Rental Unit Energy Efficiency in Columbia, MO

Capstone Project – Truman School of Public Affairs
Megan M. Carroll
Dustin Dunstedter
Lelande Rehard
May 7, 2012
Overview

- Review and Background
- Methodology
- Results
- Recommendations
- Acknowledgements
Review and Background

- City of Columbia

**Population Growth**

- 2000: 84,531
- 2010: 108,500
Review con’t

- Principal-Agent Problem
  - Landlords and Tenants
  - Neither Landlord nor Tenant have incentives
  - Market signals are distorted
  - Weatherization and appliances fall far short compared to owned homes
  - Energy inefficiency results in overall loss for the community
Review con’t

- City of Columbia Demand Side Research
  - What factors influence renters’ decisions?
  - What sources of information do renters use to make decisions?
  - How do renters perceive energy efficiency?
  - How would be the best way to disperse the information we have so that renters can make the best decisions?
Methodology

- Two-pronged approach
  - Surveys
  - Focus Groups

- Goals
  - Find motivations for Columbia renters
  - Find out if energy efficiency is an interest or selling point
  - Find out how they want to access their information
Methodology - Surveys

- Main tool for data acquisition
- Two tools
  - Online – Google Documents
  - Paper copies – BCH
- Two identical copies of online survey
  - Community
    - City Source, KBIA, Columbia Tribune
  - Student
    - Sustain Mizzou
    - MU Info
- Procedures for managing data
Methodology – Surveys con’t

- Quantitative Analysis
  - Difference of means between populations of interest
  - Associations of interest
  - Correlations of interest

- Qualitative Analysis
  - Frequency counts
Methodology – Focus Groups

- Initial Plans
- Recruitment
  - Through the Survey
  - Fliers
- How It Played Out
  - Smaller Number
  - Nonrandom
- Not used for statistical analysis, but qualitative support for quantitative analysis
Results

- Definite demand
- Perception Issue
  - Students – distorted perception
  - Community – helpless perception
- Information Gap
  - Lack of campus resources
### Sample Demographics

<table>
<thead>
<tr>
<th></th>
<th>Students (n=195)</th>
<th>Community (n=205)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age Group</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (18-25)</td>
<td>1.38</td>
<td>2.28 (26-35)</td>
</tr>
<tr>
<td>Median (18-25)</td>
<td>1</td>
<td>2 (26-35)</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>.61</td>
<td>1.19</td>
</tr>
<tr>
<td>Standard Error</td>
<td>.04</td>
<td>.08</td>
</tr>
<tr>
<td>Min</td>
<td>1 (18-25)</td>
<td>1 (18-25)</td>
</tr>
<tr>
<td>Max</td>
<td>4 (56-65)</td>
<td>6 (66+)</td>
</tr>
<tr>
<td>95% CI</td>
<td>1.29 - 1.47</td>
<td>2.12 - 2.45</td>
</tr>
<tr>
<td><strong>Income Bracket</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean ($10,001-$15,000)</td>
<td>2.04</td>
<td>3.96 ($25,001-$35,000)</td>
</tr>
<tr>
<td>Median (&lt;$10,000)</td>
<td>1</td>
<td>4 ($25,001-$35,000)</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.52</td>
<td>1.55</td>
</tr>
<tr>
<td>Standard Error</td>
<td>.11</td>
<td>.11</td>
</tr>
<tr>
<td>Min</td>
<td>1 (&lt;$10,000)</td>
<td>1 (&lt;$10,000)</td>
</tr>
<tr>
<td>Max</td>
<td>7 ($55,000+)</td>
<td>7 ($55,000+)</td>
</tr>
<tr>
<td>95% CI</td>
<td>1.82 - 2.25</td>
<td>3.74 - 4.17</td>
</tr>
<tr>
<td><strong>Number in HH</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>2.50</td>
<td>2.34</td>
</tr>
<tr>
<td>Median</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.33</td>
<td>1.24</td>
</tr>
<tr>
<td>Standard Error</td>
<td>.09</td>
<td>.11</td>
</tr>
<tr>
<td>Min</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Max</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>95% CI</td>
<td>2.32 - 2.69</td>
<td>2.11 - 2.58</td>
</tr>
</tbody>
</table>

*Difference of means p-value less than .05
Is There a Demand?

Will Consider Utilities When Renting Next Unit

- Yes: 88%
- Unsure: 10%
- No: 2%
Perceived Quality of Rental Properties

Quality of Unit (Student)

- Excellent: 7%
- Good: 18%
- Fair: 25%
- Poor: 50%

Quality of Unit (Community)

- Excellent: 19%
- Good: 22%
- Fair: 5%
- Poor: 54%

Energy Efficiency of Unit (Student)

- Excellent: 2%
- Good: 32%
- Fair: 37%
- Poor: 29%

Energy Efficiency of Unit (Community)

- Excellent: 5%
- Good: 25%
- Fair: 45%
- Poor: 25%
Choosing Property

Information Used When Deciding on Unit (Students)

- Landlord
- Previous Tenants
- Neighbors
- Tenants Association
- Campus Resources
- Websites

Bar chart showing the information used when deciding on a unit for students.
Usefulness of Landlord (Student and Community)

- Did not use: 8%
- Somewhat Useful: 28%
- Useful: 30%
- Not Useful: 12%
- Very Useful: 22%

Usefulness of Campus Resources

- Did not use: 1%
- Somewhat Useful: 9%
- Useful: 44%
- Not Useful: 8%
- Very Useful: 38%
Energy Efficiency Information

Called Utility Company Before Renting

- 18% Called
- 82% Did not Call
Recommendations

- At the very least
  - Website that serves as a consolidated source of information
    - GIS
    - Utility information with enough years in average to even out variations in usage and weather
    - Nearby amenities
    - Tenant Reviews
Recommendations con’t

• Ideally
  ◦ Creation of tenants union
    • Could run the website
    • Provide other services
    • Co-funded between the City and the University of Missouri
Success Story

- University of Illinois’ Tenant Union
  - Created in the mid-1970s
  - Housed in the Student Union
    - Paid for by student fees
    - Community version is a separate non-profit, but they work closely together
  - Student TU – was used by 40% of student renting population in 2010-2011
  - Community TU – assisted 2100 tenant households during the same period
A Columbia Tenants Association

- Joint funding: student fees, inspection fees, service generated fees
- Precedent with joint positions: Fire Marshall
- Third Party status could allow for Tenant Reviews
- Insures legitimacy and use of website, physical presence, continued education and awareness, catalyst for future endeavors
Acknowledgments

- The authors of this report would like to thank Leigh Britt of Neighborhood Services – City of Columbia, Barbara Buffaloe of the Office of Sustainability – City of Columbia, Matt Gerhke from the GIS Department – City of Columbia, Ben Datema of Sustain Mizzou, Pat Fowler of Residential Life, Dr. Barton Wechsler of the Truman School of Public Affairs, Socket Internet, Steve Hollis and Linda Cooperstock of the Boone County Health Department, everyone who took the survey and participated in a focus group.
Questions?