

# Illinois Real Estate Letter

## **Market Analysis: Illinois Housing Prices** **Peter F. Colwell and Carolyn A. Dehring**

A price *index* is a numerical measure of a change in the prices of a group of commodities, relative to their prices in a stated base period. Among the most common uses of indices are measuring inflation, stock prices, and real estate values. Because different types of improvements respond differently to economic changes, and because real estate values are heavily influenced by local market conditions, an analyst who develops a real estate price index typically focuses on a particular property type in a specified geographic area.

While price indices can be developed for virtually any category of real estate, from vacant land to major office properties, the sheer volume of transactions in the single family housing market provides a rich foundation of data from which to construct residential housing price indices. These indices are used by researchers in private firms, government agencies, and academic institutions in identifying and monitoring trends in housing prices within or across regions.

Housing price indices traditionally were based on changes in the *median*, or mid-range, value of all single family properties sold in a given area. Yet if housing is defined as a bundle of goods containing land, improvements, and locational characteristics, it is clear that the range of housing quality in a given

geographical area might be quite wide, and that the housing stock underlying home sales transactions could change over time. As a result, changes in an index measure might relate more to changes in housing characteristics than to changes in fundamental values. For example, in an area experiencing rapid development, data on the larger houses being built and sold could cause the measured median value to rise even as the values of older, smaller homes have fallen as a result of the new construction.

### **Repeat Sales Housing Price Index**

In other words, an area's median housing price, computed over various time intervals, is affected by features of the houses that were actually sold. To avoid this type of distortion, analysts have developed the *repeat sales* housing price index, for which the data involve homes sold twice within the studied period so that changes in price can be attributed to the passage of time alone. In a primitive application, we might simply compute the percentage change in price from the first sale to the second for each resale in the targeted area, and combine the percentages to find an average rate of change. While this method is easily understood, it suffers from some technical weaknesses; the most serious is that, because the time period between sales must be held fairly

### ***UI Real Estate Alumni Forum***

This summer ORER will be starting the *U of I Real Estate Alumni Forum* to facilitate business contacts among UIUC graduates working in the real estate industry, and to disseminate information on members' professional activities. We will produce an annual directory of members, along with a semiannual newsletter that will contain news about ORER, the University's real estate program, and the forum members. We hope that the creation of the *Forum* will be met with enthusiasm and support from our alumni.

### ***Colwell to FIABCI Congress***

ORER Director Peter F. Colwell attended the 1997 World Congress of the International Real Estate Federation (FIABCI), held in Dublin, Ireland. FIABCI is an international network of real estate professionals that operates chapters in more than 50 member countries. Its annual World Congress features marketing sessions, educational programs, and business and social functions. The theme for this year's Congress was "Partnerships in Property – Public and Private Sector Challenges." At the May event, University of Illinois alumnus Sheldon F. Good, Chairman of Sheldon Good & Company in Chicago, concluded his term as FIABCI World President. Good had been the first American since 1984 elected to this position.

### ***Fall '97 Luncheon Planned***

ORER's Fall 1997 luncheon for University of Illinois real estate alumni is scheduled for noon on Friday, November 7 at the Chicago Yacht Club.

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uniform, we would expect to find only a limited amount of usable data.

A researcher can make fuller use of data by creating a repeat sales index based on the statistical technique known as *regression analysis*. One regression-based repeat sales housing price index is the Fannie Mae – Freddie Mac Conventional Mortgage Home Price Index (CMHPI), which has been published as a quarterly index series since 1994. The index monitors repeat sales and refinancings of houses financed with *conventional* mortgage loans (those without FHA insurance or VA guarantees) purchased or securitized, since January of 1975, by the Federal National Mortgage Association (FNMA, *a.k.a.* Fannie Mae) or Federal Home Loan Mortgage Corporation (FHLMC, *a.k.a.* Freddie Mac). As of December 1995, there were more than 6.9 million repeat “transactions” in this national sample. The national CMHPI index is accompanied by indices at the regional, state, and various local levels.

Because calculating price changes is an imperfect science (note the ongoing controversy over the Consumer Price Index), critics can find fault with any index measure. One problem with repeat sales indices is that property features are not really held constant; the resale of a house involves older physical improvements than those the seller had obtained (a problem currently being addressed by some of our colleagues). The CMHPI has some additional problems relating to the data; the absence of FHA and VA loans excludes many lower-priced homes from the computations, and the absence of high-dollar (“non-conforming”) loans from FNMA/FHLMC pools excludes many high-priced homes as well. Perhaps more troubling still is that CMHPI data include, as though they were actual resale prices, the *appraised* values of refinanced homes (a process fraught with circular logic). Finally, because of less plentiful data for the 1975-1985 period, a lower degree of confidence should be placed on pre-1985 CMHPI values than on those for more recent years. Still, despite the difficulties, the CMHPI provides a consistent measure based on sufficient data that we can place reasonable reliance on its results, particularly for measures in recent years.

**CMHPI Measures for Illinois Markets**

We obtained the various CMHPI index values directly from Freddie Mac. In the text and graphs that follow, we present a brief analysis of housing prices from the first quarter of 1975 through the fourth quarter of 1996 for the United States, the East North Central Region (Illinois, Indiana, Michigan, Ohio, and Wisconsin), Illinois, and seven of our state’s metropolitan areas.

The CMHPI has as its base year 1987 (1987 index value = 100). We compute the growth rate in a specified area’s price index for a given year as the percentage change in the index from the 4th quarter of the previous year to the 4th quarter of the targeted year. For example, growth in 1996 is the percentage change in the index from the 4th quarter of 1995 to the 4th quarter of 1996. Similarly, growth over the five-year period ending 1996 is the percentage change in the index from 4th quarter 1991 to 4th quarter 1996.

Though growth may be stated as an overall figure across years, it is useful to convert a multi-year rate to a compound annualized figure. We find annualized growth by dividing a period’s ending index value by its beginning index value, raising this quotient to the reciprocal of the number of years, and subtracting 1. For example, the Quad Cities’ 4th quarter index values for 1991 and 1996 were, respectively, 120.73 and 160.93. The annualized growth rate over that five-year period therefore is

$$(160.93/120.73)^{1/5} - 1 = 5.92\%$$

We have analyzed growth over *one-year* periods dating back only as far as 1985, since limited data before that time could result in extreme fluctuations. However, we did use the earlier data in examining growth rates over five-year periods (the first of which was 1975-1980) and ten-year periods (beginning with 1975-1985).

*Bloomington-Normal*

First in our listing is this rapidly growing community midway between Chicago and St. Louis. The Twin Cities’ 1996 CMHPI increase of 9.3% was the highest of any Illinois metropolitan area. Over the entire 21-year period, the annualized rate of measured price increase was 5.3%. For the five years ending in 1996, the annualized increase of 6.4% is the

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highest the area has experienced since the late 1970s, although two spikes in the index, which appear in the third quarters of 1994 and 1996, may be attributable to limited data availability (transaction volume was low, perhaps because of interest rate increases).

At the same time, Bloomington-Normal is the only area in the sample to have experienced a measured price *decline* in more than one year since 1985. In 1990 the index declined by 0.5%, and in 1988 it fell by 2.7%. This area was also one of several in the sample to have experienced five-year declines, with price reductions observed in both the 1978-1983 and 1979-1984 periods. The latter decline was the more severe, at a compounded annualized rate of 1.2%.

### *Chicago*

With a 6.7% annualized increase in its CMHPI level since 1975, the Stacker of Wheat has exceeded other Illinois areas, the region, and the nation in home price appreciation over the 21-year studied period. The situation in 1996 was not so bright, however, as Springfield was the only metropolitan area to experience a lower increase than Chicago's 3.4%, its lowest in the sampling period.

Chicago was the only Illinois area not to have experienced price declines over any period of one, five, or ten years. The hump shown in the graph of Chicago's index for the late 1970s to early 1980s is not as pronounced as that seen in other areas, but is still detectable. Because Chicago is so large and economically diversified, its price performance more closely resembles that of the state, region, and country than it does those of the state's other metropolitan areas.

### *The Quad Cities*

Although the Moline-Rock Island(IL)/Davenport-Bettendorf (IA) area has experienced an annualized increase in its CMHPI figure of only 3.9% since 1975, it is in the midst of a relative surge in home prices. The area's highest ten-year annualized increase during the 21-year sampling period was that for 1986-1996, at 4.6%. Moreover, its increase of 5.9% annualized for the five years ending 1996 was its highest since the late 1970s (six of the eight Illinois metropolitan areas

surveyed experienced their five-year highs during the inflationary 1975-1980 period). The 1995-1996 one-year increase was an even higher 6.6%.

The Quad Cities clearly displays the aforementioned hump, which is second only to Peoria/Pekin's in its severity. With a 7.5% measured price drop in 1985, the area was tied for the largest one-year decline in the sample (Peoria-Pekin experienced a decline of the same magnitude in the same year). The cities also experienced declines over some five-year periods, the most severe in 1981-1986, when the index fell by a total of 17.3%. In addition, this area is one of only two in the sample to have seen ten-year price reductions, the worst being the 5.8% overall decline for 1979-1989.

### *Peoria/Pekin*

"Heart of Illinois" housing price activity closely resembles that of the Quad Cities, yet is slightly more pronounced in its trends. For example, Peoria/Pekin has recently experienced *its* highest five-year (6.5% annualized) and ten-year (also 6.5% annualized) rates of housing price increase, leading the state for 1991-1996 and 1986-1996. The area experienced declines over six different five-year periods, the largest of which (20.9% overall for 1979-1984) was the most severe five-year decline for any community in the state. Peoria-Pekin is also the only sampled area other than the Quad Cities with reductions over any ten-year period; prices fell in the decennia ending in 1985, 1987, 1988, and 1989 (when Peoria's median home price was routinely being cited as the lowest in the US). The overall 1975-1985 decline of 11.8% was the most pronounced over any ten-year period for all of our included areas. Even though the now-booming area shows a net price gain over the 21-year period, the 2.6% annualized rate of increase is less than that for any other Illinois community, the state, the region, or the country.

### *Rockford*

The largest increase in our second-largest city's home values came in the late 1970s and early 1980s. The overall 86.9% rise (13.3% annualized) for 1975-1980 is the highest five-year gain for any Illinois area over the sample period. Perhaps because

of its proximity to Chicago, Rockford's market experience bears a strong resemblance to Chicago's. If not for the slight overall decline of -0.2% for 1980-1985, Rockford would be the only Illinois area other than Chicago not to have seen declines over any one-, five-, or ten-year period. The area's annualized housing price increase for 1986-1996 was 5.0%, third in the state after Peoria-Pekin and Chicago. The annualized 5.7% increase over the full 21 years is second-highest among all surveyed communities (after Chicago), but is less than the comparable rate for the state, region, or country.

### *St. Louis*

For the five- and ten-year periods ending in 1996, the St. Louis area (including the Illinois suburbs) experienced the lowest annualized rates of measured home price increase (3.6% and 3.2%, respectively) among all of our surveyed metropolitan areas. Yet it is the area with the highest rate of increase for any ten-year period (7.8% annualized for 1975-1985); the 21-year rate is 5.5% annualized. A slight hump appears from 1986 to 1992, with increases of 6% or more in each of the three years prior to 1988, followed by 3.2% in 1988 and then a flat annualized 1.8% for 1988-1993. St. Louis has not seen a one-year rate of home price increase in excess of 5.0% since 1987.

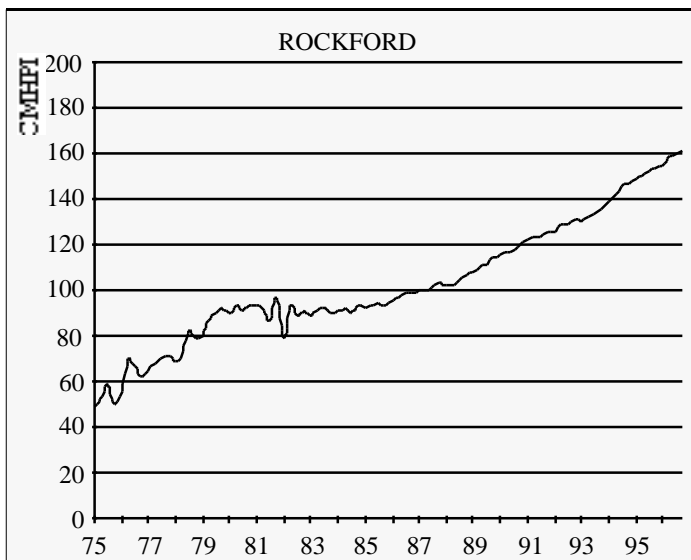
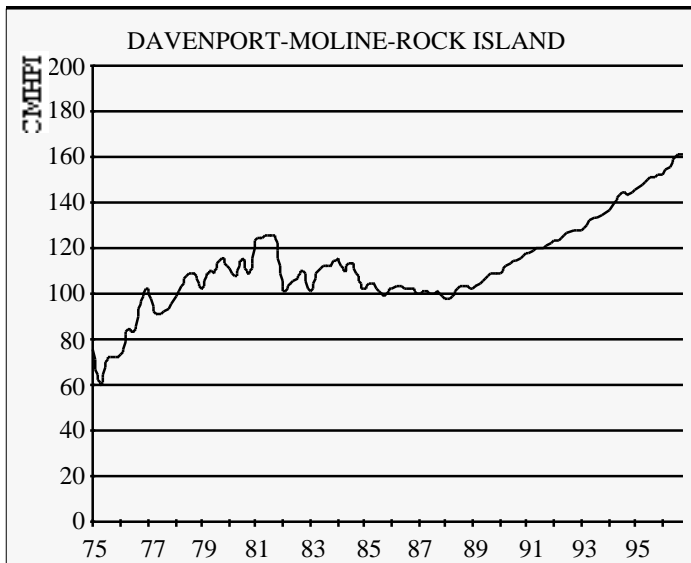
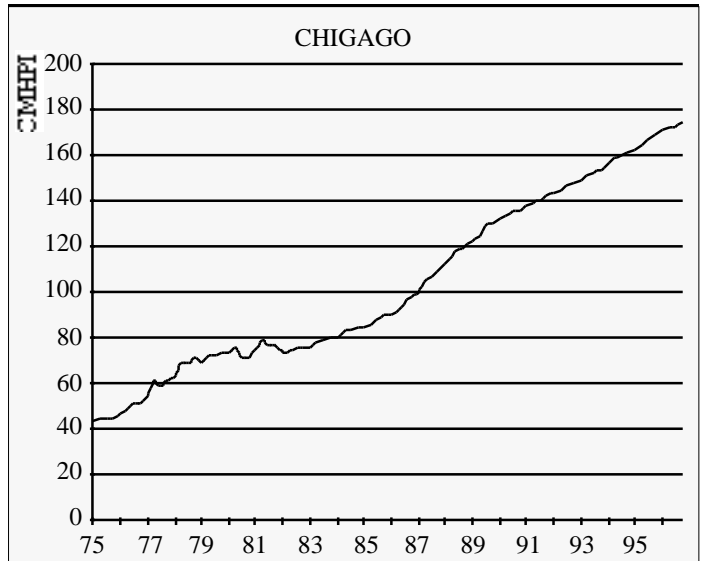
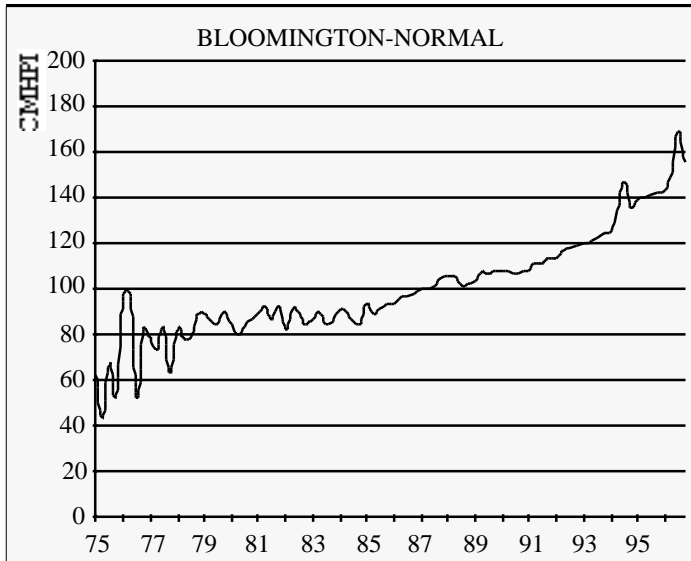
### *Springfield*

Since the mid-1980s, the measured rate of home price increase in Springfield has been quite stable, a typical result for a state's government center. Annual rates over the last nine years have held steady in the 3% - 5% range. The 3.0% 1996 increase in Lincoln's home town was the lowest among all of our surveyed areas. Springfield did experience a slight (1.4%) overall decline in its index for 1979-1984; its greatest five-year increase was 8.1% annualized for 1976-1981. Annualized growth over the entire sample period was 3.7%, second lowest among included metropolitan areas (after Peoria-Pekin).

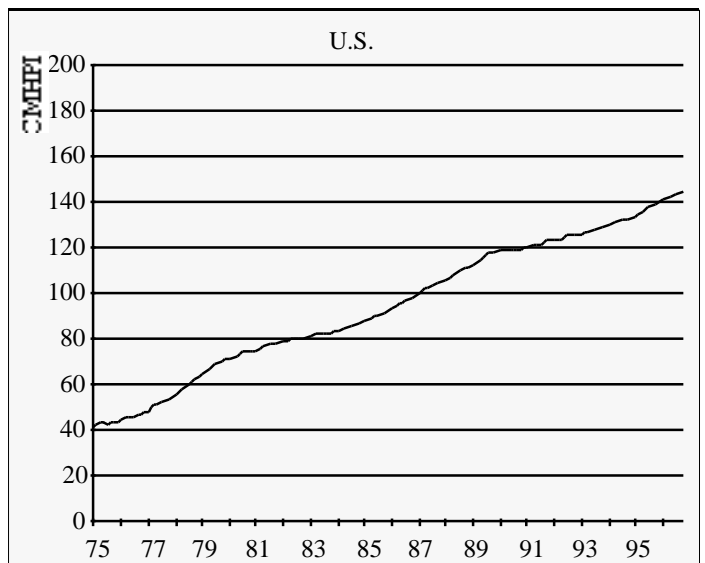
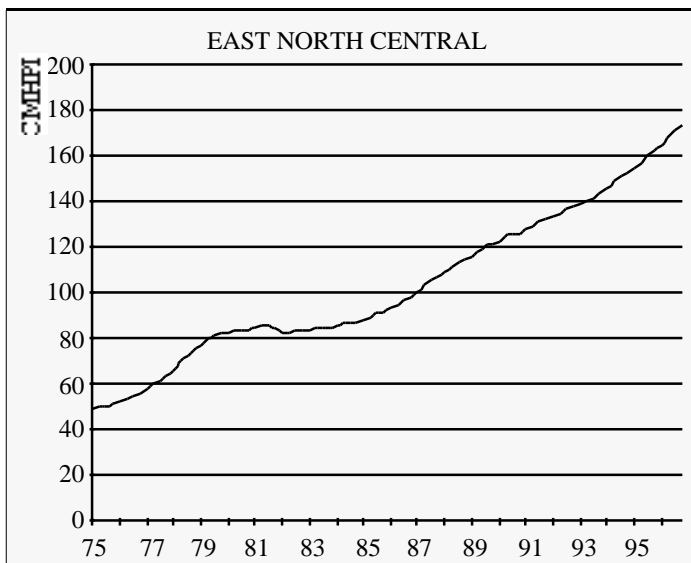
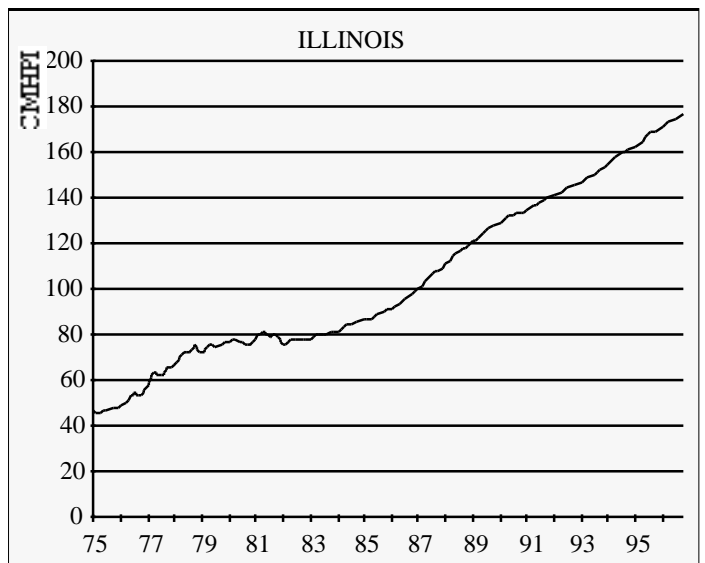
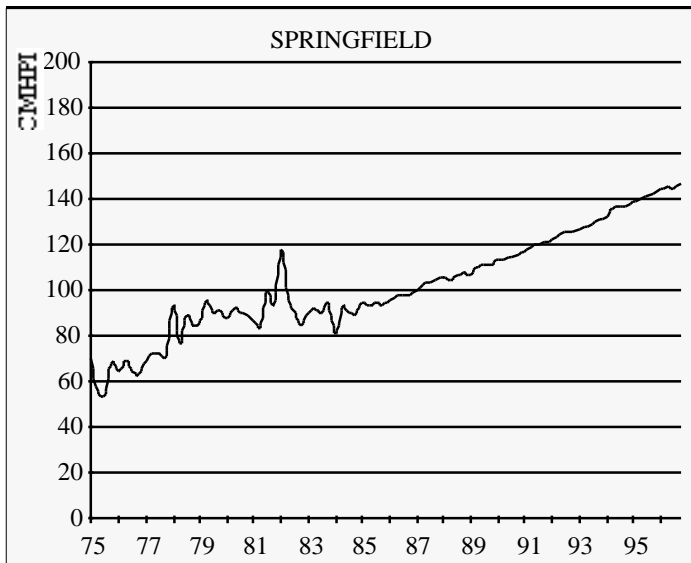
### *State of Illinois*

The state experienced an annualized rise in home prices of 6.4% over the 21-year period, a rate higher than that for the East North Central Region or the US. Illinois

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did not experience decline in its CMHPI level over any one-, five-, or ten-year period. The strong Chicago influence on the state's overall home price movements may be evidenced by the fact that the five- and ten-year Illinois lows coincide with Chicago's (1978-1983 and 1978-1988, respectively), as do its one- and five-year highs (10.1% in 1987 and 9.3% annualized for 1975-1980). The annualized rate of housing price increase has been in the 4% - 6% range since 1990.

*East North Central Region and the US*  
Over the 21-year studied period, the region's annualized rate of increase in housing prices was 5.9%, the same as that measured nationally. Last year's 6.8%

rate was the region's highest since 1987. This region has outpaced the US market every year since 1989, and has outpaced Illinois for each of the past three years.

The US market nearly experienced a decline in housing prices in 1990, when the CMHPI's one-year increase was a mere 1.0%. Because Illinois and East North Central prices were continuing to rise, the national weakening obviously reflects declining prices in other parts of the country. More recently, US housing prices are seen to have risen at fairly low, but stable, rates. The 3.9% annualized increase observed for 1986-1996 was the lowest ten-year rate over the sample period. The highest one-year increase in the index since 1985 was 1986's 7.4%. ■

### **A Further Bit of Caution...**

While the plentiful observations of the past decade lend credibility to the more recent index values, we should remain cautious in interpreting the results; the use of repeat sales price indices poses potential problems in addition to those mentioned on page 2. One is *sample bias*, which causes an index to under- or overstate price changes if the properties resold are not representative of the general housing stock (CMHPI's inclusion of refinancings no doubt reduces this problem). *Aggregation* problems can arise if different pockets within a geographic area exhibit different rates of appreciation (just as a statewide index can be a poor measure of a particular city's experience). Also, property improvements made between the two sale dates could bias the price index upwards, while the increased age of resold houses would tend to bias it downwards.

*For a detailed discussion of the uses and limitations of repeat sales indices, see JOURNAL OF REAL ESTATE FINANCE & ECONOMICS, Special Issue on Housing Price Indices (Vol. 14, No. 1/2 January/March 1997).*