

Measuring National Housing Costs from Consumer Expenditure (CE) Data

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Outline

1. Housing in the CE surveys
2. Measuring the cost of housing
3. Hypotheses
4. Alternative choices



Outline

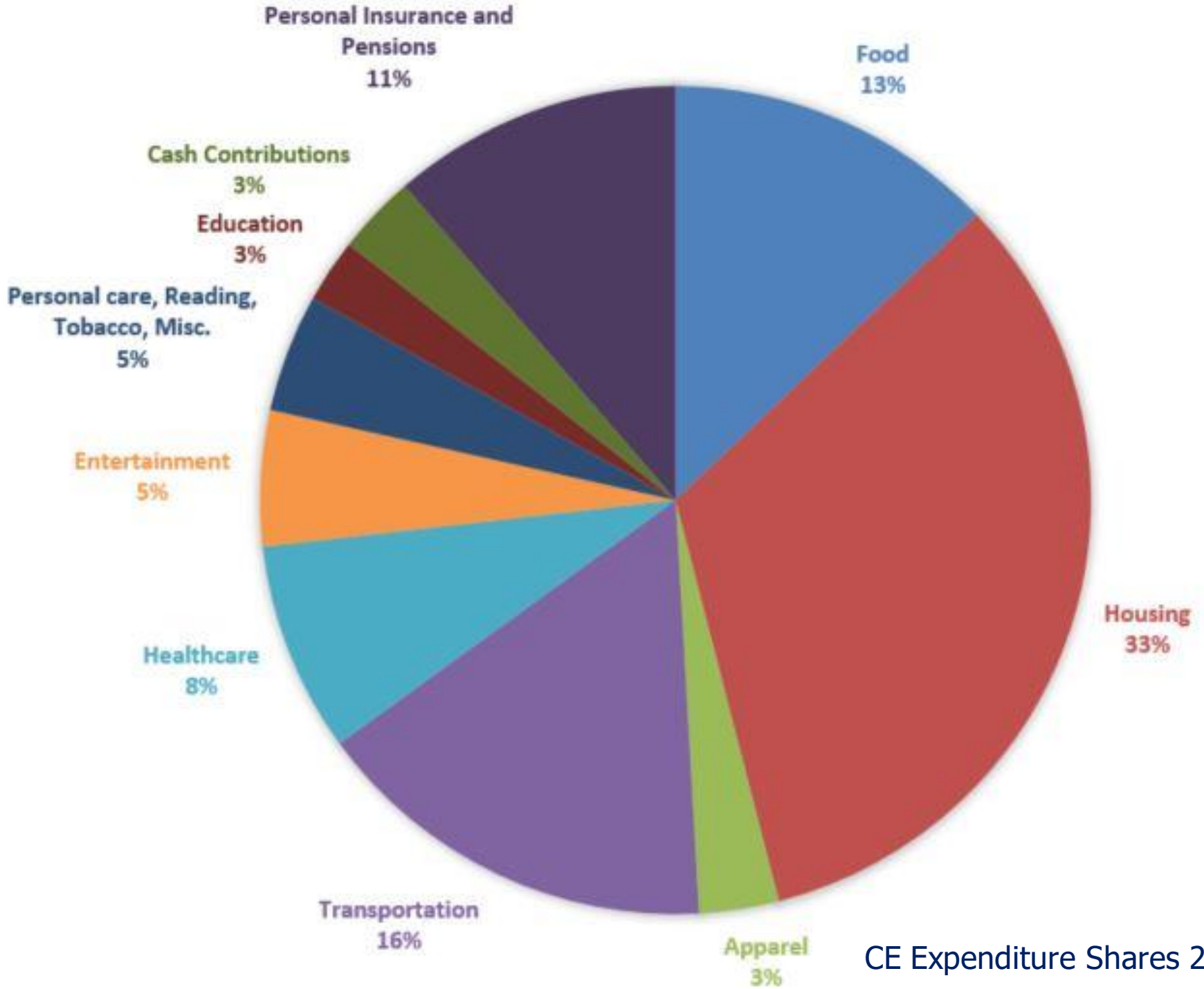
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Housing in the CE Surveys

- Housing comprises the largest share of the consumer budget.
- Data from renters and homeowners are used in creating this housing expenditure share.





CE Expenditure Shares 2017

Housing in the CE Surveys

- The housing concepts collected by the survey:
 - Rented Dwellings
 - Rent
 - Rent as pay
 - Other renter expenses
 - Household Operations
 - Household Supplies
 - Utilities
 - Mortgage principal
 - Owned Dwellings
 - Mortgage interest
 - Property taxes
 - Property insurance
 - Other owned dwelling expenses
 - Estimated monthly rental value of owned home (Owners' Equivalent Rent – OER)

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Measuring the cost of housing

- Rent for renters
 - ▶ Direct measure of rental cost
 - ▶ Cost changes are sensitive to time
- Owners' equivalent rent for homeowners
 - ▶ Indirect measure of the cost of ownership
 - ▶ Cost changes are sensitive to time

Measuring the cost of housing

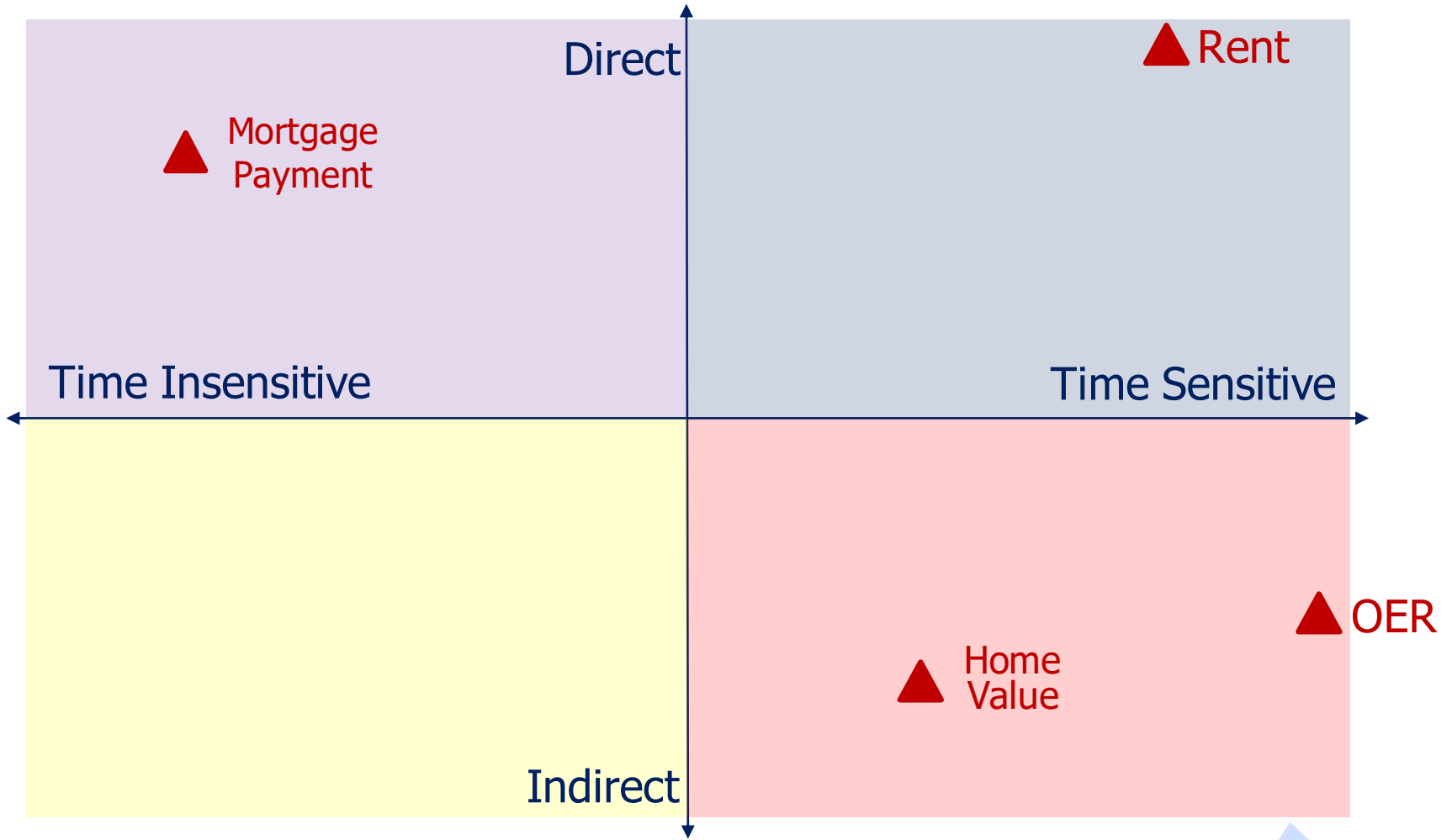
■ Mortgage payments

- ▶ Direct measure of the cost of ownership
- ▶ Cost changes are not sensitive to time
- ▶ FRM vs. ARM

■ Home value

- ▶ Indirect measure of the cost of ownership
- ▶ Cost changes are sensitive to time

Measuring the cost of housing



Measuring the cost of housing

- OER and Rent are ultimately used by the CPI for housing weights. Change in reported rents (rent and OER) are used to measure inflation.
- Since the market basket is based on consumption, home price and mortgage principal would be investment spending. So, “the cost of shelter is the implicit rent that owners would have to pay **if they were renting.**” – CPI Documentation

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Hypothesis One

Investigate:

Do Owners' Equivalent Rent and Rent produce similar values on average?

Motivation:

These concepts are meant to capture similar experiential data about the housing market. Testing for equality can give insight into their inherent differences.

Hypothesis One

Data: CE Interview Data 2017Q1 – 2018Q1
Monthly Values from Sample Data

	Rent	OER
N	10,493	19,329
Sample Median	800	1400
Weighted Mean	962 (16.91)	2021 (18.97)

Hypothesis Two

Investigate:

Do OER and Rent produce similar values on average controlling for income of the Consumer Unit?

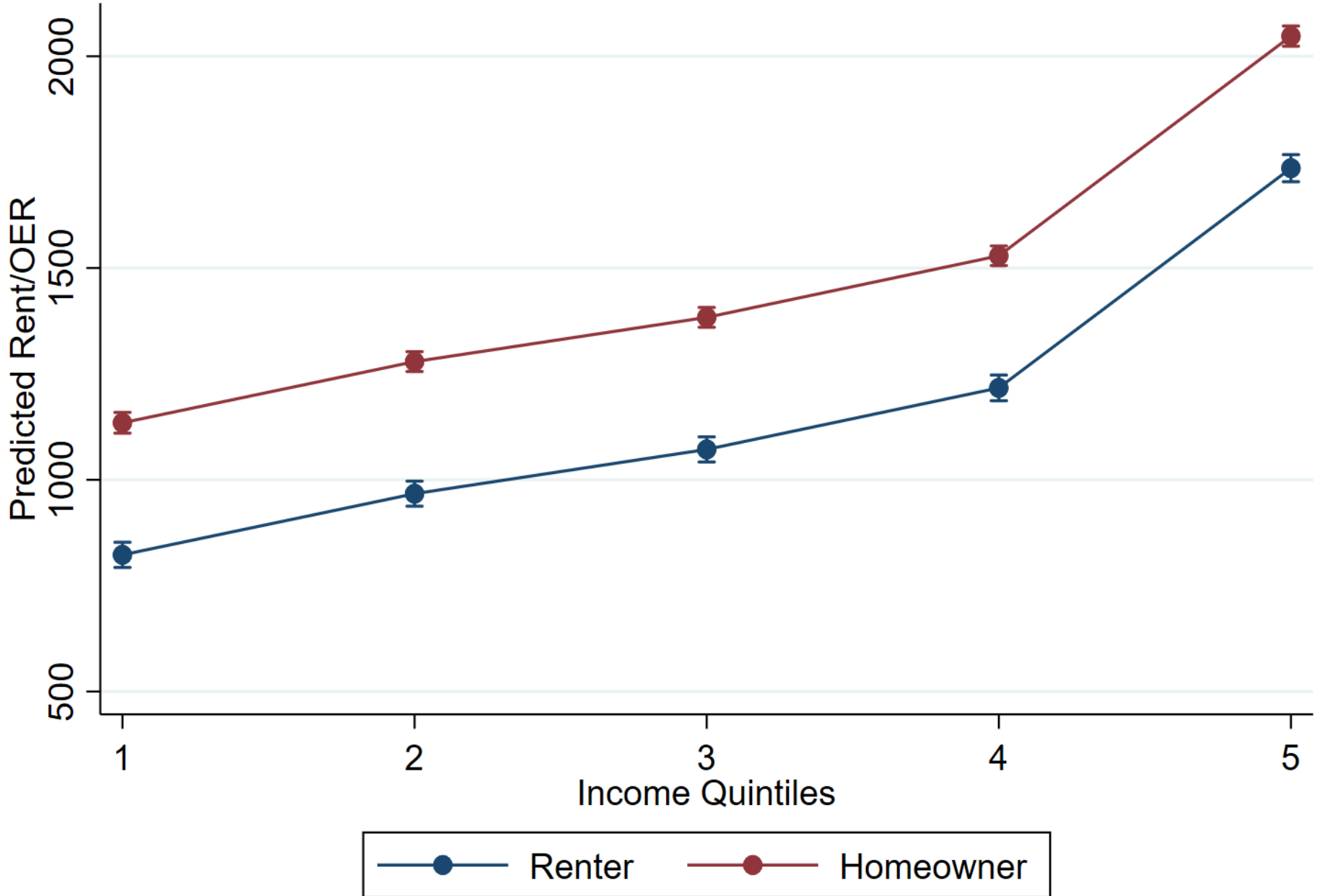
Motivation:

In 2017, Homeowners had an average income before taxes of **\$88,538** where Renters had an average income before taxes of **\$48,201**.

Hypothesis Two

- Controlling for income alone reduces the average difference in the homeowner-renter mean to **\$535**, a reduction of about 50%.
- The difference remains statistically significant across quintiles.
- Both the main effect and interaction effect is significant.

Predictive Margins for Homeowner-Quintile Interaction



Hypothesis Three

Investigate:

Do OER and Rent produce similar values on average controlling for income and house characteristics?

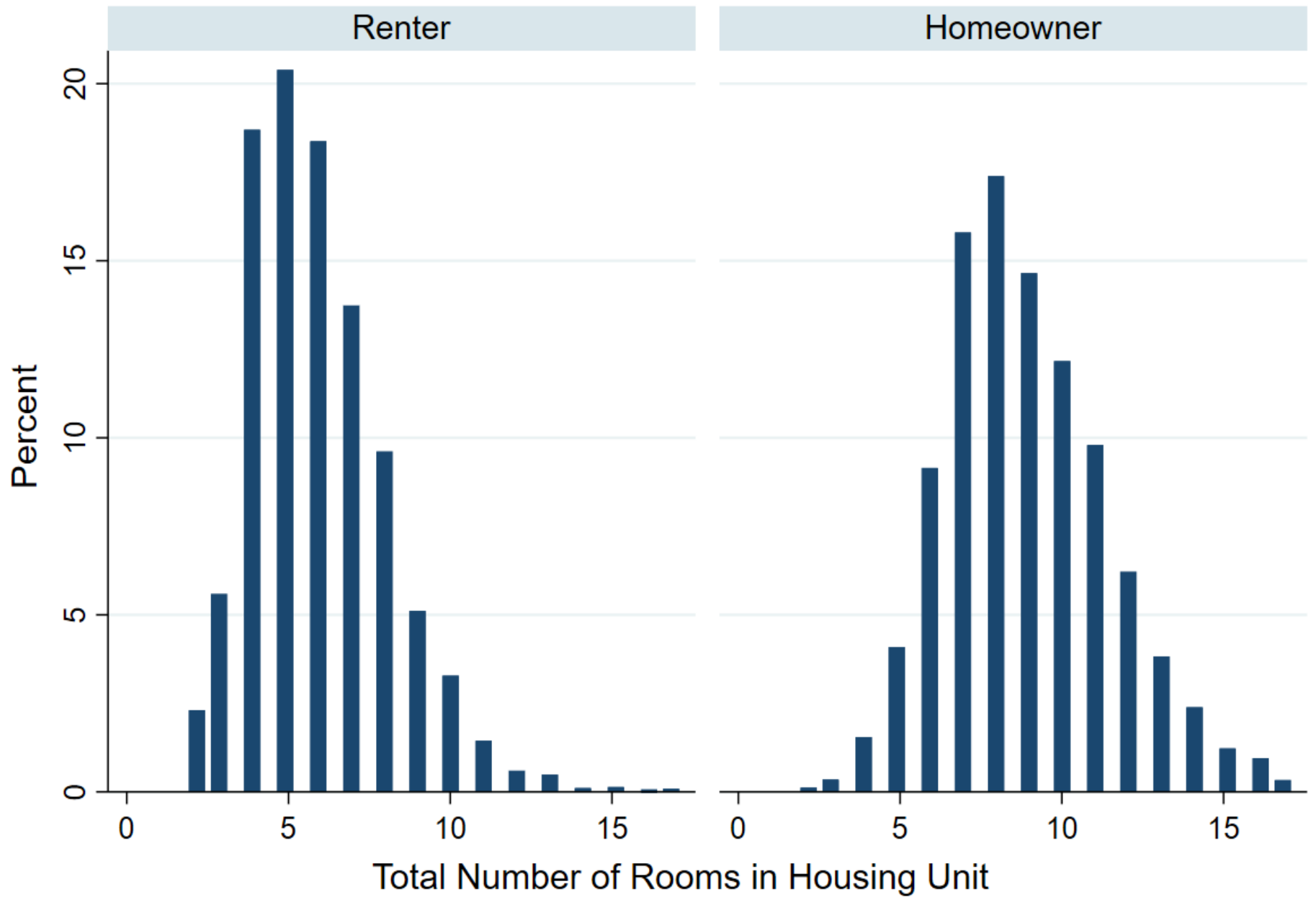
Motivation:

The average number of total rooms for renters and homeowners is **5.95** and **8.93**, respectively. **85%** of homeowners and only **30.5%** of renters live in single-family detached.

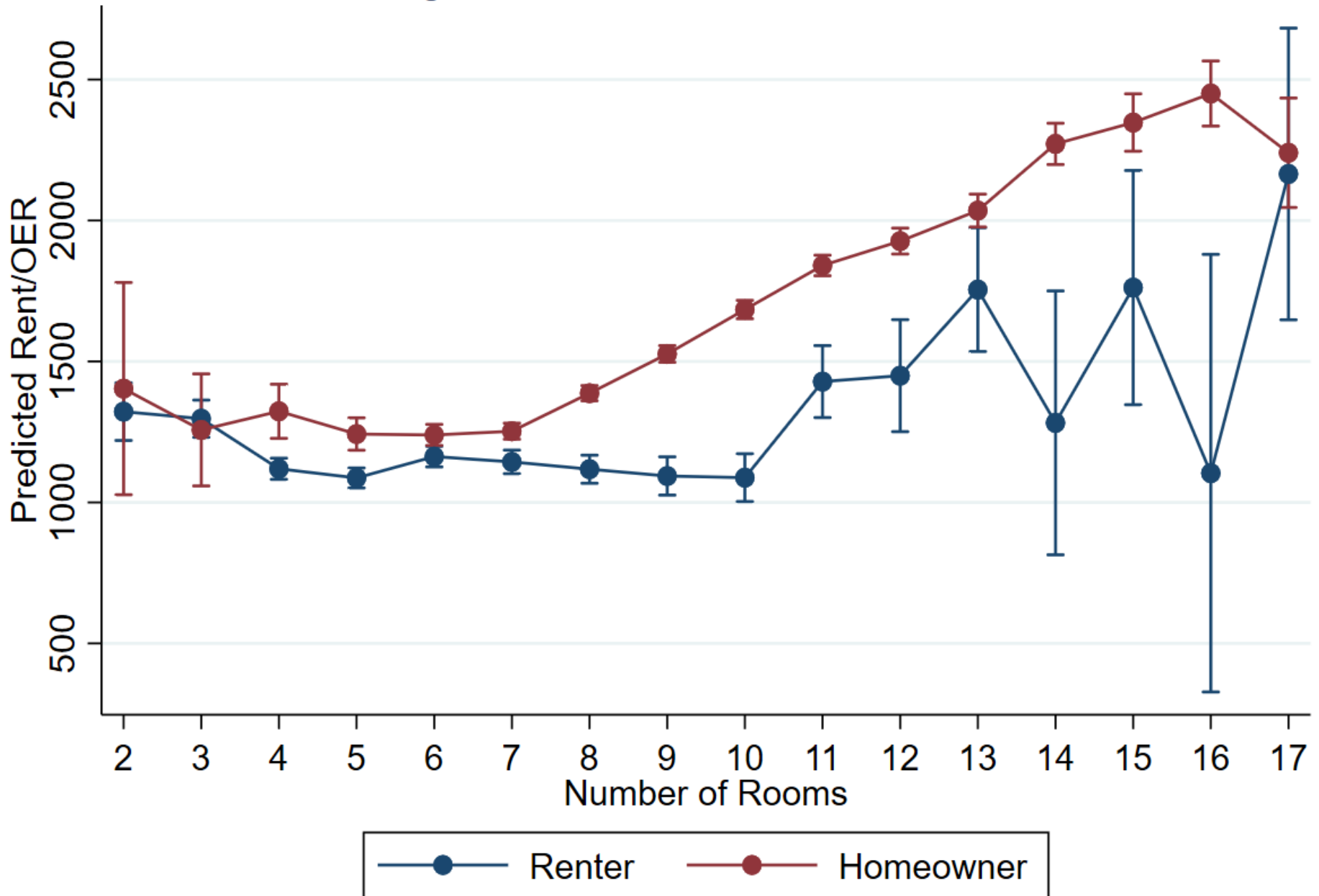
Hypothesis Three

- Controlling for income and housing characteristics reduces the average difference in the homeowner-renter mean to **\$240**.
- The \$240 is **statistically insignificant**.
CI: [-268, 747]
- The 2-way and 3-way interactions are statistically significant.

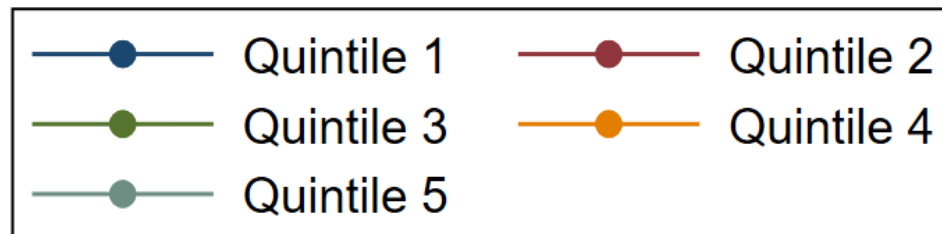
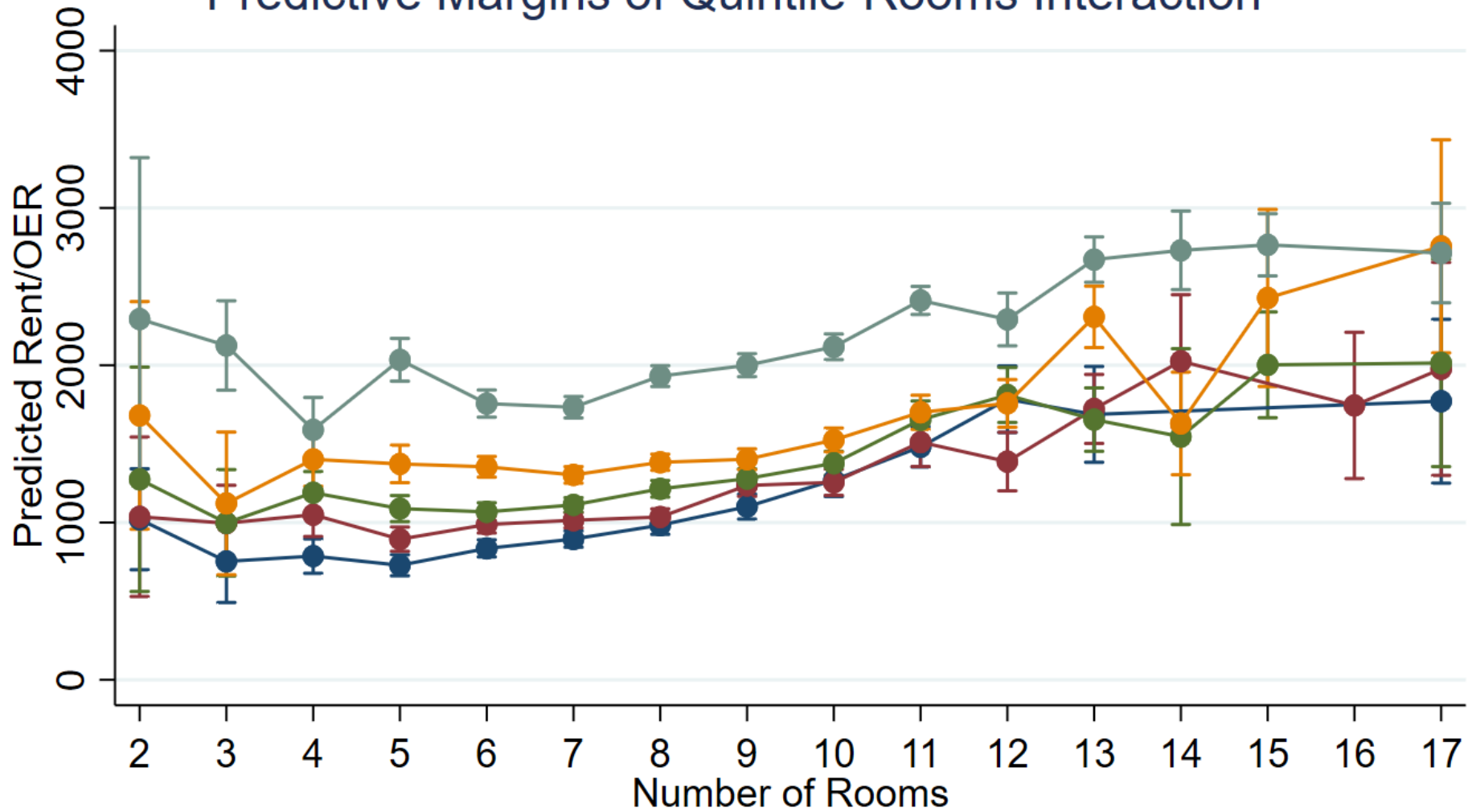
Percentage of Rooms by Tenure



Predictive Margins of Homeowner-Rooms Interaction



Predictive Margins of Quintile-Rooms Interaction

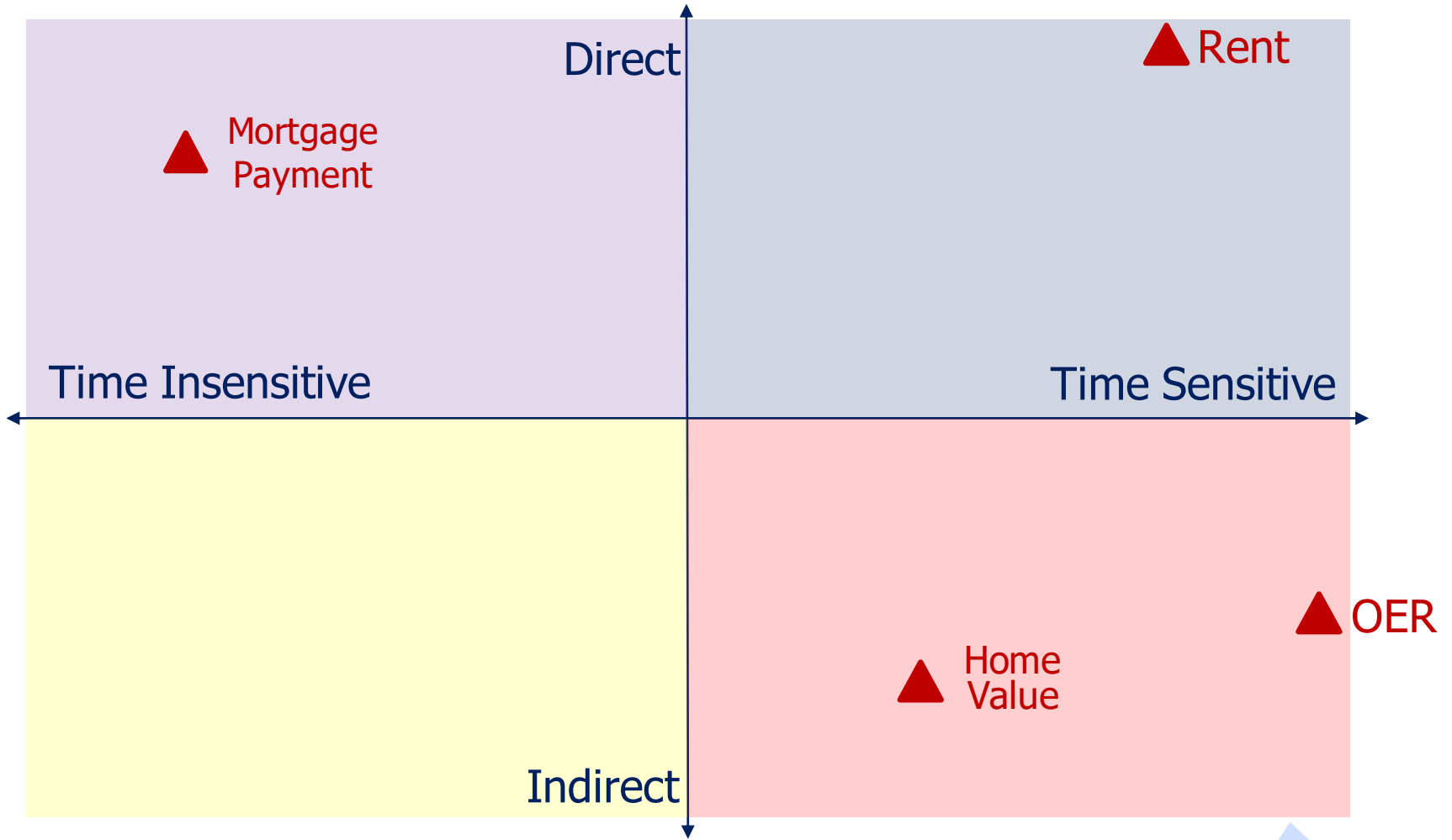


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Measuring the cost of housing



Alternative Choices

- In the CE, **Mortgage Interest** is captured as a housing expenditure item. Principal remains an investment expenditure.
- Interest, for most households, is paid as part of a fixed-rate mortgage. This means that it is nearly useless in capturing short-term changes in the housing market.

Alternative Choices

- In the CE, **Home Value** is estimated by the respondent.
- In addition to collection error associated with this, it is rare for the full value of the home to be paid outright.
- Home purchases are counted as investment spending, so measuring changes in the full value of the home will not accurately reflect consumer price changes.

Conclusions

- OER and Rent are likely doing a reasonable job of measuring the same basic concept (housing costs) for renters and homeowners.
- Homeowners are buying fundamentally different types of homes than renters are renting, likely leading to different rent/OER estimates between the groups.
- Income and housing characteristics explain much of the difference.

Questions



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