REPLICATION

- Applied Statistical Analysis II POP77003
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When Do Renters Behave Like Homeowners? High Rent, Price Anxiety, and NIMBYism

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Paper overview

Abstract

This article explores how spatial scale affects support for housing policy, focusing on differences in NIMBYism among homeowners and renters in different cities. It uses national survey designed to assess how homeownership and rental levels influence opposition to local housing development. Renters in high-rent cities exhibit similar NIMBY attitudes as homeowners, opposing nearby market-rate housing developments while supporting increased housing supply citywide. This reveals the scale dependence of housing preferences and shows that the scale of decision-making significantly affects housing supply and the affordability crisis.

Research question: The authors explore the conditions under which tenants exhibit similar behaviors to landlords, particularly when faced with high rent anxiety and NIMBYism.

Methods used: The study was analyzed by a national survey, utilized a conjugate experimental design to test how housing policy preferences vary by spatial proximity.

Results: The study found that renters in high-rent cities exhibit similar NIMBY behaviors as homeowners, and while they support increased housing supply within city limits, they oppose market-rate housing near their own neighborhoods. These findings reveal that housing preferences are spatial scale dependent and suggest that decision scale significantly affects housing supply and the affordability crisis.

Data

Original paper

To test these theories across diverse environments, conducted a 3,019-respondent national survey of attitudes, capturing residents of 655 municipalities across 47 states. It contains the public opinoin on new housing devolopment.

Dependent Variables:

- `city_supply` : A survey question measuring support for lowering development restrictions to allow new housing construction, rated on a 7-point scale.(1 = “Strongly Oppose”, 2 = “Oppose”, 3 = “Somewhat Oppose”, 4 = “Neutral/Uncertain”, 5 = “Somewhat Support”, 6 = “Support”, 7 = “Strongly Support”.)
- `neighborhood_ban` : Support for a ban on new housing construction in the respondent's neighborhood, rated on a 7-point scale. The same class as city_supply.

Independent Variables:

- `own` : Homeownership status with binary coding for homeowners and renters. `"1"` = Homeowner, `"0"` = Renter.
- `ideology` : Self-identified political ideology on a scale from extremely liberal to extremely conservative.
- `income` : Household income categorized into multiple bands.
- `whitenh` : A dummy variable indicating if a respondent is White, Non-Hispanic.
- `age` : Transformed age data from range categories to average values.
- `male` : Gender, coded as male or female. `"1"` = Male, `"0"` = Female
- `name` : The name of the municipality.

Data

replication

The source of data is same as original paper, acrossing diverse environments, conducted a 3,019-respondent national survey of attitudes, capturing residents of 655 municipalities across 47 states.
But I add a independent variables from original dataset:

- `zri_city` : Citywide average rent, Zillow.com, June 2016.

I divided the citywide average rent variable into three categories: low, medium, and high according to less than 1000, 1000-2000, and more than 2000.

```
# Define rent categories based on specified thresholds
socpoc$rent_category ← cut(socpoc$zri_city,
                           breaks = c(-Inf, 1000, 2000, Inf),
                           labels = c("Low", "Medium", "High"),
                           include.lowest = TRUE)
```

Model

Original:

- This model examines how factors such as homeownership (whether one owns property), political ideology, economic status (measured by log income), race (whether one is non-Hispanic white), age, and gender influence an individual's perception of a city-wide Increase support for housing supply by 10% and ban on neighborhood development.
- linear regression `lm()` is used to fit linear model with support with support for 10% supply and ban on neighborhood development . The we conbind two models into a table.

```
# Support for 10% supply
supply_7←lm(city_supply ~ own +scale(ideology)+scale(log(income)) +
whitenh  +age + male, subset(socpoc))
summary(supply_7)
# Support for Ban on Neighborhood Development-7
ban_7←lm(neighborhood_ban ~ own +scale(ideology)+scale(log(income))
+ whitenh  +age + male, subset(socpoc))
summary(ban_7)
```

```
Support for 10% supply, Support for Ban on Neighborhood Development-7
================================================
                    city_supply neighborhood_ban
                       Full           Full
                        (1)            (2)
------------------------------------------------
Homeownership          -.69            .27
                       (.07)          (.07)
Ideology                .13           -.08
                       (.03)          (.03)
Income, Log            -.09           -.01
                       (.03)          (.03)
White, Non-Hispanic    -.24           -.12
                       (.06)          (.07)
Age                    -.01            .002
                      (.002)         (.002)
Male                    .16           -.12
                       (.06)          (.06)
Constant               4.44            3.61
                       (.10)          (.11)
------------------------------------------------
Observations           2,846          2,941
R2                      .09            .01
Adjusted R2             .09            .01
================================================
```

Output Comparison

Original:

```
#Table                                                                    Copy
stargazer(re_supply_7, re_ban_7, title="Support for 10% supply,
Support for Ban on Neighborhood Development-High rent",
label="neighborhood_ban_7",
          dep.var.caption = "",
          column.labels=c("Full","Full"),
          covariate.labels=c("Homeownership","Medium rents","High
rents","Ideology","Income, Log","White, Non-Hispanic","Age","Male"),
          omit.stat = c("ser", "f"), digits=2, align=T, type="text",
          initial.zero = F,  font.size = "small",star.cutoffs = NA,
omit.table.layout = "n",
          no.space=T, omit=c("name"))
```

- This generally indicates a negative relationship between homeowners and support for a 10% increase in housing supply within the city limits (city_supply) and a positive relationship between homeowners and support for ban on neighbourhood development. That is, holding other factors constant, homeowners are less likely than renter to support increasing housing supply within a city more likely to support bans on neighborhood development (neighborhood_ban)

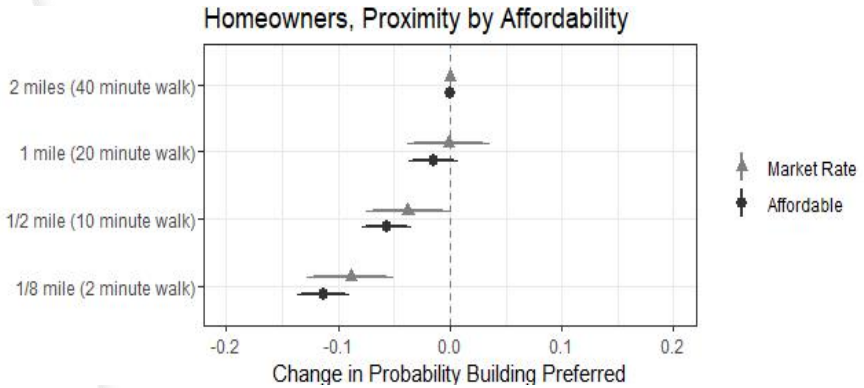
Another data:Data for this analysis comes from a survey aimed at renters' and homeowners' preferences and attitudes towards housing developments. These surveys typically involve a series of questions that present respondents with different scenarios with various attributes of a hypothetical housing development, such as the distance of the development from the respondent's home, the height of the building, whether the development is located on vacant land . buildings, parking lots, vacant lots or historically designated buildings, and whether the units are affordable or market-rate.

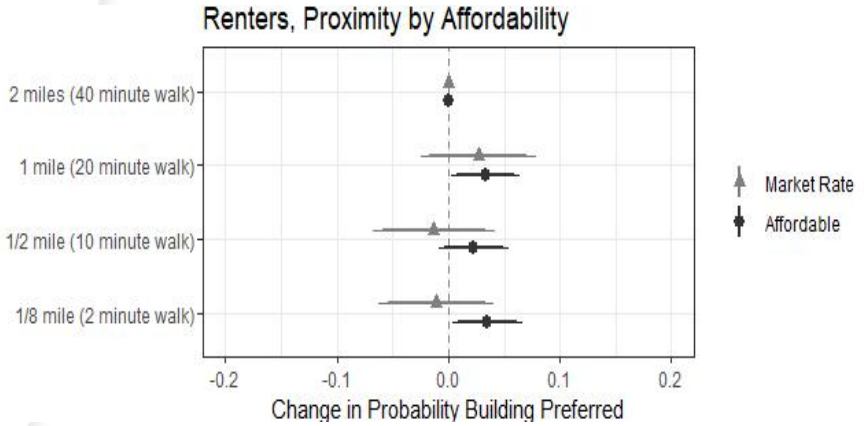
Methods: Use joint analysis, specifically the amce() function possibly from a package designed for joint analysis (e.g. cjoint or ca). This function calculates the average marginal component effects (AMCE) of different housing attributes.

Rent level classification: Cities are divided into quintiles (0,1217,1480,1936,2427,7344) based on average rent. (zri_city)

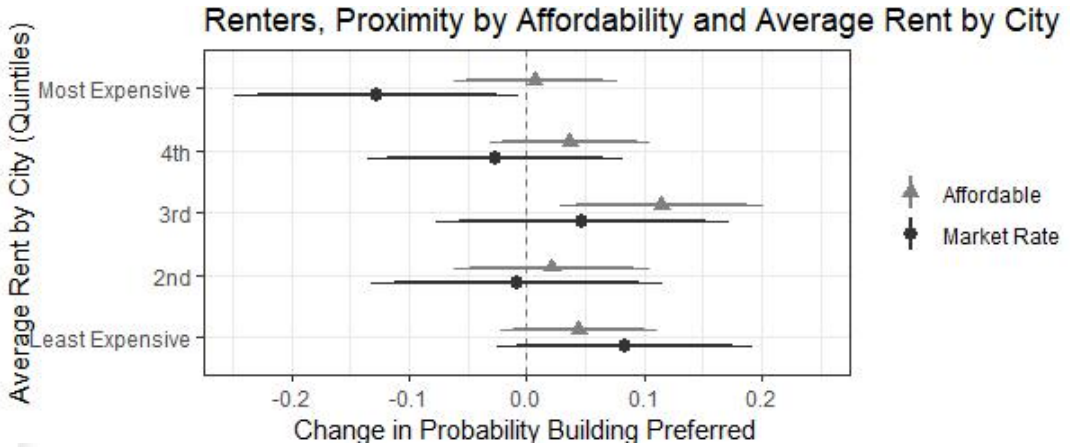
Output:

- Black dots represent preferences for affordable housing and gray dots represent preferences for market-rate housing. The position of the dots represents the mean change in preference, and the horizontal line represents the confidence interval.-
- Homeowners' preferences for marke rate housing proposals and -affordab housing proposals decline as the proposed housing moves closer to where they live (the gray dots and bands shift to the left).But for renter their preferences haven't changed much.





Output:



- This chart shows changes in renter preferences for proposed housing projects based on proximity to where renter live and average rent levels in the city. The figure shows how preferences for market-rate housing (gray) and affordable housing (black) change as distance changes from two miles (baseline) to one-eighth of a mile, grouped by average rent city quantile.
- Renters' preference for market-rate housing projects is significantly lower in the most expensive cities (point assessments shift to the left as shown), suggesting that renters in high-rent markets exhibit NIMBY-like behavior similar to that of homeowners . In contrast, for affordable housing, renters' preferences remained unchanged or increased slightly. This was drawn from a national survey designed to measure the NIMBY (Not In My Back Yard) tendencies of renters in cities with different rent levels.

replication:

- Add additional rent as an independent variable to explore the impact of rent on support with support for 10% supply and ban on neighborhood development.
    - linear regression `lm()` is used to fit linear model with support with support for 10% supply and ban on neighborhood development . The we conbind two models into a table.

```
re_supply_7←lm(city_supply ~ own
+rent_category+scale(ideology)+scale(log(income)) + whitenh  +age +
male, subset(socpoc))
summary(re_supply_7)
re_ban_7←lm(neighborhood_ban ~  own +rent_category+scale(ideology)+
scale(log(income))+ whitenh  + age + male, subset(socpoc))
summary(re_ban_7)
```

Rplication:

Support for 10% supply, Support for Ban on Neighborhood Development-High rent

	city_supply	neighborhood_ban
	Full	Full
	(1)	(2)
Homeownership	-.70	.30
	(.07)	(.08)
Medium rents	-.30	.20
	(.11)	(.12)
High rents	-.41	.25
	(.12)	(.12)
Ideology	.14	-.09
	(.03)	(.03)
Income, Log	-.07	-.03
	(.03)	(.04)
White, Non-Hispanic	-.26	-.12
	(.06)	(.07)
Age	-.01	.002
	(.002)	(.002)
Male	.16	-.13
	(.06)	(.06)
Constant	4.75	3.42
	(.14)	(.15)
Observations	2,739	2,830
R2	.09	.01
Adjusted R2	.09	.01

Renter living in mid-rent and high-rent areas will generally be less supportive of increasing housing 10% supply than render in low-rent areas. However, the support for banning on neighborhood development is higher than that of tenants in low-rent areas, who show the same NIMBY phenomenon as landlords.

Specifically, property owners, regardless of rent level, appear to favor policies that maintain or increase the value of their properties. Regarding rent levels, residents in high-rent areas tend to have conservative attitudes toward increases in housing supply and prohibitions on community development.

Findings

- Impact of Home Ownership: In both models, property owners show lower support for increased housing supply, as shown consistently in both images, while property owners show higher support for banning neighborhood development, Indicates the existence of NIMBY phenomenon.
- Rent levels: We can see that rent levels play a significant role in influencing individuals' support for housing policies. In high-rent areas, individuals tend to be opposed to increased housing supply, and in these areas, individuals are also more likely to support neighborhood development bans.
- Ideology: In the model in the second picture, ideology has a positive relationship with support for increasing housing supply (city_supply) and a negative relationship with banning neighborhood development (neighborhood_ban). This may suggest that as ideological leanings become more liberal, individuals may be more supportive of increased housing supply but opposed to development in high-rent neighborhoods.
- Others variable: We can see that the other remaining variables have little impact on the model after adding the rent variable, and the results are almost the same.