Housing and the Economy: Impacts, Forecasts and Challenges

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Outline

• 2017 Highlights
• Update on the economy
• Housing market and forecasts
• On-going Research
• Summary Comments
2017 Highlights

• In the last twelve months, median prices maintained **positive annual growth** in each month while sales experienced a **more mixed trend**.
• The median sale prices in Illinois experienced higher annual growth rate than forecasted last year (between 3.9% and 10.7%), while median sale prices in the Chicago PMSA are not significantly different from the forecasts (between 3.5% and 12.0%).
• Illinois’s actual and forecasted sales are quite similar, except for a few extreme values (between -2.8% and 11.6%), while sales in the Chicago PMSA experienced higher annual growth rate than forecasted (between -3.8% and 15.3%)
2017 Highlights (continued)

- Examined mix in change of sales in the Chicago PMSA
- Net change of sales in the Chicago PMSA comprises *positive growth in regular sales* and *decreases in foreclosed sales*.
- **For the regular sales**, the annual growth rates were between -2.9% and 18.9%.
- **For foreclosed sales**, the comparative figures were between -17.8% and -1.8%.
- Percentage of foreclosed sales out of total sales continued decreasing to a monthly average of 9.6% in 2017, about one third lower than the monthly average of 16.6% between 2009 and 2016.
2017 Highlights (continued)

• In 2017, housing prices, after adjusting for inflation, exceeded the previous peak levels recorded in 2008 in both Illinois and Chicago.

• In Illinois, the November 2008 median sales price was $154,900 (in $2008) and $175,867 (in $2017); the current price level was 105% of the 2008 level after adjusting (119% before adjusting).

• In the Chicago PMSA, the November 2008 median sales price was $188,000 (in $2008) and $213,448 (in $2017); the comparable figure for price recovery in November 2017 is 105% after adjustment (120% before adjusting).
REAL’s Housing Price Index (HPI)

• Modified the Case-Shiller index to use all housing sales rather than just repeat sales to generate an HPI that reflects the characteristics of the houses sold (e.g. number of bedrooms, bathrooms)
• Provides a more represented picture of sales movements
• Index can be applied to all metro areas whereas Case-Shiller is only reported for the top 20 metro areas
Update on the economy
The state of the state is "uh... helooood...."
<table>
<thead>
<tr>
<th>Nov 2017 Negative</th>
<th>Total Non-Farm Employment</th>
<th>Oct 2017–Nov 2017</th>
<th>Last 12 months</th>
<th>Nov 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Growth Rate %</td>
<td>Number of Jobs</td>
<td>Growth Rate %</td>
</tr>
<tr>
<td>Nation</td>
<td></td>
<td>0.16</td>
<td>228,000</td>
<td>1.43</td>
</tr>
<tr>
<td>RMW*</td>
<td></td>
<td>0.05</td>
<td>9400</td>
<td>0.98</td>
</tr>
<tr>
<td>Illinois</td>
<td></td>
<td>-0.02</td>
<td>-1,100</td>
<td>0.43</td>
</tr>
</tbody>
</table>
State of Illinois Economies

- Illinois growth rate in 2017 less than a third of the rate of the US as a whole and under half that of the Rest of the Midwest
- If Illinois grew at the same rate as its share of US Gross National Product (4.3%), Illinois would have added 83,000 jobs not 25,900

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<td>228,000</td>
<td>1.43</td>
<td>2,071,000</td>
</tr>
<tr>
<td>RMW*</td>
<td>0.05</td>
<td>9400</td>
<td>0.98</td>
<td>199,400</td>
</tr>
<tr>
<td>Illinois</td>
<td>-0.02</td>
<td>-1,100</td>
<td>0.43</td>
<td>25,900</td>
</tr>
</tbody>
</table>
State of Illinois Economy

- 855,700 is the number of jobs needed for the Illinois economy to recover to the adjusted previous employment peak, Nov-2000 to accommodate population growth and changes in labor force participation.

- In the last twelve months, the state has added 25,900.

- At this rate, it would take 15 years to recover the previous peak employment.
RECOVERY: How long will it take?

**Total Non-farm Employment Forecast**

<table>
<thead>
<tr>
<th>Illinois</th>
<th>Nov 2017</th>
<th>Nov 2018 (p)</th>
<th>Number of Jobs</th>
<th>Growth Rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total non-farm</td>
<td>6,045,200</td>
<td>6,044,200</td>
<td>-1,000~7,400</td>
<td>-0.02%~0.12%</td>
</tr>
<tr>
<td>Construction</td>
<td>213,300</td>
<td>209,600</td>
<td>-3,700</td>
<td>-1.73%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>575,200</td>
<td>577,100</td>
<td>1,900</td>
<td>0.33%</td>
</tr>
<tr>
<td>Trade, transportation &amp; utilities</td>
<td>1,204,100</td>
<td>1,197,900</td>
<td>-6,200</td>
<td>-0.51%</td>
</tr>
<tr>
<td>Information</td>
<td>98,900</td>
<td>97,900</td>
<td>-1,000</td>
<td>-1.01%</td>
</tr>
<tr>
<td>Financial Activities</td>
<td>396,400</td>
<td>395,200</td>
<td>-1,200</td>
<td>-0.30%</td>
</tr>
<tr>
<td>Professional &amp; business services</td>
<td>954,100</td>
<td>969,300</td>
<td>15,200</td>
<td>1.59%</td>
</tr>
<tr>
<td>Education &amp; health</td>
<td>927,700</td>
<td>936,800</td>
<td>9,100</td>
<td>0.98%</td>
</tr>
<tr>
<td>Leisure &amp; hospitality</td>
<td>595,000</td>
<td>598,400</td>
<td>3,400</td>
<td>0.57%</td>
</tr>
<tr>
<td>Other services</td>
<td>248,800</td>
<td>246,400</td>
<td>-2,400</td>
<td>-0.96%</td>
</tr>
<tr>
<td>Government</td>
<td>823,600</td>
<td>815,700</td>
<td>-7,900</td>
<td>-0.96%</td>
</tr>
</tbody>
</table>

Anemic growth forecast to continue
State of the Illinois Economies

- Chicago growth much higher than the rest of the state
- Other Metro areas growing but at slower rates
- Rural areas declining

<table>
<thead>
<tr>
<th>Total non-farm employment</th>
<th>Nov 2017 Number of Jobs</th>
<th>Oct 2017 – Nov 2017</th>
<th>Last 12 months</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Growth Rate (%)</td>
<td>Number of Jobs</td>
<td>Growth Rate (%)</td>
</tr>
<tr>
<td>Nation</td>
<td>147,241,000</td>
<td>0.16</td>
<td>228,000</td>
</tr>
<tr>
<td>Rest of Midwest (RMW)</td>
<td>20,545,100</td>
<td>0.05</td>
<td>9,400</td>
</tr>
<tr>
<td>Illinois</td>
<td>6,045,200</td>
<td>-0.02</td>
<td>-1,100</td>
</tr>
<tr>
<td>Illinois Metro</td>
<td>5,326,100</td>
<td>0.04</td>
<td>1,900</td>
</tr>
<tr>
<td>Illinois non-Metro (Rural)</td>
<td>719,100</td>
<td>-0.42</td>
<td>-3,000</td>
</tr>
<tr>
<td>Illinois Chicago (Upstate)</td>
<td>4,160,700</td>
<td>-0.001</td>
<td>-100</td>
</tr>
<tr>
<td>Illinois non-Chicago</td>
<td>1,884,500</td>
<td>-0.06</td>
<td>-1,100</td>
</tr>
</tbody>
</table>
From 2007 to early 2009, all MSAs performance > than Chicago.
From Mid-2009 to present, MSAs < than Chicago.
According to the forecast for October 2018, Champaign-Urbana and Rockford are likely to perform better over this period than Chicago. All the other MSAs will compare less favorably to Chicago.
## Metro Area Economic Performance last 12 months

<table>
<thead>
<tr>
<th>Rank</th>
<th>October 2017</th>
<th>November 2017</th>
<th>Rank</th>
<th>Change**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kankakee (1.94%)</td>
<td>Kankakee (2.64%)</td>
<td>1</td>
<td>(+0)</td>
</tr>
<tr>
<td>2</td>
<td>Bloomington-Normal (0.92%)</td>
<td>Davenport-Rock Island-Moline (1.63%)</td>
<td>2</td>
<td>(+2)</td>
</tr>
<tr>
<td>3</td>
<td>Chicago (0.61%)</td>
<td>Chicago (0.75%)</td>
<td>3</td>
<td>(+0)</td>
</tr>
<tr>
<td>4</td>
<td>Davenport-Rock Island-Moline (0.52%)</td>
<td>Metro-East (0.61%)</td>
<td>4</td>
<td>(+1)</td>
</tr>
<tr>
<td>5</td>
<td>Metro-East (0.51%)</td>
<td>Peoria (0.51%)</td>
<td>5</td>
<td>(+1)</td>
</tr>
<tr>
<td>6</td>
<td>Peoria (0.15%)</td>
<td>Bloomington-Normal (0.48%)</td>
<td>6</td>
<td>(-4)</td>
</tr>
<tr>
<td>7</td>
<td>Decatur (-0.39%)</td>
<td>Rockford (0.01%)</td>
<td>7</td>
<td>(+1)</td>
</tr>
<tr>
<td>8</td>
<td>Rockford (-0.45%)</td>
<td>Springfield (-0.4%)</td>
<td>8</td>
<td>(+2)</td>
</tr>
<tr>
<td>9</td>
<td>Champaign-Urbana-Rantoul (-0.47%)</td>
<td>Decatur (-0.58%)</td>
<td>9</td>
<td>(-2)</td>
</tr>
<tr>
<td>10</td>
<td>Springfield (-0.95%)</td>
<td>Champaign-Urbana-Rantoul (-0.58%)</td>
<td>10</td>
<td>(-1)</td>
</tr>
</tbody>
</table>
The State’s Economic Challenges

• Incomplete “solution” to budget stalemate
• State finances will not be addressed seriously in 2018 – election
• Research in REAL has shown that partial solutions to revenue challenges have resulted in significantly enhanced net out-migration of skilled workers
• Illinois now dropped to 6th most populous state; lost 33,700 residents in 2017, continuing 4 years of decline
• Even in years when net migration was close to zero (in ≦ out), those coming in earned less than those leaving resulting in loss of $0.5 billion to state’s economy (15-20,000 jobs through multiplier effect)
The State’s Economic Challenges (2)

- IDES noted that with 1.2 million jobs, Chicago has achieved a 25-year high.
- Downstate MSAs have not fared as well and Chicago suburbs have had a mixed experience.
- No concerted effort to grow the economy – state was not competitive in attracting Toyota/Mazda to the state even though we have more available qualified workers than Alabama.
- Unlikely that Amazon will locate HQ2 in Chicago.
The State’s Economic Challenges: Implications for the Housing Market

• Migration flows provide a source of “energy” into the housing market – generating sales when a household leaves and purchases when a new migrant re-locates
• If net-migration is negative, then only one part of the market is stimulated
• In-flows will be smaller if job creation lags
• Firms have enormous choices in serving the Midwest market and taking advantage of Illinois’ transportation connections – without having to locate in the state
• There appears to be little interest in a bipartisan approach to what is a major challenge – this is hurting the housing market
Challenges by Changes in 2017 Tax Legislation

- REAL is exploring ways in which these changes might be evaluated.
- Complicated by changes in deductability and how existing home owners and potential home buyers might respond to changes in state and local tax.
- Deductability of mortgage interest only affects a relatively small number of home owners.
- Empirical evidence garnered after the Reagan-era tax cuts suggested that many households were not aware of tax cuts as the impact on their disposable income was small.
Housing Market

• Forecasting Challenges
• Challenges of spatial scale
• Demographic challenges
How Good were our Forecasts?

2017 Real vs Forecast Annual Median Price Change Rates

- IL Real
- Chicago Real
- IL Forecast
- Chicago Forecast

Annual Median Price Change Rates %

Nov-16 Dec-16 Jan-17 Feb-17 Mar-17 Apr-17 May-17 Jun-17 Jul-17 Aug-17 Sep-17 Oct-17
Illinois Housing Market: Prices

Illinois Median Home Sales Price

Source: University of Illinois REAL, Illinois Association of REALTORS®
Illinois Housing Market: Sales

Illinois Total Home Sales

Source: University of Illinois REAL, Illinois Association of REALTORS®
Chicago Housing Market: Prices

Chicago PMSA Median Home Sales Price

<table>
<thead>
<tr>
<th>Median Sales Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>$300,000</td>
</tr>
<tr>
<td>$280,000</td>
</tr>
<tr>
<td>$260,000</td>
</tr>
<tr>
<td>$240,000</td>
</tr>
<tr>
<td>$220,000</td>
</tr>
<tr>
<td>$200,000</td>
</tr>
<tr>
<td>$180,000</td>
</tr>
<tr>
<td>$160,000</td>
</tr>
<tr>
<td>$140,000</td>
</tr>
</tbody>
</table>

Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec

Chicago PMSA: Cook, Dekalb, DuPage, Grundy, Kane, Kendall, Lake, McHenry and Will counties
Source: University of Illinois REAL, Illinois Association of REALTORS®
Chicago Housing Market: Sales

Chicago PMSA Total Home Sales

Source: University of Illinois REAL, Illinois Association of REALTORS®
Illinois Housing Market: Inventory problem

Shrinking supply in all price ranges – similar for Chicago
Little change 2016-2017 – same for Chicago but with larger decline in share <\$100K

This part of the market most affected by mortgage deductibility changes but accounts for 3% sales (5% in Chicago)

Source: University of Illinois REAL, Illinois REALTORS
Time on the Market

Illinois Average Time on the Market

Upward tick for higher priced houses
Pending Sales Index

Product and highlight this more prominently in 2018 and issue for each MSA
Initial research will tie this with MSA Business Indices
Tobler’s (1979) First Law of Geography:

“Everything is related to everything, but nearby things are more related than distant things.”

Exploring price formation within the city of Chicago

- How are prices related across communities?
- Which communities are leaders and which followers in price changes?
- Even Median or REAL’s Housing Price Index can mask significant variations within a metropolitan region
Spatial Distribution of House Prices, 2016

Figure. Spatial Distribution of House Prices (in logs) in Chicago Communities
Identification of relationships

- Divide communities into 4 groups
  - **High** price communities surrounded by other **High** price communities
  - **Low** surrounded by **Low**
  - **High** surrounded by **Low**
  - **Low** surrounded by **High**
Scatter Plot of House Prices, 2011-2016

2011

Moran's I: 0.598273

2016

Moran's I: 0.667953
Cluster Maps of House Prices, 2011-2016

LISA Cluster Map:
- Not Significant
- High-High
- Low-High
- Low-Low
- High-Low

Hot spots
Cold spots
Summary to Date

- Findings reveal that house prices in the Chicago communities tend to be spatial associated.
- The overall clustering has increased each year.
- Cluster maps show that most communities were identified with statistically significant positive spatial autocorrelation.
  - Hot spots of house prices were detected in the northern part of the Chicago, while
  - Cold spots were detected in the southern part.
- Now we will explore how price changes in one community affect or are affected by changes in other communities.
Final Concerns: Immigration and Ageing

• By 2030, 20% of Illinois population will be >65
• Shrinking labor force will result in an increase in dependency ratio (number of people not working to those working)
• Research in REAL has shown that immigration is positive for the state’s economy; without it, labor force will shrink creating additional fiscal challenges
Illinois: Ageing Challenges

Population Pyramids of Illinois
Percent of Total Population

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 18</td>
<td>13,662</td>
<td>0.4</td>
</tr>
<tr>
<td>5-17</td>
<td>-41,976</td>
<td>-1.8</td>
</tr>
<tr>
<td>18-24</td>
<td>17,468</td>
<td>1.4</td>
</tr>
<tr>
<td>25-44</td>
<td>-302,690</td>
<td>-8.0</td>
</tr>
<tr>
<td>45-64</td>
<td>373,007</td>
<td>14.0</td>
</tr>
<tr>
<td>65+</td>
<td>912,152</td>
<td>60.8</td>
</tr>
</tbody>
</table>

Change 2000–2030

Note:
Significant decline in 25-44 age cohort

Significant increase in >45
Implications

• Ageing population will mean demand for properties with >2 bedrooms will decrease

• Population increase in central Chicago in part represents “return migration” of empty nesters on the one hand and Millennials on the other – both groups seeking smaller properties with access to the amenities of a large city

• Immigrants and second and third generation families tend to have larger than average families – a major source of demand for properties with 3+ bedrooms
Welcome to R | E | A | L

The Regional Economics Applications Laboratory (REAL) focuses on the development and use of analytical models for urban and regional economic analysis. REAL’s primary mission is to provide high quality economic information for a variety of uses such as public policy, economic development and for strategic marketing in the private sector. REAL’s capabilities include the development of metropolitan models that integrate econometric and input-output analysis to provide for both impact and forecasting analyses.

While REAL’s primary focus has been on the economies of the Midwest, REAL has collaborated in the development of models for several regions on the east coast. In addition, two models have been constructed for states in Brazil and a third is under construction. A model for the Jakarta Metropolitan region is also under construction.

REAL is actively involved in teaching at the University of Illinois. REAL faculty and staff work with the Department of Economics, geographically distributed undergraduate, graduate and extension education programs and we offer the projects the students work on for graduate credit.

Monthly index of leading indicators for Chicago

Monthly Employment analysis for state and Metro areas

Illinois Economic Review (monthly) with employment forecasts for next 12 months
For More Information

www.real.illinois.edu

www.illinoisrealtor.org/marketstats