Recent employment trends in the lumber and wood products industry

Because of the high proportion of lumber which is used in homebuilding, the lumber and wood products industry has been weakened by decreased demand for new housing during the 1980 and 1981–82 recessions

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Persistently high interest rates throughout the 1980 and 1981–82 recessions, along with the relatively brief and weak recovery between the downturns, contributed to one of the worst postwar declines in the construction industry. Much attention, both public and private, has been focused on this industry as the recessions worsened. Although receiving less attention, the industries closely tied to the construction sector have also suffered. In particular, the lumber and wood products industry was severely hurt because approximately 40 percent of the lumber consumed in the United States is used in residential construction.

The National Bureau of Economic Research (NBER) has identified two distinct recessions for the U.S. economy during the 1980's. The first began in January 1980 and lasted until July 1980; the second began in July 1981 and ended in November 1982.[1] Some analysts have asserted the existence of only one prolonged economic downturn.[2] The data for the lumber and wood products industry appear to indicate the existence of one prolonged recession lasting from March 1979 until July1982 as employment never fully recovered to its pre-1980 recession level before plunging deeper during the 1981–82 downturn.

Losing more than one-fifth of its total employment between March 1979 and July 1982 when the more than 3-year decline ended, the job loss for the lumber and wood products industry was about the same as that suffered during the 1973–75 recession.[3] Since July 1982, the situation in the industry has improved. Employment has increased by more than 13 percent, with most of the gain occurring in 1983. Employment losses for the lumber industry were not evenly distributed on a regional basis. The Pacific Coast and the major lumber-employing States of the South each account for about one-quarter of U.S. employment in the industry. However, the Pacific Coast was clearly more hard hit, losing more than two and a half times as many jobs as the South between 1979 and 1982. This was mainly because of a greater decline in housing starts in the West.

This article focuses on the relationship between the lumber industry and the housing industry. After a brief overview of the lumber industry, the two recessions are examined with regard to changes in mortgage interest rates and housing starts and their effect on employment and hours in the industry. Employment trends in the 10 largest lumber-employing States during the past two business contractions are also discussed.

Industry profile

Slightly more than one-fifth of the land area in the United States is classified as commercial timberland according to the Forest Service.[4] The types of lumber produced can be divided into two categories—softwood and hardwood.

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Softwood lumber, which accounts for about four-fifths of total lumber production, is harvested from coniferous trees, for example, pine. The residential construction sector, consisting of new housing, remodeling, repair, and mobile homes, consumes approximately half of total softwood production. Therefore, demand for softwood lumber is closely tied to conditions experienced in the housing sector of the economy. Less than 10 percent of the softwood consumed in the United States is used in the nonresidential construction sector. The major producing regions for softwood lumber are the South, with 44.5 percent of U.S. total softwood production, and the Pacific Coast, producing 40.7 percent. Hardwood lumber, such as oak and maple, is mainly used for furniture, materials handling, and floors. Demand for hardwood is also affected by activity in the housing market. The South accounts for more than half of total hardwood production in the United States.[5]

Secular trends

Long-term employment trends in the lumber industry show an overall decline. Between 1950 and 1979, employment dropped by nearly 8 percent or 70,000 jobs, and the industry's share of manufacturing employment fell almost 2 percentage points to 3.6 percent of the total. On the other hand, employment in construction rose considerably during the same period. The effects of the 1980 and 1981–82 downturns can be readily seen by comparing the change in employment between 1950 and 1979 with that of the 1950–82 period. The declines in employment for the lumber industry deepened while the gains slackened for construction. The following tabulation presents employment levels (annual averages in thousands) and changes for these industries in selected periods during 1950–82:

	Employment level			*Percentage change*	
Industry	*1950*	*1979*	*1982*	*1950 to 1979*	*1950 to 1982*
Lumber and wood products	837.0	766.9	603.4	−8	−28
Construction	2,364.0	4,463.0	3,911.0	+89	+65

The long-term decline of employment in the lumber and wood products industry can be partly explained by economic and demographic factors, efficiency of construction, and substitution of materials. The historical trend of ever-increasing house size appears to be undergoing a reversal because of economic and demographic developments. Rising housing, land, and energy costs, along with record mortgage interest rates, have caused consumers to shift their demand towards smaller homes. The average family size is declining and more single people are buying houses, decreasing further the desire for large homes. Consequently, less wood is required to build smaller houses.

Decreasing lumber and wood products employment can also be attributed to increasing efficiency and substitution. A rise in the construction of prefabricated housing units has resulted in more efficient use of lumber and wood products, causing a decline in their usage. Also contributing to the decline is the availability of substitute materials. For example, aluminum and vinyl are replacing wood for use in exterior siding; steel is being used for framing in apartment buildings; concrete slab is replacing wood for use in foundations; and carpeting is replacing the demand for hardwood floors.[6]

Prime first-time home buyers, according to the U.S. League of Savings Association, are between age 25 and 35. During 1970–80, the noninstitutional population of people aged 25 to 34 rose by almost half, to nearly 37 million. The Census Bureau estimates that more than 41 million Americans will reach age 30 during the 1980's, almost 10 million more than in the 1970's.[7] This surge in the number of potential first-time home buyers is expected to increase substantially the demand for housing. More and more single-person households are being formed in addition to the traditional married couple two-person or family households, increasing further the desire for new housing. According to U.S. League's 1981 Home Buyers Survey, nearly 30 percent of the buyers in 1981 were single, compared with only 17 percent in 1977. But despite these demographic trends, the high inflation and interest rates that persisted during the two most recent recessions helped to cause serious decline in the housing industry.

Recent trends

Housing costs. As the number of potential first-time home buyers has increased, the cost of owning a home has also risen. (For information on housing market indicators during the past two business declines, see table 1.) Prices of new single-family homes increased throughout the 1980 and 1981–82 recessions.[8] Between 1979 and 1982, the price of a new single-family home rose by almost one-quarter, to $87,600. However, the annual increase in prices slowed with each successive year during the period.

Table 1. Housing market indicators, 1979–82

Indicator	1979	1980	1981	1982
Price of a new single-family home	$70,900	$78,700	$85,300	$87,600
Mortgage interest rate (in percent)	10.78	12.66	14.70	15.14
Housing starts (million units)	1.745	1.292	1.084	1.062
Lumber production (billion board feet)	37.445	31.858	29.592	26.960
Softwood (billion board feet)	30.151	24.800	22.757	21.883
Hardwood (billion board feet)	7.294	7.058	6.835	5.077
	Percent change			
	1979–80	1980–81	1981–82	1979–82
Price of new single-family home	+11.0	+8.4	+2.7	+23.6
Mortgage interest rate	+17.4	+16.1	+3.0	+40.4
Housing starts	−26.0	−16.1	−2.0	−39.1
Lumber production	−14.9	−7.1	−8.9	−28.0
Softwood	−17.7	−8.2	−3.8	−27.4
Hardwood	−3.2	−3.2	−25.7	−30.4

SOURCES: U.S. Department of Commerce, Bureau of the Census; Federal Home Loan Bank Board; and the National Forest Products Association

Home mortgage interest rates contributed to the inflation that persisted during the downturns. The effective interest rate on a newly built family home rose from more than 10 percent in 1979 to more than 15 percent in 1982.[9] However, rates had declined to a level between 12.4 and 13.5 percent in the first half of 1983.

Housing and lumber production activity. The rise in the cost of homeownership has very likely outpaced the ability of many potential buyers to afford a new home. Therefore, even though demographic trends point toward an increase in demand for new housing, the residential construction sector along with its supplier industries—including lumber and wood products—have been hurt by the two most recent business declines. An examination of recent housing starts and lumber production activity illustrates the problems experienced in these sectors.

Between 1979 and 1982, housing starts fell by almost 40 percent to only slightly more than 1 million units in 1982.[10] The decreases continued through the 4-year period but the yearly rate of decline slowed considerably. Because of the drop in housing starts, the demand for lumber and wood products decreased dramatically during the period, causing annual lumber production to fall almost 30 percent.[11]

Softwood lumber production losses have been greater in these construction-related downturns than those for hardwood lumber production because of its larger share of total lumber production. Softwood lumber production was hardest hit in 1980, whereas 1982 was the most difficult year for hardwood lumber.

Employment. The lumber industry historically has led the economy at the start of cyclical declines in business activity. Employment trends followed this pattern in the 1980 recession. After reaching a peak level of 775,000 jobs in March 1979, employment began to decline 10 months before the official start of the 1980 recession. Employment decreased significantly during the next 15 months, dropping 120,000. Although jobs in the lumber industry increased from July 1980 until December 1980, the gain yielded an employment level of 692,000, nearly 11 percent below the March 1979 prerecession peak, illustrating the incompleteness of the recovery. Following December 1980, employment resumed its decline which continued until July 1982. The following tabulation shows the seasonally adjusted employment declines in the lumber and wood products industry during 1979–82 explained above:

				Change	
Peak	*Trough*	*Peak level*	*Trough level*	*Net*	*Percent*
Mar. 1979	June 1980	775,000	655,000	−120,000	−15.5
Dec. 1980	July 1982	692,000	600,000	− 92,000	−13.3

Examination of changes in employment for the components of the lumber industry over the 1980 and 1981–82 recessions shows that the wood buildings and mobile homes industry experienced the largest percent decline. The highest job loss occurred in the sawmills and planing mills industry. Table 2 presents seasonally adjusted employment changes for the components of the industry during the two recent business downturns.

Table 2. Employment levels and declines in lumber and wood products industry, by three-digit Standard Industrial Classifications, seasonally adjusted

Standard industrial classification	Percent of total industry employment (1979 annual average)	Employment[1] (in thousands)		Change	
		March 1979	July 1982	Number	Percent
Logging camps and logging contractors, SIC 241	11.5	89.0	76.0	−13.0	−14.6
Sawmills and planing mills, SIC 242	30.9	238.0	179.0	−59.0	−24.8
Millwork, plywood and structural members, SIC 243	29.5	229.0	177.0	−52.0	−22.7
Wood containers, SIC 244	6.1	48.0	38.0	−10.0	−20.8
Wood buildings and mobile homes, SIC 245	10.9	85.0	61.0	−24.0	−28.2
Miscellaneous wood products, SIC 249	11.0	85.0	71.0	−14.0	−16.5

[1]Peak-to-trough dates specific to the lumber and wood products industry as a whole, as opposed to official National Bureau of Economic Research peak-to-trough dates.

All told, the industry lost more than one-fifth of its total employment between March 1979 and July 1982. The job loss was about the same as that of the 1973–75 recession. The magnitude of the decline conveys how a supplier industry to the housing sector can be impacted by a construction-related recession. Although the absolute decline in employment in the construction sector was greater than that for the lumber industry over the past two recessions, the 22.6-percent decline for the latter industry was greater than the loss of the former, 18.4 percent.

At this time, construction industry employment appears to have ended its decline but has not shown any signs of a robust recovery. The drop in employment for the lumber and wood products industry ended in July 1982. Since then, the number of jobs in the industry has increased by more than 13 percent or 79,000 to a level of 679,000 in June 1983. However, employment in the lumber industry is still more than 12 percent or 96,000 below March 1979's prerecession peak level.

Hours. In general, employers tend to cut back on their employees' hours before instituting layoffs, with hours consequently starting to decrease before employment at the beginning of a business contraction.[12] This condition only held true for the lumber industry during the 1980 downturn.

Furthermore, the amount and duration of the decline in average weekly hours was greater for the 1980 than for the 1981–82 downturn.

Average weekly hours for production workers in the lumber industry reached a peak level of 40.3 in April 1978. Employment in the industry did not begin to decline until a year later. Although the level of hours fluctuated somewhat during 1978 and 1979, the trough was not reached until April 1980. Average weekly hours fell by more than 7 percent, or 3 hours, for the 2-year period.

Average weekly hours peaked again in January 1981, lagging employment declines by 1 month. The lead period between hours and employment decreases with the onset of the 1981–82 recession was considerably less than that of 1980. The lack of a lead could be because of the industry's failure to completely recover from the effects of the 1980 decline. Hours troughed in April 1982, resulting in a total drop of almost 6 percent, or 2.3 hours.[13]

Aggregate hours provide a better composite indicator of business cycle activity than employment or average weekly hours alone. Using aggregate hours provides information which reflects adjustments made by firms in both the length of the workweek and the size of the work force.

Aggregate hour activity in the lumber industry reached a peak in March 1979, 10 months before the official start of the 1980 recession for the general economy. Unlike average weekly hours, there was not a lead between the peak turning point for aggregate hours and the peak for employment.

The index of aggregate hours fell 23.5 points from 107.4 between March 1979 and June 1980.[14] A weak recovery period followed which lasted only until January 1981 and the level of aggregate hours, like employment, did not recover to its peak level. Another downturn followed which continued until March 1982, resulting in an additional loss of nearly 20 points. The overall decline between 1979 and 1982 amounted to 32.8 points, a loss about equal to the 32.6-point decline suffered during 1973–75.

Employment by State. The 10 largest lumber-employing States account for one-half of total U.S. employment in the industry. The Pacific Coast States of Oregon, California, and Washington are the three largest employers for the lumber and wood products industry in the United States, where about one-quarter of national employment in the industry is concentrated. With the exception of Wisconsin, the 10th-ranking State, the remaining States are located in the South. These Southern States include, in order of declining employment, Texas, North Carolina, Alabama, Georgia, Mississippi, and Virginia. These six States account for almost one-quarter of nationwide employment in the industry.

The Pacific Coast States lost almost one-third of their total employment in the lumber industry between 1979 and 1982 because of the declines in the construction sector. The largest yearly decrease in jobs was registered in 1982. Oregon has the largest number of lumber workers in the United States and lumber employment accounted for almost 8 percent of total employment in the State in 1979. Consequently, the 1980 and 1981–82 recessions had a significant impact on Oregon's economy. Oregon lost nearly one-third of its lumber industry's employment between 1979 and 1982, a loss of more than 25,000 jobs. This is the largest drop in lumber employment experienced by any of the States during these two most recent recessions. California's lumber industry experienced a greater percentage decline in employment, more than 35 percent, although the number of lost jobs, 24,200, was slightly less than for Oregon. Washington lost close to 28 percent of its lumber industry's jobs between 1979 and 1982. Jobs in Wisconsin's lumber industry decreased by almost one-fifth over the same period.

Lumber employment in the six largest employing States in the South for the industry fell almost 14 percent between 1979 and 1982, with the largest yearly drop occurring in 1982. Mississippi and Virginia lost nearly one-quarter of their jobs in the lumber industry during the last two recessions, while Alabama lost about 18 percent, North Carolina lost about 14 percent, and Georgia lost about 10 percent. Texas was the least affected by the recessions, with employment remaining relatively stable over the period. The following text tabulation lists the lumber and wood products industry's 10 largest employing States, plus shows their employment levels (annual averages in thousands) in 1979 and 1982 and the percent change between the 2 years:

State	*1979*	*1982*	*Percent change*
Oregon	81.2	55.5	−31.7
California	68.7	44.5	−35.2
Washington	53.9	39.0	−27.6
Texas	36.9	37.0	+ 0.3
North Carolina	36.3	31.2	−14.0
Alabama	30.8	25.3	−17.9
Georgia	30.5	27.5	− 9.8
Mississippi	25.4	19.3	−24.0
Virginia	24.6	18.8	−23.6
Wisconsin	23.3	18.8	−19.3

The impact of the past two recessions was not evenly distributed between the South and the Pacific Coast. The experience of the housing industry in the South and West during the past two recessions helps to explain the disparity in lumber employment trends. The South has been characterized as a growth area with regard to population and business activity. The housing industry in the South was hurt by the two recent recessions, but not as much as the Western region of the United States, which includes the Pacific Coastal States. Housing starts in the West decreased by more than half between 1979 and 1982, whereas the South's housing starts fell by only one-quarter between 1979 and 1981 and increased slightly more than 5 percent in 1982. There were nearly three times as many houses started in the

South as in the West in 1982, growing from just over one and a half times as many as in 1979.

Other reasons that have been cited to explain the weakened position of the lumber industry in the West include transportation costs and high labor costs. Additionally, the decline in the value of the Canadian dollar has made Canadian timber relatively less expensive.[15] Therefore, it is not surprising that the lumber industry lost more than two and a half times as many jobs in the Pacific Coast as in the South. □

———*FOOTNOTES*———

[1] Subsequent to this analysis, the National Bureau of Economic Research designated November 1982 as the trough of the 1981–82 recession.

[2] See Stephen H. Wildstrom, "One Recession or Two?" *Data Resources U.S. Review*, October 1982, pp. 1.12–1.14.

[3] Statistics on employment and hours are from the Current Employment Statistics Program of the Bureau of Labor Statistics which are collected by cooperating State agencies from employer reports of payroll records. A description of the program can be found in the Bureau of Labor Statistics publication, *Employment and Earnings*. Monthly employment and hours statistics are seasonally adjusted.

[4] According to the U.S. Department of Agriculture Forest Service's publication, *An Analysis of the Timber Situation in the United States, 1952–2030*, commercial timberland is land that is capable of producing at least 20 cubic feet of wood per acre per year.

[5] *An Analysis of the Timber Situation*, p. 142.

[6] *An Analysis of the Timber Situation*, pp. 23–25.

[7] Statistics on population are from the U.S. Department of Commerce, Bureau of the Census.

[8] The Bureau of the Census computes a quarterly price index of new one-family homes sold with like characteristics of homes built in 1977 in its report *Price Index of New One-Family Houses Sold*. These characteristics include floor area, number of stories, number of bathrooms, air conditioning, parking, foundation type, geographic division within region, metropolitan area location, fireplace, and lot size. Use of the index which is estimated as an average sales price, makes comparison of housing costs more meaningful over time.

[9] Interest rates presented are calculated by the Federal Home Loan Bank Board, which conducts a nationwide survey of all major types of lenders to determine the effective interest rate for the conventional first mortgage loan for a newly built family home. According to the board, the effective interest rate is the contract interest rate plus initial fees and charges amortized over 10 years, on the basis of an assumed prepayment at the end of that time. The annual effective mortgage interest rates are weighted averages.

[10] Housing starts statistics are calculated by the U.S. Department of Commerce, Bureau of the Census. Housing starts presented are annual rates of private housing units started.

[11] Lumber production statistics are calculated by the National Forest Products Association.

[12] For a further discussion of employers' responses to recessions, see Phillip L. Rones, "Response to recession: reduce hours or jobs?" *Monthly Labor Review*, October 1981, pp. 3–10.

[13] Because of unusually severe winter weather conditions, average weekly hours fell to an extremely low level in January 1982.

[14] The index of aggregate hours is prepared by dividing the current month's aggregate by the average of the monthly aggregates in 1977.

[15] "The Battered Fortunes of the Forest Products Industry," *Business Week*, Sept. 13, 1982, pp. 70–76.