than in Texas at its worst, but they had risen sharply. The decline in New England's construction and overall employment will surpass that suffered by Texas.

Of more significance for the rest of the nation, however, is the fact that in neither place were the warning signals obvious. Vacancy rates in New England were quite low until the very end of the decade. Housing prices continued to rise after construction turned down. While many observers expressed some concern about the long-term consequences of such high housing prices on the region's ability to attract workers, in the short term rising prices would generally be seen as a sign of economic health. Texas had some warning that its office construction was excessive, but the housing market did not show early signs of stress. The point—the familiar indicators of the health of real estate markets do not provide much advance warning of adverse developments.

Comparisons of construction activity with the national experience that take into account variations in employment and population growth may be helpful. Such comparisons would have suggested that construction activity in New England in the mid to late 1980s was not sustainable even allowing for the pickup in the region's rate of growth. Moreover, a further examination of the composition of New England's growth would have shown that construction and real estate were playing an inordinate role in fueling that growth. The traditional export sector had weakened and overall growth was being sustained largely by construction and various locally oriented industries. The situation in Texas was somewhat similar. The export sector weakened sharply in the early 1980s. Construction and real estate did not adjust immediately—not surprising in view of Texas' previous economic success—but the delayed reaction meant further difficulties down the road.

In summary, signs of problems ahead in real estate markets are not obvious. Vacancy rates and other indicators of the current state of the real estate market can change for the worse very rapidly. Avoiding problems requires monitoring the significance of construction in the economy, taking into account population and employment growth, and steering clear of situations in which employment growth is fueled to a significant degree by construction itself. Comparing the performance of the construction and real estate industries with that of the traditional export sector, while a simplistic exercise, may focus attention on potential trouble spots.

Appendix Table A-1
*Housing Vacancy Rates, United States and Selected Metropolitan Areas*
Percent

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989[a] | 1990[a] |
|---|---|---|---|---|---|---|---|---|---|---|
| Rental Vacancy Rates | | | | | | | | | | |
| United States | 5.0 | 5.3 | 5.7 | 5.9 | 6.5 | 7.3 | 7.7 | 7.7 | 7.4 | 7.2 |
| Boston | 6.6 | 6.5 | 5.0 | 4.9 | 3.8 | 4.3 | 4.0 | 4.1 | 4.2 | 6.0 |
| Hartford | n.a. | n.a. | n.a. | n.a. | n.a. | 3.7 | 6.1 | 7.1 | 8.2 | 11.2 |
| Dallas | 5.4 | 4.7 | 9.0 | 7.7 | 13.9 | 17.2 | 16.2 | 17.9 | 14.6 | 12.3 |
| Houston | 6.4 | 7.6 | 13.9 | 15.4 | 18.1 | 18.0 | 18.3 | 14.4 | 12.5 | 9.6 |
| Los Angeles | 3.1 | 3.7 | 3.2 | 3.4 | 3.7 | 3.5 | 4.4 | 5.5 | 5.8 | 6.2 |
| San Francisco | 4.9 | 3.9 | 4.1 | 4.7 | 3.1 | 4.6 | 4.9 | 3.5 | 2.8 | 4.2 |
| Homeowner Vacancy Rates | | | | | | | | | | |
| United States | 1.4 | 1.5 | 1.5 | 1.7 | 1.7 | 1.6 | 1.7 | 1.6 | 1.8 | 1.7 |
| Boston | 2.2 | 1.2 | 1.0 | .7 | .5 | .7 | 1.2 | .8 | 1.0 | .9 |
| Hartford | n.a. | n.a. | n.a. | n.a. | n.a. | .2 | .7 | .9 | 3.7 | 2.9 |
| Dallas | 2.2 | 1.4 | 2.0 | 2.2 | 1.6 | 2.1 | 3.7 | 3.9 | 4.1 | 2.1 |
| Houston | 2.2 | 4.1 | 3.4 | 5.4 | 3.6 | 3.7 | 3.4 | 2.3 | 2.4 | 2.1 |
| Los Angeles | 1.2 | 1.4 | 1.9 | 1.7 | 1.9 | 1.0 | .7 | .9 | .9 | 1.6 |
| San Francisco | 1.7 | 2.0 | 1.8 | 2.1 | 1.2 | 1.2 | 2.5 | .4 | .9 | 3.0 |

n.a. = not available.
[a]Rates for 1989 and 1990 include mobile homes; effect is small in most cases.
Note: Most metropolitan area definitions were changed in 1986; thus, rates for the years 1981 through 1985 and for 1986 through 1990 are not strictly comparable.
Source: U.S. Bureau of the Census, *Current Housing Reports*, Series H111/202; "Housing Vacancies and Homeownership Annual Statistics", 1989 and 1990.

Appendix Table A-2
*Office and Industrial Vacancy Rates,[a] Selected Areas*
Percent

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Office—Downtown Areas | | | | | | | | | | | |
| National | 4.1 | 4.8 | 10.3 | 12.4 | 14.7 | 16.5 | 16.4 | 16.3 | 16.2 | 16.7 | 17.1 |
| Boston | 1.5 | 2.3 | 3.7 | 1.9 | 12.8 | 10.7 | 9.1 | 8.8 | 12.6 | 12.6 | 16.7 |
| Hartford | n.a. | n.a. | n.a. | n.a. | n.a. | 12.5 | 6.7 | 4.6 | 8.3 | 14.3 | 18.6 |
| Dallas | 4.8 | 4.8 | 10.0 | 14.6 | 17.2 | 17.5 | 21.6 | 24.5 | 23.5 | 22.4 | 24.7 |
| Houston | 1.4 | 1.3 | 5.8 | 14.6 | 20.9 | 20.2 | 20.0 | 21.9 | 19.4 | 18.5 | 17.7 |
| Los Angeles | .2 | .8 | 9.5 | 12.3 | 11.8 | 18.2 | 15.0 | 13.2 | 13.5 | 13.4 | 15.8 |
| San Francisco | .1 | .4 | 5.7 | 5.9 | 10.1 | 13.4 | 18.1 | 13.8 | 13.2 | 13.6 | 11.5 |
| Industrial | | | | | | | | | | | |
| National[b] | 3.7 | 3.8 | 4.8 | 4.9 | 4.7 | 5.0 | 5.8 | 5.5 | 6.0 | 6.4 | 7.4 |
| Boston | 1.8 | 1.4 | 1.9 | 1.1 | 1.1 | 2.3 | 3.6 | 3.1 | 5.1 | 7.1 | 8.6 |
| Hartford | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 8.2 | 6.2 | 6.1 | 11.6 | 12.1 |
| Dallas | 6.4 | 8.1 | 7.3 | 6.9 | 4.6 | 6.1 | 7.0 | 6.9 | 8.4 | 7.2 | 8.8 |
| Houston | 4.9 | 5.7 | 4.6 | 5.6 | 7.7 | 14.1 | 14.9 | 12.7 | 9.6 | 9.8 | 9.3 |
| Southern California | 4.3 | 3.8 | 5.3 | 5.0 | 5.4 | 6.5 | 6.3 | 6.3 | 6.4 | 6.5 | 8.8 |
| North and Central California | 5.0 | 5.1 | 5.5 | 6.5 | 6.8 | 6.2 | 9.4 | 7.9 | 7.0 | 6.9 | 8.2 |

n.a. = not available.
[a]Rates are for December of the indicated year.
[b]Based on downtown and industrial areas.
Source: Coldwell Banker, *Commercial Office Vacancy Index of the United States* and *Commercial Industrial Vacancy Index of the United States*, various years.

Appendix Table A-3

## *Subsequent Construction and Real Estate Developments in States Where Changes in Construction and Real Estate Employment Diverged Sharply from Export Employment, 1973 to 1990*

Note: In many states and the nation, construction and real estate employment held up during the 1970–71 recession despite a falloff in export employment. As discussed in the text, the strength in construction was due, in large part, to the Housing and Urban Development Act of 1968. This contributed to divergences in 1972 in many states and is not discussed below.

| State | Period of Divergence | Comments—Subsequent Developments |
|---|---|---|
| Alaska | 1973–76 | The construction of the Alaskan pipeline produced very high levels of construction employment. Completion caused a dramatic falloff in both construction and overall employment at a time (1977–78) when U.S. employment was expanding. Housing construction plunged, although prices continued to rise. |
| | 1983 | Construction outpaced the growth in export employment. Construction remained strong until 1985, then fell very sharply. Vacancy rates for rental housing were above 15 percent in the late 1980s; housing prices rose through 1987, then fell. Total employment growth in the mid 1980s was much weaker in Alaska than in the nation. |
| Arizona | 1984–85 | Although export employment was fairly strong in this period, construction and real estate were stronger still. Construction employment held up through 1986 but then weakened and fell sharply and steadily. Housing construction contracted sharply. Prices, which had been rising, leveled off after 1987. Office vacancy rates jumped sharply in 1984 and remained above the national average through the rest of the 1980s. Growth in overall employment continued to surpass the nation's but slowed sharply from earlier rates. |
| Connecticut | 1983<br>1987–89 | Developments in New England states in the 1980s are discussed in the text. It is worth noting, however, that construction boomed and real estate values soared in the mid 1980s in Connecticut, despite the divergence between construction and export activity in 1983. This highlights the fact that divergence should be regarded as a warning signal of problems ahead, not an infallible predictor. |
| Florida | 1973 | Construction and real estate grew strongly in the early 1970s, outpacing strong growth in overall employment. Construction employment then fell more steeply in the 1975 recession in Florida than in the country as a whole. Overall employment also fell more sharply, even though growth had previously been stronger in the state. |
| Georgia | 1973 | Strong construction employment in the early 1970s and cutbacks in military employment accounted for this divergence. Subsequently, construction employment fell somewhat more steeply in Georgia than the nation in the 1975 recession. Overall employment decline was also steeper, although other factors contributed. |
| Illinois | 1982–84 | Job losses in manufacturing in the 1982 recession swamped large cuts in construction. Apart from an increase in industrial vacancy rates, most real estate indicators did not subsequently show signs of distress, and the eventual recovery in both construction and total employment was fairly vigorous. Construction employment had been well below the national average prior to the downturn. |
| Indiana | 1975–76 | Job losses in manufacturing in the 1975 recession exceeded reductions in construction. The divergence does not appear to have had negative longer-term consequences for construction and real estate or for overall growth. |
| | 1981–82 | Again, export job losses swamped cutbacks in construction in the recession. Housing construction, as measured by permits authorized, was cut back more severely than in the country as a whole. Housing prices were weaker in the recession and in the early stages of recovery than in the country as a whole. The recovery in both construction and total employment was weaker than that nationally, but not markedly so.<br>In both periods, the share of employment in construction and real estate was below the national average. |

Appendix Table A-3 *continued*

| State | Period of Divergence | Comments—Subsequent Developments |
|---|---|---|
| Iowa | 1982 | The recession brought severe difficulties all round. Large cuts in construction employment were dominated by cuts in farming and manufacturing. The overall economy recovered slowly. Construction remained weak. Despite sharp cuts in housing permits during the recession, permitting remained depressed for several years. Housing prices were generally flat throughout the recession and early recovery; declines occurred in some years. |
| Maine | 1985–88 | Developments in New England in the 1980s are discussed in the text. |
| Maryland | 1973 | A period of weak export employment and moderate growth in construction was followed by weaker than average construction. |
| | 1987 | Construction employment was growing strongly, while export employment was flat. Through 1990, serious problems had not appeared, although a few indicators were becoming less favorable. Construction employment remained strong. Housing prices rose briskly, although home sales fell off somewhat more in the late 1980s than in the country as a whole. Office and industrial vacancy rates were below the national average, but office rates were increasing at the end of the decade. |
| Massachusetts | 1987–88 | Developments in New England are discussed in the text. |
| Michigan | 1975 | The recession caused much larger job losses in the volatile export sector than in construction. The economy recovered vigorously and construction and real estate do not appear to have suffered long-lasting adverse effects. Construction's share of employment was below the national average through the recession and recovery. |
| | 1980–82 | The export sector was severely affected by the 1980 and 1982 recessions. Export job losses swamped large cuts in construction. Housing construction was greatly curtailed. The recovery in construction was fairly strong but from a small base. Housing prices were flat in the early recovery, while increasing in the rest of the country. As before, construction's share of employment was well below average. |
| Mississippi | 1982–83 | Cutbacks in export employment were much larger than construction job losses. The recovery was weak, especially for construction. Housing construction was very sluggish. Prices increased very little through the early and mid 1980s. |
| Montana | 1977 | Construction grew rapidly following the 1975 recession. Construction activity subsequently weakened more in Montana than the nation. Housing construction was sharply curtailed. Home prices continued to escalate, however. |
| Nevada | 1978–79 | Construction employment soared in a generally strong economy during the late 1970s. Subsequently, construction employment and housing permits fell more sharply than in the country as a whole; housing prices, which had been rising rapidly, stagnated while continuing to increase elsewhere. |
| New Hampshire | 1983<br>1987–88 | Developments in New England in the 1980s are discussed in the text. |
| New Jersey | 1987 | Construction employment grew strongly while export employment was relatively weak. By the end of the decade the real estate market was showing evidence of weakness. Construction employment and housing permits had fallen sharply. Home sales were down more than in the nation and housing prices, which had previously been rising, had flattened out. Office and industrial vacancy rates were above average. |
| North Dakota | 1977 | Construction employment was somewhat stronger than in the country as a whole following the 1975 recession, even though export employment was weaker. Construction was subsequently weaker than in the nation. Housing prices were also weaker, although the price figures are too volatile to be reliable. |
| Ohio | 1982–83 | Recession caused large cuts in export and construction employment. Recovery in housing construction was initially weaker than that nationally but gained strength. Office vacancy rates were high in the early to mid 1980s but later improved. Construction's share of employment was below the national average in both the recession and the recovery. |
| Oklahoma | 1984 | The export sector (oil and gas) experienced substantial employment losses in the early and mid 1980s. Construction was initially slow to react. Subsequently, construction activity fell very sharply. Real estate difficulties appear to have been severe. Home sales declined for some years. Prices were flat while rising nationally. Nonresidential vacancy rates rose sharply from previous very low levels. |

Appendix Table A-3 *continued*

| State | Period of Divergence | Comments—Subsequent Developments |
|---|---|---|
| Pennsylvania | 1982–84 | Construction employment was weak but a prolonged recession produced substantial cuts in export employment. Residential and nonresidential vacancy rates were fairly high in the early to mid 1980s but later improved. Real estate markets do not appear to have suffered long-term damage. The share of employment in construction was somewhat below the national average. |
| Rhode Island | 1973–76 | Construction employment was reduced in this period; but primarily because of military base closings, reductions in export employment were quite large relative to the construction cuts. The subsequent recovery in construction activity was weaker than that nationally but not strikingly so. Construction accounted for a much smaller share of employment in Rhode Island than the nation during this period. |
| | 1982–83<br>1988–90 | Real estate developments in the New England states in the 1980s are discussed in the text. An important difference, however, between the earlier and later periods in Rhode Island is that construction accounted for only 3.5 percent of employment in 1982 but 5.0 percent in 1990. |
| South Carolina | 1986 | Growth in construction and real estate employment was strong while the export sector was sluggish. Construction activity in subsequent years was somewhat more subdued than that nationally, even though the export sector was now stronger than elsewhere. Home prices did not increase as fast as national figures. |
| South Dakota | 1977 | Construction employment was somewhat stronger than in the country as a whole following the 1975 recession, even though export employment was weaker. Construction was subsequently weaker than in the nation. The weakness in export employment also continued. Housing prices appear to have fallen in the late 1970s. |
| Tennessee | 1982 | The recession caused severe cuts in export employment. Construction was also reduced sharply, but the export sector is considerably larger and the job losses dwarfed those in construction. The ensuing recovery in construction was similar to that nationally. Export employment recovered a little more strongly in the state than the nation. |
| Texas | 1984 | Texas' difficulties are discussed in the text. |
| Vermont | 1983–84<br>1987 | The New England states are covered in the text. |
| West Virginia | 1983–85<br>1987 | The state experienced prolonged losses in export employment in the early and mid 1980s. Construction employment was cut back in the early 1980s, then leveled off and in the second half of the 1980s increased despite the extended period of declining export activity. Data on housing prices are too volatile to draw firm conclusions, but prices appear to have increased far less over the decade than in other states. |
| Wisconsin | 1982–83 | The recession caused substantial cuts in export employment. Construction activity was weak, but the job losses were small in comparison with the export reductions. The recovery in construction was somewhat delayed relative to that elsewhere but eventually was fairly vigorous. Increases in housing prices were considerably smaller than those elsewhere. Throughout the early and mid 1980s, construction's share of employment was well below the national average. |
| Wyoming | 1985–86 | Construction activity was very weak in this period, but export employment was falling sharply. Construction activity weakened even more in the ensuing years. |

Source: Comments are based on information contained in the following sources:
*Coldwell Banker Commercial Industrial Vacancy Index of the United States* and *Office Vacancy Index of the United States*, various issues (office and industrial vacancy rates).
Federal Housing Finance Board, *Rates and Terms on Conventional Mortgages, Annual Summary 1990* (housing prices).
F.W. Dodge Division, McGraw-Hill Information Systems Company, *Dodge Construction Potentials* (index of residential and nonresidential construction contract awards).
National Association of Realtors, *Home Sales Yearbook 1989* and *Home Sales*, various issues (housing prices and sales volumes).
U.S. Bureau of Economic Analysis, Regional Economic Measurement Division (employment).
U.S. Bureau of the Census, *Current Construction Reports—Housing Units Authorized by Building Permits*, various issues and historical data supplied by the Bureau (housing permits and valuation of privately owned residential and nonresidential construction).
U.S. Bureau of the Census, *Current Housing Reports—Housing Vacancies and Home Ownership, Annual Statistics*; 1989 and 1990 (vacancy rates).

## *References*


Browne, Lynn E. 1991. "The Role of Services in New England's Rise and Fall: Engine of Growth or Along for the Ride?" Federal Reserve Bank of Boston, *New England Economic Review*, July/August, pp. 27–44.

Case, Karl E. 1986. "The Market for Single-Family Homes in the Boston Area." Federal Reserve Bank of Boston, *New England Economic Review*, May/June, pp. 38–48.

Case, Karl E. and Robert J. Shiller. 1988. "The Behavior of Home Buyers in Boom and Post-Boom Markets." Federal Reserve Bank of Boston, *New England Economic Review*, November/December, pp. 29–46.

Moscovitch, Edward. 1990. "The Downturn in the New England Economy: What Lies Behind it?" Federal Reserve Bank of Boston, *New England Economic Review*, July/August, pp. 53–65.

Norton, R.D. 1987. "The Role of Services and Manufacturing in New England's Economic Resurgence." *New England Economic Indicators*, Second Quarter, pp. iv–viii.

Rosengren, Eric S. 1990. "How Diversified Is New England?" Federal Reserve Bank of Boston, *New England Economic Review*, November/December, pp. 3–16.

Sherwood-Call, Carolyn. 1990. "Real Estate Problems in the West?" Federal Reserve Bank of San Francisco, *FRBSF Weekly Letter*, July.

Simons, Katerina. 1990. "New England Banks and the Texas Experience." Federal Reserve Bank of Boston, *New England Economic Review*, September/October, pp. 55–62.