Adapting the ACS PUMS for Housing Policy Analysis

May 13, 2015

ACS Data Users Group Conference
Overview

• Background
  – The importance of Area Median Income (AMI)
  – Lack of detailed data on AMI

• Methods
  – Calculating Area Median Income for the PUMS
  – Assessment of data quality

• Applications
  – Detailed portraits of low-income households
  – Forecasting need for affordable housing units
  – Population in low-income households
  – Annual estimates of rental affordability
What is Area Median Income?

- Defined by HUD; specific to geographic areas
  - $82,900 for MSP metro versus $107,000 for DC metro
- Percentages of AMI are used to measure household income and housing affordability:
  - $621 is an affordable rent
  - Jobs at this wage include home health aides and funeral attendants
  - $24,850 annual income for a family of four
    - 30% of AMI
  - $1,036 is an affordable rent
  - Jobs at this wage include interior designers and bus drivers
  - $41,450 annual income for a family of four
    - 50% of AMI
  - $1,596 is an affordable rent
  - Jobs at this wage include accountants and police officers
  - $63,900 annual income for a family of four
    - 80% of AMI

Source: U.S. Bureau of Labor Statistics
Limited Data for AMI

**Absolute dollar amounts**

- **ACS Summary Files**
  - “What % of households making less than $50,000 are cost-burdened?”

**% of AMI**

- **CHAS Data**
  - “What % of households under 50% of AMI are cost-burdened?”

**Pre-defined tabulations**

**Microdata for any tabulation**

- **ACS PUMS**
  - “What % of households making less than $50,000 have a vehicle?”

- **ACS PUMS with AMI**
  - “What % of households under 50% of AMI have a vehicle?”
Methods: Getting AMI into the PUMS

• Household income as % of AMI
  – “How does household income compare to HUD’s limits?”

<table>
<thead>
<tr>
<th>Income Level</th>
<th>1 person</th>
<th>2 people</th>
<th>3 people</th>
<th>…</th>
<th>8 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>80% of AMI</td>
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2-person HH
Income = $20,000

3-person HH
Income = $20,000

30% to 50% of AMI

Under 30% of AMI
Methods: Getting AMI into the PUMS

- Affordability of housing units (rental)
  - “At what level of AMI could a household afford this unit?”
  - Assume household size = 1.5 persons per bedroom

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2-bedroom unit
Assume 3 people
Gross rent = $1,000

<table>
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<tr>
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<th>Assumed income (3 people)</th>
<th>Affordable rent (Income ÷ 12 × 30%)</th>
</tr>
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<tr>
<td>80% of AMI</td>
<td>$57,550</td>
<td>$1,439</td>
</tr>
<tr>
<td>50% of AMI</td>
<td>$37,350</td>
<td>$934</td>
</tr>
<tr>
<td>30% of AMI</td>
<td>$22,400</td>
<td>$560</td>
</tr>
</tbody>
</table>

Affordable at 50% to 80% of AMI
Methods: Getting AMI into the PUMS

- Affordability of housing units (ownership)
  - “At what level of AMI could a household afford this unit?”
  - Assume household size = 1.5 persons per bedroom

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Two-bedroom unit
Assume 3 people
Value = $200,000

Affordable above 80% of AMI

<table>
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<tr>
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<th>Assumed income (3 people)</th>
<th>Affordable property value (Income × 3.36)</th>
</tr>
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<tr>
<td>80% of AMI</td>
<td>$57,550</td>
<td>$193,368</td>
</tr>
<tr>
<td>50% of AMI</td>
<td>$37,350</td>
<td>$125,496</td>
</tr>
<tr>
<td>30% of AMI</td>
<td>$22,400</td>
<td>$75,264</td>
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Methods: Assessing quality

- PUMS now has the income level at which each housing unit is affordable, as well as the household income for each household, in terms of % of AMI

- Also has same limitations of PUMS relative to summary files
  - Less geographic precision
  - Fewer cases
Methods: Assessing quality

- Apples-to-apples comparison of PUMS and CHAS*
  - PUMS estimates generally quite close to CHAS estimates
  - Reliability of PUMS estimates slightly lower than CHAS estimates, but generally very good (most CVs < 0.15)

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<th>Household Income Distribution</th>
<th>CHAS</th>
<th>PUMS</th>
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<tr>
<td>Above 80% of AMI</td>
<td>15.0%</td>
<td>14.9%</td>
</tr>
<tr>
<td>50% to 80% of AMI</td>
<td>10.6%</td>
<td>10.6%</td>
</tr>
<tr>
<td>30% to 50% of AMI</td>
<td>12.1%</td>
<td>12.3%</td>
</tr>
<tr>
<td>At or below 30% of AMI</td>
<td>62.3%</td>
<td>62.2%</td>
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* - Reflects comparison of selected tables from 2007-2011 CHAS with estimates based on 2007-2011 ACS PUMS for the seven-county Twin Cities region
Application 1: Portraits of Households

Among extremely low income households (≤ 30% of AMI) in the TC region:

- Have at least one vehicle: 64.6% (± 1.4%)
- Do not include anyone with a disability: 64.1% (± 1.3%)
Application 2: Forecasting

• Met Council must determine future need for affordable housing units

• Met Council forecasts regional household growth (16 categories)

• How many of these households will need new affordable units?
  – What share are low-income (at or below 80% of AMI) AND
  – Don’t already own a home free and clear?
Application 3: Portraits of People

• In Twin Cities households with income at or below 30% of AMI:

  - 40.5% of householders are people of color (± 1.4%)
  - 56.5% of all people are people of color (± 1.6%)

CHAS or PUMS provides this

Only PUMS provides this
Application 4: Trends

Share of rental units affordable to households with given incomes

- Greater than 100% of AMI
- 80% to 100% of AMI
- 51% to 80% of AMI
- 31% to 50% of AMI
- At or below 30% of AMI

Rapid decline in rental affordability at 50% of AMI!
Lessons

• Generally, the PUMS is a good alternative where CHAS data do not have necessary detail on AMI

• Small losses in accuracy and reliability

• Applications and advantages
  – More detailed characteristics
  – Data on population in households
  – More current data
Questions and comments welcome!

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