

What Do We Know About the Value of Owner-occupied Housing Services? Rental Equivalence and Other Approaches

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Outline

- Introduction
 - Importance
 - Purpose of this study
 - Summary of findings
- Approaches to value housing services
- Methods and data
- Results
- Conclusions

Introduction

- Prevalence of owner-occupied housing in U.S.
- Importance for economic well-being measurement
 - Consumption
 - Income
- Federal statistics
 - CPI
 - PCE and National Income Accounts
- Census Bureau and other agencies and groups
 - Request for income statistics for poverty measurement

Purpose

- To compare imputed rents for owners using three approaches
 - Hedonic regressions based on pooled sample of owners and renters (capitalization rates estimated)
 - Hedonic regressions based on contract rents
 - Reported rental equivalence
- To produce imputed rents using data from two surveys
 - Consumer Expenditure Survey (CE)
 - American Housing Survey (AHS)
- To compare imputed rents
 - Within surveys
 - Between
- To compare Consumer Expenditure Survey (CE) and American Housing Survey (AHS) population weighted samples in terms of characteristics

Caveats

- Preliminary results
 - *not to be quoted without permission*
- Statistical tests of differences within and between surveys not conducted

Summary of Findings

- Sample Comparison
 - AHS rents are relatively higher than CE rents and this difference is greater than the difference in property values
 - AHS housing units are more likely to be single detached units and to have window air conditioning
- Residential capitalization rates vary across geographic areas and across surveys
 - AHS rates are higher than CE rates
- Imputed rents based on rental equivalence are higher than those based on
 - Hedonic regressions of renters' rents
 - Implicit capitalization rates
- AHS owner rents based on the two hedonic models are higher than CE rents using the same approaches
- CE rents based on reported rental equivalence are higher than those for the AHS

Approaches to Value Owner-occupied Housing Services

- Pooled-tenure hedonic model (renters and owners)- capitalization rate

$$\ln(\text{price}) = BX + \gamma \text{Tenure} + \varepsilon$$

- Renter hedonic model of rents

$$\ln(\text{rent}) = BX + \varepsilon$$

- Owner hedonic model of rental equivalence

$$\text{renteq} = BX + \varepsilon$$

Pooled-tenure hedonic model (renters and owners)

$$\ln(\text{price}) = BX + \gamma \text{Tenure} + \varepsilon$$

$$\ln(\text{propertyvalue}) = BX + \gamma + \varepsilon$$

$$\ln(\text{rent}) = BX + \varepsilon$$

$$\ln(\text{rent}) - \ln(\text{propertyvalue}) = -\gamma$$

rewritten

$$\ln\left(\frac{\text{rent}}{\text{propertyvalue}}\right) = -\gamma$$

$$\text{caprate} = \left(\frac{\text{rent}}{\text{propertyvalue}}\right) = e^{-\gamma} * 12 * 100$$

Rental Equivalence from the CE

What would you say that your dwelling would rent for monthly unfurnished and without utilities?

Regressors

- Number of rooms not including baths
- Number of full baths
- Number of half baths
- Dwelling age
- Single detached home
- Mobile home
- Off-street parking
- Porch, balcony, patio
- Central AC
- Window AC
- Number of persons per room
- Median property value within PSU
- For pooled regression
 - Tenure
 - Energy utilities in rent
 - Water/trash utilities in rent
- For renter regression
 - Energy utilities in rent
 - Water/trash utilities in rent
- For rental equivalence
 - Value of property

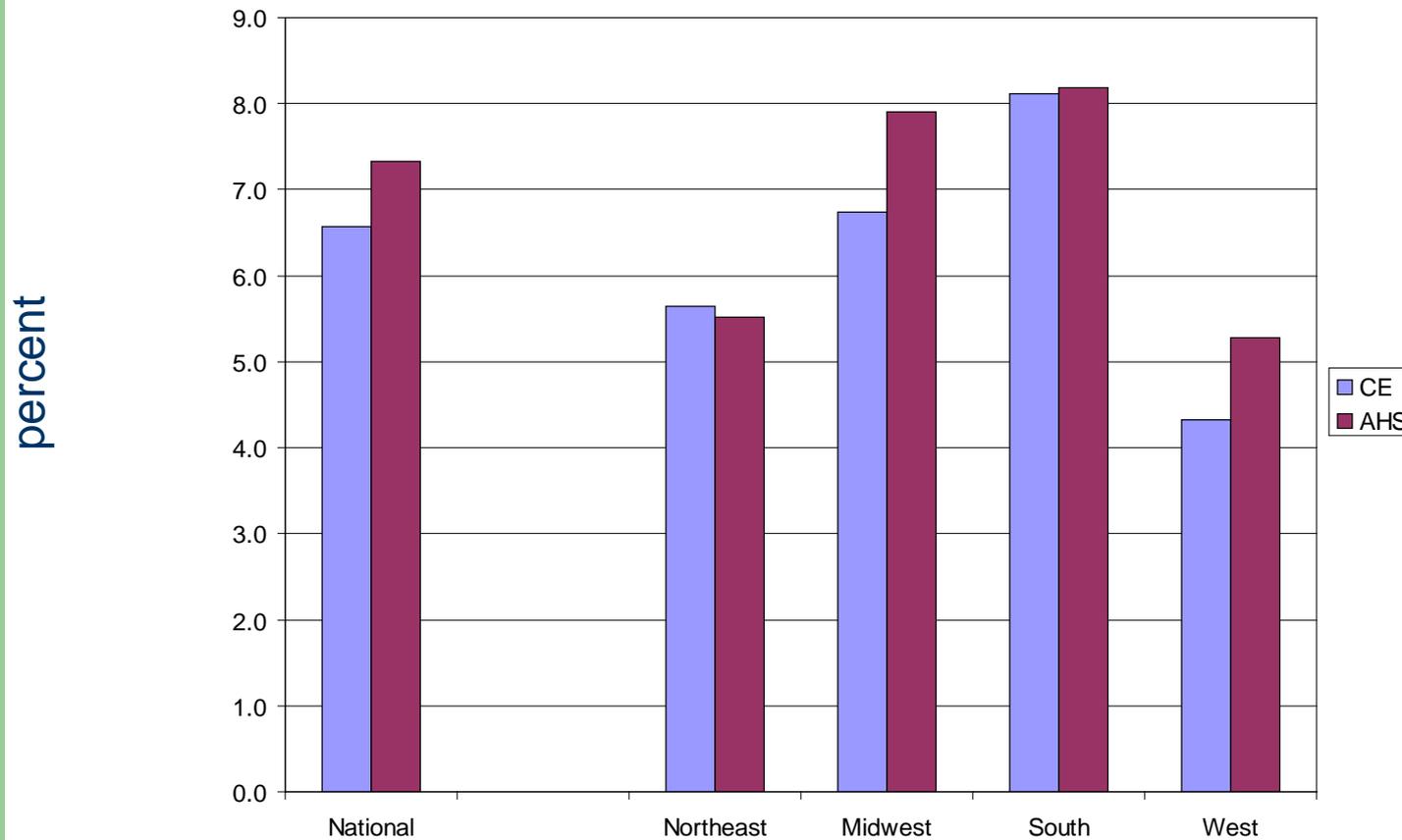
Data

- CE Interview
 - Collected using personal interviews and telephone
 - Nationally representative of consumer units
 - Base sampling frame: 1990 Census
 - Panel rotation survey (in and out in five consecutive quarters)
 - 2003Q2-2004Q1
 - 30,000 interviews in 12 months
 - 14,612 unique consumer units in data collection period in analysis sample
- AHS national survey
 - Collected using personal interviews and telephone
 - Nationally representative of housing units
 - Base sampling frame: 1980 Census
 - Current sample of housing units have been interviewed since 1985 with some updates
 - 2003
 - 55,000 housing units interviewed
 - 44,323 housing units in analysis sample

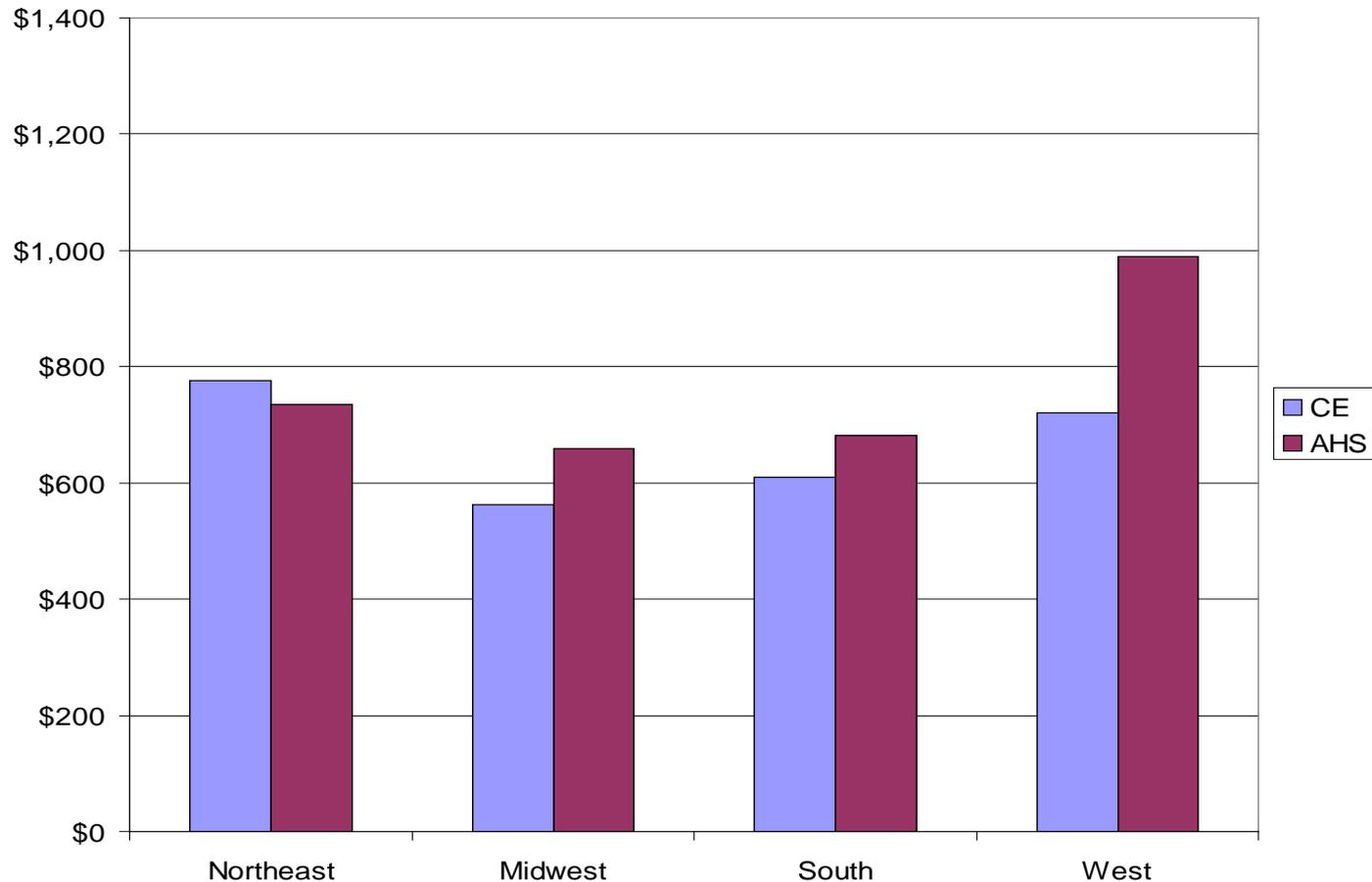
Results

- Analysis conducted at region-MSA status level
 - Pooled regression for capitalization rates
- Analysis conducted at region level with results shown at region-MSA status level
 - Imputed rents based on renter hedonic
 - Imputed rental equivalence based on reported rental equivalence hedonics
- Present charts for regional central cities for the AHS and CE; all results are population weighted

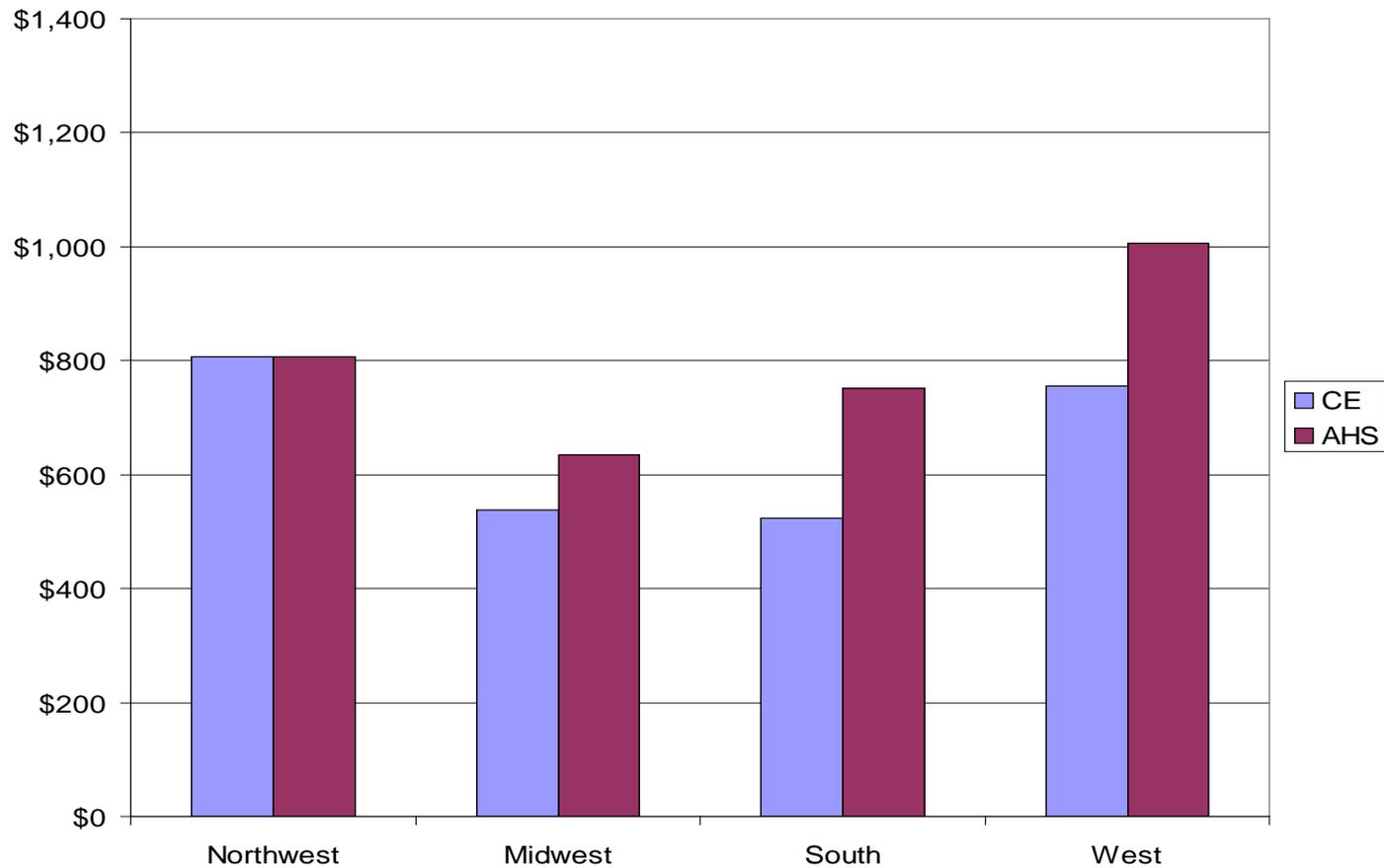
Capitalization Rates-Central City



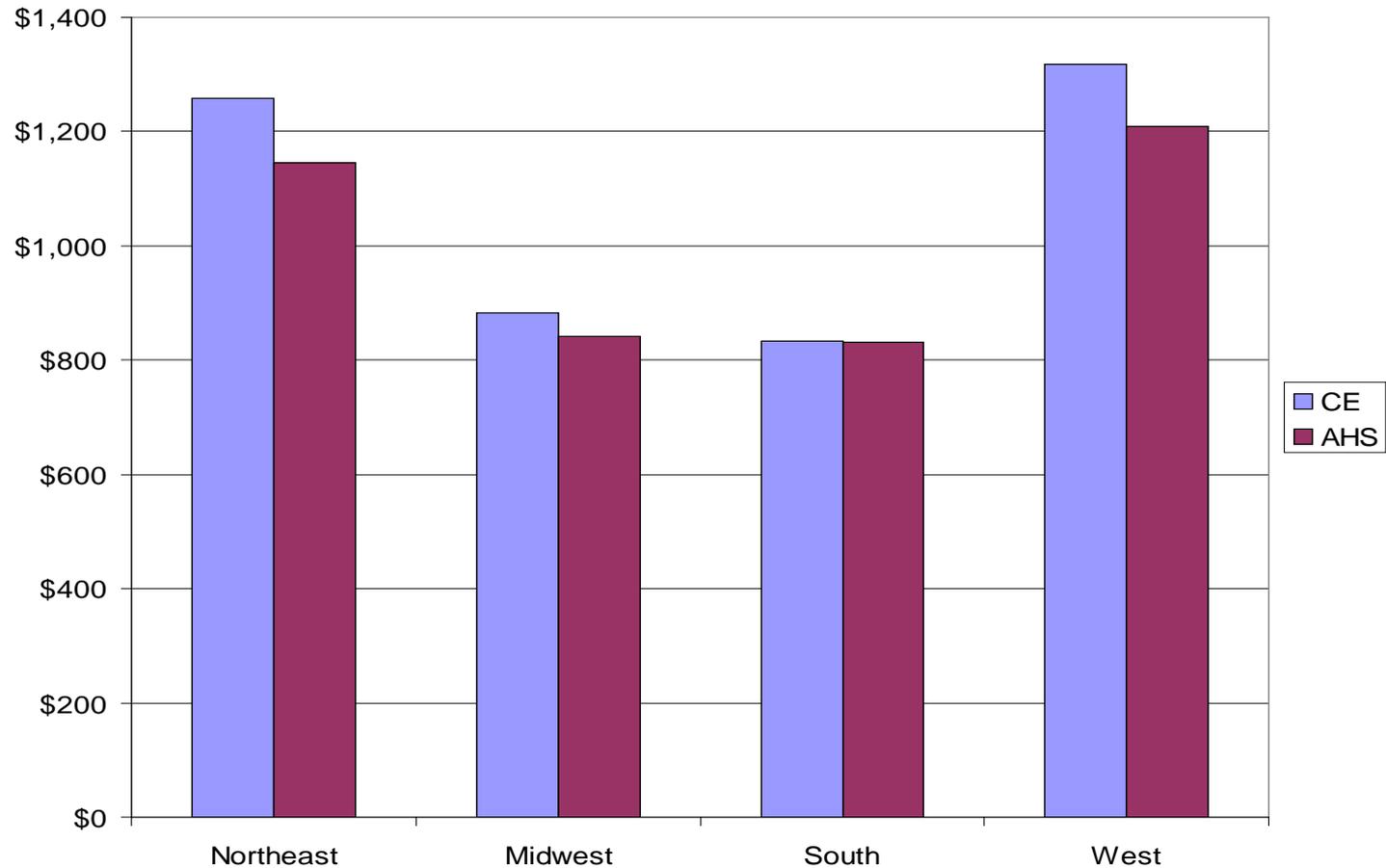
Owner Imputed Rents: Capitalization Rates



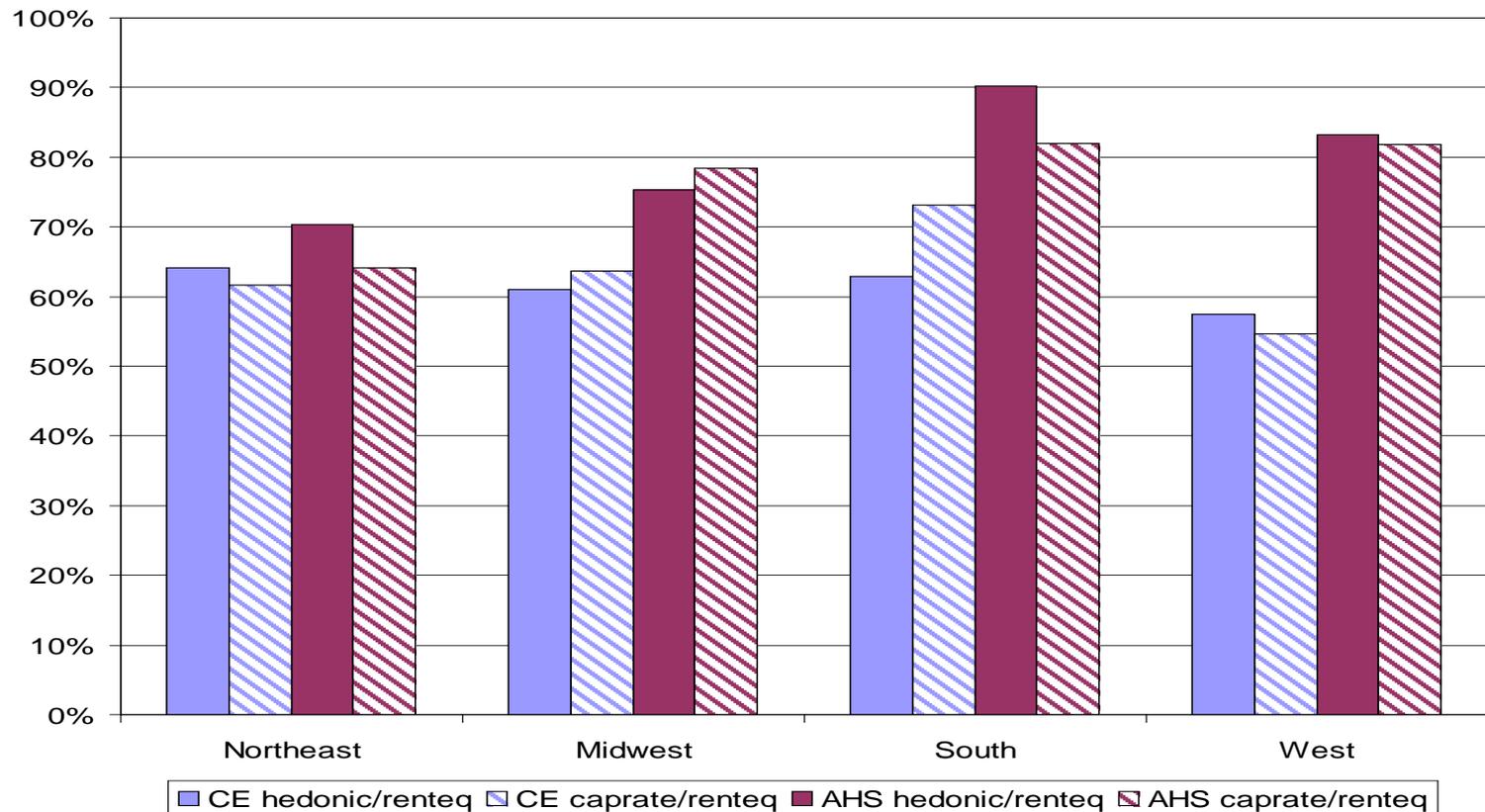
Owner Imputed Rents: Renter Hedonic



Owner Imputed Rents: Rental Equivalence



Comparison of Rent and Cap Rate Imputed Rents to Rental Equivalence: Regional Central Cities



Conclusion...

What Do These Results Suggest?

- CE consumer unit housing units are different than housing units in the AHS
 - Further analysis is needed to identify reasons for the differences
- Owner imputed rents reflect sample differences as well as differences in the importance of housing unit characteristics in the models
- Further research is needed to identify reasons why rental equivalence is always higher than imputed rents based on the other two approaches
 - What is the role of housing unit quality and neighborhood quality?
 - What is the role of the presence of renters in a geographic area (i.e., renter intensity)?
- Caution should be followed before one approach is selected over another to produce measures of consumption and income that account for the value of owner-occupied housing in the U.S.
- Much more work needs to be done ... *we have only just begun*