

Joint Center for Housing Studies
Harvard University

**Using Additions and Alterations Permits
to Estimate Remodeling Activity in Metropolitan Areas**

Rachel Roth
October 2004
N04-3

© by Rachel Roth. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Any opinions expressed are those of the author and not those of the Joint Center for Housing Studies of Harvard University or of any of the persons or organizations providing support to the Joint Center for Housing Studies.

© 2004 President and Fellows of Harvard College. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Overview

Current sources of home improvement data are limited by lack of detailed geographic information. Even surveys with the most comprehensive coverage generate imprecise estimates of home improvement activity at the state, metropolitan area, or county level. However, in January 2002, the U.S. Census Bureau resumed the collection of monthly data on permits for residential additions and alterations. While the data have serious limitations and require a fair amount of “cleaning” before analysis, they can be used to supplement other data sources to provide more specific insights on the location of home improvement activity, and how this activity relates to other economic trends. This paper proposes improvements to the data collection and reporting procedures by the Census Bureau that should increase the accuracy and applications of future analyses using additions and alterations data.

Introduction

Licenses which grant legal permission to start construction of building projects, building permits generally are used to enforce codes which protect public health, safety, and welfare. To provide current data on new residential construction and additions, alterations, and renovations to existing residential building, the United States Census compiles data from local government into the Building Permits Survey. While data on permits for new residential construction have been available monthly and annually since 1959, data on addition and alterations were collected on and off since 1959. Most recently, the Census Bureau stopped collecting data on permits authorized for additions and alterations on residential properties in 1995, and resumed collection once again in 2002 using different definitions. Data collected in 2002 cover permits issued for additions, remodeling, restructuring, improvements, replacements, and disaster rebuilding¹. This includes work done to the primary residential structure and for other improvements to the residential property such as sheds, pools, and driveways, but generally excludes work done for incidental maintenance and repairs that keep a property in its ordinary working condition. Each month, the Census Bureau sends a form to about 8,600 offices requesting permitting activity for new construction as well as additional and alterations for that month, and receives responses

¹ Note: Totally rebuilding on an existing foundation is considered new construction.

from about 6,100². This information is supplemented by an annual survey of 10,000 places, of which approximately 7,500 complete and return these forms. Unlike most Census data, there are no confidentiality restrictions on these data. Permits are public information and all data collected are released.

Using Permits to Estimate Remodeling Activity

Because the residential building permit data report remodeling expenditures at the place level³, they allow researchers to monitor trends in remodeling by geographical location—an option that is extremely limited using data from the American Housing Survey and other data sources. The timeliness of the data, released only one month after the permitting occurs, also potentially makes this a very valuable source of information. However, it is important to consider several limitations. First, the data do not identify the demographics of the households completing the remodeling activity or what types of projects are being undertaken. An informal survey of building permit offices conducted by the Census Bureau prior to reinstating the collection of residential additions and alterations data indicates that many permit reporting offices could not even separate permitted activity into categories for additions, alterations, major replacements, and repairs. Second, because guidelines for what requires a remodeling permit vary widely throughout the country, comparisons of the level of remodeling permit activity across jurisdictions typically are misleading. Instead, users of this database typically compare changes in spending over time in given jurisdictions rather than compare remodeling activity across different jurisdictions. The same informal survey of building permit offices supports the claim that considerable variance exists across jurisdictions. Many jurisdictions only require permits for projects above a certain dollar amount or above a certain square foot size. Major alterations and major replacements to a home typically require permitting; minor alterations or routine maintenance and repairs often do not. Even if permits are required, enforcement of this requirement can vary considerably. Also, even if permitting is required and enforced, a local office may not have the resources to compile and report this information. As a result, the annual aggregate value of remodeling permits only represents a small share of total remodeling activity.

² U.S. Census Bureau. “Residential Building Permits Survey Documentation- Additions, Alterations and Renovations Place Level Files” <http://www.census.gov/const/C40/Sample/addaltplascdoc.pdf>

³ Places include census designated places, incorporated cities, and incorporated places. For more information, refer to: <http://www.census.gov/geo/www/tiger/glossry2.pdf>

Permitting requirements (as discussed above), lack of reporting by jurisdictions, and failure of households to obtain required permits contribute to this discrepancy.

The purpose of the Building Permits Survey is the collection of leading economic indicator data on permits for new residential construction. When the Census Bureau reinstated collection of data on additions, alterations, and renovations, it was with the understanding that the collection of these data could not jeopardize the collection or processing of data on new residential construction. The Census Bureau performs only a minimal amount of editing to the data on additions and alterations before distributing it to subscribers. Most of the data in the file are the raw data as reported to the Census Bureau by the permit-issuing offices. Approximately 37 percent of the records in the December 2002 file and 34 percent of the records in the December 2003 file have zero permits reported. Along those lines, it should be noted that the zeros reported in the data files could suggest many things. First, the zeros could mean that the permit issuing office reported no remodeling activity for the month. Second, the zeros could mean that the office did not fill in that particular part of the survey that month (in the computer, blank information gets switched to zeros). And third, the zeros could mean that the office filled in the information incorrectly (for example, by including nonresidential reconstruction with residential remodeling).

Clearly, the ambiguity of zeros in the data file complicates analysis. However, specific changes by the U.S. Census Bureau in collecting permit data would facilitate more accurate analysis of this data:

1. Begin to distinguish between missing data and no activity (this could be done without altering the survey form).
2. Impute missing data in a similar fashion to the way that new residential construction permits are reported. This would allow for a much richer database that reduces the need to estimate the level of activity in an area if that office fails to report occasionally.
3. Create a software package that building permit offices could use to input the additions and alterations data. This would standardize the reporting procedures and reduce the amount of data entry that occurs at the Census Bureau.

Developing a Permit Database

The remodeling permit data are reported both monthly and annually. Because the monthly file is cumulative over a calendar year, it is revised up to 11 times for the month of January and zero times for the month of December. This allows for late reports and corrected data for prior months. The annual file contains revised monthly reports from many offices that report monthly and annual reports for those places that report annually, and for some monthly reporters that failed to report monthly. For those offices that report monthly, an annual number of permits and value of permits is computed by summing the monthly entries. The Census Bureau additionally sends the annual questionnaire to about 10,000 permit offices each year and receives responses from about 7,500. For this remodeling permit analysis, both the 2002 and 2003 annual files and the 2002 and 2003 December files (which contain 12 months of permit data) were used—with the goal being to match month to month data if reported, and if not available, to use annual data. To clean the December file, the entries that included zero values for the number of permits and value of permits were removed. Then, the entries for each place for each month across the two years were matched. For example, if a particular place reported the number of permits and/or value of permits for January 2002 but not January 2003, the January 2002 entry was removed from the file. To clean the Annual File, the entries that were computed by summing the monthly entries were removed (for those places that reported monthly, the “cleaned” December monthly file was used). Next, the annual entries for each place for each year were matched as with the monthly file. Cleaning procedures for the monthly files resulting in eliminating approximately 10 percent of the jurisdictions that reported monthly data to the Census Bureau, and cleaning the annual files resulted in eliminating approximately 30 percent of the permit offices that reported annual data to the Census Bureau.

Summarizing Changes in Remodeling Permits for 2003

The raw data reveal a total number of 1.86 million permits valued at \$25.8 billion in 2002 and 1.99 million permits valued at \$28.7 billion in 2003. This is a 7 percent increase in the number of permits reported from 2002 to 2003 and an 11 percent increase in the value of permits reported from 2002 to 2003. The “cleaned” data reveal a total number of 1.58 million permits valued at \$21.3 billion in 2002 and 1.68 million permits valued at \$23.6 billion in 2003. This is a 6.4 percent increase in the number of permits reported from 2002 to 2003 and a 10.5 percent

increase in the value of permits reported from 2002 to 2003. The following tables show remodeling expenditure by various geographical categories in 2002 and 2003.

Remodeling Activity by Region

Region	# Permits 2002 (thous.)	Permit Value 2002 (\$ mil.)	# Permits 2003 (thous.)	Permit Value 2003 (\$ mil.)	% Change Permits 2002-2003	% Change Values 2002-2003
Northeast	395.5	5658.0	421.7	6176.3	6.6%	9.2%
Midwest	466.2	4953.8	468.0	5181.2	0.4%	4.6%
South	394.8	5321.8	431.3	5901.2	9.2%	10.9%
West	320.7	5388.8	357.1	6313.0	11.4%	17.2%
Total	1577.2	21322.5	1678.2	23571.8	6.4%	10.5%

Note: These numbers represent analysis conducted after extensive "cleaning" of the data.

Remodeling Activity by Division

Division	# Permits 2002 (thous.)	Permit Value 2002 (\$ mil.)	# Permits 2003 (thous.)	Permit Value 2003 (\$ mil.)	% Change Permits 2002- 2003	% Change Values 2002- 2003
New England	124.6	2428.0	136.9	2686.4	9.9%	10.6%
Middle Atlantic	270.9	3230.0	284.8	3489.9	5.1%	8.0%
East North Central	304.5	3311.6	316.5	3515.7	3.9%	6.2%
West North Central	161.7	1642.2	151.5	1665.5	-6.3%	1.4%
South Atlantic	266.7	3654.2	292.2	4157.0	9.6%	13.8%
East South Central	40.8	645.5	43.4	678.1	6.4%	5.1%
West South Central	87.3	1022.2	95.7	1066.1	9.6%	4.3%
Mountain	93.1	1514.1	100.8	1610.3	8.3%	6.4%
Pacific	227.6	3874.7	256.3	4702.7	12.6%	21.4%
Total	1577.2	21322.5	1678.2	23571.8	6.4%	10.5%

Note: These numbers represent analysis conducted after extensive "cleaning" of the data.

Remodeling Activity by State

State	# Permits 2002 (thous.)	Permit Value 2002 (\$ mil.)	# Permits 2003 (thous.)	Permit Value 2003 (\$ mil.)	% Change Permits 2002- 2003	% Change Values 2002- 2003
Alabama	15.1	174.0	17.4	223.9	14.8%	28.7%
Alaska	1.5	48.7	1.6	40.1	8.9%	-17.7%
Arizona	16.9	298.4	23.2	329.2	37.0%	10.3%
Arkansas	4.5	51.6	4.9	61.1	8.2%	18.4%
California	192.2	3068.0	219.2	3812.0	14.1%	24.3%
Colorado	40.5	644.9	38.6	660.1	-4.6%	2.4%
Connecticut	31.9	567.4	35.3	621.3	10.7%	9.5%

State	# Permits 2002 (thous.)	Permit Value 2002 (\$ mil.)	# Permits 2003 (thous.)	Permit Value 2003 (\$ mil.)	% Change Permits 2002- 2003	% Change Values 2002- 2003
Delaware	5.6	61.2	6.2	73.3	9.0%	19.7%
Florida	139.0	1654.0	159.9	1883.0	15.1%	13.8%
Georgia	23.9	392.3	24.3	467.2	1.6%	19.1%
Hawaii	8.0	162.7	10.3	240.6	29.9%	47.9%
Idaho	7.0	129.4	6.8	125.3	-2.0%	-3.2%
Illinois	91.5	920.6	101.3	1035.0	10.7%	12.4%
Indiana	27.1	295.4	25.5	284.9	-5.9%	-3.6%
Iowa	21.9	183.4	20.3	205.6	-7.4%	12.1%
Kansas	13.4	122.5	16.8	146.6	25.2%	19.7%
Kentucky	7.5	171.1	7.1	124.1	-6.1%	-27.5%
Louisiana	8.1	112.8	9.3	103.9	14.3%	-7.9%
Maine	10.6	160.3	11.2	180.5	5.1%	12.6%
Maryland	11.5	197.6	13.0	252.2	13.2%	27.6%
Massachusetts	55.5	1352.0	62.8	1476.0	13.2%	9.2%
Michigan	80.6	912.9	79.0	955.7	-2.0%	4.7%
Minnesota	85.7	856.5	76.9	860.1	-10.3%	0.4%
Mississippi	4.8	66.0	5.1	73.2	5.7%	10.9%
Missouri	13.6	233.9	14.7	242.2	8.5%	3.5%
Montana	2.3	23.7	2.5	29.0	10.6%	22.3%
Nebraska	14.2	149.9	11.3	108.2	-20.6%	-27.8%
Nevada	10.0	162.3	13.5	218.8	34.8%	34.8%
New Hampshire	13.0	185.9	13.4	219.1	3.6%	17.9%
New Jersey	120.0	1132.0	127.6	1245.0	6.3%	10.0%
New Mexico	6.0	100.1	6.1	105.2	1.8%	5.1%
New York	63.4	1081.0	64.2	1153.0	1.3%	6.7%
North Carolina	25.5	505.5	24.1	560.8	-5.5%	10.9%
North Dakota	3.4	30.2	3.4	31.0	-1.6%	2.5%
Ohio	54.4	585.6	59.3	591.4	8.9%	1.0%
Oklahoma	4.8	66.2	4.6	66.5	-4.0%	0.4%
Oregon	6.7	161.4	6.9	179.4	2.6%	11.2%
Pennsylvania	87.5	1016.0	93.0	1092.0	6.3%	7.5%
Puerto Rico	1.6	53.4	1.7	56.8	3.7%	6.4%
Rhode Island	9.9	127.8	10.6	159.2	7.1%	24.6%
South Carolina	16.7	300.5	17.2	303.7	3.0%	1.1%
South Dakota	9.5	65.8	8.3	71.9	-13.4%	9.3%
Tennessee	13.3	234.3	13.9	256.8	4.4%	9.6%
Texas	70.0	791.5	77.0	834.5	10.0%	5.4%
Utah	7.0	112.8	6.3	104.2	-10.8%	-7.6%
Vermont	3.8	34.4	3.6	30.4	-4.6%	-11.6%
Virginia	37.3	504.6	40.3	575.7	7.9%	14.1%
Washington	19.2	433.7	18.3	430.7	-5.1%	-0.7%
West Virginia	7.1	39.1	7.2	41.6	1.2%	6.5%
Wisconsin	50.9	597.1	51.4	649.1	1.1%	8.7%

State	# Permits 2002 (thous.)	Permit Value 2002 (\$ mil.)	# Permits 2003 (thous.)	Permit Value 2003 (\$ mil.)	% Change Permits 2002- 2003	% Change Values 2002- 2003
Wyoming	3.5	42.6	3.8	38.5	11.1%	-9.8%
Total	1577.2	21322.5	1678.2	23571.8	6.4%	10.5%

Note: These numbers represent analysis conducted after extensive “cleaning” of the data.

Remodeling Activity by Metropolitan Area

MSA or CMSA ⁴	# Permits 2002 (thous.)	Permit Value 2002 (\$ mil.)	# Permits 2003 (thous.)	Permit Value 2003 (\$ mil.)	% Change Permits 2002- 2003	% Change Values 2002- 2003
Atlanta	10.1	215.1	10.4	234.2	3.1%	8.9%
Boston- Worcester- Lawrence	49.2	1175.9	54.8	1266.1	11.5%	7.7%
Chicago- Gary- Kenosha	77.8	794.8	88.0	905.1	13.1%	13.9%
Cincinnati- Hamilton	6.4	93.4	6.6	104.3	4.0%	11.6%
Cleveland- Akron	26.5	205.0	28.8	215.9	8.4%	5.3%
Dallas-Fort Worth	21.2	253.7	26.3	287.4	23.9%	13.3%
Denver- Boulder- Greeley	23.3	431.1	23.2	453.5	-0.4%	5.2%
Detroit-Ann Arbor-Flint	55.9	573.3	54.5	622.6	-2.6%	8.6%
Houston- Galveston- Brazoria	11.0	190.1	11.1	173.2	0.6%	-8.9%
Kansas City	6.4	108.8	8.3	134.2	29.5%	23.3%
Los Angeles- Riverside- Orange County	78.2	1125.2	88.8	1512.9	13.5%	34.4%
Miami-Fort Lauderdale	19.4	217.2	23.0	301.4	18.5%	38.8%
Minneapolis- St. Paul	62.2	653.1	53.2	637.3	-14.5%	-2.4%
New York-		2052.0	148.8	2204.0	6.5%	7.4%

⁴ The 25 largest Metropolitan or Consolidated Metropolitan Statistical Areas ranked by population. See <http://www.census.gov/geo/www/tiger/glossry2.pdf> for the definitions of Metropolitan and Consolidated Metropolitan Statistical Areas.

MSA or CMSA ⁴	# Permits 2002 (thous.)	Permit Value 2002 (\$ mil.)	# Permits 2003 (thous.)	Permit Value 2003 (\$ mil.)	% Change Permits 2002-2003	% Change Values 2002-2003
Northern New Jersey-Long Island	139.6					
Philadelphia-Wilmington-Atlantic City	45.9	503.3	50.9	584.8	11.0%	16.2%
Phoenix-Mesa	9.2	162.7	14.3	221.0	56.4%	35.8%
Pittsburgh	9.9	143.9	10.2	167.2	2.2%	16.2%
Portland-Salem	2.9	72.6	3.6	94.8	24.1%	30.6%
Sacramento-Yolo	19.2	211.2	19.4	233.7	1.5%	10.6%
St. Louis	9.2	153.5	9.1	133.9	-1.2%	-12.8%
San Diego	8.1	184.2	9.1	223.7	12.4%	21.5%
San Francisco-Oakland-San Jose	48.2	994.6	58.1	1174.8	20.5%	18.1%
Seattle-Tacoma-Bremerton	9.3	282.1	8.8	281.8	-5.4%	-0.1%
Tampa-St. Petersburg-Clearwater	19.5	216.5	23.3	257.3	19.0%	18.8%
Washington-Baltimore	22.3	317.8	24.7	415.1	10.7%	30.6%
Total	789.0	11295.0	861.0	12932.6	9.1%	14.5%

Note: These numbers represent analysis conducted after extensive “cleaning” of the data.

Remodeling Activity by Metropolitan Location

Metropolitan Location	# Permits 2002 (thous.)	Permit Value 2002 (\$ mil.)	# Permits 2003 (thous.)	Permit Value 2003 (\$ mil.)	% Change Permits 2002-2003	% Change Values 2002-2003
Central City	295.0	4272.0	311.6	4763.5	5.6%	11.5%
Outlying CMSA/MSA	1,026.21	14155.8	1104.8	15655.0	7.7%	10.6%
Not in CMSA/MSA	255.99	2894.7	261.8	3153.3	2.3%	8.9%
Total	1577.2	21322.5	1678.2	23571.8	6.4%	10.5%

Note: These numbers represent analysis conducted after extensive “cleaning” of the data.

At the regional level, the West and the South experienced growth rates higher than the national average in both the number of permits and the value of permits, while the Midwest experienced a growth rate lower than the national average in both the number of permits and the value of permits. At the divisional level, the Pacific and the South Atlantic experienced growth rates higher than the national average in both the number of permits and the value of permits, while the East North Central and Middle Atlantic division experienced growth rates lower than the national average in both the number of permits and the value of permits. At the metropolitan level, the Chicago, Dallas, Kansas City, Los Angeles, Miami, Philadelphia, Phoenix, Portland, San Diego, San Francisco, Tampa, and Washington DC metropolitan statistical areas or consolidated metropolitan statistical areas experienced growth rates higher than the national average in both the number of permits and the value of permits, while the Minneapolis, St. Louis, and Seattle MSAs or CMSAs actually experienced negative growth rates in both the number of permits and the value of permits. Finally, places outside of metropolitan areas experienced a growth rate lower than places within metropolitan areas in both the number of permits and the value of permits from 2002 to 2003. It is important to note that these trends are derived from analysis conducted after extensive “cleaning” of the data and may be skewed by non-response.

Interpreting the Data

Further analysis of home improvement activity within geographical areas can be performed by supplementing the remodeling permit files with other demographic, economic, and housing stock data. This allows users to conduct analyses of home improvement activity across areas that may not be geographically adjacent (e.g. densely populated areas, central cities, rapidly growing suburban areas) and potentially address issues like: is there evidence of central city revitalization?; are land prices driving remodeling activity?; and what is the relationship between house prices and remodeling activity? For example, merging the collapsed metropolitan area permit files with the Office of Federal Housing Oversight (OFHEO) House Price Index allows users to assess the relationship between the change in remodeling permit values and the change in house price from 2002 and 2003⁵. Because an increased house value

⁵ The OFHEO home price index uses data provided by Fannie Mae and Freddie Mac on recent mortgage transactions to capture changes in the value of single-family homes in the United States as a whole and at various

provides homeowners with more equity to tap into in order to finance home improvements, one may expect to see a positive relationship between change in remodeling permit value and change in house price. Remodeling also allows homeowners to protect and benefit from their investment in their home. While the amount that homeowners can expect to recoup from their remodeling investment depends on factors such as the tightness of the real estate market, property values, and the quality of the remodel, on average, individuals may see a cost recouped of kitchen and bathrooms remodels from 80 percent to 90 percent⁶.

Correlating the change in the OFHEO HPI from 2002 to 2003 with the change in remodeling permit values across selected metro areas between those two years yields a coefficient of 0.14, indicating a positive, yet weak, correlation between the two variables (Table 1, 2). The significance of the correlation coefficients denotes that there is less than a 10 percent chance the coefficients are due to random elements.

Table 1

OFHEO Home Price Index		% Change in Permit Value 2002-2003
% Change in OFHEO HPI 2002-2003	Coef.	0.1401
	Signif.	0.0773
	Obs.	160

Table 2

MSA or PMSA	% Change in Permit Value 2002-2003	% Change in OFHEO HPI 2002-2003
Racine, WI	279.6%	5.2%
Jersey City, NJ	103.8%	12.4%
Withita Falls, TX	100.4%	4.4%
St. Cloud, MN	86.4%	7.8%
Chattanooga, TN	80.3%	4.9%
Raleigh, NC	71.8%	2.5%
Birmingham, AL	70.3%	4.7%
Davenport, IA	67.1%	3.8%
Beaumont, TX	64.8%	4.3%

geographical levels. It includes approximately 340 metropolitan and primary metropolitan statistical areas and is a repeat sale index which means that the data comes from the same properties being sold over time.

⁶ “Cost Vs. Value Report,” *Remodeling Magazine*, 2003.

MSA or PMSA	% Change in Permit Value 2002-2003	% Change in OFHEO HPI 2002-2003
Santa Cruz, CA	57.5%	4.7%
Miami, FL	54.4%	13.8%
Saginaw, MI	54.1%	4.0%
Fresno, CA	53.4%	17.8%
San Antonio, TX	52.3%	4.8%
Bremerton, WA	52.1%	6.0%
Madison, GA	47.0%	5.3%
Baltimore, MD	45.9%	10.5%
Los Angeles, CA	42.7%	14.1%
Lakeland, FL	42.5%	6.3%
Honolulu, HI	41.3%	9.8%
Salinas, CA	40.2%	9.8%
Portland, OR	39.3%	4.4%
Albany, NY	36.9%	9.9%
Phoenix, AZ	35.8%	5.1%
Daytona Beach, FL	35.5%	11.2%
Duluth, MN	33.8%	9.1%
Ventura, CA	32.8%	14.4%
Sheboygan, WI	31.3%	3.1%
Vallejo, CA	30.7%	12.3%
Fort Pierce, FL	29.3%	16.6%
San Luis Obispo, CA	29.3%	12.3%
Wilmington, DE	28.5%	9.0%
Little Rock, AR	28.3%	4.2%
Providence, RI	27.7%	14.1%
Riverside, CA	27.7%	15.7%
Yolo, CA	27.1%	13.5%
Scranton, PA	26.8%	4.3%
Fort Worth, TX	26.5%	3.6%
Las Vegas, NV	26.4%	8.9%
Melbourne, FL	25.6%	11.9%
Reno, NV	24.7%	9.7%
Washington, DC	23.8%	10.5%
Orange County, CA	23.7%	13.6%
Kansas City, MO	23.3%	4.4%
Nashville, TN	23.2%	3.2%
Atlantic, NJ	22.9%	12.4%
New Haven, CT	22.3%	9.8%
Hamilton, OH	22.2%	3.4%
San Diego, CA	21.5%	14.7%
Naples, FL	21.0%	9.5%
Asheville, NC	20.8%	6.2%
Brockton, MA	20.1%	12.7%
New Orleans, LA	19.8%	6.2%
Tampa, FL	18.8%	9.0%
Myrtle Beach, SC	18.4%	4.1%

MSA or PMSA	% Change in Permit Value 2002-2003	% Change in OFHEO HPI 2002-2003
San Jose, CA	16.7%	2.2%
Pittsburgh, PA	16.2%	4.9%
Greenville, SC	16.0%	3.3%
Rochester, NY	16.0%	4.0%
Newburgh, NY	15.6%	13.3%
Chicago, IL	15.1%	5.9%
Oakland, CA	15.0%	7.4%
San Francisco, CA	14.8%	4.8%
Philadelphia, PA	14.6%	9.8%
Santa Rosa, CA	14.5%	8.1%
Stockton-Lodi, CA	14.5%	10.1%
Bergen-Passaic	14.1%	9.8%
Jackson, MS	14.1%	3.6%
Norfolk, VA	13.8%	8.9%
Pittsfield, MA	13.6%	8.9%
Tacoma, WA	12.8%	5.8%
Salem, OR	12.6%	3.5%
Monmouth, NJ	12.5%	12.8%
Barnstable, MA	12.4%	12.9%
Sioux Falls, SD	12.3%	3.7%
New London, CT	12.2%	10.8%
Columbia, SC	12.1%	4.0%
Detroit, MI	11.2%	3.2%
Akron, OH	11.1%	3.4%
Dallas, TX	11.1%	2.9%
Knoxville, TN	10.3%	4.8%
Portsmouth, NH	9.6%	9.0%
Hartford, CT	9.3%	7.7%
Sacramento, CA	9.2%	13.0%
Fort Meyers, FL	9.0%	10.7%
Atlanta, GA	8.9%	3.7%
Boston, MA	8.9%	8.6%
Cincinnati, OH	8.9%	3.5%
Stamford, CT	8.9%	7.2%
Waterbury, CT	8.3%	8.6%
Visalia, CA	8.2%	9.6%
Mobile, AL	7.2%	4.5%
Sarasota, FL	7.0%	11.1%
Denver, CO	6.3%	2.5%
Boise City, ID	6.2%	4.2%
South Bend, IN	5.8%	3.4%
Dutchess County, NY	5.3%	12.5%
York, PA	4.8%	5.4%
New York, NY	4.6%	10.1%
Tulsa, OK	4.6%	3.3%
Lawrence, MA	4.5%	8.6%

MSA or PMSA	% Change in Permit Value 2002-2003	% Change in OFHEO HPI 2002-2003
Olympia, WA	4.5%	5.4%
Fort Wayne, IN	4.3%	2.2%
Cleveland, OH	4.1%	3.6%
Newark, NJ	3.7%	9.8%
Trenton, NJ	2.9%	9.8%
Gary, IN	2.8%	3.7%
Nassau, NY	2.7%	13.1%
Appleton, WI	2.5%	3.8%
Middlesex, NJ	2.5%	9.1%
Augusta, GA	1.5%	4.2%
Indianapolis, IN	1.3%	2.8%
Colorado Springs, CO	1.1%	3.2%
Rockford, IL	1.0%	3.4%
Santa Barbara	0.7%	13.9%
Flint, MI	0.6%	3.3%
Galveston, TX	0.5%	4.9%
Benton Harbor, MI	0.2%	4.4%
Greeley, CO	-0.1%	3.2%
Buffalo, NY	-0.5%	4.6%
West Palm Beach, FL	-0.5%	13.3%
Dayton, OH	-0.9%	2.9%
Jacksonville, FL	-1.1%	8.3%
Harrisburg, PA	-1.3%	4.9%
Ocala, FL	-2.2%	7.4%
Minneapolis, MN	-2.4%	7.8%
Lancaster, PA	-2.9%	5.9%
Orlando, FL	-3.0%	7.6%
Ann Arbor, MI	-3.3%	3.7%
Columbus, OH	-4.7%	3.8%
Grand Rapids, MI	-6.1%	3.5%
Austin, TX	-6.5%	1.3%
Seattle, WA	-6.5%	4.2%
Portland, ME	-6.8%	9.9%
Charleston, SC	-7.3%	4.6%
Worcester, MA	-7.4%	10.1%
Milwaukee, WI	-8.0%	5.3%
Boulder, CO	-9.4%	1.8%
For Collins, CO	-9.6%	3.1%
Houston, TX	-10.7%	4.0%
Springfield, MA	-10.7%	9.4%
Syracuse, NY	-10.7%	5.6%
Allentown, PA	-11.5%	7.4%
Salt Lake City, UT	-12.6%	2.1%
St. Louis, MO	-12.8%	5.2%
Modesto, CA	-14.0%	13.2%
Huntsville, AL	-16.2%	3.6%

MSA or PMSA	% Change in Permit Value 2002-2003	% Change in OFHEO HPI 2002-2003
Wilmington, NC	-16.2%	4.1%
Anchorage, AK	-17.8%	5.9%
Fort Lauderdale, FL	-18.2%	13.2%
Nashua, NH	-18.3%	8.9%
Reading, PA	-19.8%	6.0%
Charlotte, NC	-20.0%	2.9%
Greensboro, NC	-31.4%	2.9%
Tucson, AZ	-35.3%	6.7%
Kalamazoo, MI	-35.5%	3.9%
Spokane, WA	-39.9%	3.7%
Louisville, KY	-40.0%	3.9%
Lexington, KY	-44.0%	4.5%
Omaha, NE	-46.9%	3.4%

Conclusion

While limitations do exist, additions and alterations permits supplement other sources of data by providing users with a timely way to estimate changes in home improvement activity within more detailed geographical locations. Integrating remodeling permit data with other demographic, economic, and housing stock data should facilitate further analysis of remodeling activity. To date, the remodeling permit database is still under development. However, in spite of the limited time span covered by the database and the data editing procedures still being implemented, this database appears promising in tracking activity in smaller areas and in relating change in permitting activity with other economic trends. Improvements to the data entry procedure may help reduce the ambiguity of zeros reported in the files. Furthermore, a procedure where missing data is imputed rather than eliminated may also increase the reliability of the files.