

A Second Wind for the Construction Industry?

The market value of private nonresidential real estate (in constant dollars) decreased in 1994 for a fifth consecutive year, but nonresidential construction continued to rebound. This helped offset weakness in residential construction, where higher interest rates took a toll. Recent data suggest that the decline in interest rates since April is helping to revive homebuilding and buying.

One of the most remarkable aspects of the 1990-91 recession and subsequent recovery was the unprecedented decline in real estate values. According to the Federal Reserve's *Balance Sheets for the U.S. Economy*, the estimated market value of U.S. real estate held by the private sector (land and structures), in constant 1994 dollars, peaked at \$15.5 trillion in 1989 and subsequently decreased to \$13.2 trillion in 1992. The magnitude, duration, and breadth of this decrease were unique in the postwar experience. As indicated in the table nearby, every major category of real estate shared in the loss of value. The value of real estate held by nonfarm noncorporate businesses and nonfinancial corporations experienced the steepest declines, while the downturn in real estate owned by the household sector was relatively shallow and short-lived.

Total real estate value rebounded in 1993 and by year-end 1994 it had increased to \$13.4 trillion. However, this still was nearly 14 percent lower than it was 5 years earlier, in constant dollars. The market value of real estate owned by nonfinancial corporations did not recover at all: it decreased for the fifth consecutive year in 1994, and by year's end was, incredibly, one-third below what it was in 1989. The value of real estate held by noncorporate businesses, which include real estate developers, also continued to decrease and by year's end was one-fourth below its 1989 peak. The primary source of the recovery in total real estate value has been the household sector, where the constant-dollar value of real estate began to increase in 1991. By the end of last year it had regained nearly all of the value lost during 1989-90. (Nearly all of this increase represents higher values for owner-occupied real estate; the value of

land and buildings owned by nonprofit organizations, which is included in the estimates for the household sector, declined sharply through 1993 and remains far below its 1989 peak.)

What Happened?

The decrease in the constant-dollar value of land and buildings since 1989 is, to repeat, unprecedented. It is all the more remarkable because the factors that have tended to boost real estate values, through good times and bad, during the postwar period (population growth and new construction spending in excess of any reasonable estimate of wear and tear and obsolescence of existing structures) have continued since then.

This strongly suggests that, perhaps beginning as long ago as 1980, many new construction projects (not only commercial properties, but also, to a lesser extent, residential developments) have had, on completion, lower market values than they cost to build. The extent of this malinvestment may have been disguised for a time, as regulators attempted to prop up the financial institutions that financed it, but the "chickens came home to roost" when failed institutions were liquidated and the properties dumped on the market for whatever they would fetch.

Market Value of U.S. Real Estate, by Sector (In billions, 1994 dollars)

| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Households | \$ 8,049 | \$ 7,584 | \$ 7,703 | \$ 7,649 | \$ 7,749 | \$ 7,968 |
| Nonfarm noncorporate | 2,936 | 2,712 | 2,484 | 2,306 | 2,225 | 2,216 |
| Nonfinancial corporate | 3,929 | 2,994 | 2,535 | 2,161 | 2,144 | 2,077 |
| Farm business | 870 | 846 | 805 | 788 | 790 | 787 |
| Private financial | 369 | 352 | 344 | 346 | 346 | 341 |
| Total | \$15,516 | \$14,489 | \$13,870 | \$13,250 | \$13,254 | \$13,389 |

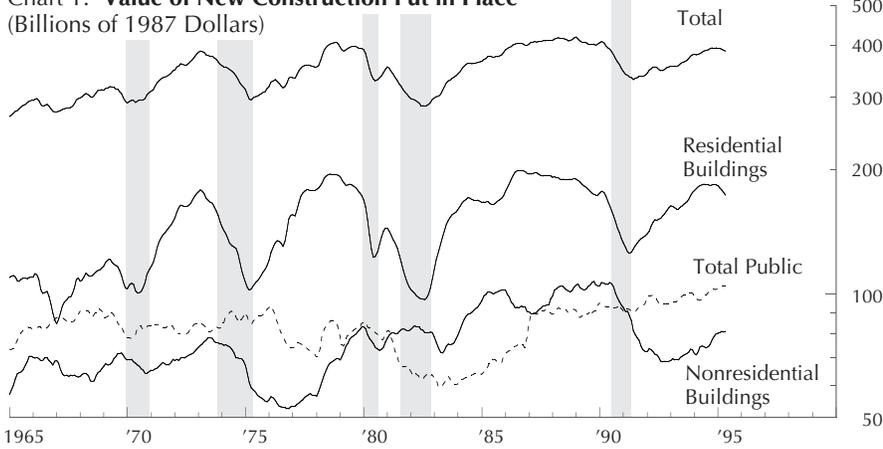
Note: Detail items may not add up to totals due to rounding.
Source: Federal Reserve Board, Balance Sheets for the U.S. Economy.

A Lopsided Rebound

In any event, the divergent trends of residential and nonresidential real estate values may partly account for the lopsided rebound in construction activity during the past 4 years. As is shown in Chart 1, the volume of private residential construction put in place began to increase in 1991. It reached a peak annual rate of \$184.8 billion (in constant 1987 dollars) in late 1993, which was comparable to the peak rates reached during previous business expansions. This upturn reflected new housing, which accounts for 70 percent of the value of residential construction, as well as alterations and improvements to existing housing. In contrast, the upturn in private nonresidential construction began later and has been much more modest. The constant-dollar value of new work on industrial buildings, offices, hotels and motels, shopping centers, and other commercial buildings plummeted to 15-year lows in 1990-92 and did not pick up until 1993.

Activity in the third major area of construction, public construction, was as usual less cyclical than either residential or nonresidential construction during the last business downturn. As can be seen in Chart 1, volume soared during the mid-1980s, leveled off after 1987, and remained steady during the recession. In the second quarter of 1995, the value of new public construction put in place reached its highest constant-dollar rate in at least 30 years. The bulk of these dollars reflect spending on schools and roads, but spending on government administrative buildings, prisons, courthouses, public recreational facilities, and a wide range of other public infrastructure also has increased. One consequence of this increase, coupled with the muted recovery in commercial

Chart 1: Value of New Construction Put in Place
(Billions of 1987 Dollars)



Note: All series are 3-month moving averages of seasonally adjusted monthly data at annual rates. Source of data for Charts 1 and 2: Commerce Department, *Current Construction Reports*.

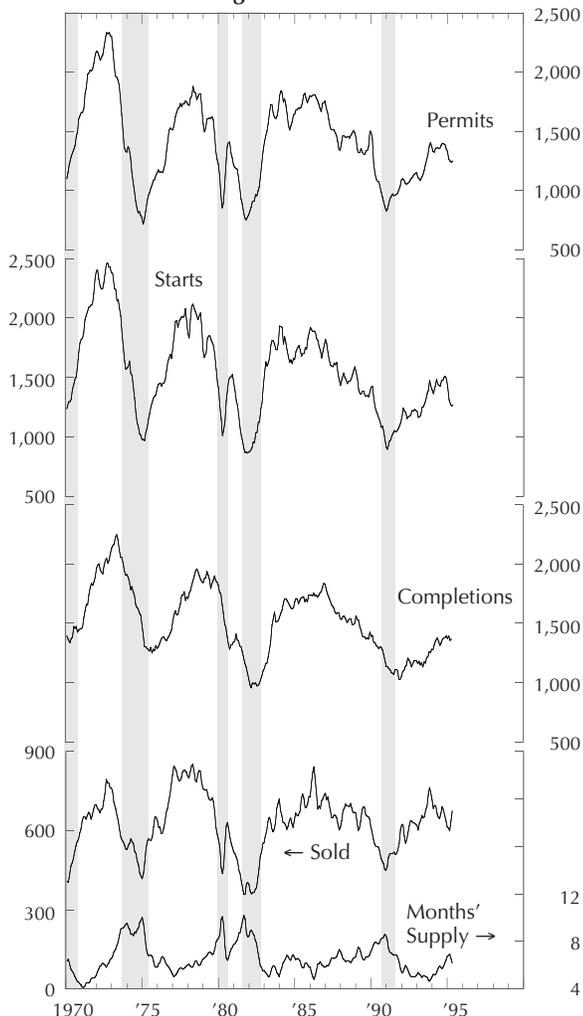
building, is that public construction now accounts for a larger volume of new construction put in place than does the private nonresidential sector, just as it did in the 1960s and 1970s.

Overall business investment has been

much more vigorous in the 1990s than the moderate upswing in construction might suggest. Businesses have been investing heavily in computers, communications equipment, machinery, and other capital goods. Current-dollar new orders for producers' durable equipment

reached \$49.0 billion in June, a 12.7 percent increase compared with a year earlier. Investment in such equipment has been a major source of economic growth throughout this business expansion.

Chart 2: New Housing Units



Note: In thousands of units, except months' supply in months. Also see note to Chart 1.

The Recent Slump

In early 1995, construction trends diverged yet again. The constant-dollar volume of nonresidential construction put in place increased to \$82.0 billion in June, the highest annual rate in 4 years, and the volume of public construction rose to \$104.8 billion. However, these and earlier increases were insufficient to offset the decrease since December in residential construction activity, which accounts for nearly half of the value of all construction put in place. The constant-dollar volume of residential construction put in place decreased to an annual rate of \$171.5 billion, the lowest rate in 18 months.

This weakness is apparent in Chart 2, which plots a number of key indicators or residential construction (including both single and

multifamily units), arranged by the sequence of the construction process and by the timing of their cyclical trends. In the first quarter, the number of permits issued for new housing plummeted, as did the number of houses started, while the number of houses completed leveled off. Single-family housing, which accounts for four out of five units built, experienced the sharpest decrease, but work on new multifamily units also decreased.

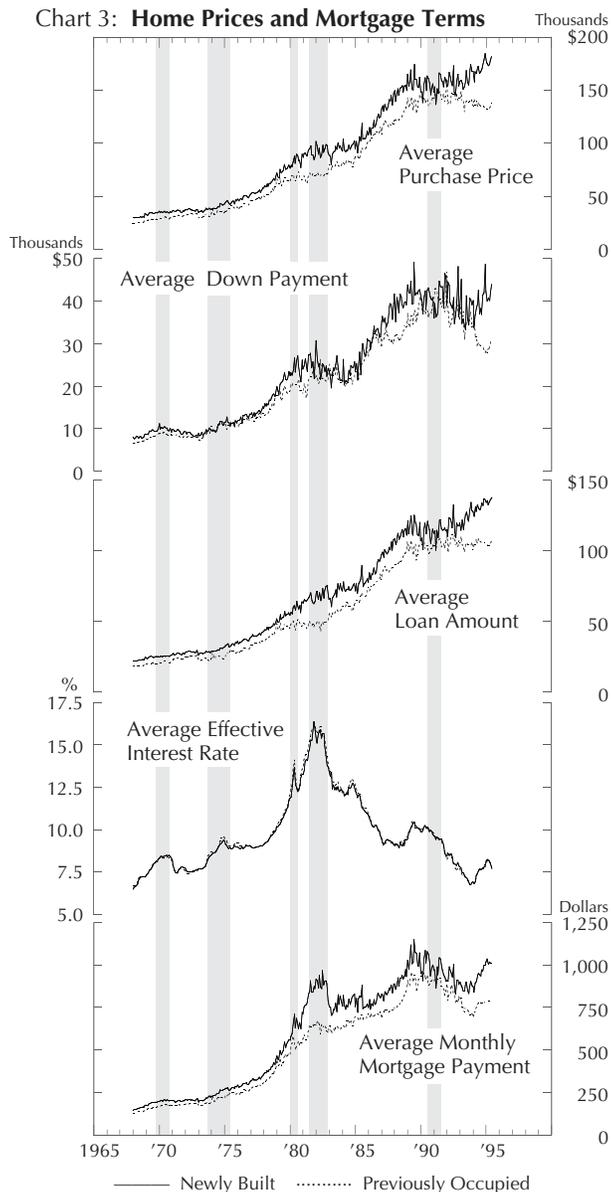
Home sales began to slump even earlier. Sales of existing homes peaked in December 1993 and decreased to an annual rate of 3.39 million last April, 20 percent below the peak rate. As shown in Chart 2, sales of new houses decreased from an annual rate of 817,000 in December 1993 to 610,000 in April 1995, a 2-year low. The number of new houses for sale continued to edge upward, however, consequently the months' supply of unsold homes (*i.e.*, the number of months required to sell the existing stock at the current sales rate) increased from roughly 5 months in late 1993 to 7 months earlier this year. Sales and construction weakened in every region of the country, particularly in the South and Midwest.

In the South, where two out of every five new privately owned houses are built, the number of units started decreased to an annual rate of 558,000 during the second quarter, 10 percent lower than the same period a year ago. In the Northeast, where only one out of every 10 new units are built, the number of houses started decreased 15 percent during this period.

The major dampening factor presumably was an increase in interest rates. After decreasing to a 25-year low, the average effective interest rate on mortgage loans for newly built homes increased from 6.80 percent in November 1993 to 8.28 percent last February. Mortgage rates for previously occupied homes also increased (see Chart 3). The higher cost of borrowing dampened not only the housing market, but also sales of automobiles, appliances, furniture, and other purchases typically financed by borrowing. This broad weakness slowed the annual rate of increase in constant-dollar Gross Domestic Product to just 0.5 percent in the second quarter, compared with 4.1 percent during the same period a year earlier.

However, the recent downturn in interest rates is expected to trigger a rebound in interest-sensitive sectors, including the housing market. There are indications this already is happening. The average effective mortgage rate on newly built houses began to decrease in April and reached 7.73 percent in June. The annual rate of issuance of building permits increased to 1.27 million in June from 1.24 million in

Chart 3: Home Prices and Mortgage Terms



Source: Federal Housing Finance Board, News.

May, and sales of new homes soared to an annual rate of 728,000, the highest rate in 18 months.

One factor that could mute this turnaround in residential construction, however, is the escalating cost of building a house. The average purchase price of a newly built home increased to \$181,700 in June, roughly \$10,000 higher than a year ago and \$25,000 more than in 1991. This pushed up the average loan on a new home to \$137,000, compared with \$114,000 in 1991. The impact of this price increase became apparent after last year's spike in interest rates, and the average monthly mortgage payment increased to \$1,036 earlier this year. Although it decreased to \$1,011 in June, this average loan payment is 20 percent higher than it was 2 years ago (see Chart 3). In contrast, the average purchase price of previously

occupied houses generally has fallen for the past 3 years. Such homes now cost \$35,000 less, on average, than a new home, the average down payment is \$31,200 vs. \$44,000 for a new home, and the average monthly mortgage payment is \$790, 22 percent lower than for a newly built house. The price gap between new and existing homes has not been this large since the early 1980s.

Why do new houses cost so much more compared with their prices a few years ago and with the prices of existing homes? Surely, one factor is the seemingly relentless increase in the cost of complying with local building codes and regulations. Another is the rising cost of labor and materials. Although general price inflation has averaged about 3 percent annually in the 1990s, the producer price indexes for hardwood and softwood lumber increased at annual rates of 9 and 16 percent, respectively, from 1991 to 1994. In addition, people continue to build larger houses and houses with more amenities. Seventy percent of the single-family houses built last year are 1,600 square feet or larger in area, up

from 68 percent in 1990 and 50 percent in 1980. Eighty-seven percent have a garage or carport, compared with 76 percent in 1980, and the percentage of new homes with 3-car garages, more than 2 bathrooms, and central air-conditioning also continues to increase.

The unusually large gap between the average prices of new homes and previously occupied homes suggests that existing homes are a relatively good bargain, therefore sales of such homes may be poised to revive more strongly than sales and construction of new houses. Of course, the housing market is local rather than national, and other factors favor a bigger rebound in residential construction in some areas of the country. For example, continued strong economic and employment growth will fuel demand for new housing in the South, while construction in the Northeast probably will continue to lag, due to slower economic growth and higher costs of labor, energy, and real estate.

Outlook

In every region, however, lower interest rates promise to give a boost to the residential market and perhaps add further momentum to the ongoing revival in commercial building. This is good news for the construction industry and the many manufacturing industries that depend on new building activity for much of their sales, such as furniture, flooring, carpeting, fixtures, and large appliances. In short, the ripple effects from the construction recovery could make the difference between recession and continued economic expansion later this year and perhaps in 1996.

Gross Domestic Product — Rewriting History

In an upcoming revision to the National Income and Product Accounts, the current measure of real Gross Domestic Product (GDP) will be dropped as the prominent measurement and replaced with an index based on a new method of calculation.

Changes to the quarterly estimates of the National Income and Product Accounts (NIPAs) regularly emanate from the Bureau of Economic Analysis (BEA), the unit of the Department of Commerce in charge of such matters. The reports from the "bean counters" are then reworked in annual revisions. All of these figures reflect the processes of data collection and estimation.

In contrast, the BEA's "benchmark" revisions, which are published every 5 years or so, only involve recalculation of the existing data, *i.e.*, they do not reflect new or more complete information. The next of these is expected in December.

Sometimes the "benchmark" changes have reflected definitional questions (as in the change in emphasis from Gross National Product to GDP), but they always involve, with respect to the "deflated" or constant-dollar estimates, a "rewriting of history."

This is because sectors of the economy have differing rates of change in output and prices. When the BEA now estimates "real" GDP, it uses a price deflator for each sector, which is weighted in proportion to its relative importance to 1987 GDP. The weighted components are added up to get GDP for the period, expressed in terms of its value in 1987. Different val-

ues and, more to the point, different rates of change would result if any year other than 1987 were used as the base.

Unlike prior 5-year revisions, which mainly have involved advancing the “benchmark” year (e.g., 1987 instead of 1982), the revisions expected in December will not express GDP in dollar levels weighted to a base year but as an index number, with the focus on annualized percent changes rather than constant-dollar levels. The BEA is doing this to deal with a problem, called a substitution bias, that tends to overstate growth in years after the base year.

The Substitution Bias

The inherent problem with the BEA’s current approach to measuring real GDP is the same as that of constructing any price index — spending patterns change over time. Buyers tend to substitute goods and services that have become relatively cheaper for those whose prices have increased more than average. This means that goods and services that register declines, or the smallest increases in prices, tend to be those goods and services for which output grows fastest. This also is why history has been “rewritten” every time the BEA has updated the base year for the NIPAs. The sectors that experienced above (or below) average growth in output due to relative price decreases (or increases) receive new weights when the “benchmark” year changes.

The BEA until now has considered the substitution bias small enough that it could safely be ignored, but recent developments, such as wide swings in energy prices and the explosive growth of the computer and communications sectors based on astonishing price decreases, have prompted the BEA to seek out an alternative measure of real GDP that takes changes in spending patterns into account on a more continuous basis.

An Alternative Measure

To remove the substitution bias from the measurement of real GDP, the BEA will use a new method, based on a chain-weighted index. In addition, the BEA no longer will emphasize real GDP as a dollar figure weighted to a base year, but rather as the annualized percent change of the new chain-weighted index number.

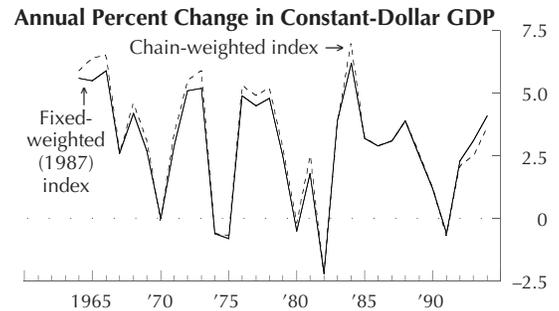
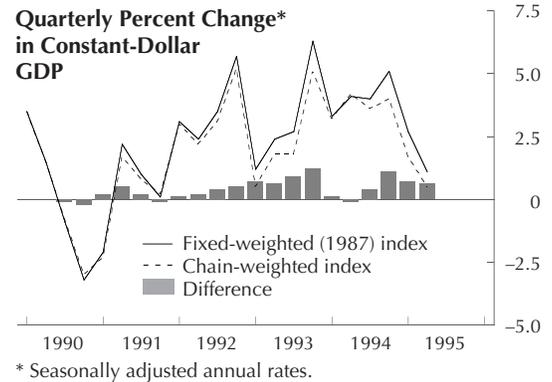
The two fundamental methods of constructing price indexes for a “market basket” of goods and services are the Laspeyres, based on the cost of yesterday’s “market basket” today, and the Paasche, based on what today’s “market basket” would have cost yesterday. The BEA’s current method of calculating real GDP essentially is based on a Laspeyres index.

The chain-weighted index (also called the Fisher-ideal index) is based on the geometric mean of the changes in the two basic indexes. The BEA will use the geometric means of annual changes as weights in computing the changes in real GDP.

The advantage of the new measure is that it minimizes substitution bias and eliminates the BEA’s need to rewrite history every 5 years. It also will provide for better comparisons of rates of change, because the weights will always be close to the periods under review. However, the new procedure also will mean that the constant-dollar level of GDP will not be the sum of its constant-dollar components. Presumably, this is why the BEA will focus on percentage changes in GDP instead of its level.

Because it will not be possible under the new procedure to get a dollar figure for real GDP directly from the index number, it will be difficult to perform sectoral analysis with the new figure. The BEA is aware of this problem and will publish chain-weighted estimates of the contributions of the components of real GDP to the growth in GDP as well as the familiar dollar-denominated estimates of the components of GDP, based in 1992 dollars. The closer the period in question is to the base year (soon to be 1992), the closer the sum of the chain-weighted components of GDP will be to total GDP; and the further away the period in question is from the base year, the larger the difference will be between the sum of the sectors and total GDP. Although the sectors may not precisely add up, because of the removal of the substitution bias, analysis based on the chain-weighted estimates may actually be more accurate.

Over short time spans the changes will be relatively small, but not insignificant. The top panel of the accompanying chart shows the annualized rates of change of the 1987 fixed-weighted (the measure now most commonly used by analysts) and the chain-weighted indexes of real GDP for recent quarters. The solid bars are the dif-



Source: Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*.

ferences between the two measures and reflect the size of the substitution bias. The difference between the two series varies (ranging from slightly negative to more than 1 percentage point) depending on which sectors increased or decreased relative to GDP during a given quarter. Moreover, the new procedure adds another factor to the initial “bean counting” revisions to the most recent quarters, which are the object of intense scrutiny by policymakers — the final chain weights will not be calculated until the year is over.

Over longer time periods, the differences may accumulate significantly. The bottom panel of the chart compares the annual changes in the fixed-weighted and the chain-weighted GDP measures from 1964 to 1994. For years prior to 1987, the current benchmark year, the fixed-weight line is below the chain-weight line, and *vice versa*. This suggests that the December NIPA revisions will reveal that the U.S. economy performed better before 1992 than the data now indicate, and worse since then. This could significantly alter the way we perceive the trends of measures that are based on the NIPAs, such as productivity or living standards.

PRICE OF GOLD

| | 1993 | 1994 | — 1995 — | |
|------------------------|----------|----------|----------|----------|
| | Sept. 2 | Sept. 1 | Aug. 24 | Aug. 31 |
| Final fixing in London | \$369.25 | \$386.00 | \$384.00 | \$382.35 |

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