Redeveloping Ireland’s Residential Property Price Index (RPPI)

Ottawa Group, 10-12 May 2017, Eltville, Germany
Gregg Patrick
Presentation Topics

• Economic Context
• Original RPPI
  • Need for a new RPPI
• New RPPI
  • New data sources
  • Data matching
  • Price model
  • Data smoothing
  • Data progressivity
  • New indices
  • Additional indicators
• New versus original RPPI
• Ongoing developments
Economic Context

Residential Property Price Index (2008Q1=100)

Index

- Ireland
- Latvia
- Estonia
- Greece
- United States

Q1-2008 to Q4-2016
Original RPPI

- Project commenced 2009
- Based on mortgage transaction data
- 12 month rolling time dummy method
- Monthly index
- Four elementary indices
  - (1) Dublin houses, (2) Dublin apartments,
  - (3) National (excluding Dublin) houses, (4) National (excluding Dublin) apartments
- Series start January 2005
- Launched March 2011
Need for a New RPPI

- Compliance issues
- Risk of bias
- Data quality issues
- Micro-location
- Self-builds
- Time lag issues
New Data Sources

- Stamp Duty
- Geo-Directory
- New RPPI?
- BER
- SAPS
Data Matching (1)

**Stamp Duty: 21 JOE BLOGGS PARK, JOE BLOGGS STREET, DONEGAL**

<table>
<thead>
<tr>
<th>#</th>
<th>BER: Matching Address Candidates</th>
<th>JWD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>21 JOE BLOGG'S PARK, JOE BLOGG'S ST DONEGAL</td>
<td>0.8982</td>
</tr>
<tr>
<td>2</td>
<td>21 JOE BLOGG'S AVENUE, JOE BLOGG'S STREET DONEGAL</td>
<td>0.8714</td>
</tr>
<tr>
<td>3</td>
<td>21 JOE BLOGG CRESCENT, JOE BLOGG STREET DONEGAL</td>
<td>0.8698</td>
</tr>
<tr>
<td>4</td>
<td>22 JOE BLOGG'S PARK, JOE BLOGG'S STREET DONEGAL</td>
<td>0.8553</td>
</tr>
<tr>
<td>5</td>
<td>19 JOE BLOGG'S PARK, JOE BLOGG'S STREET DONEGAL</td>
<td>0.8354</td>
</tr>
<tr>
<td>6</td>
<td>20 JOE BLOGG'S PARK, JOE BLOGG'S STREET DONEGAL TOWN</td>
<td>0.8283</td>
</tr>
<tr>
<td>7</td>
<td>23 JOSEPH BLOGGS PARK, JOSEPH BLOGGS STREET DONEGAL</td>
<td>0.8026</td>
</tr>
<tr>
<td>8</td>
<td>32 JOE BLOGGS PARK, DONEGAL Co. DONEGAL</td>
<td>0.7586</td>
</tr>
<tr>
<td>9</td>
<td>'THE COTTAGE' JOE BLOGGS PARK, JOE BLOGGS STREET DONEGAL</td>
<td>0.7342</td>
</tr>
<tr>
<td>10</td>
<td>24 PAIRC JOE BLOGG, BOTHAR JOE BLOGG DUNN NA NGALL</td>
<td>0.6841</td>
</tr>
</tbody>
</table>
### Address matching results

<table>
<thead>
<tr>
<th>Year</th>
<th>Stamp Duty Returns</th>
<th>BER Pairings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no.</td>
<td>percent</td>
</tr>
<tr>
<td>2010</td>
<td>14,830</td>
<td>11,133</td>
</tr>
<tr>
<td>2011</td>
<td>13,639</td>
<td>10,105</td>
</tr>
<tr>
<td>2012</td>
<td>19,431</td>
<td>15,278</td>
</tr>
<tr>
<td>2013</td>
<td>23,163</td>
<td>18,429</td>
</tr>
<tr>
<td>2014</td>
<td>32,917</td>
<td>23,177</td>
</tr>
<tr>
<td>2015</td>
<td>36,952</td>
<td>27,515</td>
</tr>
<tr>
<td>2016</td>
<td>36,290</td>
<td>27,043</td>
</tr>
</tbody>
</table>
Price Model

\[ \ln(p_{it}) = x_{it}\beta + \delta_tD_t + \mu_{it} \]

<table>
<thead>
<tr>
<th>Source</th>
<th>Variable</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>BER Data</td>
<td>Floor area (m²)</td>
<td>Continuous variable</td>
</tr>
<tr>
<td></td>
<td>Dwelling type</td>
<td>Detached, Semi-Detached, Terraced, Apartment</td>
</tr>
<tr>
<td>GeoDirectory</td>
<td>Eircode Routing Key</td>
<td>A41, A42, A45, A63, A67, etc.</td>
</tr>
<tr>
<td>Pobal</td>
<td>HP Deprivation Index</td>
<td>Continuous variable</td>
</tr>
</tbody>
</table>
Data Smoothing

New National Index (Jan 2005=100)
Data Progressivity

Stamp Duty Return Availability

Cumulative Percentage

<table>
<thead>
<tr>
<th>Months</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0%</td>
<td>10%</td>
<td>20%</td>
<td>30%</td>
<td>40%</td>
<td>50%</td>
<td>60%</td>
<td>70%</td>
<td>80%</td>
<td>90%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
New RPPI Indices

1. Border houses
2. West houses
3. Midland houses
4. Mid-East houses
5. *Dublin houses*
   - 5.1 Dublin City
   - 5.2 Dun Laoghaire-Rathdown
   - 5.3 Fingal
   - 5.4 South Dublin
6. South-East houses
7. South-West houses
8. Mid-West houses

www.cso.ie
Additional Indicators

Average price for H9: Galway: € 222,135

Average price for D04: Dublin 4: € 711,919
New versus Original RPPI

National Index (Jan 2005=100)
Future Developments

- New and existing breakdown
- Web scraping
- Expanded additional indicators
- Plot size
Thank You

For further information contact:
Gregg Patrick, CSO Ireland
gregg.patrick@cso.ie
+353 21 453 5202