

ENERGY EFFICIENCY FOR RENTAL PROPERTIES IN COLUMBIA, MISSOURI

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ABSTRACT

As a city with a large rental population, Columbia needs to address the split-incentive between landlords and tenants regarding the energy efficiency of rental properties. In the rental market landlords gain little short-term benefit from costly improvements, and renters have even less incentive to make investments in properties they do not own. This study examines the demand for energy efficiency by asking the Columbia rental population: how they get information about properties, how they value energy efficiency, and how they learn about the energy efficiency of property. The results of the Columbia Rental Property Survey and focus groups point to a need for more accessible utility information, property and property owner reviews, greater campus resources for students, and more awareness for currently available information and resources. Recommendations from the groups include: a website that centralizes information about rental properties and their utilities and availability of 3-5 year utility bill averages for a property. The formation of a joint office between the City and University would not only maintain the website, but also provided much needed services and representation for both community and student renters.

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ACKNOWLEDGEMENTS

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, and everyone who took the survey and participated in a focus group.

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## EXECUTIVE SUMMARY

In the US, owning one's home is considered an essential part of the American dream. At this point in time, however, that dream is being deferred as millions of people are choosing to rent their homes in light of the recession. The reasons for this trend are many, including falling home values and needed mobility, and this downward spiral will likely continue until housing prices stabilize to a point where the investment brings a reasonable return. However, an issue regarding energy efficiency emerges. The principal-agent problem describes a core problem with making improvements to rental properties. The principal, or the landlord in this case, has no clear market incentive to make improvements to the property. They do not live there, and if one tenant moves out another can usually be found. The agent, or tenant, has no incentive to update the property because they may not be living in the property long enough to fully gain a return on the investment of improving the property. Thus, needed changes do not get made and tenants end up paying more than they need to utility costs.

The City of Columbia is aware of this issue within its city limits. Attaining high energy efficiency standards for rental properties is a priority for the city and falls in line with city efforts to promote energy efficiency in commercial buildings and owner-occupied housing. However, previous attempts to codify such standards rental properties have failed. To address the issue, the city hopes to use bolster demand for energy-efficient properties in the city by finding an effective way to provide information on utility rates so that people are more aware of the total living costs in a property prior to signing the lease. In order to accomplish this task, the City wanted information on what factors influence rental decisions among Columbia residents, particularly the low-income and student populations.

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Using a survey and focus groups, we gathered data from Columbia renters regarding what kinds of properties they live in, what they value or look for when renting properties, how much they spend on rent and utility costs, how they perceive energy efficiency, and if energy efficiency is a concern for them. For the online survey, we created two identical surveys with different links so that the data between students and community members could be kept separate for more nuanced analysis. We found that an overwhelming majority of both community members and students state that they are going to consider the cost of utilities the next time they rent, so there is a demand for the information the city wants to provide. We also found that there are some perception issues in regards to energy efficiency, with students not understanding everything that goes in to making an apartment energy efficiency (such as double-paned windows, adequate sealing), and community members feeling helpless about making their apartments more energy efficient. The biggest concern was the considerable information gap. Only 18% of students were aware that they could call the utility company for figures on usage of a potential rental property. This information may not be adequate, however, as qualitative responses showed that many community members who accessed the information found that the information was confusing or inaccurate. For students, many never used the Off-Campus Housing office in the Wellness Resource Center, and those who did found it not useful. The main place that people acquire energy information from is from the landlord, and only 52% of survey respondents found this information to be useful or very useful.

With this information in mind, we recommend that the City fill in the information gap. At the very least, a website should be created using existing city resources that provides one place for renters to go to find information about potential rental properties, including utility information. This utility information should provide a three- to five-year average of utility rates

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to account for variations in use and weather. This website should also include a place to consolidate reviews of landlords, properties, and neighborhoods. However, an ideal solution would be for the city and the University of Missouri to co-fund a tenants union for University of Missouri students and Columbia residents. This office could be housed under Neighborhood Services and run the website while also providing services such as lease reviews, conflict mediation between landlords and tenants, a place for tenants to formally lodge complaints against landlords, and comprehensive listings of every rental property in Columbia. The University of Illinois at Urbana-Champaign has had a tenants union since the 1970s, and approximately 40% of students who rent off-campus housing used their services last year, and their community partner assisted over 2100 tenant households as well. We believe that a city that is the size of Columbia and is growing at the rate that Columbia is should provide these services so as to provide a cleaner environment, more affordable living, and a higher quality of life to its renting citizens.

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## Energy Efficiency for Rental Units in Columbia

Energy efficiency of rental property is a problem not easily dealt with in municipalities across America. At the heart of this problem is the fact that split incentives exist for the landlord or property manager and the tenant. Neither party has a clear incentive to upgrade the property to be energy efficient. Landlords are not driven by market demand to make energy-efficient improvements to their properties as, especially in a college town, tenants who do not have enough experience at renting properties or do not care about energy efficiency as much as they care about rent price can always be found. Tenants, because they are only living in the property temporarily, do not want to make energy-efficient renovations to the property themselves as they will not be residing there long enough to see a return on their investment.

Tenant law is an area that is regulated mostly on the state and municipal levels, with the level of involvement on the municipal level having a considerable impact on renting quality within the city. As further action from municipal government is often needed to facilitate positive change, the City of Columbia has pursued energy efficiency in its own buildings and has encouraged businesses and residences alike to adopt energy efficiency measures. In regards to rentals, the City attempted to codify energy efficient practices for rental properties in the past to no avail, and has also engaged in promoting education and awareness programs for renters and homeowners alike. However, these programs could be more focused so that they can provide the information that city renters will find the most useful in their property search. To accomplish this task, the city is in need of specific market research data.

**PROBLEM STATEMENT**

Columbia, with its multiple populations of interest concerning rental properties, is considered unique enough to warrant exploratory research into what motivates renters to choose

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rental properties. Understanding how energy efficiency fits into renters' decision-making process could inform the City on the best means of increasing tenant demand for more efficient properties. Variables that we investigated included what renters look for in rental units and how they acquire information on potential rental properties, how much the renters are actually spending on rental units when utility bills are included, and whether or not their perceptions of energy efficiency are in line with current energy efficiency standards. Once these factors have been determined, ways to encourage renters to take a more proactive approach in finding energy efficient properties can be identified and evaluated.

The general renting population of Columbia as well as specific subgroups within that population has their own needs and deciding factors when choosing rental properties. Low-income populations may be severely constrained by budget and not have the resources or the information access necessary to make fully informed decisions about the best places to live given their constraints. University students may be in a position where they have never rented a property before and do not know what to look for when making rental decisions. They may be more inclined to look for properties close to the University and to choose to live in close proximity to other students. Until data is collected on these issues, the City will not be able to create a plan that will effectively aim its resources and energy in the right direction.

## **BACKGROUND AND LITERATURE REVIEW**

Data available from the National Multi Housing Council show that as of 2011 34% of the population, or roughly 98 million Americans, rent about 40 million housing units; of these renters approximately 42% are under the age of 30 years old. From 2010 to 2011 alone there was an 8.5% increase in the number of apartments occupied by tenants with a combined income of less than \$20,000 per year (nmhc.org). The numbers show that more people making less money

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per year are renting in America. The City of Columbia proves to be somewhat of a microcosm of this trend. Within this trend exists problems that are entrenched between landlords and tenants such as principal-agent problems, the externalities of which could impact not only renters, but all citizens.

The need for energy efficiency in rental properties is increasing because the number of rentals is increasing as a result of the recession. Homeownership rates dropped from 69% in 2006 to 62% in 2010 (Yoder, 4 January 2012), more than 500 cities saw an increase in the number of homes that became rentals in 2010, and nationally the number of homes that were rented rose from 33.8% in 2000 to 34.9% in 2010 (Schmit & Hansen, 7 June 2011). This trend may not be just a result of people being overly cautious during the recession; some studies are showing that it might be the start of a sea change in how homeownership and renting are viewed. A report from Robert Schiller of Yale shows that the rate of return for home investments is only .4% (Yoder, 4 January 2012). Also, because of the instability of the job market, renting a property allows for people to be considerably more mobile than buying a house (Lowrey, 31 May 2011). However, because more people renting, vacancy rates are dropping, which is raising rental prices. This trend coupled with people earning less money is meaning that people are spending dangerous amounts of their incomes on rent and utilities. In 2009, 25% of US renters “spent more than half of their income on rent and utilities” (Zibel, 26 April 2011), with another quarter spending between 30% and 50% of their incomes on these items. This problem is not just afflicting low-income populations. This same study showed that almost 23% of middle-income renters were also spending 30% or more on housing costs (Zibel, 26 April 2011). As 30% is the highest percentage of income that people should spend on their rent for it to be considered affordable, these trends indicate that people have less disposable income to spend on other items

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necessary for boosting the economy. Thus, rental energy efficiency should not just be pursued for the environmental benefits – anything that a city can do to lower the total cost of living to a level that is truly affordable should be considered an imperative.

Columbia, Missouri is a city that would greatly benefit from efforts to make cost of living more affordable. According to 2010 Census data Columbia appears to be a rather transient city, with only 66% of inhabitants living in the same house for one or more years, compared with the state average of 83%. Columbia's large rental population is outlined by homeownership; at 48.5%, the percentage of homeowners is well below the state average of 70%. These figures fail to capture the full extent of the large student population which would only further skew the numbers towards more renters. From 2000 to 2010 (2010 Census) Columbia's population increased by 28%, which is quadruple that of the overall state average. As Columbia has grown as a city its power needs have grown as well. In 2006 a city report, "Power Supply Options Study," outlined peak demand outpacing available supply as soon as 2008. Renewable energy sources were a part of the City's response to increasing power demand and a rather robust renewable energy portfolio was assembled after a renewable energy ordinance in 2004. To "offset significant cost increases for power contracts in 2008", which would increase power production to meet growing demands, Columbia Water and Light raised rates from 3.5 to 3.6% (2007 Budget Outlook). Within the broader scope of energy supply and demand in Columbia one area of particular inefficiency stands out: the energy consumption of houses or apartments that are owned by a landlord and occupied by a tenant. As noted earlier, rental properties constitute a large portion of the homes that use energy in Columbia. The nature of the landlord-tenant relationship blocks the natural economic signals that allow for proper energy efficiency.

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Principal-agent problems, also known as a split incentives or landlord-tenant problem, are well documented and exist in various arenas. The landlord-tenant relationship is but one of many possible scenarios where this term is applied. As Meier & Eide (2007) state, “the principal agent problem occurs when one party, the principal, engages another party, the agent, to make certain transaction on its behalf” (p. 3). Examples can be found in firms, military command, and labor, anywhere an owner or employer serves the role of principal, hiring a worker to act as agent (Sappington 1991). Sloman (2006) demonstrates that in most examples of principal-agent problems there exists an asymmetric information distribution between the principal and the agent, which is often why a principal hires an agent. The landlord-tenant problem differs in this regard, and can exist even in instances of information symmetry. Both parties may be fully aware of the lack of suitable energy efficiency, which is to say there does not necessary have to be asymmetrical information. For example, Williams (2008) shows that a landlord knows that a rental unit is drafty and energy-inefficient, and the tenant knows too; however, there is nothing the tenant can do about this situation aside from moving out at the end of the lease and make way for another tenant to experience the same problem. This is most likely due to the fact that the barriers of entry of property ownership are so high and the need for livable quarters so necessary that even in the face of information symmetry the problem persists.

William’s (2008) research into the matter is insightful on a very intuitive level. Individuals, whether they are landlords or tenants, will not respond to indicators for which there are no economic incentive. Here she names the issue a “split incentives issue”:

One type of split incentive problem arises when the owner pays for energy costs, in that tenants have little or no incentive to practice energy-conserving behaviors when energy costs are included in rent. The most common and most difficult form of the split-

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incentive problem occurs, however, when tenants are billed directly for energy costs.

Rental-property owners are reluctant to invest in upgrades when they are not responsible for paying the utility bills, while renters are loath to invest in a building that they may plan to vacate in a matter of months. This basic consequence of individuals pursuing their own self-interest results in energy-efficiency investment levels lower than that of owner occupied houses (p. 10-11).

Meier and Eide (2007) summarize the crux of the principal-agent problem in great detail, showing how market incentives become insulated against market forces and energy prices:

The tenant pays rent to the landlord in exchange for use of the building. The tenant pays energy costs that are, to a great extent, determined by the infrastructure present in the building. The landlord makes (or declines to make) investments in the building so as to lower its energy consumption and has little incentive to make efficiency investments because these reduce costs are borne only by the tenant. If energy prices rise (from market fluctuations or as a result of a deliberate policy), the landlord still lacks any short-run incentive to respond with additional investment in efficiency. In these ways, we say that the landlord's decisions regarding energy efficiency and the consumers' energy use are "insulated" from energy prices. The tenant can sometimes conserve but her options are typically constrained to measures that mostly rely on strict conservation rather than efficiency improvements. For certain end uses, such as refrigerators, the tenant has no effective means of adjusting consumption (beyond unplugging the unit) in cases where it is chosen or provided by the landlord (p. 3).

Meier and Eide (2007) go on to outline three distinct scenarios:

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In Case 1, the end user selects the energy-using technology (furnace, car, refrigerator, etc.) and pays for its energy consumption. In this case there is no PA problem because the principal and agent are the same entity. The party will be economically motivated to make a reasonable investment in efficiency (but it does not ensure that it will happen because other barriers may be present).

In Case 2, another entity – the agent—selects the energy-using technology, but the end user—the principal—pays for the energy use. This is the situation depicted in Figure 1. A PA problem exists here and is defined in Table 2 as an “efficiency problem”. This is the situation in many rented buildings, where the landlord selects the heating system, level of insulation, and other building characteristics but the tenant must pay the heating or cooling bill. The landlord’s decisions regarding investment in efficiency are insulated from the price signal, that is, an increase in energy prices are unlikely to quickly spur new efficiency investments.

In Case 4, the end user neither selects the energy-using technology nor pays the energy bill. We call this a “usage” problem because the end user faces no economic constraint on usage. Here the end users—who are shielded from the price of energy—consume more energy than is reasonable because they do not pay for it. This is the situation where the landlord selects the level of insulation and pays the heating bill determined by the behavior of the tenants. It leads to the common situations in Eastern Europe (Dempsey, 2006) (and elsewhere) where tenants open windows to regulate the inside temperature, even on the coldest days. This market failure is the reverse of Case 2.

Here the landlord is the principal and the tenant is the agent. In this case, the agent is not acting in the landlord’s interest.

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In Case 3, the end user selects the technology but does not pay the utility bill. In Case 3 both a usage *and* efficiency problem are present (p. 3).

Davis's research (2010) shows that the split-incentives issue causes renters to have far less energy-efficient appliances compared to that of home owners:

The results show that renters are significantly less likely to report having energy efficient refrigerators, clothes washers, and dishwashers. Differences are large in magnitude and remain after controlling for household income, demographics, energy prices, weather, and other controls. The results imply nationwide an annual increase in energy consumption of approximately nine trillion btus, equivalent to 165,000 tons of carbon emissions annually (p. 2).

Appliances alone do not spell energy efficiency; ultimately, they are only a necessary but incomplete component of the solution. The age of a building and the degree to which it is weatherized drastically affects energy efficiency. The Department of Energy (2001) estimates that low income households spend four times the amount on energy costs compared to other households, and that every dollar retained in a community from energy savings produces about three dollars in multiplier benefits. Weatherization falls directly into the split incentive problem. Be it insulating walls or patching weather stripping around doors and windows, often landlords see this as wasted time and money for which there is no clear economic incentive.

Even if efficient appliances alone would spell energy-efficiency it is clear that rental properties lag well behind owner occupied dwellings. Ameren UE's (2010) research conducted in Missouri shows that almost two-thirds of owner-occupied homes have cooling systems purchased after 1995, opposed to only 42% of rental property. This research went on to find that owner-occupied homes are 20% more likely to have at least one Energy Star appliance relative to

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that of rented homes. Ameren's findings in Missouri outline how the principal-agent issue has blocked the normal economic signals of energy costs from resulting in necessary building improvements. Improvements to the building itself often yield the highest returns down the road in energy efficiency-driven cost savings. A new roof or new windows, for instance, may cost a large amount up front, but if done properly and with ample insulation, will reward a homeowner with increased property value and lowered energy costs. Ameren's Missouri sample (2010) showed that:

Fifty-nine percent of respondents in single-family homes replaced their roof and 46% replaced windows. Over a quarter of respondents finished their basement, 19% added square footage and 2% finished their attic. As expected, respondents in multi-family homes did fewer structural changes. The most common change was replacing their windows with almost one quarter of respondents in multi-family homes doing so.

Nineteen percent said the roof has been replaced (p. 3-19).

### **RESEARCH METHODS**

To gather data for our research we took a two-pronged approach of using both surveys and focus groups. Initially, we intended to use two different surveys for analysis: a five-question survey geared specifically towards students who had never rented before and a longer survey for current renters in Columbia (both students and non-students). We intended to use the short survey at the Off-Campus Housing Fair hosted by the Wellness Resource Center in the Student Union at the University of Missouri – Columbia. Leigh Britt, Neighborhood Services Manager for the Community Development department for the City of Columbia, was volunteering at the City of Columbia's Fire Department booth and asked us to join her to disperse the survey. Unfortunately, another student group had already requested to carry out their own survey and we

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were asked to not burden participants with another. While we believe that there is potentially interesting and important information to be gathered from this specific sub-population, we do not believe that this setback negatively affected our analysis.

Our primary survey (Appendix A) was designed to be distributed mainly online with paper copies available at the Boone County Department of Health and Human Services. After initial completion of the survey instrument we tested it with colleagues in the Truman School of Public Affairs. The City is moving towards using Google Documents for their internal and external needs and wanted to continue to collect data from the survey after our study was complete, so we created the survey using Google Documents. Because we thought the populations were different enough to warrant their own analysis, we created two different but identical copies of the survey – one that was dispersed only to University of Missouri students, faculty, and staff, and one that was made available to the entire community. This action was done so that two different databases would be created, as we felt it would be better to analyze the data from each group separately at first and then to combine the different databases after the fact than it would be to separate one large database.

The community survey went live on the City of Columbia's website on March 5<sup>th</sup>, 2012, with a link prominently featured on the front page of the city's website. It was advertised using City Source, Columbia Water and Light's newsletter that is included with their utility bills, as well as with new stories on the radio station KBIA and the Columbia Tribune newspaper. Leigh Britt and Barbara Buffaloe, the Office of Sustainability Manager for the City of Columbia, also sent a link to the survey via email via their personal and professional network. We collected data from this survey until March 31<sup>st</sup>, 2012. Paper copies of the survey were made available from March 26<sup>th</sup>, 2012 to April 6<sup>th</sup>, 2012 at the Boone County Department of Health and Human

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Services in the Health Department, clinic, and WIC office. As low-income renters were a population of interest for the city and we did not want to bias our survey against anyone who did not have internet access, we believed that leaving paper copies at this location would be an adequate way of collecting data from this population.

For the University survey, the link was dispersed through Sustain Mizzou's listserv as well as on the weekly newsletter MU Info. After speaking with Ben Datema, Environmental Leadership Office Advisor, we believe that the Sustain Mizzou's listserv was diverse enough not to bias the survey. According to Datema, while there were people on the listserv that were very conscious of energy efficiency issues, there were others were not. Therefore, we took advantage of the opportunity to advertise our survey to a large group of students. The advertisement on MU Info went out on March 21<sup>st</sup>, 2012. According to timestamp information available from Google Documents, a majority of the responses came either on that day or March 22<sup>nd</sup>, 2012.

When analyzing the data, however, we noticed that approximately 100 of the respondents to the student survey were faculty and staff members at the University of Missouri – Columbia. We decided to place these responses in the community survey data, as the community survey data came from a more diverse pool of respondents and we did not want staff and faculty data to skew the student results. University students are a sub-population of interest for the city, and we wanted to ensure that the data from students actually came from students. We stopped collecting survey data on March 31<sup>st</sup>, 2012.

For the focus groups, we initially planned on having at least one focus group for each of the three populations – students, low-income, and community members. We asked survey respondents if they were interested in participating in a focus group as well as recruiting at the Boone County Department of Health and Human Services by leaving flyers (Appendix B) at

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front desks, clinics, and WIC office. However, due to a small number of responses, we were only able to conduct two focus groups with a nonrandom selection of participants. The first focus group was held at the Daniel Boone Regional Library in Columbia on March 26<sup>th</sup> from 5:30 PM to 6:30 PM. Food was provided at this focus group. Two of the participants were recruited from the survey and three were recruited from personal and professional networks. The second focus group was geared specifically towards students and was held in Middlebush Hall on April 17<sup>th</sup>, 2012 from 12:00 PM to 1:00 PM. Food was provided and the participants were recruited from personal networks as well as random recruiting from the Quad. Both focus groups were organized around and script with the same open ended questions (Appendix C). We realize that because of the nonrandom nature of our participant recruitment we are unable to use data for statistical analysis. However, we believe that the comments and stories gathered at the focus groups did provide more depth to the data we gathered from the survey. Thus, we have used some of the stories and quotations from the focus groups to back up points made in the data, though we have not used the focus group data to make points themselves.

Not including responses from testers, we received 400 total responses from the survey. 108 of these responses were from the community survey while 292 responses were from the student survey. However, when we took the faculty and staff data from the student survey and placed it in the community survey data, the totals changed to 195 responses for the student survey and 205 responses for the community survey. Basic descriptive statistics were drawn from Google Documents. Quantitative answers were coded and exported into Stata for statistical analysis. While we did not see the need to run any regression analysis, we did check to see if there were any statistically significant relationships through correlations and cross tabulations.

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The responses to the qualitative questions as well as data gathered from the focus group were analyzed for frequency of common themes.

### **RESULTS AND ANALYSIS**

Overall, our research shows that there is a desire among tenants in this city to learn more about energy efficiency and to adopt energy-efficient measures into their daily lives. This is based on the facts that an overwhelming majority of respondents said that they would factor the utility cost into their next rental decision and that approximately 70% of survey respondents in both the student and community surveys rank the energy efficiency of their rental properties as fair or poor. However, most people do not know where to find adequate information to make decisions on rental properties based on the property's energy standards. Most people only consult the property's landlord for information regarding the property's utilities and the property itself. This information is not always the most accurate. Those who do call the utility companies for past utility bill information find that the figures given by the City of Columbia and AmerenUE are difficult to use and may not reflect yearly and previous tenant use variations. Most people would like a single, centralized, online source for information on rental properties in Columbia that provides information on utility costs (using five-year averages), landlord's reputation, neighborhood characteristics, and overall unit quality.

#### **Demographics**

Table 1 shows the demographics of our survey respondents. For the student survey, there were no significant surprises, with the mean and median of the respondents falling between the ages of 18 and 25 and making less than \$15,000 a year. Counter intuitively, a large majority of student respondents said that they receive no financial assistance, including from parents, for the

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TABLE 1

<b>Sample Demographics</b>							
<b>Students (n=195)</b>							
	<b>Mean</b>	<b>Median</b>	<b>Standard Deviation</b>	<b>Standard Error</b>	<b>Min</b>	<b>Max</b>	<b>95% CI</b>
<b>Age Group</b>	1.38 (18-25)	1 (18-25)	.61	.04	1 (18-25)	4 (56-65)	1.29 - 1.47
<b>Income Bracket</b>	2.04 (\$10,001- & 15,000)	1 (<\$10,000)	1.52	.11	1 (<\$10,000)	7 (\$55,000+)	1.82 - 2.25
<b>Number in HH</b>	2.50	2	1.33	.09	1	8	2.32 - 2.69
<b>Community (n=205)</b>							
<b>Age Group</b>	2.28(26-35)	2 (26-35)	1.19	.08	1 (18-25)	6 (66+)	2.12 - 2.45
<b>Income Bracket</b>	3.96 (\$25,001- \$35,000)	4 (\$25,001- \$35,000)	1.55	.11	1 (<\$10,000)	7 (\$55,000+)	3.74 - 4.17
<b>Number in HH</b>	2.34	2	1.72	.12	1	17	2.11 - 2.58

TABLE 2

<b>Rental Characteristics</b>							
	<b>Mean</b>	<b>Median</b>	<b>Standard Deviation</b>	<b>Standard Error</b>	<b>Min</b>	<b>Max</b>	<b>95% CI</b>
<b>Rent per Month</b>	3.12 (\$501- \$700)	3 (\$501- \$700)	1.28	.06	1 (<\$300)	7 (>\$1300)	2.99- 3.24
<b>Number of Places Rented in Past</b>	2.95	3	2.54	.13	1	20	1.82 - 2.25
<b>Monthly Utility Bills</b>	3.29 (\$151- \$200)	3 (\$151- \$200)	1.98	.1	0 (included in rent)	8 (\$401- \$500)	3.1 3.47

payment of rent and utilities. Most student survey respondents also noted having between one and two roommates, as the mean number of people living in the household is 2.5 and the median is 2. For the community survey, we found that the respondents were on average older (26-35), earned more income, and had fewer people living in their households.

Table 2 shows the renting characteristics of our survey respondents. In regards to behavioral differences between the groups, many similarities were found in what they rank as

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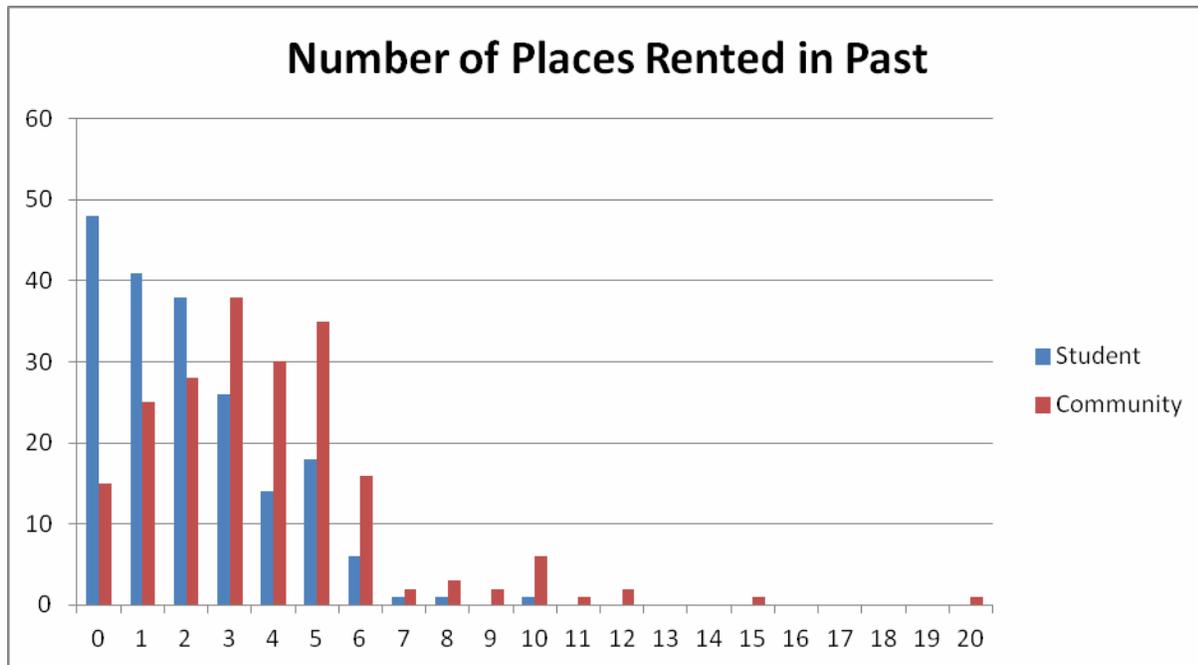
important. Top selling points for both groups included rental price, the type of the unit (duplex, house, large complex, etc.), quality of unit, size of unit, the landlord's reputation; whether or not it was available at the time they needed it, and the safety of the neighborhood. Some of the differences between these groups were expected. We expected students to rank an apartment's proximity to campus as being a higher priority than non-student community members. We were also not surprised when community members on average ranked the importance of utility costs higher than students. In regards to how residents found their current property, while the main source for both groups was the internet (Craigslist in particular), students were more likely to be referred to their current residence through a friend. Many rental properties in Columbia are passed down through social and student organization groups, such as the University of Missouri Marching Band.

### **Perceptions about Energy Efficiency Control**

When making choices on rental properties, key differences are revealed between the student survey respondents and community survey respondents. When looking at Figure 2, one can see that community survey respondents have rented considerably more properties than students ( $p\text{-value} = 0.000$ ), which is to be expected given their age and where they may be in their careers. Figures 3 and 5 also show that both groups rank the overall quality of their units in a similar fashion, with approximately 70% in each ranking the quality properties as good or fair. However, when these findings are compared with how survey respondents ranked the energy efficiency of their rental properties (Figures 4 and 6); we see that 70% of the community respondents and 69% of the student respondents ranked their energy efficiency as fair or poor. This discrepancy shows a disconnection between how people view energy efficiency within the context of their overall assessment of a rental property. This point is explained more in depth.

## ENERGY EFFICIENCY FOR RENTAL...

FIGURE 2

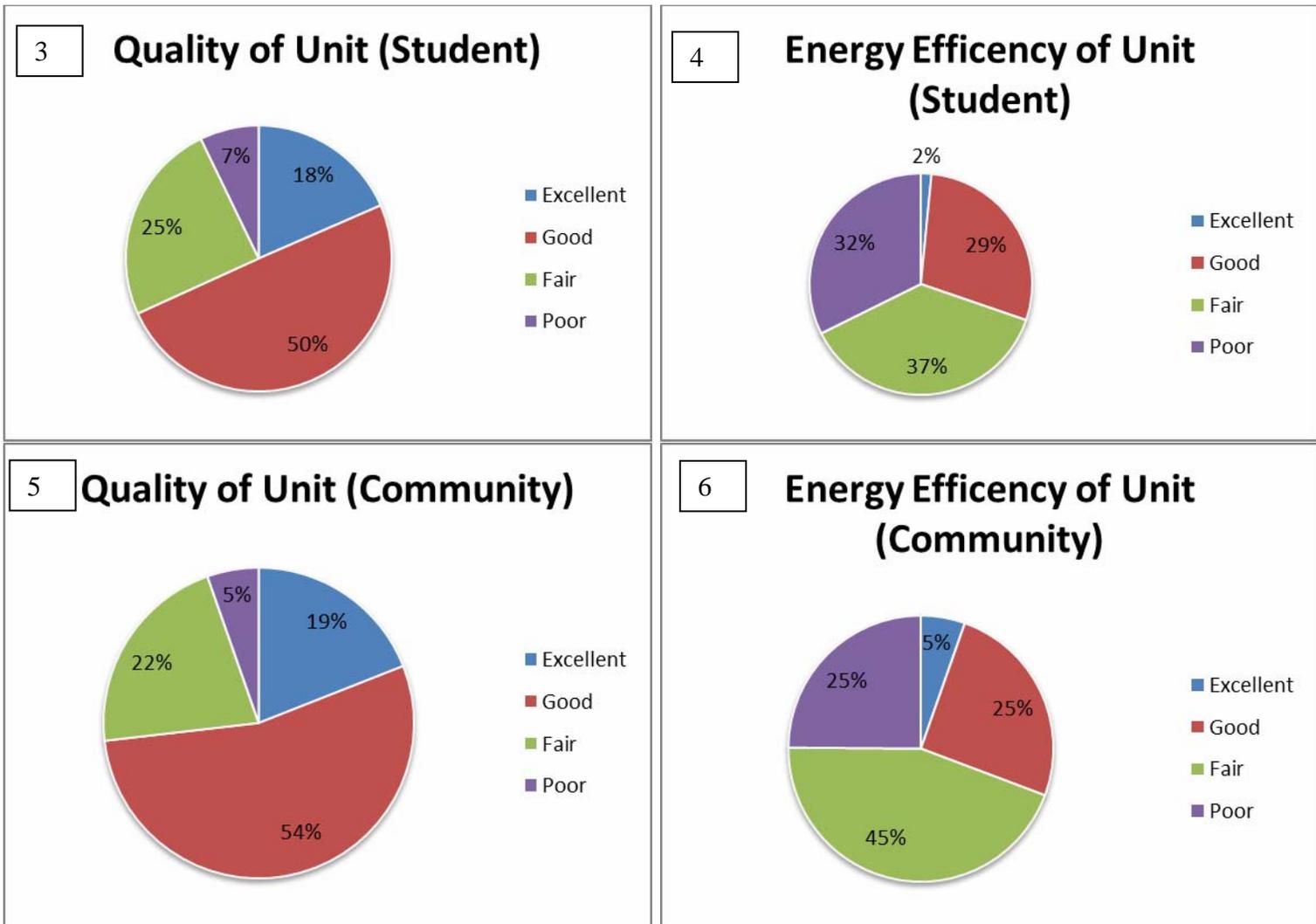


with information from our focus groups. There is either unawareness of what being energy efficient really consists of or a sense of helplessness in regards to making one's rental property more energy efficient. When asked what they think of when they think about energy efficiency, student responses included "energy efficient appliances" and "leaving the water running and stuff." When asked what affects the energy efficiency of their property and if they had any control over it, replies included, "turn off the lights and don't leave the water running," and that "appliances like the AC are on the landlord." Responses from community focus group participants provide more insight into this disconnect and include "I found that if you can keep your hot or cold temperatures inside your house, that is what will significantly lower your bills, but a renter cannot do anything about that" and,

You can have the most energy efficient furnace or AC unit in your house, but if it's a sieve it is not going to hold water. Everything is energy star these days, but just because you have energy star does not mean your bills will go down.

ENERGY EFFICIENCY FOR RENTAL...

FIGURES 3 - 6



These results show that either renters in Columbia do not truly understand everything that goes into making property energy efficient or feel relatively helpless in making apartments more energy efficient. Evidence is also seen in the qualitative responses to the question “When searching for your rental property, was the cost of utilities (water, electricity, and gas) a concern to you,” responses included “It was a concern but I thought I could control the costs more than I am able to...” and,

Our electricity bill seems to be high, and I feel that our apartment is not very energy

## ENERGY EFFICIENCY FOR RENTAL...

efficient. The windows and doors are drafty, and the walls are thin and let out heat in the winter. Our landlord should insulate our apartment better, but when we have spoken with them about it they said it was a low priority.

With renters in Columbia not knowing what all factors into making a rental property energy efficient or thinking they are helpless to make their rental properties energy efficient (which they are, by and large), no demand is created to trigger market mechanisms that would affect the supply.

### Motivations to be Energy Efficient and the Information Gap

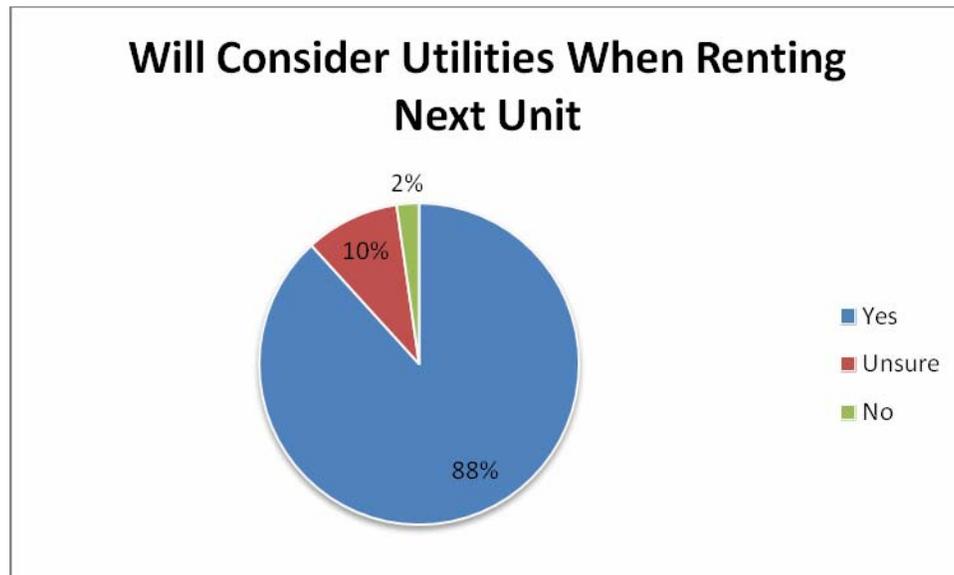


FIGURE 7

Despite somewhat inaccurate perceptions of energy efficiency, there is still a large amount of interest in energy efficiency from Columbia renters, because they feel the effects of energy inefficiency in a very direct way: in their pocket books. Figure 7 shows that 88% of all survey respondents (student and community) will consider the utility costs the next time they are making a decision on a rental property. 65.7% of the qualitative responses for this question said it was due to budgetary reasons. For the qualitative portion of the question “When searching

## ENERGY EFFICIENCY FOR RENTAL...

for your rental property, was the cost of utilities (water, electricity, and gas) a concern to you,” 64.9% said it was a concern and 20% said it was not at the time but it is now. Of those who responded that it was a concern, 54.7% said it was for cost or budgetary reasons while 10.1% cited a negative experience with a previous unit being energy inefficient. Of those who responded that it was not at the time but it is now, 28.6% of respondents said high or variable bills or rising energy costs and 32.7% said that they are currently having a negative experience with their rental property due to energy inefficiency. Thus, renters in Columbia may not know what all factors into energy efficiency, but they know it is costing them money.

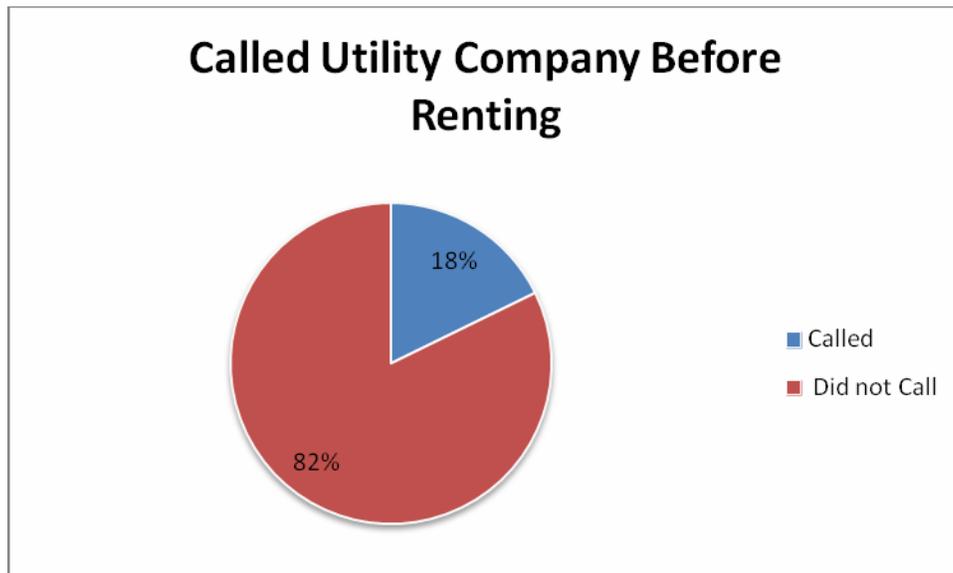
If there is demand for energy efficient rental properties in Columbia, why aren't more properties energy efficient? The lack of properties despite demand cannot completely be attributed to the inaccurate perceptions that were previously mentioned. The missing piece is information. Through our surveys and focus groups, a clear message of wanting more information on rental properties before the lease was signed became apparent. It is not simply an issue of making more information available. If that were the case, more people would be calling the City's Water and Light Department for previous utility usage information, and renters moving in to properties would not be surprised when the first bill came. It is an issue of making accurate information easy to access and easy to understand. Qualitative results from the focus groups and qualitative dimensions from the survey also support this conclusion. One survey respondent said,

The fact of the matter is that future renters have no idea or any clue what utilities will cost, let alone know how to find out where to view previous utility bills for the property or even know that the city provides that information.

## ENERGY EFFICIENCY FOR RENTAL...

This statement is supported by our focus group and the data from the survey. Only one of our five participants in the student focus group knew that they could call the utility company for previous usage information on an apartment, which is corroborated in Figure 8, which shows that

FIGURE 8



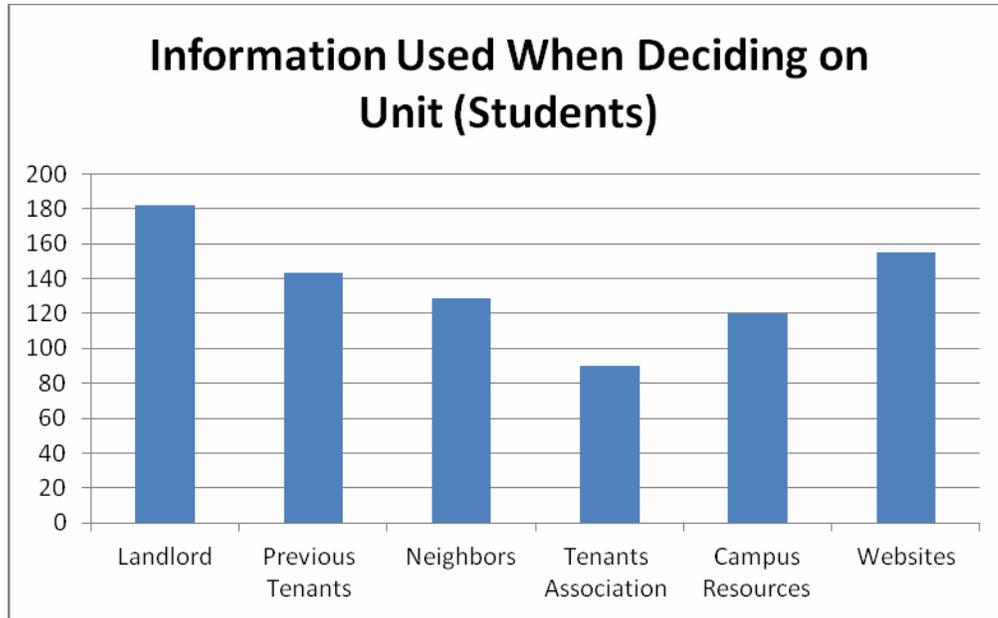
only 18% of total survey respondents called the utility company for information on their property's energy efficiency. Even if the city is called, it may not provide the most useful information. One participant in our community focus group said, "I know that you can get usage history, but for me that has never been helpful, because the tenants do not use the same amount that I do." Previous usage rates usually just give the previous year's information, which will not account for the previous tenant's energy usage habits or fluctuations in energy costs and weather.

One would think that students at least at the University of Missouri would have access to resources to help them in making off-campus housing decisions. The Off-Campus Living office in the Wellness Resource Center does provide some resources for students. However, results from the student survey show that campus resources were only the fourth most commonly used source of information in regards to rental properties (Figure 9), and only 10% of student survey

## ENERGY EFFICIENCY FOR RENTAL...

respondents found it to be a useful or very useful source for information (Figure 10). One respondent to our student survey noted that:

FIGURE 9



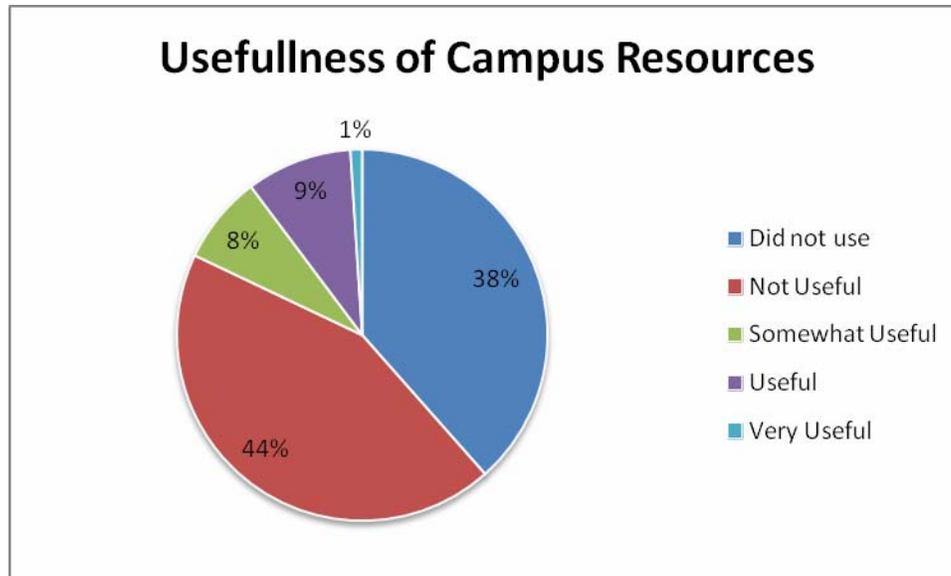
The university doesn't do much in the way of helping students live off campus AND it's nearly impossible to get a place on campus anymore! It's really a catch 22 for students - you seem to be damned if you do and damned if you don't to some extent. In addition, if you want to live remotely near campus, you're looking at east or west campuses, and to be honest, some of these landlords are more like slum lords. But they know they can get away with expensive rent and shoddy workmanship (ie: not fixing broken appliances, etc.) because we're just kids and we don't really have much of a choice...I have friends paying upwards of \$500 a month (not including utilities) for places that are all but falling apart. I don't know who the responsibility should fall to - but getting students into liveable and affordable homes for the school year should be a priority somewhere. It's not fair that we should have to sacrifice health and safety to be able to afford to stay here.

## ENERGY EFFICIENCY FOR RENTAL...

Further dissatisfaction regarding campus resources was expressed in the student focus group.

Two participants noted that they went to the Off-Campus Housing Fair, with one stating that,

FIGURE 10



“Fairs are not useful, because it was just to get the big renters’ name out there, not catered to what I was looking for” and the other, “We were looking for a duplex with more space further from campus, so they were not useful.”

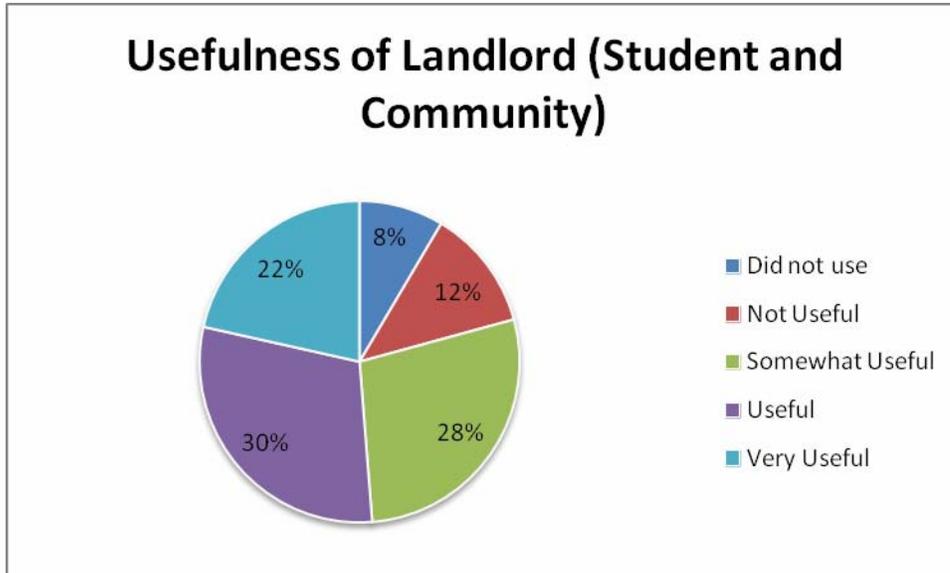
The main source of information regarding a rental property for Columbia renters is the property’s landlord. For total survey results, the most common response was landlord, with the next common response to all other sources (previous tenants, neighbors, websites, etc.) being “not applicable.” However, only 52% of total survey respondents found the landlord to be a useful or very useful source for information (Figure 11). Many respondents who left qualitative remarks noted that landlords were often an inaccurate source of information in regards to utility rates for rental properties, with some suggesting that landlords do not care about whether or not the properties they own or manage are energy efficient. Some of the comments included:

- “It doesn’t seem like efficiency choices in housing are important to landlords...”
- “When asking what the utilities run, landlords need to be clear about the TOTAL

## ENERGY EFFICIENCY FOR RENTAL...

outlay for all services.”

FIGURE 11



- “Yes, there are very few properties in Columbia that promote energy efficiency. For example, I asked my current landlord for permission to install a programmable thermostat for my home and they refused to allow me to do so. This was very disappointing because this seemed like a very simple request, especially since I was going to do the work.”
- “...the landlord gave me an expectation that was much lower than what I ended up paying.”
- “...you know a landlord is not going to tell you that your house will be drafty.”

These quotes are only a few from the qualitative responses and focus group responses that show the extent to which the 48% of Columbia renters who do not find the landlord a useful source of information feel that way.

What all of these figures demonstrate is that there is an information gap. People want energy efficient rental properties because they want to save money. However, they do not know where to go to find adequate information that will give them an accurate idea as to how much

## ENERGY EFFICIENCY FOR RENTAL...

their utility costs will be in any given rental property. Those that call the utility company do not always find it useful, though most do not use the utility companies as a source for information (Figure 8). Many people ask the landlord what the utilities costs are, but the landlord does not always give accurate information. We cannot expect the free market to work if both sides do not have good information with which to help make purchase decisions. Thus, the information gap leads to a market failure, one where the customers are entering into contracts where they do not fully understand the implications because they did not have access to the right information to make an informed decision. The market signals to the supply get distorted, and community properties remain energy inefficient.

### **RECOMMENDATIONS AND CONCLUSIONS**

To remove the distortion from the market so that the right market signals get sent to landlords, renters need and want relevant and accessible information. When we asked students and community members what kind of information they would ideally have when making rental decisions and how they would access it, 30.7% wanted utility information from the past one to five years, and 19.9% said they wanted a website that would allow them to access this information. At the very least, we recommend the creation of a website that allows for renters to enter the address of a potential rental property and see the average utility costs over a 3-5 year period. However, average utility costs only tell a portion of the story. Many of our respondents wanted to see reviews from previous tenants and other information like neighborhood safety. However, many review sites are open to the problem that self-reporting brings, mainly that most people who will go out of their way to leave a review on a product either loved it or hated it. Many respondents complained that the few websites that have this information already (such as Angie's List) only have one or two scathing reviews. To give more complete information, the

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City may want to look into ways to collect exit surveys from people in Columbia who are either moving from or moving into a rental property. People calling in to the City's Water and Light Department to either have service removed from their name or put under their name may be directed to an office run by a third party for a brief exit survey on their rental property, which may help ensure that a larger amount of more diverse reviews on properties and landlords are available.

However, inadequate information about energy efficiency is only one part of the problem for renters in Columbia. Currently, there is no tenants association in the Columbia area to represent the collective interests of renters to the City Council, or anyone who would advocate on their behalf. The City may want to investigate the feasibility of creating a Tenants Union or Tenants Association in collaboration with the University of Missouri. A model can be seen in the twin cities of Champaign and Urbana, Illinois. Home to the University of Illinois, the campus has had an active tenants union for both students and residents since the mid-1970s. The tenants union allows clients to file formal complaints against their landlords, lease review, rental listings for every property in Champaign-Urbana, and mediation services between tenants and landlords. The student tenant union, located in Memorial Union on the University's campus, served 8,225 students from July 1, 2010 to June 30, 2011, which is approximately 40% of the student population who lives in private off-campus housing (Patt, personal correspondence, 3 May 2012). During this same period, the community office served between 2000 and 2200 tenant households. In a city that is made up of comparable demographics as the City of Columbia, the success of these programs shows that there is a possibility that a similar program will work here.

Our analysis of both our quantitative and qualitative data, our understanding of the literature surrounding this issue, and the programs operating in other cities demonstrate a real

## ENERGY EFFICIENCY FOR RENTAL...

need for a centralized and legitimate online source for information concerning rental properties in the City. Websites are not one time efforts, they require maintenance, updates, revisions, and advertising to gain hits, users, and legitimacy. At the least, the City would need to dedicate existing resources towards the up keep and promotion of the website. We recommend going further in order to insure the success of the website, provide other needed services to renters, and to address the issue of insufficient campus resources for student renters at the University of Missouri. The creation of a joint office between the City and the University dedicated to increasing the quality of the rental market by providing information to tenants and landlords, and acting as a mediator between landlords and renters would not only insure the success of the website but also give efforts to improve the rental market with a physical presence.

This joint office would provide information to persons without or unable to access the website, promote energy efficiency, educate renters and landlords, and provide a better resource for students. The resources available to first-time student renters are grossly inadequate, especially when considering the effectiveness of other student tenant associations. The University needs to take a more active role as a major stakeholder in Columbia's rental market. Split funding for the office between the City and University would insure the continued existence of the office and reduce the cost to both organizations. Potential funding sources from the University and City include: student fees, revenue from advertising for rental companies on campus, rental property inspection fees, and fees charged by the office for providing services. The joint office would require fulltime staff for the up keep of the website, education programs, answering inquiries, and maintaining relationships with rental property companies; part-time (federal work study students) for clerical duties; and adjunct legal staff for major complaints. The City and University already fund joint staff, University Fire Marshall, and coordinate on a

## ENERGY EFFICIENCY FOR RENTAL...

number of other issues. We imagine that the creation of this office would require time and effort from the Office of Neighborhood Services at the City, University Wellness Center, and Residential Life. This office would have an added benefit of increasing communication and partnership between the two organizations.

Columbia is a city that is growing and building a reputation beyond being the home of the University of Missouri. If the Tiebout Hypothesis is correct, people are more inclined to live in places that offer the amenities in line with their personal values (Johnson, PA 8350 Lecture, September 15 2011). Quality of life is an important factor in where people settle, what will help shape a person's view of the quality of life they will have in any given city is the types of properties that are available for them to live in. No one wants to spend more money than they have to, especially if what they are getting in return is not worth what they are paying. Landlords are businesspeople, and they need market signals to dictate what they should do with their businesses. If Columbia wants to keep people coming here and being happy here, they need to provide information to prospective renters, students and non-students, so that people moving into properties will have a fairly accurate idea as to what the total costs will be. That way quality of life in Columbia will continue to become more positive and Columbia will be viewed as a great place to live for renters and homeowners alike.

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## ENERGY EFFICIENCY FOR RENTAL...

## Appendix A-Survey

## Columbia Missouri Rental Property Survey

This survey is intended to be used by the City of Columbia. It is intended to be filled out by individuals who are currently renting their home. After Completing the survey you will have the opportunity to enter into a drawing for prizes provided by local businesses! The grand prize is a \$250 voucher for High-Speed Internet provided by Socket. Just follow the link that appears after clicking submit.

---

**\* Required**

Do you live in the City of Columbia?\*

- Yes
- No

## Choice of Current Unit

To begin, we'd like to ask you a few questions about your home and how you chose it.

What kind of rental property do you live in?\*

- House
- Apartment in a complex with less than 8 units
- Apartment in a complex with between 8 and 50 units
- Apartment in a complex with more than 50 units
- Duplex
- Mobile Home
- Rooming House (Shared dwelling home with other tenants)
- Townhouse
- Other:

How much is the total monthly rent for your household? \*Not including water, electricity, gas, cable, Internet

- Less than \$300
- \$301 - \$500
- \$501 - \$700

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- \$701 - \$900
- \$901 - \$1100
- \$1101 - \$1300
- Other:

Do you currently receive any assistance for your rent or utilities? \*If yes please check all that apply

- No
- From parents or other family members
- From local government
- From state government
- From federal government
- From churches or community groups
- Other:

How many places have you rented in the past? Not including college dormitories

- 0 (You're currently living in your first rented property)
- 1
- 2
- 3
- 4
- 5
- Other:

How did you find your current residence? \*Check all that apply, or specify other.

- Newspaper
- Apartment booklet
- Craigslist
- Friend or Acquaintance
- Social Media
- Posted Ad (on a wall, bulletin board, etc.)
- Campus resources
- Other website

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- Other:

How would you rate the overall quality of your home?\*

- Excellent
- Good
- Fair
- Poor

How would you rate the main selling points for your current rental property? \*Please assign a rank to every option, choose N/A if the area or question does not apply to you.

	Not Important	Somewhat important	Important	Very important	N/A
Rental price	<input type="radio"/>				
Type of property (house, duplex, apartment complex)	<input type="radio"/>				
Proximity to campus	<input type="radio"/>				
Proximity to downtown	<input type="radio"/>				
Proximity to place of work	<input type="radio"/>				
Social Atmosphere (want to live near other students)	<input type="radio"/>				
Amenities (pool, gym, shuttle service, MKT)	<input type="radio"/>				
Quality of unit	<input type="radio"/>				
Utility bills	<input type="radio"/>				
Size of unit (numbers of bedrooms, etc.)	<input type="radio"/>				
Landlord's reputation	<input type="radio"/>				
Pet-friendly	<input type="radio"/>				
Access to public transportation	<input type="radio"/>				
Availability ("It was available at the time I needed it.")	<input type="radio"/>				

ENERGY EFFICIENCY FOR RENTAL...

	Not Important	Somewhat important	Important	Very important	N/A
Safety (low-crime area)	<input checked="" type="checkbox"/>				

How useful were information sources you used when deciding on your current residence? \*Please rank each source, choose N/A if a source does not apply to you.

	Very useful	Useful	Somewhat useful	Not useful	N/A
Landlord	<input checked="" type="checkbox"/>				
previous tenants	<input checked="" type="checkbox"/>				
Current residents of neighboring properties	<input checked="" type="checkbox"/>				
Tenants' association	<input checked="" type="checkbox"/>				
Campus resources	<input checked="" type="checkbox"/>				
Websites	<input checked="" type="checkbox"/>				

## Energy Efficiency

Now we'd like to ask you a few questions about the energy efficiency of your home. If you don't know the answers, guesstimates are fine.

Are any portions of your utilities (water, gas, electricity) included in the cost of your rent? \*Check all that apply, if none choose 'No'

- No
- Water
- Electricity
- Gas

Approximately what is the average total amount paid by your household for utilities per month? \*Only include water, gas, and electricity

- \$51 - \$100
- \$101 - \$150

ENERGY EFFICIENCY FOR RENTAL...

- \$151 - \$200
- \$201 - \$250
- \$251 - \$300
- \$301 - \$350
- \$351 - \$400
- \$401 - \$450
- \$451 - \$500
- Other:

How would you rate the energy efficiency of your home?\*

- Excellent
- Good
- Fair
- Poor

When searching for your rental property, was the cost of utilities (water, electricity, and gas) a concern to you?\*

- Yes
- Not at the time, but it is now
- No, it is still not a concern

When searching for your rental property, was the cost of utilities (water, electricity, and gas) a concern to you? Please further describe your choice above (please limit your explanation to a short paragraph at

most).

Did you try to find out any information on the energy efficiency of your home? \*If Yes, please check all that apply. If No, then please mark 'No'.

- No
- Spoke with landlord
- Spoke with previous tenants

### ENERGY EFFICIENCY FOR RENTAL...

- Spoke with current residents of neighboring properties
- Called the utility company (water, electric, and gas)
- Other:

When looking for your next rental property or home, will you consider the utilities in making your decision?\*

- Yes
- No
- Unsure

Why or why not? Please limit your answer to a short

paragraph.

What resources or information would you have liked to have had available to you when you last searched for rental property? Please provide a short list or short paragraph of

resources

## Basic Info

Now we'd like to know a little more about you.

What is your age?\*

- 18-25
- 26-35
- 36-45
- 46-55

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- 56-65
- 66+

What is your employment status? \*Check all that apply

- Employed full time (more than 35 hours a week)
- Employed part-time (less than 34 hours a week)
- Student, full time
- Student, part-time
- Unemployed, looking for work
- Unemployed, not looking for work
- Retired
- Military
- Other

What is your average yearly income? \*

- Less than \$10,000
- \$10,001-\$15,000
- \$15,001-\$25,000
- \$25,001-\$35,000
- \$35,001-\$45,000
- \$45,001-\$55,000
- \$55,001+

How many people are living in your household? \*

- 1
- 2
- 3
- 4
- Other:

What neighborhood, part of town, or subdivision do you live in? \*Examples: East Campus, Stephens-Benton, Bearfield, etc.

**Thank you for completing the survey, your feedback is valuable to our community**

Comments

Powered by [Google Docs](#)[Report Abuse](#)[Terms of Service](#)[Additional Terms](#)

Appendix B-Focus Group Flyer

## **Currently renting property in Columbia?**

**The City of Columbia wants your feedback  
about renting property in our community**

**Renters – please take a few minutes to share your thoughts  
about renting in our community by taking our short survey**

**The survey takes approximately 3 minutes of your time to  
complete**

**After completing the survey, you can be entered into a prize  
drawing including a**

**\$250.00 voucher for High Speed Internet  
provided by Socket**

**Go to [www.gocolumbiamo.com](http://www.gocolumbiamo.com) –under the “New and  
Featured” tab, click on  
[Columbia Missouri Rental Property Survey](#)**

## Thank you for your help in making Columbia better!

### Appendix C-Focus Group Script

#### Columbia Rental Property

#### Focus Group Script

#### Introduction

- Welcome
- Purpose of project
- Goals for this discussion
- Guidelines for discussion

#### Ice Breaker

- Rental Horror Stories-While living in Columbia has anyone had a really positive or negative experience with rental properties?
- What are some the reasons you have decided to move or stay in a particular property?
- What information have you used when deciding on which property to rent?
- What do look for in a rental property?
- Is the total cost per month of your apartment (internet, cable, utilities, etc.) as much as you anticipated it being? Are you paying as much for your apartment as you thought you would?
- Do you think that utilities you pay per month are reasonable?
- Do you think these cost are higher or lower because of utility rates or the energy efficiency of the unit?
- When you hear energy efficiency what do think of?
- What affects the energy efficiency of your property?
- Is it something you can have control over?
- Is it something that is harder to control for when you are a renter?
- Have you looked for information about the energy efficiency of rental properties in the past, in your current search?
- Where did to find information? How useful was the information?
- Where or how would like get information about the energy cost and efficiency of rental properties? What would be the best way for you to access information about rental property efficiency?

## ENERGY EFFICIENCY FOR RENTAL...

## Appendix D-Codebook

**Codebook**

type\_unit

**Q2 - What kind of rental property do you live in?**

- 1 - House
- 2 - Apartment <8 units
- 3 - Apartment >8 <50 units
- 4 - Apartment >50 Units
- 5 - Duplex
- 6 - Mobile Home
- 7 - Rooming House
- 8 - Townhouse
- 9 - Other

rent

**Q - How much is the total monthly rent?**

- 1 - <\$300
- 2 - \$301-\$500
- 3 - \$501 - \$700
- 4 - \$701 - \$900
- 5 - \$901 - \$1100
- 6 - \$1101 - \$1300
- 7 - Other

assist\_

**Q - Do you currently receive any assistance for your rent or utilities?**

- 0 - No
- a. From parents or other family members - 0 = No, 1 = Yes      Family
- b. From local government - 0 = No, 1 = Yes      local\_govt
- c. From state government - 0 = No, 1 = Yes      state\_govt
- d. From federal government - 0 = No, 1 = Yes      fed\_govt
- e. From churches or community groups - 0 = No, 1 = Yes      churches

## ENERGY EFFICIENCY FOR RENTAL...

Yes

f. Other - 0 = No, 1 = Yes

other

num\_pl\_rented

**Q - How many places have you rented in the past?**

0 = 0

1 = 1

2 = 2

3 = 3

4 = 4

5 = 5

Other = 6

find\_resid\_

**Q - How did you find your current residence?**

a. Newspaper - 0 = No, 1 = Yes

newspaper

b. Apartment booklet - 0 = No, 1 = Yes

apt\_booklet

c. Craigslist - 0 = No, 1 = Yes

craigslist

d. Friend or Acquaintance - 0 = No, 1 = Yes

friend

e. Social Media - 0 = No, 1 = Yes

social\_media

f. Posted Ad - 0 = No, 1 = Yes

post\_ad

g. Campus Resources - 0 = No, 1 = Yes

campus\_res

h. Other website - 0 = No, 1 = yes

website

i. Other - 0 = No, 1 = Yes

other

quality\_unit

**Q - How would you rate the overall quality of your home?**

1 - Excellent

2 - Good

3 - Fair

4 - Poor

selling\_pts\_

**How would you rate the main selling points for your current rental property**

a. Rental Price - 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important

price

b. Type of Property -- 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important

type

c. Proximity to campus - 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important

prox\_campus

d. Proximity to downtown - 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important

prox\_dist

e. Proximity to place of work -- 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important

prox\_work

f. Social Atmosphere - 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important

social

g. Amenities - 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important

amenities

h. Quality of Unit - 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important

quality

i. Utility Bills - 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important

utilities

## ENERGY EFFICIENCY FOR RENTAL...

- j. Size of unit - 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important size
- k. Landlord's Reputation - 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important landlord\_rep
- l. Pet-friendly - 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important pets
- m. Access to public transportation - 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important public\_trans
- n. Availability - 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important availability
- o. Safety - 0 - N/A, 1 - Not Important, 2 - Somewhat important, 3 - Important, 4 - Very Important safety

info\_resid\_

**Q How useful were information sources you used when deciding your current residence?**

- a. Landlord - 0 - n/a, 1 - Not useful, 2 - Somewhat useful, 3 - Useful, 4 - Very Useful landlord
- b. Previous Tenants - 0 - n/a, 1 - Not useful, 2 - Somewhat useful, 3 - Useful, 4 - Very Useful tenants
- c. Current Residents of Neighboring Properties - 0 - n/a, 1 - Not useful, 2 - Somewhat useful, 3 - Useful, 4 - Very Useful neighbors
- d. Tenants' Association - 0 - n/a, 1 - Not useful, 2 - Somewhat useful, 3 - Useful, 4 - Very Useful tenants\_assoc
- e. Campus Resources - 0 - n/a, 1 - Not useful, 2 - Somewhat useful, 3 - Useful, 4 - Very Useful campus\_res
- f. Websites - 0 - n/a, 1 - Not useful, 2 - Somewhat useful, 3 - Useful, 4 - Very Useful websites

utilites\_rent\_

**Are any portions of your utilities included in the cost of your rent?**

No - 0

- a. Water - No = 0, Yes = 1 water
- b. Electricity - No = 0, Yes = 1 elec
- c. Gas - No = 0, Yes = 1 gas

utilites\_month

**Approximately what is the average total amount of paid by your household for utilities per month?**

- 1 - \$51 - \$100
- 2 - \$101 - \$150
- 3 - \$151 - \$200
- 4 - \$201 - \$250
- 5 - \$251 - \$300
- 6 - \$301 - \$350
- 7 - \$351 - \$400
- 8 - \$401 - \$500
- 9 - Other

ee\_unit

**How would you rate the energy efficiency of your home?**

- 1 - Excellent
- 2 - Good
- 3 - Fair

ENERGY EFFICIENCY FOR RENTAL...

4 - Poor

utilite\_concern

**When searching for your rental property, was the cost of utilities a concern to you?**

1 - Yes

2 - Not at at the time, but it is now

3 - No, it is still not a concern

0-No, it was not

info\_ee\_

**Did you try to find out any information on the energy efficiency of your home?**

No - 0

a. Spoke with landlord - 0 = No, 1 = Yes

landlord

b. Spoke with previous tenants - 0 = No, 1 = Yes

tenants

c. Spoke with current residents of neighboring properties - 0 = No, 1 = Yes

neighbors

d. Called the utility company - 0 = No, 1 = Yes

company

e. Other - 0 = No, 1 = Yes

other

will\_consider\_utilities

**When looking for your next rental property or home, will you consider the utilities in making your decisions?**

Yes = 1

Unsure = 2

No - 0

age

**Age**

1 = 18-25

2 = 26-35

3 = 36-45

4 = 46-55

5 = 56-65

6 = 66+

emp\_

**What is your employment status?**

a. Employed full-time - 0 = No, 1 = Yes

full

b. Employed part-time - 0 = No, 1 = Yes

part

c. Student full time - 0 = No, 1 = Yes

student

d. Student part time - 0 = No, 1 = Yes

part\_student

e. Unemployed looking for work - 0 = No, 1 = Yes

un\_looking

f. Unemployed, not looking for work - 0 = No, 1 = Yea

not\_looking

g. Retired - 0 = No, 1 = Yes

retired

ENERGY EFFICIENCY FOR RENTAL...

h. Military - 0 = No, 1 = Yes

military

i. Other - 0 = No, 1 = Yes

other

annual\_inc

**What is your average yearly income**

1 = <\$10,000

2 = \$10,001 - \$15000

3 = \$15001 - \$25000

4 = \$25001 - \$35000

5 = \$35001 - \$45000

6 = \$45001 - \$55000

7 = \$55001+

num\_HH

**How many people are living in your household**

1 = 1

2 = 2

3 = 3

4 = 4

**All missing data=999**

