How Does the ACS Compare to Local Utility Data for Understanding Local Housing Occupancy?

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What I Will Be Covering

• A Case Study Looking at Occupied Housing Units
• Looked at One, Three, and Five Year ACS
• Developed a typology of results.
  • Signal
  • Change
  • Review
• Okay: Enough consistency after study to say nothing needs to change (Two Counties)
The Importance of Occupied Unit Information

- Key part of Nevada estimates
  - Certified estimate is (Housing Unit-based estimate plus Regression-based estimate)/2

- Estimates used to distribute $2 Billion from 1999 to 2011 among local governments based on population and assessed valuation change.

- Control totals for other estimates

- Still recovering from the housing bubble
For the housing unit-based estimate we must use by regulation:

- Assessor housing counts or local government counts
- An occupancy rate

There were a number of issues in comparing the local housing counts to the Census especially in 2010.

- Non-traditional housing units such as unpermitted units, RV’s, and daily/weekly/monthly units
- New condominium developments
How well do the overall local housing counts and Census compare?

Table 1: Comparison of Nevada Local and Census Housing Counts 2000 and 2010

<table>
<thead>
<tr>
<th>County</th>
<th>Total Counts 2000</th>
<th>Total Counts 2010</th>
<th>Differences Between Local and Census</th>
<th>Change Between Counts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assessor Plus Other</td>
<td>Census</td>
<td>Assessor Plus Other</td>
<td>Census</td>
</tr>
<tr>
<td>Carson City</td>
<td>21,432</td>
<td>21,283</td>
<td>23,652</td>
<td>23,534</td>
</tr>
<tr>
<td>Churchill</td>
<td>9,923</td>
<td>9,732</td>
<td>11,099</td>
<td>10,826</td>
</tr>
<tr>
<td>Clark</td>
<td>562,965</td>
<td>559,799</td>
<td>816,263</td>
<td>840,343</td>
</tr>
<tr>
<td>Douglas</td>
<td>19,009</td>
<td>19,006</td>
<td>24,218</td>
<td>23,671</td>
</tr>
<tr>
<td>Elko</td>
<td>17,129</td>
<td>18,456</td>
<td>19,181</td>
<td>19,566</td>
</tr>
<tr>
<td>Esmeralda</td>
<td>902</td>
<td>833</td>
<td>891</td>
<td>850</td>
</tr>
<tr>
<td>Eureka</td>
<td>945</td>
<td>1,025</td>
<td>994</td>
<td>1,076</td>
</tr>
<tr>
<td>Humboldt</td>
<td>6,757</td>
<td>6,954</td>
<td>7,116</td>
<td>7,123</td>
</tr>
<tr>
<td>Lander</td>
<td>2,758</td>
<td>2,780</td>
<td>2,685</td>
<td>2,575</td>
</tr>
<tr>
<td>Lincoln</td>
<td>1,809</td>
<td>2,178</td>
<td>2,551</td>
<td>2,730</td>
</tr>
<tr>
<td>Lyon</td>
<td>14,769</td>
<td>14,279</td>
<td>23,057</td>
<td>22,547</td>
</tr>
<tr>
<td>Mineral</td>
<td>2,508</td>
<td>2,866</td>
<td>2,308</td>
<td>2,830</td>
</tr>
<tr>
<td>Nye</td>
<td>15,830</td>
<td>15,934</td>
<td>22,687</td>
<td>22,350</td>
</tr>
<tr>
<td>Pershing</td>
<td>2,526</td>
<td>2,389</td>
<td>2,555</td>
<td>2,464</td>
</tr>
<tr>
<td>Storey</td>
<td>1,624</td>
<td>1,596</td>
<td>2,026</td>
<td>1,990</td>
</tr>
<tr>
<td>Washoe</td>
<td>146,423</td>
<td>143,908</td>
<td>179,241</td>
<td>184,841</td>
</tr>
<tr>
<td>White Pine</td>
<td>4,312</td>
<td>4,439</td>
<td>4,699</td>
<td>4,498</td>
</tr>
<tr>
<td>Nevada Total</td>
<td>831,621</td>
<td>827,457</td>
<td>1,145,223</td>
<td>1,173,814</td>
</tr>
</tbody>
</table>

Assessor Plus Other includes the local assessor counts plus any reservation or military housing in each county.
Chart 1: Comparing July 2010 Rebased Population Estimates for Nevada's 17 Counties to Census Evaluation, Nevada Regression Model, Housing Unit, and Certified Estimates

- **Mean Algebraic Percent Error**
- **Mean Absolute Percent Error**

<table>
<thead>
<tr>
<th>Method</th>
<th>Mean Algebraic Percent Error</th>
<th>Mean Absolute Percent Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Census</td>
<td>-4.0%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Regression</td>
<td>-5.0%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Housing Unit</td>
<td>9.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td>Certified</td>
<td>-2.0%</td>
<td>8.0%</td>
</tr>
</tbody>
</table>
Occupancy rate approaches:

- 2000 to 2010
  - Clark County used USPS and later in the decade local energy data
  - For other counties from 2001 to 2010 local energy data used where possible
- Post-2010 we are using a modified version of Florida’s approach
  - Florida uses direct estimate of occupied units by ratio
  - We update the 2010 Census rate using a ratio with Local Electric Data in Nevada.
ACS provides three estimates to consider

- **Administrative Record Based**
  - Population (averages for multiyear)
  - Housing Counts (average for multiyear)
- **Occupied Unit Counts (weighted survey results)**

Maybe useful for signaling that there continues to be unresolved issues with local housing markets

- Is it a better source?
- Timeliness impacts ability to use for certified estimates.
- How to use for determining trends.
Chart 2: Comparing 2013 Total and Occupied Units Counts for Clark County, Nevada from Local Government and Energy Data, ACS, and Estimated from Certified Estimate.

- **Administrative Data**
  - Total Housing Counts: 875,000
  - Occupied Units: 750,000

- **Utility Data**
  - Local Govt: 880,000
  - Occupied Units: 750,000

- **Survey Data**
  - 2013 ACS: 850,000
  - Occupied Units: 700,000

- **Derived from Certified Estimate**
  - Occupied Units: 650,000

The Local Estimate is 46,410 Units Higher Than ACS using Electric Utility Data.
Chart 3: Comparing 2013 Total and Occupied Units Counts for Washoe County, Nevada from Local Government and Energy Data, and Estimated from Certified Estimate

- **Total Housing Counts**
- **Occupied Units**

The Local Estimate is 1,433 Units Higher Than ACS using the 2010 Census Occupancy Rate.

- **Administrative Data**
- **Census 2010 Rate**
- **Survey Data**

<table>
<thead>
<tr>
<th>Local Govt</th>
<th>2013 ACS</th>
<th>Derived from Certified Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>180,000</td>
<td>185,000</td>
<td>190,000</td>
</tr>
</tbody>
</table>

The College of Business
AT THE UNIVERSITY OF NEVADA, RENO
Six Counties are reported in the 2009 to 2013 ACS and local utility data.
Three Counties are reported in the 2009 to 2013 ACS but do not have local energy data.

<table>
<thead>
<tr>
<th></th>
<th>2010 Coverage Rates (Compared to Local Counts)</th>
<th>2011 Percentage Differences Occupied Units</th>
<th>Nevada Population Estimate Less Census Population</th>
<th>(Census PPHH Less ACS)/MOE</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Census</td>
<td>Local Energy</td>
<td>Nevada Less ACS</td>
<td>Nevada Less ACS</td>
<td>Implied Less ACS</td>
</tr>
<tr>
<td>Eureka</td>
<td>101%</td>
<td>0%</td>
<td>85</td>
<td>11.5%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Lincoln</td>
<td>110%</td>
<td>0%</td>
<td>-128</td>
<td>-6.5%</td>
<td>0.6%</td>
</tr>
<tr>
<td>White Pine</td>
<td>102%</td>
<td>0%</td>
<td>294</td>
<td>8.8%</td>
<td>6.5%</td>
</tr>
</tbody>
</table>

![Eureka and White Pine Total Employment](chart.png)
Conclusions

• Important to understand controls, time frame, and possible interaction between them. (see Realizing the Potential of the American Community Survey: Challenges, Tradeoffs, and Opportunities www.nap.edu)

• 5 year estimates are hard to interpret.

• Does overlap matters if looking at trends?
Lessons and Comments Learned While Putting This Together

• The H31 - Units In Structure For Vacant Housing Units Table is gone.
• There are still questions about the use of ACS for affordable housing grant programs.
• The MOE is a problem for folks dealing with small geographies and determining program qualifications.
• Programs need time to grow, sampling error may move an area in and out of programs and destabilize funding.
Sources:


