Replication of "When Do Renters Behave Like Homeowners? High Rent, Price Anxiety, and NIMBYism"

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1 Abstract

Hankinson (2018) shows that renters exhibit "Not in My Back Yard" (NIMBY) behavior on par with homeowners in high-rent cities despite overall support for a housing supply increase. I successfully replicated Hankinson's results and confirmed they are consistent with results using a logistic regression model. The increased likelihood for these renters to reject policy proposals that create new housing helps explain the affordable housing crisis in major American cities.[1]

2 Introduction

Using original data sets from an exit poll in San Francisco and a nation-wide survey, Hankinson shows that renters are more likely to exhibit NIMBY-ism when they live in high density cities with high price levels controlling for other demographic characteristics – hankinson demonstrates this statistically significant and positive relationship between neighborhood price levels and two response variables: one indicating opposition to a housing supply increase and the other support for a ban on neighborhood development in both "ordinary" data sets and a set from a nation-wide conjoint survey. The data also confirms the prevailing assumption that renters are more likely to support housing supply increases in general. Hankinson reasons a causal mechanism for this surprising trend may be that renters in high-rent neighborhoods fear that new housing may spur gentrification which would only further drive rent up. Exploring this hypothesis, he shows a significant and positive relationship between housing price-related anxiety and renters' likelihood for exhibiting NIMBY-ism.

3 Literature and Paper Review

In the past 30 years, the housing market has seen a trend of widening inequality (Glaeser, Gyourko, and Saks 2005). Prices in the top quintile have dramatically increased, particularly in crowded, "superstar" cities such as San Francisco, New York City, and Los Angeles. Yet, the resulting housing shortage cannot be attributed to a natural supply ceiling alone (Glaeser, Gyourko, and Saks 2008; Solnit and Schwartzenberg 2000). Glaeser and Gyourko find that in Manhattan prices are twice their supply costs (Glaeser, Gyourko, and Saks 2008). Likewise, Barton demonstrates that in San Francisco, high rents cannot be accounted for by higher real value – that is, quality, operating costs, and construction costs (Barton 2011). They argue that the decoupling of supply and demand in Manhattan and other major cities must be attributed at least in part to local regulations constraining the housing supply (Glaeser, Gyourko, and Saks 2008). Specifically, land-use regulations are associated with reductions in construction activity and higher prices (Glaeser and Ward 2008; Ilhanfeldt 2007). In fact, the responsiveness of the housing supply to increased demand seems to depend significantly on land use and planning regulations (Caldera and Johansson 2013). This is particularly true in high-price locales such as the greater Boston area (Glaeser and Ward 2008) and the San Francisco Bay Area (Kok, Monkkonen, and Quigley 2014) where the annual number of new housing permits per 2000 has stagnated despite growing demand (Glaser and Gyourko 2018).

[1] All analysis for this paper is available at: https://github.com/zhengruth/replication_renters_paper_1006

It is generally accepted that homeowners have an incentive to support regulations that raise the value of their homes (Glaeser, Gyourko, and Saks 2005; Quigley and Rosenthal 2005; Rohe and Stewart 1996). Typically higher income homeowners are the ones who dominate local politics underlying land use enactments (Quigley and Rosenthal 2005). On the other hand, renters, who usually want lower prices, are expected to support policies and public spending that favor constructing new housing (Brunner, Ross, and Simonsen 2015; Desmond 2017).

So what role does renter behavior play in the decoupling of housing supply and demand? Further, what demographic and location characteristics are associated with this behavior?

Hankinson attempts to answer these questions using original data from a San Francisco exit poll and a national survey. A significant innovation he makes is in using conjoint analysis, which has yet to be widely used in political science (Hainmueller, Hopkins, and Yamamoto 2013). The conjoint survey design allows the researcher to non-parametrically estimate which components of a multidimensional treatment are influential, so long as randomization is assumed. In his paper, the conjoint design enabled Hankinson to simultaneously test multiple causal effects by randomly varying one-dimensional characteristics of a hypothetical new housing development (proximity, density, affordability, etc.) and infer that systematic differences in respondences could be attributed entirely to the researcher's manipulation (Hankinson 2018; Hainmueller, Hopkins, and Yamamoto 2013)

Hankinson finds that in high-rent cities, renters do exhibit form of "Not in My Back Yard-ism" (NIMBY-ism) on par with homeowners. He argues that this likely gives rise to a collective action problem in the political-economy of local housing wherein despite supporting city-wide housing supply increases and other policies favoring affordable housing, renters oppose such policies in their own neighborhoods. As a result, no neighborhood is politically willing to bear the cost of new housing (Hankinson 2018). While there is a rich existing literature on NIMBY-ism among homeowners (Dear 1992; Schively 2007), there has been comparatively little research done on the appearance of this behavior among renters (Fischel 2000). In fact, renters are expected to exhibit lower levels of NIMBY-ism as the ephemerality of renting means they have less of a stake in the good or bad things that happen in their neighborhoods (Moomau and Morton 1992). Thus, renters' behavior in high-rent cities demands closer examination. Hankinson further shows that renters' political behavior is sensitive to proximity and price. In particular, price-anxious renters in high-rent cities are more likely to exhibit NIMBY-ism in their voting preferences. He hypothesizes that despite general support for increased housing supply, this group of renters is sensitive to the possibility of gentrification that new development signals (Hankinson 2018).

4 Replication

Hankinson's original paper includes 27 figures. I have replicated 21 of them. Those that I have not replicated are mainly clarifying tables, that is they include summary statistics, demonstrate theoretical results, or attempt to illustrate a hypothetical example. I chose not to replicate these tables because they do not directly pertain to the actual analysis of Hankinson's data set and thus do not contribute to answering the research question about what factors are associated with renters exhibiting NIMBY behavior.

5 Extension

I extend Hankinson's analysis by using logistic regression to refit three sets of models: the first set (table A.3) regresses an indicator variable for supporting a 10 % housing supply increase and one for supporting a NIMBY ban onto homeownership status including demographic controls and fixed effects for the San Francisco data set; the second (table B.2) regresses an indicator for supporting a 10% supply increase onto homeownership status including demographics and fixed effects for the natiowide data set; the third (table B.4) regresses an indicator for supporting a ban on neighborhood development (NIMBY ban) on homeownership status including demographic controls and fixed effects for the nationwide data set. While Hankinson fits ordinary least squares models, perhaps for ease of comparison with his conjoint analysis, I thought that a logistic regression model would be more robust to the violation of the normality of errors and equal variance assumptions. Further, logistic regression bounds the fitted probability between 0 and 1, which better conforms to probability axioms.

The logistic output for the first set of regressions (table A.3) showed a consistently negative relationship between homeownership and both the probability of supporting a 10% supply increase and for supporting a NIMBY ban. Using the divide by four rule, holding all else constant, homeowners are about 10% less likely to support both the supply increase and the neighborhood ban than renters. These estimates, however, are not statistically significant. This is consistent with the OLS model which outputs a weak and consistently negative coefficients on homeownership status. The logistic output for the second set of regressions (table B.2) showed a consistently negative and statistically insignificant relationship between homeownership status and probability of supporting a 10% supply increase. Using the divide by four rule, the logistic regression estimates that holding all else constant homeowners are at most 25% less likely to support the increase. Although these estimates are constitent in sign and magnitude with the OLS estimates, the OLS coefficients are statistically significant. Finally, the logistic output for the third set of regressions (table B.4) showed a consistently positive and, once again, statistically insignificant relationship between homeownership and probability of supporting a ban on neighborhood development. Holding all else constant, homeowners are at most 7.5%. more likely to support the ban than renters. This is again consistent with the OLS results with the primary difference being that the OLS coefficients are statistically significant at the $\alpha = .05$ level.

These results confirm the puzzle Hankinson attempts to elucidate: despite an overall tendency for homeowners to be more likely than renters to exhibit NIMBY behavior, why do renters seem to demonstrate NIMBY-ism on par with, if not even more than, homeowners in a housing market like that of San Francisco?

5.1 Table A.3 Extension Policy Proposals, San Francisco Sample Logistic

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu % Date and time: Fri, May 01, 2020 - 16:58:00 % Requires LaTeX packages: dcolumn

Table 1: Policy Proposals, San Francisco Sample

	Dependent variable:			
	10 Pct Supply		NIMBY Ban Proposal	
	(1)	(2)	(3)	(4)
Homeownership	−.41	−.40	−.88	−.42
	(.12)	(.46)	(.12)	(.17)
Ideology		.36		.47
		(.18)		(.08)
Income, Log		.36		−.62
		(.21)		(.08)
White, Non-Hispanic		.39		−.48
		(.36)		(.15)
Age		−.01		.02
		(.01)		(.01)
Male		.52		−.43
		(.35)		(.14)
Constant	.51	1.89	.47	.22
	(.07)	(.61)	(.07)	(.24)
Observations	1,175	270	1,294	1,087
Log Likelihood	-790.31	-111.15	-865.38	-649.94
Akaike Inf. Crit.	1,584.62	236.30	1,734.76	1,313.89

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu % Date and time: Fri, May 01, 2020 - 16:58:00 % Requires LaTeX packages: dcolumn

Table 2: Policy Proposals, San Francisco Sample

5.2 Extension of table B.2. Support for 10% Supply Increase

```
## Warning in sqrt(diag(vcovHC(supply_full_fe, type = "HC1"))): NaNs produced
```

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu % Date and time: Fri, Apr 24, 2020 - 23:59:41 % Requires LaTeX packages: dcolumn

Table 3: Support for 10 Percent Supply Increase

	Bivariate	Full	Full with Fixed Effects
	(1)	(2)	(3)
Homeownership	−1.32	−1.08	−1.03
	(.10)	(.12)	(.19)
Ideology		.21	.24
		(.05)	(.08)
Income, Log		−.10	−.09
		(.06)	(.09)
White, Non-Hispanic		−.41	−.41
		(.11)	(.17)
Age		−.01	−.01
		(.003)	(.01)
Male		.29	.33
		(.11)	(.16)
Constant	.35	.57	−17.01
	(.08)	(.18)	
Observations	1,909	1,878	1,878
Log Likelihood	-1,177.17	-1,133.75	-810.21
Akaike Inf. Crit.	2,358.34	2,281.51	2,678.41

5.3 Extension of table B.4 Support for Ban on Neighborhood Development

```
## Warning in sqrt(diag(vcovHC(ban_full_fe, type = "HC1"))): NaNs produced
```

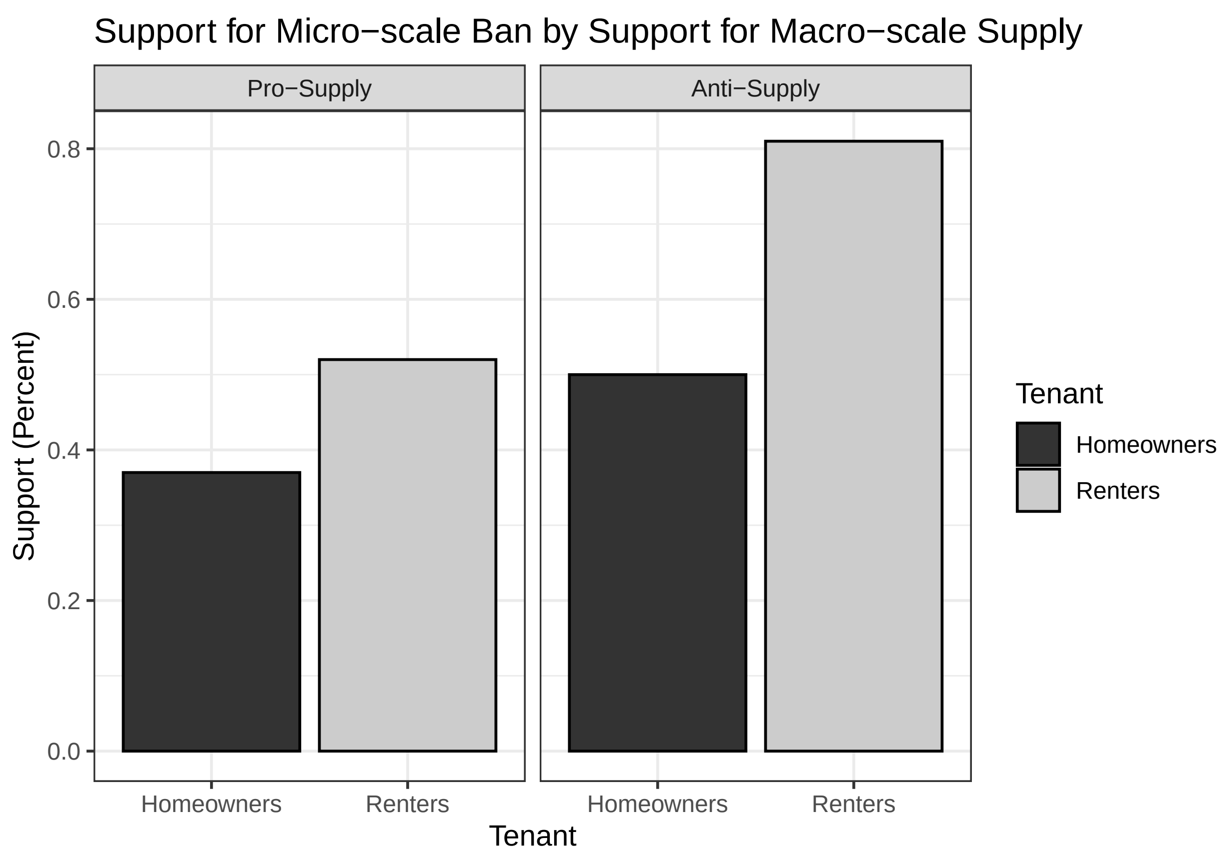
% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu % Date and time: Sat, Apr 25, 2020 - 00:11:39 % Requires LaTeX packages: dcolumn

Table 4: Support for Ban on Neighborhood Development

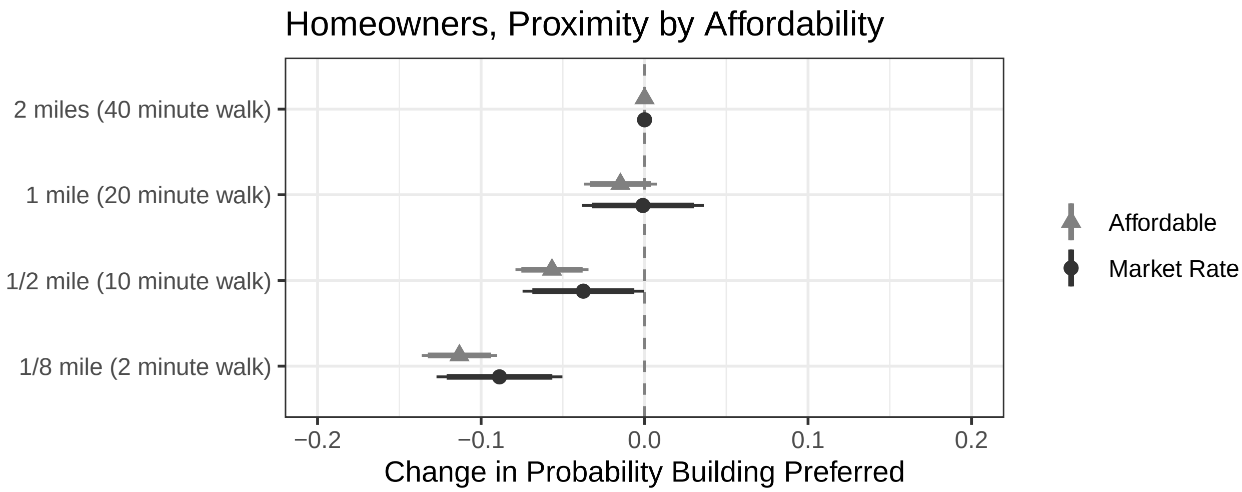
	Bivariate	Full	Full with Fixed Effects
	(1)	(2)	(3)
Homeownership	.30	.30	.40
	(.10)	(.11)	(.17)
Ideology		−.14	−.14
		(.05)	(.07)
Income, Log		−.003	−.04
		(.05)	(.08)
White, Non-Hispanic		−.16	−.23
		(.10)	(.16)
Age		.002	.002
		(.003)	(.004)
Male		−.11	−.08
		(.09)	(.14)
Constant	−.62	−.60	−18.95
	(.08)	(.16)	
Observations	2,072	2,032	2,032
Log Likelihood	-1,388.80	-1,354.09	-984.42
Akaike Inf. Crit.	2,781.61	2,722.19	3,084.83

6 Replication Results

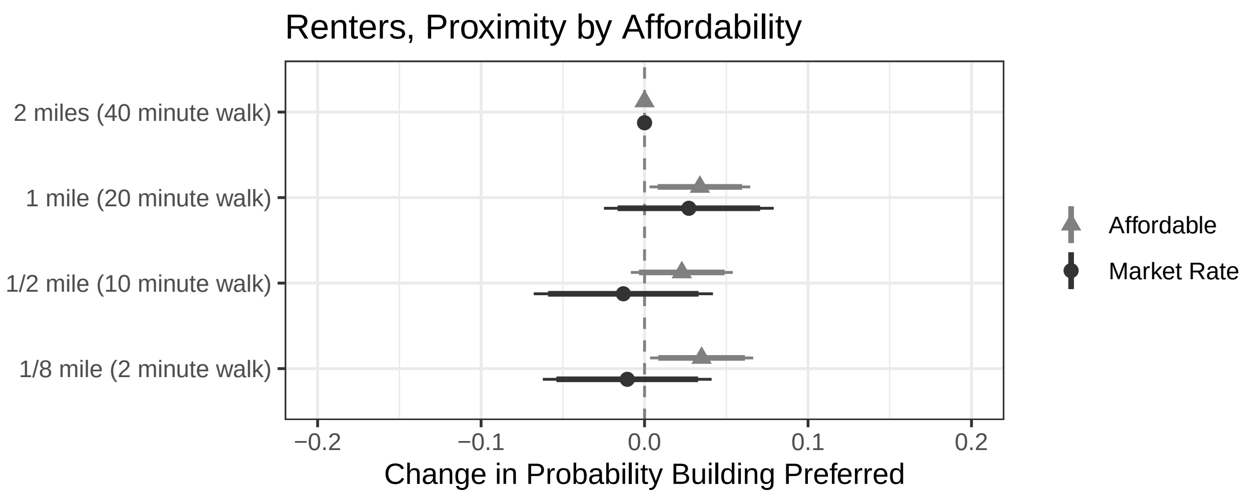
6.0.1 Figure 1. Support for a Neighborhood Ban on New Development by Support for a 10% Increase in the City's Housing Supply



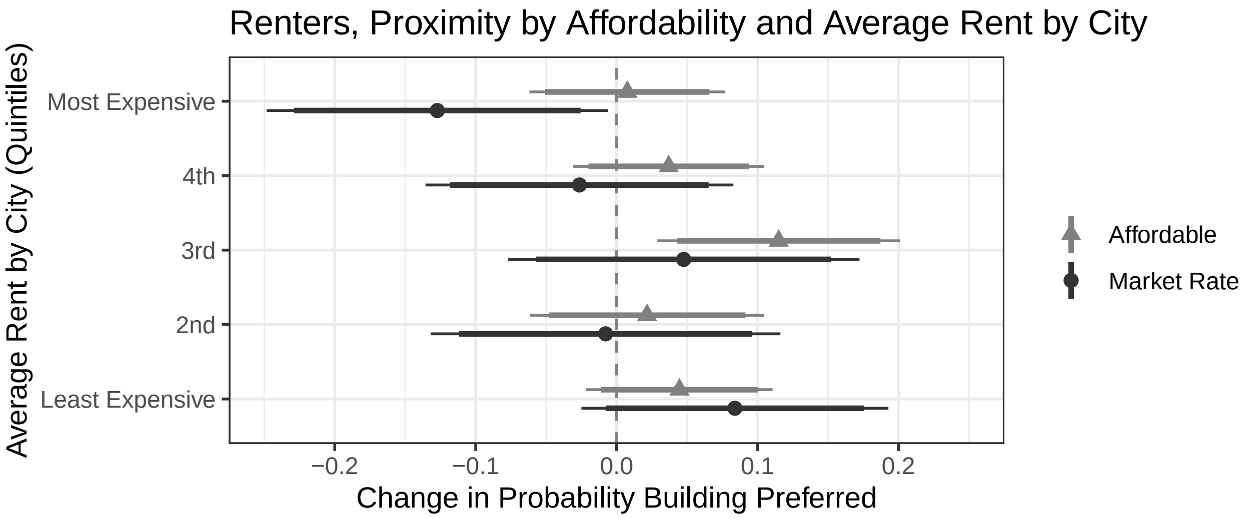
6.0.2 Figure 3. Effect of Proximity on Homeowners by Affordability of Proposed Housing



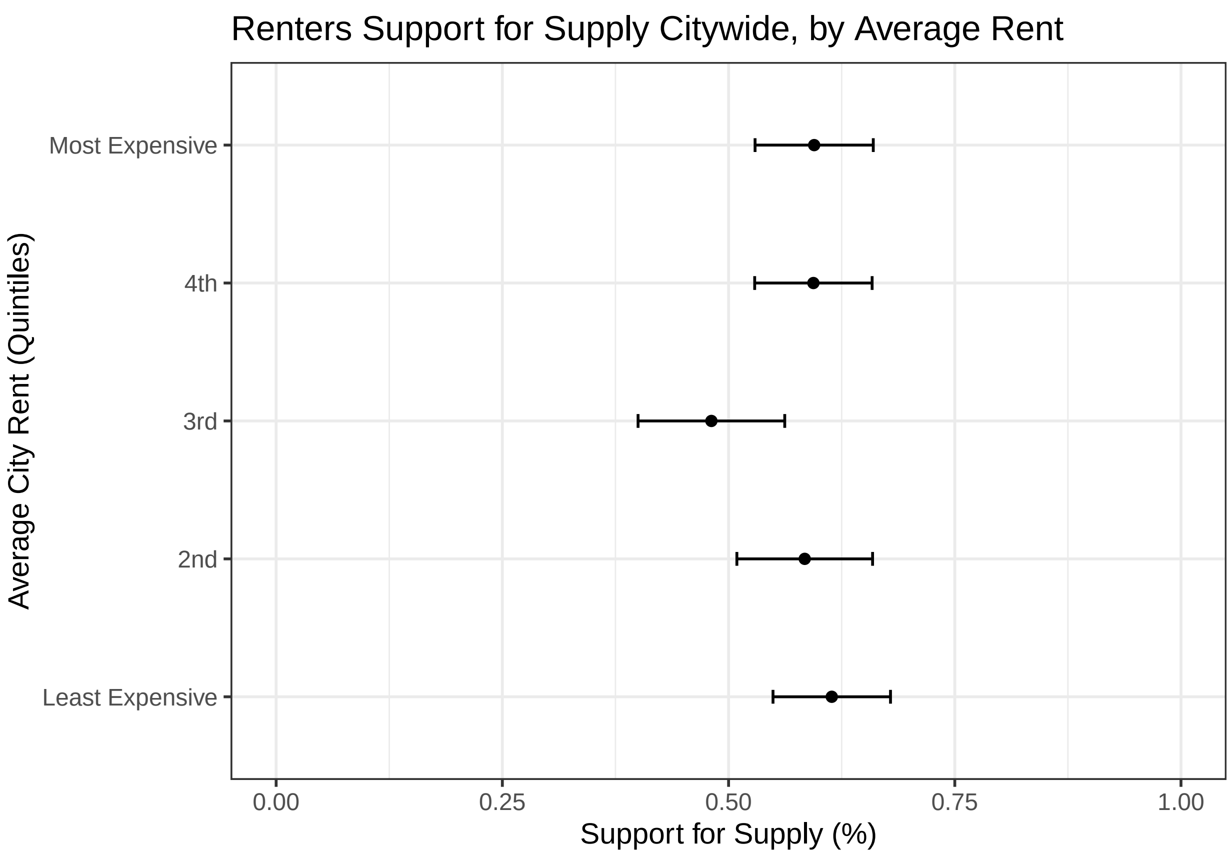
6.0.3 Figure 4 Effect of Proximity on Renters by Affordability of Proposed Housing



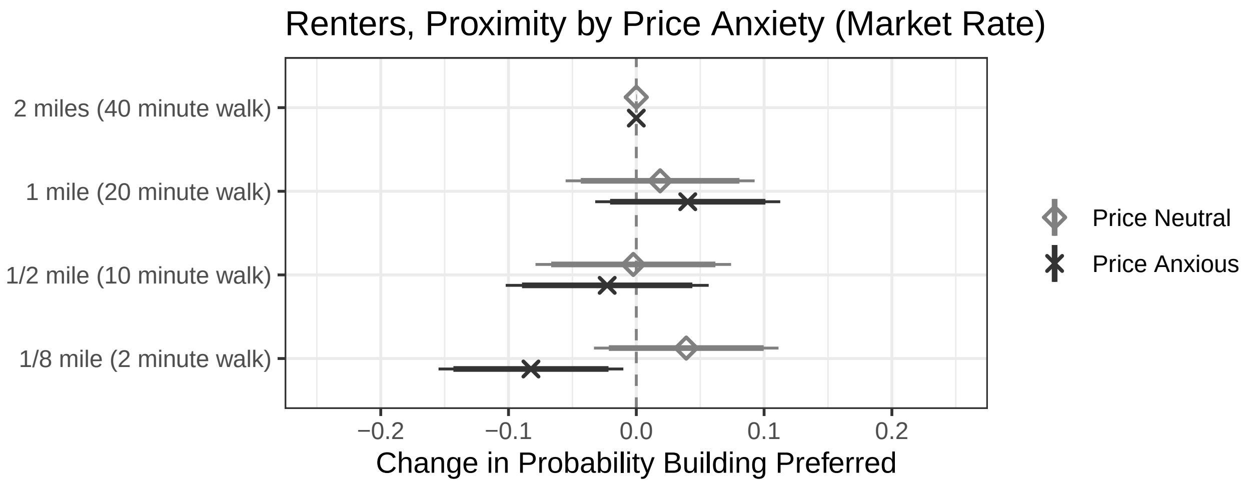
6.0.4 Figure 5 Effect of Proximity on Renters by Affordability of Proposed Housing, Grouped by Average Rent Citywide. Displayed Effect is Shift from Two Miles Away (Baseline) to an Eighth of a Mile Away. Quintile Cutpoints for Average Rent by City at $1,217, $1,480, $1,936, and $2,247



6.0.5 Figure 6. Renter Support for a 10% Increase in Their City/Town's Housing Supply, by Average Rent Citywide



6.0.6 Figure 7. FIGURE 7. Effect of Proximity on Renters Toward Market-Rate Housing by Attitude Toward Housing Prices Citywide



6.1 A San Francisco

6.1.1 Table A.3. Policy Proposals, San Francisco Sample

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu % Date and time: Fri, May 01, 2020 - 16:58:05 % Requires LaTeX packages: dcolumn

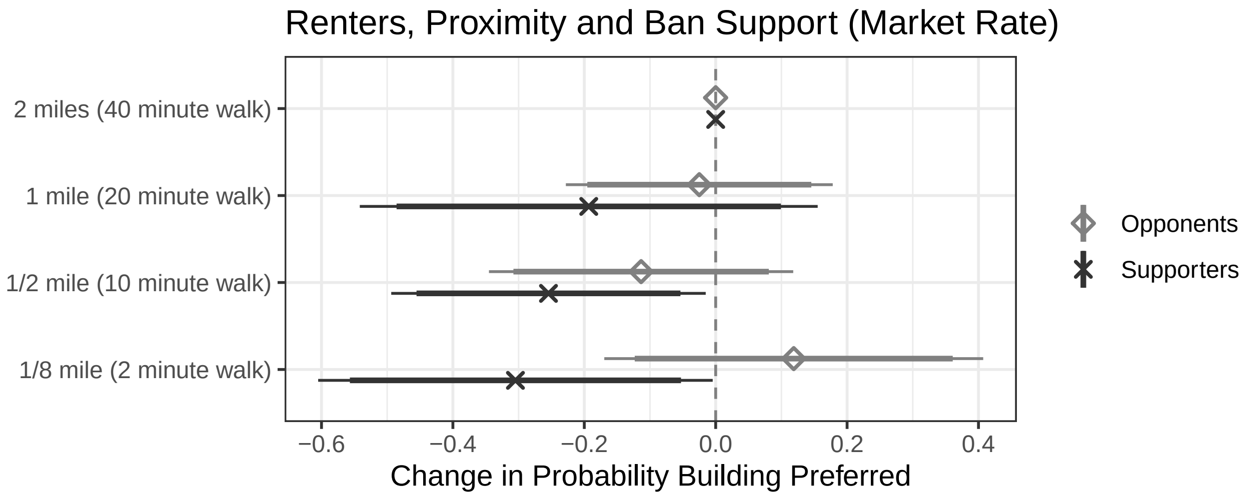
Table 5: Policy Proposals, San Francisco Sample

	Dependent variable:			
	10 Pct Supply		NIMBY Ban Proposal	
	(1)	(2)	(3)	(4)
Homeownership	−.10	−.05	−.22	−.09
	(.03)	(.06)	(.03)	(.04)
Ideology		.05		.10
		(.03)		(.01)
Income, Log		.05		−.13
		(.03)		(.02)
White, Non-Hispanic		.05		−.10
		(.05)		(.03)
Age		−.002		.003
		(.002)		(.001)
Male		.07		−.09
		(.05)		(.03)
Constant	.62	.86	.62	.55
	(.02)	(.08)	(.02)	(.05)
Observations	1,175	270	1,294	1,087
R^2	.01	.07	.04	.17
Adjusted R^2	.01	.05	.04	.17

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu % Date and time: Fri, May 01, 2020 - 16:58:05 % Requires LaTeX packages: dcolumn

Table 6: Policy Proposals, San Francisco Sample

6.1.2 Figure A.1. Effect of Proximity on Recontacted San Francisco Renters Toward Market-Rate Housing by Support for Hypothetical Ban on Market-Rate Housing in own Neighborhood



6.2 NATIONAL SURVEY NON-CONJOINT

6.2.1 Table B.2. Support for 10% Supply Increase

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu % Date and time: Sat, Apr 25, 2020 - 00:11:50 % Requires LaTeX packages: dcolumn

Table 7: Support for 10 Percent Supply Increase

	Bivariate	Full	Full with Fixed Effects
	(1)	(2)	(3)
Homeownership	−.31	−.25	−.21
	(.02)	(.03)	(.04)
Ideology		.04	.04
		(.01)	(.01)
Income, Log		−.02	−.02
		(.01)	(.02)
White, Non-Hispanic		−.09	−.08
		(.02)	(.03)
Age		−.001	−.001
		(.001)	(.001)
Male		.06	.06
		(.02)	(.03)
Constant	.59	.63	.31
	(.02)	(.04)	(.08)
Observations	1,909	1,878	1,878
R^2	.09	.11	.36
Adjusted R^2	.09	.11	.11

6.2.2 Table B.3. Support for 10% Supply Increase—Seven-Point Scale

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu
% Date and time: Sat, Apr 25, 2020 - 00:11:57 % Requires LaTeX packages: dcolumn

Table 8: Support for 10 Percent Supply Increase - 7 Point Scale

	Bivariate	Full	Full with Fixed Effects
	(1)	(2)	(3)
Homeownership	−.90	−.69	−.60
	(.06)	(.07)	(.09)
Ideology		.13	.11
		(.03)	(.04)
Income, Log		−.09	−.07
		(.03)	(.04)
White, Non-Hispanic		−.24	−.18
		(.06)	(.08)
Age		−.01	−.01
		(.002)	(.002)
Male		.16	.15
		(.06)	(.07)
Constant	4.20	4.44	4.08
	(.05)	(.10)	(.20)
Observations	2,902	2,846	2,846
R^2	.07	.09	.31
Adjusted R^2	.07	.09	.11

6.2.3 Table B.4. Support for Ban on Neighborhood Development

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu
% Date and time: Sat, Apr 25, 2020 - 00:12:02 % Requires LaTeX packages: dcolumn

Table 9: Support for Ban on Neighborhood Development

	Bivariate	Full	Full with Fixed Effects
	(1)	(2)	(3)
Homeownership	.07	.07	.08
	(.02)	(.03)	(.03)
Ideology		−.03	−.03
		(.01)	(.01)
Income, Log		−.001	−.01
		(.01)	(.02)
White, Non-Hispanic		−.04	−.05
		(.02)	(.03)
Age		.001	.0004
		(.001)	(.001)
Male		−.03	−.02
		(.02)	(.03)
Constant	.35	.36	−.08
	(.02)	(.04)	(.06)
Observations	2,072	2,032	2,032
R^2	.005	.01	.29
Adjusted R^2	.004	.01	.03

6.2.4 Table B.5. Support for Ban on Neighborhood Development—Seven-Point Scale

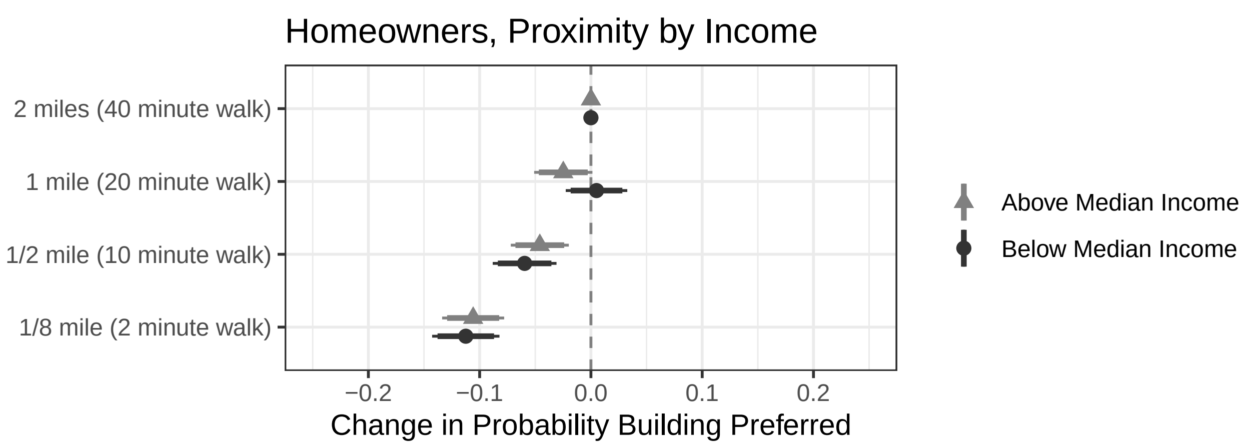
% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu
% Date and time: Sat, Apr 25, 2020 - 00:12:09 % Requires LaTeX packages: dcolumn

Table 10: Support for Ban on Neighborhood Development - 7 Point Scale

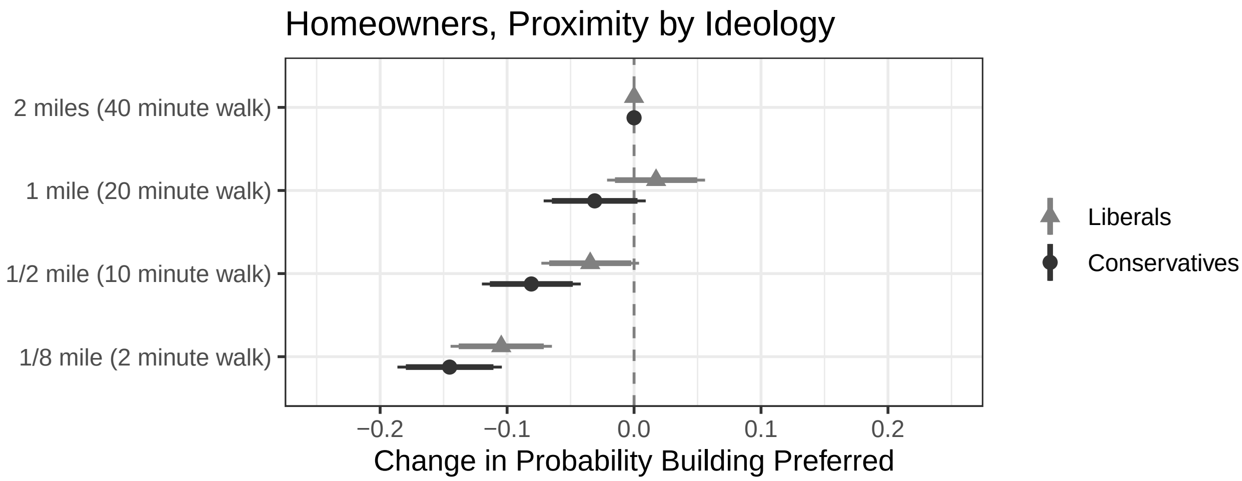
	Bivariate	Full	Full with Fixed Effects
	(1)	(2)	(3)
Homeownership	.26	.27	.25
	(.06)	(.07)	(.09)
Ideology		−.08	−.06
		(.03)	(.04)
Income, Log		−.01	−.02
		(.03)	(.04)
White, Non-Hispanic		−.12	−.17
		(.07)	(.08)
Age		.002	.003
		(.002)	(.002)
Male		−.12	−.11
		(.06)	(.08)
Constant	3.60	3.61	3.78
	(.05)	(.10)	(.20)
Observations	2,998	2,941	2,941
R^2	.01	.01	.24
Adjusted R^2	.01	.01	.02

6.3 C Conjoint Results

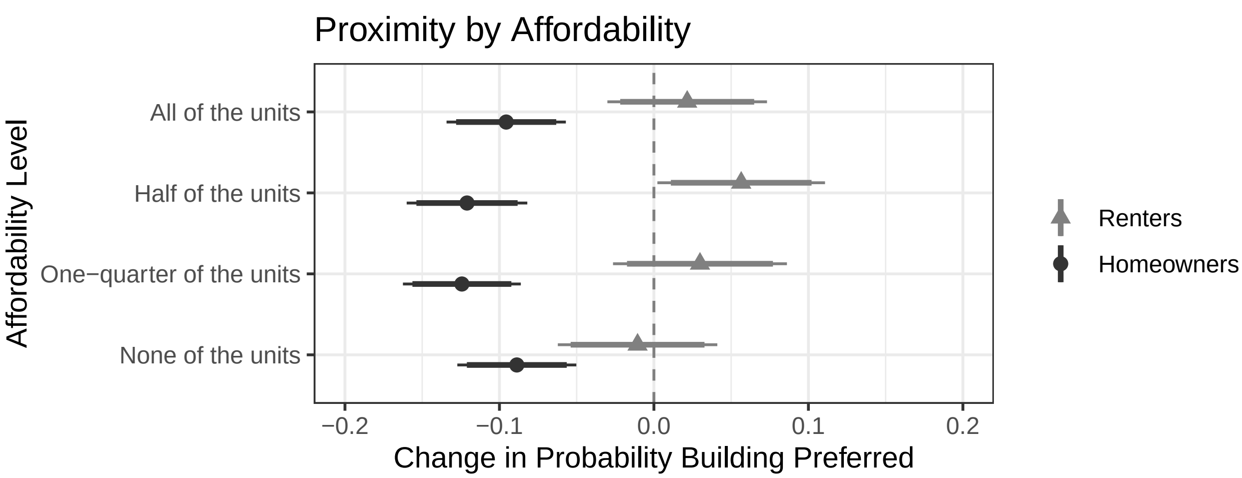
6.3.1 Figure C.1. Homeowner Spatial Sensitivity by Household Income. Above Median Income above $80,000, Below Median Income less than or equal to $80,000



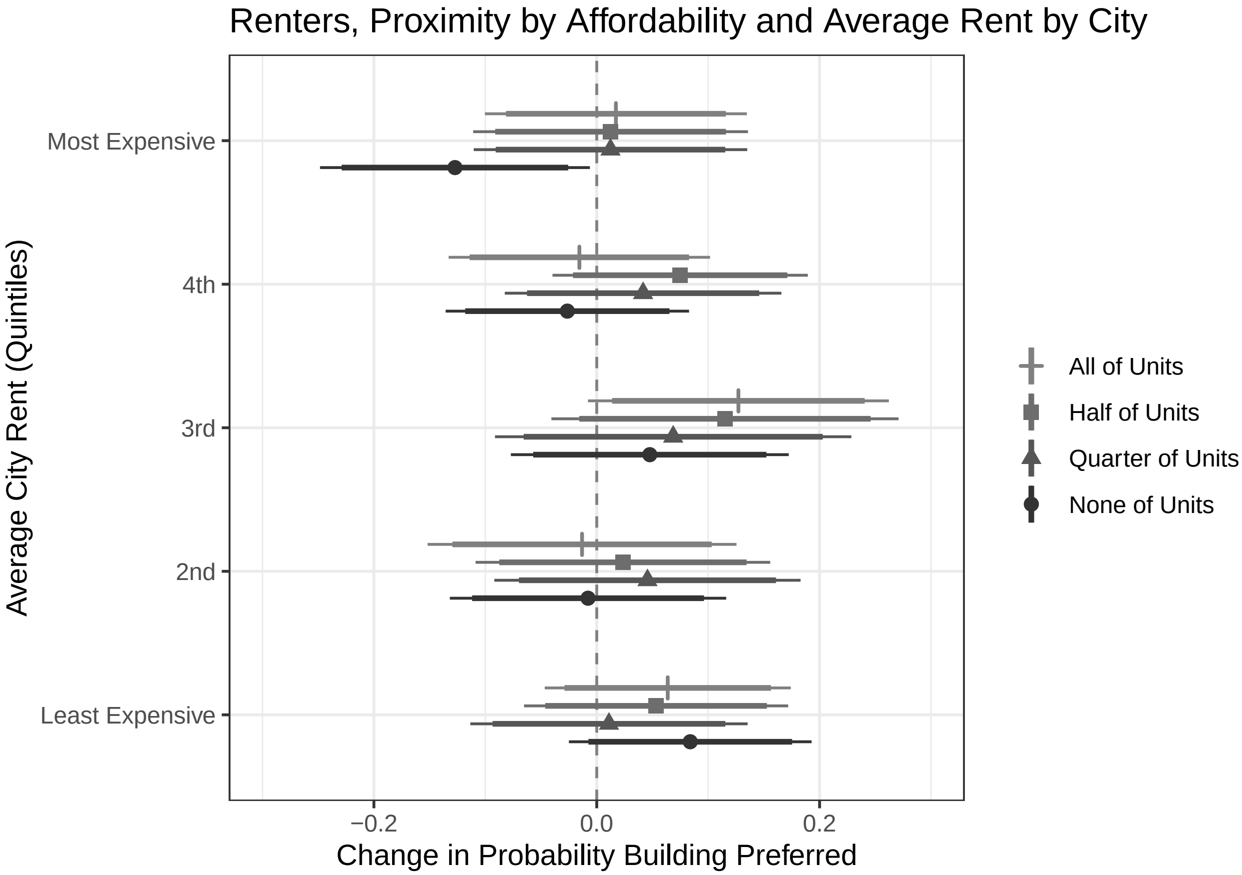
6.3.2 Figure C.2. Homeowner Spatial Sensitivity by Ideology



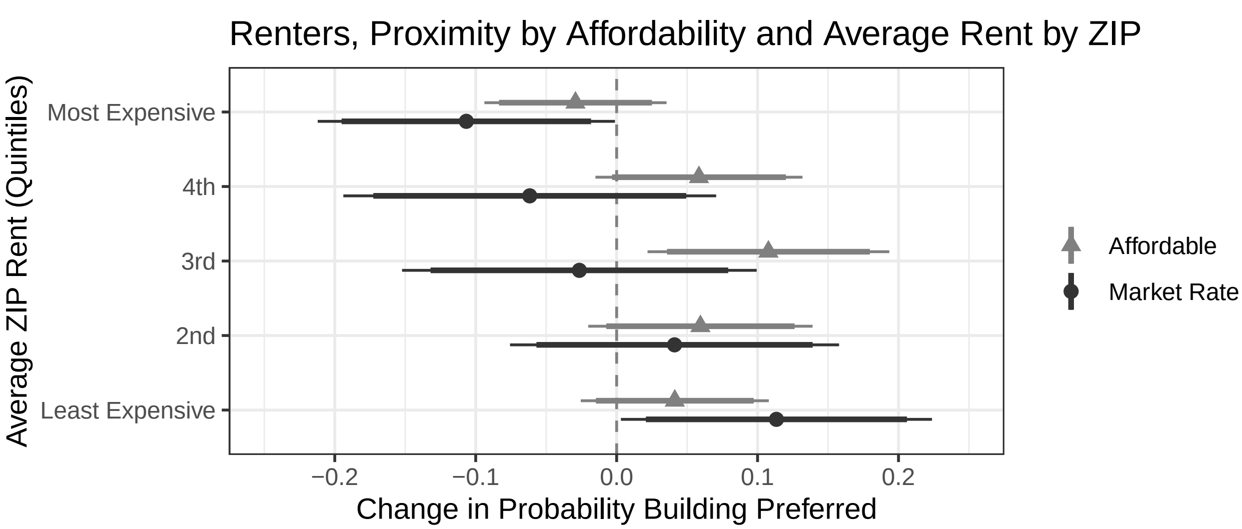
6.3.3 Figure C.3. Effect of an Eighth-Mile Away Compared to Baseline of Two Miles Away for Each Level of Affordability, by Homeownership Status



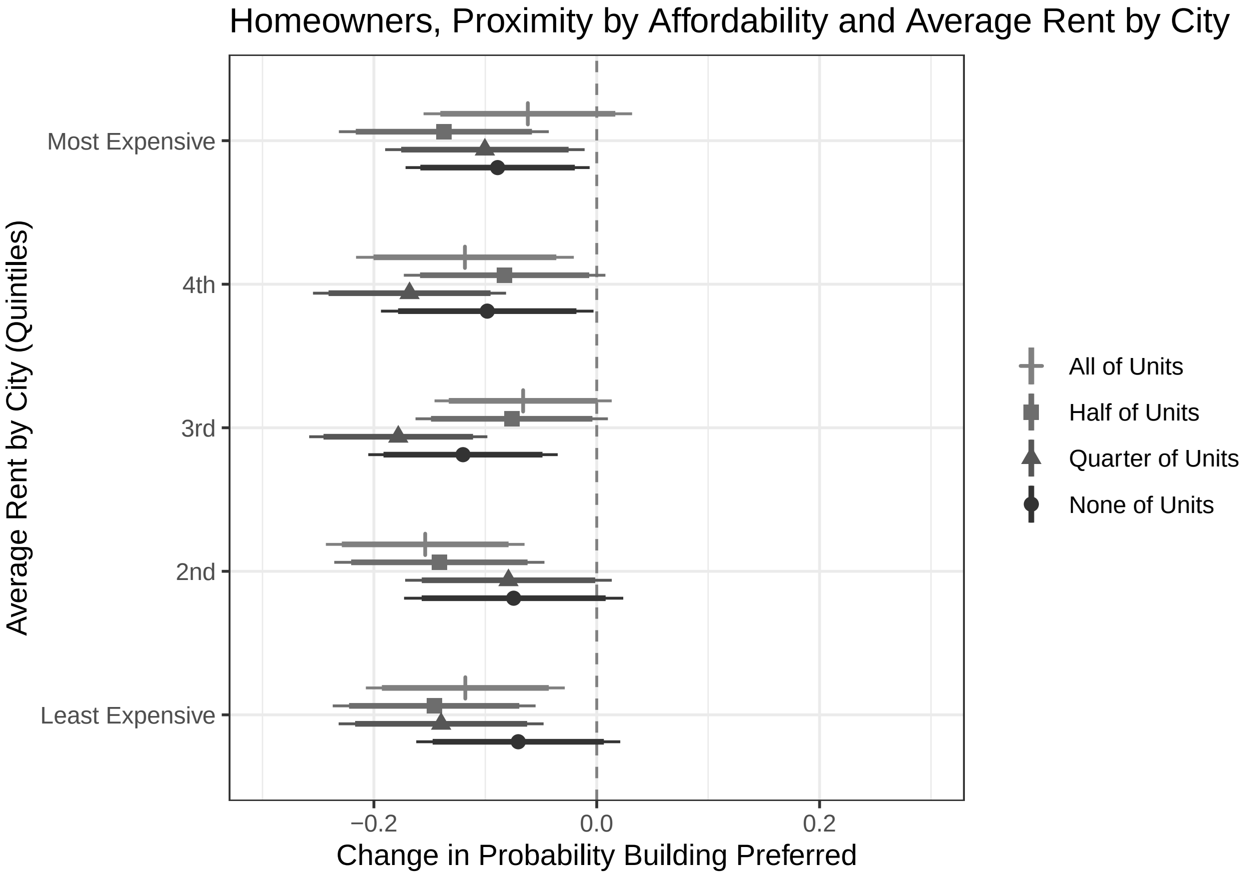
6.3.4 Figure C.4. Renter Spatial Sensitivity toward all Affordability Levels, by Citywide Average Rent



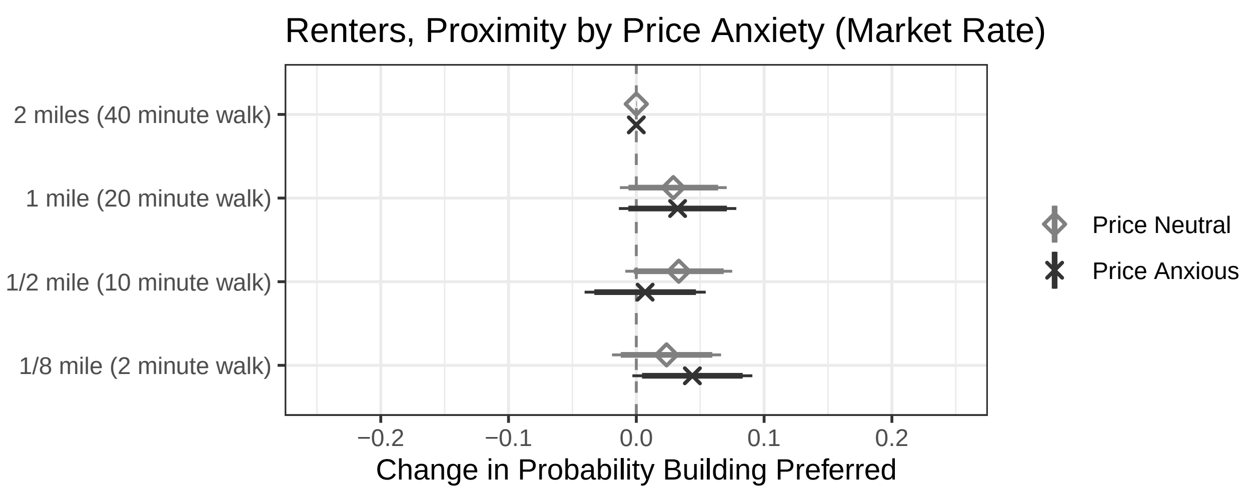
6.3.5 Figure C.5. Renter Spatial Sensitivity toward Affordability Levels, by ZIP Code Average Rent



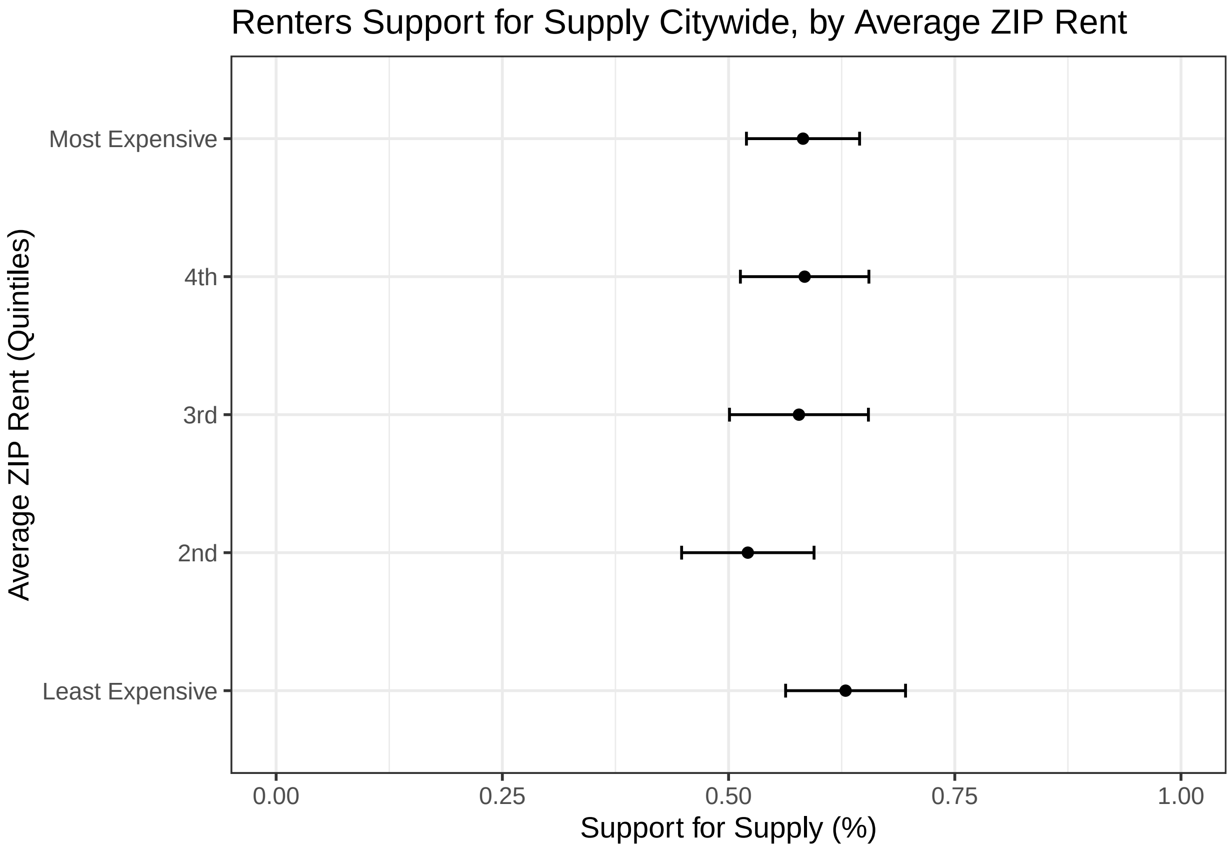
6.3.6 Figure C.6. Homeowner Spatial Sensitivity to all Affordability Levels, by Citywide Average Rent



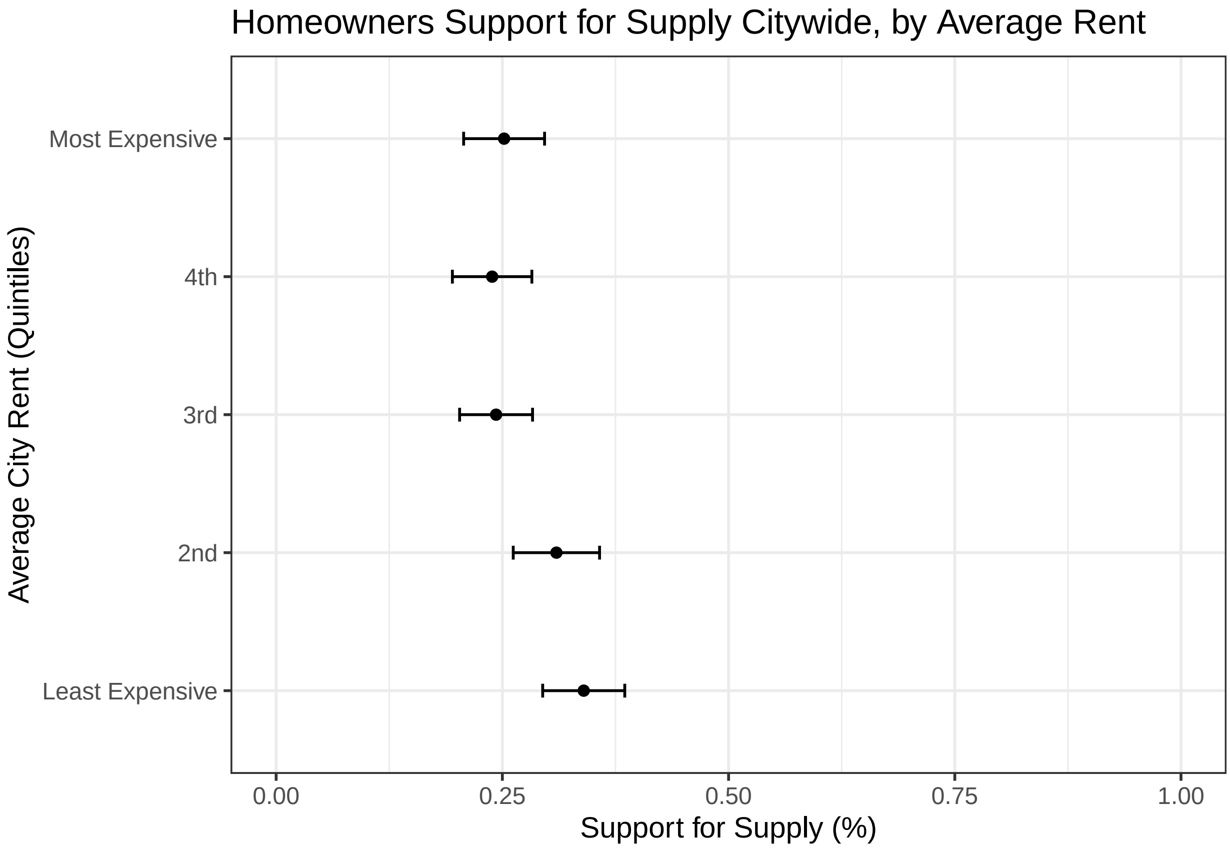
6.3.7 Figure C.7. Renter Spatial Sensitivity toward Affordable Housing, by Price Anxiety. Note Lack of Divergence between "Price Anxious" and "Price Neutral" Compared to Preferences toward Market-Rate Housing (Figure 7)



6.3.8 Figure C.8. Renter Support for a 10% Increase in Their City/Town's Housing Supply, Grouped into Quintiles by ZIP Code Average Rent



6.3.9 Figure C.9. Homeowner Support for a 10% Increase in City/Town's Housing Supply, by Citywide Average Rent



7 Conclusion

I replicated Michael Hankinson's paper, "When Do Renters Behave Like Homeowners? High Rent, Price Anxiety, and NIMBYism," which explored renter political behavior in light of the decoupling of housing supply and demand in high-rent markets. My replication results were consistent with Hankinson's findings that renters do exhibit NIMBYism on par with homeowners and that this behavior is sensitive to price and proximity of new housing. I extended Hankinson's analysis by showing that his results showing that renters s in fact likely to oppose new and proximate housing when they live in high rent neighborhoods remain true when the data is fitted to logistic regression. This behavior likely gives rise to a collective action problem where pro-housing renters oppose the creation of new supply in their neighborhoods. If local governments want to take seriously the current affordable housing crisis, they ought to be aware that such a dynamic may arise when housing policy is legislated on a hyper-local level.

8 Appendix

```r
socpoc<-read.csv("data/socpocAPSR.csv", stringsAsFactors = F)

#assign ownership groups
renters.socpoc<-subset(socpoc, own==0)
owners.socpoc<-subset(socpoc, own==1)
```

```
conjoint4<-read.csv("data/conjointDataAPSR.csv")
table(conjoint4$own)
#relevel
conjoint4$distance <- factor(conjoint4$distance,levels= c("2 miles (40 minute walk)", "1 mile (20 minute
conjoint4$community <- factor(conjoint4$community,levels= c("No opinion", "Support the building", "Oppos
conjoint4$affordable <- factor(conjoint4$affordable,levels= c("None of the units", "One-quarter of the u
conjoint4$height <- factor(conjoint4$height,levels= c("2 stories", "3 stories", "6 stories", "12 stories
conjoint4$site <- factor(conjoint4$site, levels=c("Empty building","Parking lot","Open field","Historica
names(conjoint4)
#reclassify items as factor
cols<-c("own", "whitenh", "nearby","conjoint_first","rich", "luxury")

conjoint4[cols] <- data.frame(apply(conjoint4[c(cols)], 2, as.factor))

# dummies
conjoint4$liberal<-as.factor(ifelse(conjoint4$ideology>4,1,ifelse(conjoint4$ideology<4,0, NA)))
conjoint4$city_interest_low<-as.factor(ifelse(conjoint4$city_interest<0,1,0))

#define subgroups/dummies
renters.conjoint<-subset(conjoint4, own==0)
owners.conjoint<-subset(conjoint4, own==1)

#define affordability levels
renters_aff<-subset(renters.conjoint, aff_housing==1)
renters_lux<-subset(renters.conjoint, aff_housing==0)

owners_aff<-subset(owners.conjoint, aff_housing==1)
owners_lux<-subset(owners.conjoint, aff_housing==0)


# Read in Data

final<-read.csv("data/sfDataAPSR.csv", stringsAsFactors = F)

owners.sf<-subset(final, ownership_dummy==1)
renters.sf<-subset(final, ownership_dummy==0)

# Experiment randomization

control<-subset(final, version==5 | version==6)
control_owners<-subset(control, ownership_dummy==1)
control_renters<-subset(control, ownership_dummy==0)

control_owners_yes<-subset(control_owners, ten_plan_dummy==1)
control_owners_no<-subset(control_owners, ten_plan_dummy==0)

control_renters_yes<-subset(control_renters, ten_plan_dummy==1)
control_renters_no<-subset(control_renters, ten_plan_dummy==0)


# Extension Table A.3: Policy Proposals, SF

# Run Regressions
```

```r
simple_control<-(glm(ten_plan_dummy ~ ownership_dummy, final, family = "binomial")); summary(simple_con

simple_control_se<-sqrt(diag(vcovHC(simple_control, type="HC1")))

full_control<-(glm(ten_plan_dummy ~ ownership_dummy  +  scale(ideology_num) +scale(income_num) + white_
full_control_se<-sqrt(diag(vcovHC(full_control, type="HC1")))

#Supplementary Data
stargazer(simple_control, full_control, title="Ten Percent Supply Increase, San Francisco",  label="ten_
          dep.var.labels=c("Support Supply Increase"), dep.var.labels.include = F, dev.var.caption="",
          column.labels=c("Bivariate", "Full"),
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat=c("ser","f"), digits=2, align=T,
          initial.zero = F, font.size="small", star.cutoffs = NA, omit.table.layout="n",
          se=list(simple_control_se, full_control_se), no.space=T, omit=c("name"))


#model ban
simple_prop_i_ban<-(glm(prop_i_ban_dummy ~ ownership_dummy  , final, family = "binomial")); summary(sim
simple_prop_i_ban_se<-sqrt(diag(vcovHC(simple_prop_i_ban, type="HC1")))

full_prop_i_ban<-(glm(prop_i_ban_dummy ~ ownership_dummy  +  scale(ideology_num) +scale(income_num) + w
full_prop_i_ban_se<-sqrt(diag(vcovHC(full_prop_i_ban, type="HC1")))

#Table. Ban support
stargazer(simple_prop_i_ban, full_prop_i_ban, title="Neighborhood Ban, San Francisco",  label="prop_i_b
          dep.var.labels=c("Support Supply Increase"), dep.var.labels.include = F, dev.var.caption="",
          column.labels=c("Bivariate", "Full"),
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat=c("ser","f"), digits=2, align=T,
          initial.zero = F, font.size="small", star.cutoffs = NA, omit.table.layout="n",
          se=list(simple_prop_i_ban_se, full_prop_i_ban_se), no.space=T, omit=c("name"))

# Table. Combine these two tables

stargazer(simple_control, full_control, simple_prop_i_ban, full_prop_i_ban, title="Policy Proposals, Sa
          dep.var.labels.include = F, dev.var.caption="",
          column.labels=c("10 Pct Supply", "NIMBY Ban Proposal" ), column.separate = c(2, 2),
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat=c("ser","f"), digits=2, align=T, type="latex",
          initial.zero = F, font.size="small", star.cutoffs = NA, omit.table.layout="n",
          se=list(simple_control_se, full_control_se, simple_prop_i_ban_se, full_prop_i_ban_se), no.spa


# Extension Table B.2 Support for 10% Supply Increase

# Run Regressionss

# Bivariate

supply_simple<-(glm(supply_dummy ~ own, socpoc, family = "binomial"))
supply_simple_se<-sqrt(diag(vcovHC(supply_simple, type="HC1")))
```

```r
# Full

supply_full<-(glm(supply_dummy ~ own +scale(ideology)+scale(log(income)) + whitenh  +age + male, subset
supply_full_se<-sqrt(diag(vcovHC(supply_full, type="HC1")))

# Full w/ fixed effects

supply_full_fe<-(glm(supply_dummy ~  own +scale(ideology)+ scale(log(income))+ whitenh  + age + male +fa
supply_full_fe_se<-sqrt(diag(vcovHC(supply_full_fe, type="HC1")))

# Create Regression Table

stargazer(supply_simple,  supply_full , supply_full_fe, title="Support for 10 Percent Supply Increase",
          dep.var.labels=c("Support Supply Increase"),dep.var.labels.include = F, dep.var.caption = "",
          column.labels=c("Bivariate","Full","Full with Fixed Effects"),
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat = c("ser", "f"), digits=2, align=T, type="latex",
          initial.zero = F,  font.size = "small", star.cutoffs = NA, omit.table.layout = "n",
          se=list(supply_simple_se, supply_full_se, supply_full_fe_se), no.space=T,omit=c("name"), table


# Extension Table B.3. Support for 10 Percent Supply Increase - 7 Point Scale

# Load MASS packages

library(MASS)

# Factor the response variable

socpoc$city_supply1 = as.factor(socpoc$city_supply)

# Run Regressions

# Bivariate

supply_7_simple<-(polr(city_supply1 ~ own, socpoc))
supply_7_simple_se<-sqrt(diag(vcov(supply_7_simple, type="HC1")))

# Full

supply_7_full<-(polr(city_supply1 ~ own +scale(ideology)+scale(log(income)) + whitenh  +age + male, subs
supply_7_full_se<-sqrt(diag(vcov(supply_7_full, type="HC1")))

# Full w/ fixed effects

supply_7_full_fe<-(polr(city_supply1 ~  own +scale(ideology)+ scale(log(income))+ whitenh  + age + male
supply_7_full_fe_se<-sqrt(diag(vcov(supply_7_full_fe, type="HC1")))

# Create Table

stargazer(supply_7_simple,  supply_7_full , supply_7_full_fe, title="Support for 10 Percent Supply Incre
          dep.var.labels=c("Support Supply Increase"),dep.var.labels.include = F, dep.var.caption = "",
          column.labels=c("Bivariate","Full","Full with Fixed Effects"),
```

```
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat = c("ser", "f"), digits=2, align=T, type="latex",
          initial.zero = F,  font.size = "small", star.cutoffs = NA, omit.table.layout = "n",
          se=list(supply_7_simple_se, supply_7_full_se, supply_7_full_fe_se), no.space=T,omit=c("name")


# Extension Table B.4. Support for Neighborhood Ban ####

# bivariate
ban_simple<-(glm(ban_dummy ~ own, socpoc, family = "binomial"))
ban_simple_se<-sqrt(diag(vcovHC(ban_simple, type="HC1")))

# full

ban_full<-(glm(ban_dummy ~ own +scale(ideology)+scale(log(income)) + whitenh  +age + male, socpoc, famil
ban_full_se<-sqrt(diag(vcovHC(ban_full, type="HC1")))

#full w/ fixed effects
ban_full_fe<-(glm(ban_dummy ~  own +scale(ideology)+ scale(log(income))+ whitenh  + age + male +factor(
ban_full_fe_se<-sqrt(diag(vcovHC(ban_full_fe, type="HC1")))

# Table
stargazer(ban_simple,  ban_full , ban_full_fe, title="Support for Ban on Neighborhood Development", labe
          dep.var.labels=c("Support NIMBY Ban"),dep.var.labels.include = F, dep.var.caption = "",
          column.labels=c("Bivariate","Full","Full with Fixed Effects"),
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat = c("ser", "f"), digits=2, align=T, type="latex",
          initial.zero = F,  font.size = "small",star.cutoffs = NA, omit.table.layout = "n",
          se=list(ban_simple_se, ban_full_se, ban_full_fe_se), no.space=T, omit=c("name"), table.placem


# Extension Table B.5. Support for Neighborhood Ban 7 point scale ####

# Factor the response variable

socpoc$neighborhood_ban1 = as.factor(socpoc$neighborhood_ban)

# Run Regressions

#simple

ban_simple<-(polr(neighborhood_ban1 ~ own, socpoc))
ban_simple_se<-sqrt(diag(vcov(ban_simple, type="HC1")))

# full

ban_full<-(polr(neighborhood_ban1 ~ own +scale(ideology)+scale(log(income)) + whitenh  +age + male, socp
ban_full_se<-sqrt(diag(vcov(ban_full, type="HC1")))

#full w/ fixed effects

ban_full_fe<-(polr(neighborhood_ban1 ~  own +scale(ideology)+ scale(log(income))+ whitenh  + age + male
ban_full_fe_se<-sqrt(diag(vcov(ban_full_fe, type="HC1")))
```

```r
# Table
stargazer(ban_simple,  ban_full , ban_full_fe, title="Support for Ban on Neighborhood Development - 7 Po
          dep.var.labels=c("Support NIMBY Ban"),dep.var.labels.include = F, dep.var.caption = "",
          column.labels=c("Bivariate","Full","Full with Fixed Effects"),
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat = c("ser", "f"), digits=2, align=T, type="latex",
          initial.zero = F,  font.size = "small",star.cutoffs = NA, omit.table.layout = "n",
          se=list(ban_simple_se, ban_full_se, ban_full_fe_se), no.space=T, omit=c("name"), table.placeme

# Replication results begin here

support<-c(.37, .50, .52, .81)
Tenant<-c("Homeowners", "Homeowners", "Renters", "Renters")
supply<-c("Pro-Supply", "Anti-Supply","Pro-Supply","Anti-Supply")
supply<-factor(supply, levels=c("Pro-Supply", "Anti-Supply"))

ban_plot<-data.frame(Tenant, support, supply)

exitpoll_ban<-ggplot(data=ban_plot, aes(x=Tenant, y=support, fill=Tenant))+
  geom_bar(colour="black",stat="identity", position=position_dodge()) + facet_wrap(~supply) +
  ylab("Support (Percent)") + theme(legend.position="none") +ggtitle( "Support for Micro-scale Ban by Su
  theme_bw()+scale_fill_grey()

exitpoll_ban


# FIGURE 3. Homeowners, Proximity by Affordability ####


# Use AMCE to run regressions

owners_luxury_mod<-amce(select ~ distance  + community + height + site + tenant + units,
                        data= owners_lux , cluster=T,  respondent.id = "CaseID")
owners_affordable_mod<-amce(select ~ distance  + community + height + site + tenant + units,
                            data=owners_aff, cluster=T,  respondent.id = "CaseID")
owners_luxury_mod_frame<-data.frame(Variable=(summary(owners_luxury_mod)$amce)$Level,
                                    Coefficient = (summary(owners_luxury_mod)$amce)$Estimate,
                                    SE=(summary(owners_luxury_mod)$amce)$'Std. Err',
                                    modelName="Market Rate")
owners_affordable_mod_frame<-data.frame(Variable=(summary(owners_affordable_mod)$amce)$Level,
                                        Coefficient = (summary(owners_affordable_mod)$amce)$Estimate,
                                        SE=(summary(owners_affordable_mod)$amce)$'Std. Err',
                                        modelName="Affordable")
ownersPriceFrame<-data.frame(rbind(owners_luxury_mod_frame, owners_affordable_mod_frame))
ownersPriceFrame<-subset(ownersPriceFrame, Variable=="1/8 mile (2 minute walk)"|Variable=="1/2 mile (10
ownersPriceFrameIntercepts<-data.frame(Variable=c("2 miles (40 minute walk)", "2 miles (40 minute walk)
ownersPriceFrame<-data.frame(rbind(ownersPriceFrame,ownersPriceFrameIntercepts))
interval1<-qnorm((1-.9)/2)
interval2<-qnorm((1-.95)/2)
ownersPriceFrame$Variable <- factor(ownersPriceFrame$Variable, levels = c("1/8 mile (2 minute walk)","1/

# Plot ggplot.
```

```
owners_price_nimby<-ggplot(ownersPriceFrame, aes(colour=modelName, shape=modelName))+ scale_y_continuous
owners_price_nimby<-owners_price_nimby+theme_bw()+scale_colour_grey(end=.5)+geom_hline(yintercept=0, col
owners_price_nimby<-owners_price_nimby+geom_linerange(aes(x=Variable, ymin=Coefficient-SE*interval1,
                                                          ymax=Coefficient+SE*interval1), lwd=1, positio
owners_price_nimby<-owners_price_nimby+geom_pointrange(aes(x=Variable, y=Coefficient, ymin=Coefficient-S
                                                           ymax=Coefficient+SE*interval2), lwd=1/2,
                                                       position=position_dodge(width=1/2), fill="WHITE")
owners_price_nimby<-owners_price_nimby+coord_flip()+labs(y="Change in Probability Building Preferred")
owners_price_nimby<-owners_price_nimby+theme(legend.title=element_blank(),axis.title.y=element_blank())+
owners_price_nimby<-owners_price_nimby+theme(plot.margin=unit(c(0,0,0,0),"mm"))+ggtitle("Homeowners, Pro


print(owners_price_nimby)


# FIGURE 4. Renters, Proximity by Affordability ####
renters_luxury_mod<-amce(select ~ distance  + community + height + site + tenant + units,
                         data= renters_lux , cluster=T,  respondent.id = "CaseID")
renters_affordable_mod<-amce(select ~ distance  + community + height + site + tenant + units,
                             data=renters_aff, cluster=T,  respondent.id = "CaseID")
renters_luxury_mod_frame<-data.frame(Variable=(summary(renters_luxury_mod)$amce)$Level,
                                     Coefficient = (summary(renters_luxury_mod)$amce)$Estimate,
                                     SE=(summary(renters_luxury_mod)$amce)$'Std. Err',
                                     modelName="Market Rate")
renters_affordable_mod_frame<-data.frame(Variable=(summary(renters_affordable_mod)$amce)$Level,
                                         Coefficient = (summary(renters_affordable_mod)$amce)$Estimate,
                                         SE=(summary(renters_affordable_mod)$amce)$'Std. Err',
                                         modelName="Affordable")
rentersPriceFrame<-data.frame(rbind(renters_luxury_mod_frame, renters_affordable_mod_frame))
rentersPriceFrame<-subset(rentersPriceFrame, Variable=="1/8 mile (2 minute walk)"|Variable=="1/2 mile (
rentersPriceFrameIntercepts<-data.frame(Variable=c("2 miles (40 minute walk)", "2 miles (40 minute walk
rentersPriceFrame<-data.frame(rbind(rentersPriceFrame,rentersPriceFrameIntercepts))
interval1<-qnorm((1-.9)/2)
interval2<-qnorm((1-.95)/2)
rentersPriceFrame$Variable <- factor(rentersPriceFrame$Variable, levels = c("1/8 mile (2 minute walk)",
renters_price_nimby<-ggplot(rentersPriceFrame, aes(colour=modelName, shape=modelName)) + scale_y_contin
renters_price_nimby<-renters_price_nimby+theme_bw()+scale_colour_grey(end=.5)+geom_hline(yintercept=0, c
renters_price_nimby<-renters_price_nimby+geom_linerange(aes(x=Variable, ymin=Coefficient-SE*interval1,
                                                            ymax=Coefficient+SE*interval1), lwd=1, posit
renters_price_nimby<-renters_price_nimby+geom_pointrange(aes(x=Variable, y=Coefficient, ymin=Coefficient
                                                             ymax=Coefficient+SE*interval2), lwd=1/2,
                                                         position=position_dodge(width=1/2), fill="WHITE
renters_price_nimby<-renters_price_nimby+coord_flip()+ labs(y="Change in Probability Building Preferred
renters_price_nimby<-renters_price_nimby+theme(legend.title=element_blank(), axis.title.y=element_blank
renters_price_nimby<-renters_price_nimby+theme(plot.margin=unit(c(0,0,0,0),"mm")) +ggtitle("Renters, Pro


print(renters_price_nimby)


# FIGURE 5, Renters, Nimby by Affordability, Quintile City####

quantile(conjoint4$zri_city, probs=seq(0,1,.1), na.rm=T) # define quintiles
```

```
zri_city_values<-c(0,1217,1480,1936,2427,7344)
est1<-rep(NA, length(zri_city_values))
se1<-rep(NA, length(zri_city_values))
for(i in 1:5){
  mod1<-amce(select ~ distance+ community + height + site + tenant + units,
             data=subset(renters.conjoint, zri_city>zri_city_values[i] & zri_city<=zri_city_values[i+1]&
  est1[i]<-summary(mod1)$amce[5,3]
  se1[i]<-summary(mod1)$amce[5,4]
}
mod1ests<-as.data.frame(cbind(zri_city_values,est1,se1))
mod1ests$uCI<-est1+se1*1.96
mod1ests$lCI<-est1-se1*1.96
est2<-rep(NA, length(zri_city_values))
se2<-rep(NA, length(zri_city_values))
for(i in 1:5){
  mod2<-amce(select ~ distance+ community + height + site + tenant + units,
             data=subset(renters.conjoint, zri_city>zri_city_values[i] & zri_city<=zri_city_values[i+1]&
  est2[i]<-summary(mod2)$amce[5,3]
  se2[i]<-summary(mod2)$amce[5,4]
}
mod2ests<-as.data.frame(cbind(zri_city_values,est2,se2))
mod2ests$uCI<-est2+se2*1.96
mod2ests$lCI<-est2-se2*1.96
#combine data
mod1<-mod1ests[-6,]
mod1$quintle<-c("Least Expensive","2nd","3rd","4th","Most Expensive")
mod1$modelName<-"Market Rate"
names(mod1)<-c("zri","est","se","uci","lci","Quintile","modelName")
mod2<-mod2ests[-6,]
mod2$quintle<-c("Least Expensive","2nd","3rd","4th","Most Expensive")
mod2$modelName<-"Affordable"
names(mod2)<-c("zri","est","se","uci","lci","Quintile","modelName")
modFrame<-data.frame(rbind(mod1,mod2))
modFrame$Quintile <- factor(modFrame$Quintile, levels = c("Least Expensive", "2nd","3rd", "4th", "Most E
interval1<-qnorm((1-.9)/2)
interval2<-qnorm((1-.95)/2)
modFrame
modFrame$modelName<-factor(modFrame$modelName, levels=c("Market Rate","Affordable"))
renters_type_nimby<-ggplot(modFrame, aes(colour=modelName, shape=modelName))+ scale_y_continuous(limits
renters_type_nimby<-renters_type_nimby+theme_bw()+scale_colour_grey(end=.5)+geom_hline(yintercept=0, col
renters_type_nimby<-renters_type_nimby+geom_linerange(aes(x=Quintile, ymin=est-se*interval1,
                                                          ymax=est+se*interval1), lwd=1, position=positi
#+scale_color_manual(values=c('#F8766D', '#00BFC4'))

renters_type_nimby<-renters_type_nimby+geom_pointrange(aes(x=Quintile, y=est, ymin=est-se*interval2,
                                                           ymax=est+se*interval2), lwd=1/2,
                                                       position=position_dodge(width=1/2),  fill="WHITE
renters_type_nimby<-renters_type_nimby+coord_flip()+ labs(y="Change in Probability Building Preferred",x
renters_type_nimby<-renters_type_nimby+theme(legend.title=element_blank()) + theme(aspect.ratio = .5)
renters_type_nimby<-renters_type_nimby+theme(plot.margin=unit(c(0,0,0,0),"mm"))+ ggtitle("Renters, Proxi


print(renters_type_nimby)
```

```
quantile(socpoc$zri_city, probs=seq(0,1,.2), na.rm=T)
zri_city_values<-c(0,1217,1480,1936,2427,7344)
est1<-rep(NA, length(zri_city_values))
se1<-rep(NA, length(zri_city_values))

for(i in 1:5){
  section<-subset(renters.socpoc, zri_city>zri_city_values[i] & zri_city<=zri_city_values[i+1])
  est1[i]<-mean(section$supply_dummy,na.rm=T)
  se1[i]<-sqrt((est1[i]*(1-est1[i]))/nrow(section))
}

mod1ests<-as.data.frame(cbind(zri_city_values,est1,se1))
mod1ests$uCI<-est1+se1*1.96
mod1ests$lCI<-est1-se1*1.96

mod1estimates<-mod1ests[1:5,]
colnames(mod1estimates)<-c("Rent","Estimate", "StdErr", "UpperCI", "LowerCI")
mod1estimates$Quintile<-c(1,2,3,4,5)
mod1estimates
mod1estimates$Cost<-factor(c("Least Expensive","2nd","3rd","4th","Most Expensive"))
levels(mod1estimates$Cost)
pd <- position_dodge(0.1)
mod1estimates$Cost <- factor(mod1estimates$Cost, levels = c("Least Expensive","2nd","3rd","4th","Most E
mod1estimates
renter_city_supply<-ggplot(mod1estimates, aes(x=Cost, y=Estimate))+scale_y_continuous(limits = c(0, 1))
  geom_errorbar(aes(ymin=LowerCI, ymax=UpperCI), width=.1, position=pd) +
  geom_point(position=pd)+  labs(x = "Average City Rent (Quintiles)", y="Support for Supply (%)")+ggtit
  theme_bw()+scale_fill_grey()


print(renter_city_supply)


# FIGURE 7, Renters, nimby by price anxiety ####

renters_city_low_mod<-amce(select ~ distance  + community + height + site + tenant + units,
                           data=subset(renters_lux, city_interest<0) , cluster=T,  respondent.id = "Cas
renters_city_high_mod<-amce(select ~ distance  + community + height + site + tenant + units,
                            data=subset(renters_lux, city_interest>=0), cluster=T,  respondent.id = "Ca
renters_city_low_mod_frame<-data.frame(Variable=(summary(renters_city_low_mod)$amce)$Level,
                                       Coefficient = (summary(renters_city_low_mod)$amce)$Estimate,
                                       SE=(summary(renters_city_low_mod)$amce)$'Std. Err',
                                       modelName="Price Anxious")
renters_city_high_mod_frame<-data.frame(Variable=(summary(renters_city_high_mod)$amce)$Level,
                                        Coefficient = (summary(renters_city_high_mod)$amce)$Estimate,
                                        SE=(summary(renters_city_high_mod)$amce)$'Std. Err',
                                        modelName="Price Neutral")
rentersCityFrame<-data.frame(rbind(renters_city_low_mod_frame, renters_city_high_mod_frame))
rentersCityFrame<-subset(rentersCityFrame, Variable=="1/8 mile (2 minute walk)"|Variable=="1/2 mile (10
rentersCityFrameIntercepts<-data.frame(Variable=c("2 miles (40 minute walk)", "2 miles (40 minute walk)
rentersCityFrame<-data.frame(rbind(rentersCityFrame,rentersCityFrameIntercepts))
interval1<-qnorm((1-.9)/2)
```

```
interval2<-qnorm((1-.95)/2)
rentersCityFrame$Variable <- factor(rentersCityFrame$Variable, levels = c("1/8 mile (2 minute walk)","1/
renters_anxious_nimby<-ggplot(rentersCityFrame, aes(colour=modelName, shape=modelName))+ scale_y_contin
renters_anxious_nimby<-renters_anxious_nimby+theme_bw()+scale_colour_grey(end=.5)+geom_hline(yintercept=
#+ scale_color_manual(values=c('#990099','#33CC00'))
renters_anxious_nimby<-renters_anxious_nimby+geom_linerange(aes(x=Variable, ymin=Coefficient-SE*interval
                                                             ymax=Coefficient+SE*interval1), lwd=1, p
renters_anxious_nimby<-renters_anxious_nimby+geom_pointrange(aes(x=Variable, y=Coefficient, ymin=Coeffic
                                                              ymax=Coefficient+SE*interval2), lwd=1/2
                                                           position=position_dodge(width=1/2), fill="W
renters_anxious_nimby<-renters_anxious_nimby+coord_flip()+ labs(y="Change in Probability Building Prefer
renters_anxious_nimby<-renters_anxious_nimby+theme(legend.title=element_blank(),axis.title.y=element_bla
renters_anxious_nimby<-renters_anxious_nimby+theme(plot.margin=unit(c(0,0,0,0),"mm")) + ggtitle("Renters


print(renters_anxious_nimby)


# Table A.3: Policy Proposals, SF

# Run Regressions

simple_control<-(lm(ten_plan_dummy ~ ownership_dummy, final)); summary(simple_control)

simple_control_se<-sqrt(diag(vcovHC(simple_control, type="HC1")))

full_control<-(lm(ten_plan_dummy ~ ownership_dummy  +  scale(ideology_num) +scale(income_num) + white_du
full_control_se<-sqrt(diag(vcovHC(full_control, type="HC1")))

#Supplementary Data
stargazer(simple_control, full_control, title="Ten Percent Supply Increase, San Francisco",  label="ten_
          dep.var.labels=c("Support Supply Increase"), dep.var.labels.include = F, dev.var.caption="",
          column.labels=c("Bivariate", "Full"),
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat=c("ser","f"), digits=2, align=T,
          initial.zero = F, font.size="small", star.cutoffs = NA, omit.table.layout="n",
          se=list(simple_control_se, full_control_se), no.space=T, omit=c("name"))


#model ban
simple_prop_i_ban<-(lm(prop_i_ban_dummy ~ ownership_dummy  , final)); summary(simple_prop_i_ban)
simple_prop_i_ban_se<-sqrt(diag(vcovHC(simple_prop_i_ban, type="HC1")))

full_prop_i_ban<-(lm(prop_i_ban_dummy ~ ownership_dummy  +  scale(ideology_num) +scale(income_num) + whi
full_prop_i_ban_se<-sqrt(diag(vcovHC(full_prop_i_ban, type="HC1")))

#Table. Ban support
stargazer(simple_prop_i_ban, full_prop_i_ban, title="Neighborhood Ban, San Francisco",  label="prop_i_ba
          dep.var.labels=c("Support Supply Increase"), dep.var.labels.include = F, dev.var.caption="",
          column.labels=c("Bivariate", "Full"),
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat=c("ser","f"), digits=2, align=T,
          initial.zero = F, font.size="small", star.cutoffs = NA, omit.table.layout="n",
```

```
          se=list(simple_prop_i_ban_se, full_prop_i_ban_se), no.space=T, omit=c("name"))

# Table. Combine these two tables

stargazer(simple_control, full_control, simple_prop_i_ban, full_prop_i_ban, title="Policy Proposals, San
          dep.var.labels.include = F, dev.var.caption="",
          column.labels=c("10 Pct Supply", "NIMBY Ban Proposal" ), column.separate = c(2, 2),
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat=c("ser","f"), digits=2, align=T, type="latex",
          initial.zero = F, font.size="small", star.cutoffs = NA, omit.table.layout="n",
          se=list(simple_control_se, full_control_se, simple_prop_i_ban_se, full_prop_i_ban_se), no.spac


conjoint_sf<-read.csv("data/conjointSFAPSR.csv")

conjoint_sf$distance <- factor(conjoint_sf$distance,levels= c("2 miles (40 minute walk)", "1 mile (20 mi
                                                              "1/8 mile (2 minute walk)"))
conjoint_sf$community <- factor(conjoint_sf$community,levels= c("No opinion", "Support the building", "(
conjoint_sf$affordable <- factor(conjoint_sf$affordable,levels= c("None of the units", "One-quarter of t
conjoint_sf$height <- factor(conjoint_sf$height,levels= c("2 stories", "3 stories", "6 stories", "12 sto
conjoint_sf$site <- factor(conjoint_sf$site, levels=c("Empty building","Parking lot","Open field","Histo

#add indicators
conjoint_sf$city_interest_low<-as.factor(ifelse(conjoint_sf$city_interest<0,1,0))
conjoint_sf$prop_i_ban_dummy<-as.factor(ifelse(conjoint_sf$prop_i_ban_dummy==1,1,0))
conjoint_sf$luxury<-as.factor(ifelse(conjoint_sf$affordable=="None of the units",1,0))

#subgroups
owners<-subset(conjoint_sf, own==1)
renters<-subset(conjoint_sf, own==0)

owners_aff<-subset(owners, luxury==0)
owners_lux<-subset(owners, luxury==1)

renters_aff<-subset(renters, luxury==0)
renters_lux<-subset(renters, luxury==1)

# Figure A.1. Recontacted Conjoint San Francisco Sample ####
renters_prop_i_yes_mod<-amce(selected ~ distance  + community + height + site + tenant + units,
                             data=subset(renters_lux, prop_i_ban_dummy==1&supply_dummy==1),cluster=T,  i
renters_prop_i_no_mod<-amce(selected ~ distance  + community + height + site + tenant + units,
                            data=subset(renters_lux, prop_i_ban_dummy==0&supply_dummy==1), cluster=T,  i
renters_prop_i_yes_mod_frame<-data.frame(Variable=(summary(renters_prop_i_yes_mod)$amce)$Level,
                                         Coefficient = (summary(renters_prop_i_yes_mod)$amce)$Estimate,
                                         SE=(summary(renters_prop_i_yes_mod)$amce)$'Std. Err',
                                         modelName="Supporters")
renters_prop_i_no_mod_frame<-data.frame(Variable=(summary(renters_prop_i_no_mod)$amce)$Level,
                                        Coefficient = (summary(renters_prop_i_no_mod)$amce)$Estimate,
                                        SE=(summary(renters_prop_i_no_mod)$amce)$'Std. Err',
                                        modelName="Opponents")
rentersPropIFrame<-data.frame(rbind(renters_prop_i_yes_mod_frame, renters_prop_i_no_mod_frame))
rentersPropIFrame<-subset(rentersPropIFrame, Variable=="1/8 mile (2 minute walk)"|Variable=="1/2 mile (1
rentersPropIFrameIntercepts<-data.frame(Variable=c("2 miles (40 minute walk)", "2 miles (40 minute walk)
```

```
rentersPropIFrame<-data.frame(rbind(rentersPropIFrame,rentersPropIFrameIntercepts))
interval1<-qnorm((1-.9)/2)
interval2<-qnorm((1-.95)/2)
rentersPropIFrame$Variable <- factor(rentersPropIFrame$Variable, levels = c("1/8 mile (2 minute walk)",
rentersPropIFrame
rentersPropINimby<-ggplot(rentersPropIFrame, aes(colour=modelName, shape=modelName))+scale_shape_manual
#+  scale_color_manual(values=c('#FF9933','#3399FF'))
rentersPropINimby<-rentersPropINimby+theme_bw()+scale_colour_grey(end=.5)+geom_hline(yintercept=0, colou
rentersPropINimby<-rentersPropINimby+geom_linerange(aes(x=Variable, ymin=Coefficient-SE*interval1,
                                                        ymax=Coefficient+SE*interval1), lwd=1, position=
rentersPropINimby<-rentersPropINimby+geom_pointrange(aes(x=Variable, y=Coefficient, ymin=Coefficient-SE*
                                                         ymax=Coefficient+SE*interval2), lwd=1/2,
                                                     position=position_dodge(width=1/2), fill="WHITE")
rentersPropINimby<-rentersPropINimby+coord_flip()+labs(y="Change in Probability Building Preferred")
rentersPropINimby<-rentersPropINimby+theme(legend.title=element_blank(),axis.title.y=element_blank())+ t
rentersPropINimby<-rentersPropINimby+theme(plot.margin=unit(c(0,0,0,0),"mm")) + ggtitle("Renters, Proxim



print(rentersPropINimby)

# Table B.2 Support for 10% Supply Increase

# Run Regressionss

# Bivariate

supply_simple<-(lm(supply_dummy ~ own, socpoc))
supply_simple_se<-sqrt(diag(vcovHC(supply_simple, type="HC1")))

# Full

supply_full<-(lm(supply_dummy ~ own +scale(ideology)+scale(log(income)) + whitenh  +age + male, subset(s
supply_full_se<-sqrt(diag(vcovHC(supply_full, type="HC1")))

# Full w/ fixed effects

supply_full_fe<-(lm(supply_dummy ~  own +scale(ideology)+ scale(log(income))+ whitenh  + age + male +fac
supply_full_fe_se<-sqrt(diag(vcovHC(supply_full_fe, type="HC1")))

# Create Regression Table

stargazer(supply_simple,  supply_full , supply_full_fe, title="Support for 10 Percent Supply Increase",
          dep.var.labels=c("Support Supply Increase"),dep.var.labels.include = F, dep.var.caption = "",
          column.labels=c("Bivariate","Full","Full with Fixed Effects"),
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat = c("ser", "f"), digits=2, align=T, type="latex",
          initial.zero = F,  font.size = "small", star.cutoffs = NA, omit.table.layout = "n",
          se=list(supply_simple_se, supply_full_se, supply_full_fe_se), no.space=T,omit=c("name"), table



# Table B.3. Support for 10 Percent Supply Increase - 7 Point Scale ####
```

```
# Run Regressions

# Bivariate

supply_7_simple<-(lm(city_supply ~ own, socpoc))
supply_7_simple_se<-sqrt(diag(vcovHC(supply_7_simple, type="HC1")))

# Full

supply_7_full<-(lm(city_supply ~ own +scale(ideology)+scale(log(income)) + whitenh  +age + male, subset
supply_7_full_se<-sqrt(diag(vcovHC(supply_7_full, type="HC1")))

# Full w/ fixed effects

supply_7_full_fe<-(lm(city_supply ~  own +scale(ideology)+ scale(log(income))+ whitenh  + age + male +fa
supply_7_full_fe_se<-sqrt(diag(vcovHC(supply_7_full_fe, type="HC1")))

# Create Table

stargazer(supply_7_simple,  supply_7_full , supply_7_full_fe, title="Support for 10 Percent Supply Incre
          dep.var.labels=c("Support Supply Increase"),dep.var.labels.include = F, dep.var.caption = "",
          column.labels=c("Bivariate","Full","Full with Fixed Effects"),
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat = c("ser", "f"), digits=2, align=T, type="latex",
          initial.zero = F,  font.size = "small", star.cutoffs = NA, omit.table.layout = "n",
          se=list(supply_7_simple_se, supply_7_full_se, supply_7_full_fe_se), no.space=T,omit=c("name")


# Table B.4. Support for Neighborhood Ban ####

# bivariate
ban_simple<-(lm(ban_dummy ~ own, socpoc))
ban_simple_se<-sqrt(diag(vcovHC(ban_simple, type="HC1")))

# full

ban_full<-(lm(ban_dummy ~ own +scale(ideology)+scale(log(income)) + whitenh  +age + male, socpoc))
ban_full_se<-sqrt(diag(vcovHC(ban_full, type="HC1")))

#full w/ fixed effects
ban_full_fe<-(lm(ban_dummy ~  own +scale(ideology)+ scale(log(income))+ whitenh  + age + male +factor(na
ban_full_fe_se<-sqrt(diag(vcovHC(ban_full_fe, type="HC1")))

# Table
stargazer(ban_simple,  ban_full , ban_full_fe, title="Support for Ban on Neighborhood Development", labe
          dep.var.labels=c("Support NIMBY Ban"),dep.var.labels.include = F, dep.var.caption = "",
          column.labels=c("Bivariate","Full","Full with Fixed Effects"),
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat = c("ser", "f"), digits=2, align=T, type="latex",
          initial.zero = F,  font.size = "small",star.cutoffs = NA, omit.table.layout = "n",
          se=list(ban_simple_se, ban_full_se, ban_full_fe_se), no.space=T, omit=c("name"), table.placem
```

```r
# Table B.5. Support for Neighborhood Ban 7 point scale ####

#simple

ban_simple<-(lm(neighborhood_ban ~ own, socpoc))
ban_simple_se<-sqrt(diag(vcovHC(ban_simple, type="HC1")))

# full

ban_full<-(lm(neighborhood_ban ~ own +scale(ideology)+scale(log(income)) + whitenh  +age + male, socpoc
ban_full_se<-sqrt(diag(vcovHC(ban_full, type="HC1")))

#full w/ fixed effects

ban_full_fe<-(lm(neighborhood_ban ~  own +scale(ideology)+ scale(log(income))+ whitenh  + age + male +fa
ban_full_fe_se<-sqrt(diag(vcovHC(ban_full_fe, type="HC1")))

# Table
stargazer(ban_simple,  ban_full , ban_full_fe, title="Support for Ban on Neighborhood Development - 7 Po
          dep.var.labels=c("Support NIMBY Ban"),dep.var.labels.include = F, dep.var.caption = "",
          column.labels=c("Bivariate","Full","Full with Fixed Effects"),
          covariate.labels=c("Homeownership","Ideology","Income, Log","White, Non-Hispanic","Age","Male
          omit.stat = c("ser", "f"), digits=2, align=T, type="latex",
          initial.zero = F,  font.size = "small",star.cutoffs = NA, omit.table.layout = "n",
          se=list(ban_simple_se, ban_full_se, ban_full_fe_se), no.space=T, omit=c("name"), table.placeme


# Figure C.1. Homeowner Proximity by Income ####

summary(owners$income) #median==80,000
owners_liberal<-amce(select ~ distance + affordable + community + height + site + tenant + units,
                     data=subset(owners.conjoint, income>80000), cluster=T,  respondent.id = "CaseID")
owners_conservatives<-amce(select ~ distance + affordable + community + height + site + tenant + units,
                           data=subset(owners.conjoint, income<=80000), cluster=T,  respondent.id = "Ca
owners_liberal_frame<-data.frame(Variable=(summary(owners_liberal)$amce)$Level,
                                 Coefficient = (summary(owners_liberal)$amce)$Estimate,
                                 SE=(summary(owners_liberal)$amce)$'Std. Err',
                                 modelName="Below Median Income")
owners_liberal_frame
owners_conservatives_frame<-data.frame(Variable=(summary(owners_conservatives)$amce)$Level,
                                       Coefficient = (summary(owners_conservatives)$amce)$Estimate,
                                       SE=(summary(owners_conservatives)$amce)$'Std. Err',
                                       modelName="Above Median Income")
ideologyFrame<-data.frame(rbind(owners_liberal_frame, owners_conservatives_frame))
ideologyFrame<-subset(ideologyFrame, Variable=="1/8 mile (2 minute walk)"|Variable=="1/2 mile (10 minute
ideologyFrameIntercepts<-data.frame(Variable=c("2 miles (40 minute walk)", "2 miles (40 minute walk)")
ideologyFrame<-data.frame(rbind(ideologyFrame,ideologyFrameIntercepts))
interval1<-qnorm((1-.9)/2)
interval2<-qnorm((1-.95)/2)
ideologyFrame$Variable <- factor(ideologyFrame$Variable, levels = c("1/8 mile (2 minute walk)","1/2 mile
ideology_affordable<-ggplot(ideologyFrame, aes(colour=modelName, shape=modelName))+ scale_y_continuous(
ideology_affordable<-ideology_affordable+theme_bw()+scale_colour_grey(end=.5)+geom_hline(yintercept=0, 
ideology_affordable<-ideology_affordable+geom_linerange(aes(x=Variable, ymin=Coefficient-SE*interval1,
```

```
                                                            ymax=Coefficient+SE*interval1), lwd=1, posi
ideology_affordable<-ideology_affordable+geom_pointrange(aes(x=Variable, y=Coefficient, ymin=Coefficien
                                                             ymax=Coefficient+SE*interval2), lwd=1/2,
                                                         position=position_dodge(width=1/2),  fill="WHI
ideology_affordable<-ideology_affordable+coord_flip()+ labs(y="Change in Probability Building Preferred
ideology_affordable<-ideology_affordable+theme(legend.title=element_blank(),axis.title.y=element_blank(
ideology_affordable<-ideology_affordable+theme(plot.margin=unit(c(0,0,0,0),"mm"))+ggtitle("Homeowners, 


print(ideology_affordable)


# Figure C.2 Homeowner Proximity by Ideology ####

# Redefine data-sets

renters_aff<-subset(renters.conjoint, aff_housing==1)
renters_lux<-subset(renters.conjoint, aff_housing==0)

owners_aff<-subset(owners.conjoint, aff_housing==1)
owners_lux<-subset(owners.conjoint, aff_housing==0)

# Run the regression

owners_liberal<-amce(select ~ distance + affordable  + community + height + site + tenant + units,
                     data=subset(owners_aff, ideology>4), cluster=T,  respondent.id = "CaseID")
owners_conservatives<-amce(select ~ distance + affordable  + community + height + site + tenant + units
                           data=subset(owners_aff, ideology<4), cluster=T,  respondent.id = "CaseID")
owners_liberal_frame<-data.frame(Variable=(summary(owners_liberal)$amce)$Level,
                                 Coefficient = (summary(owners_liberal)$amce)$Estimate,
                                 SE=(summary(owners_liberal)$amce)$'Std. Err',
                                 modelName="Liberals")
owners_liberal_frame
owners_conservatives_frame<-data.frame(Variable=(summary(owners_conservatives)$amce)$Level,
                                       Coefficient = (summary(owners_conservatives)$amce)$Estimate,
                                       SE=(summary(owners_conservatives)$amce)$'Std. Err',
                                       modelName="Conservatives")
ideologyFrame<-data.frame(rbind( owners_conservatives_frame,owners_liberal_frame))
ideologyFrame<-subset(ideologyFrame, Variable=="1/8 mile (2 minute walk)"|Variable=="1/2 mile (10 minut
ideologyFrameIntercepts<-data.frame(Variable=c("2 miles (40 minute walk)", "2 miles (40 minute walk)")
ideologyFrame<-data.frame(rbind(ideologyFrame,ideologyFrameIntercepts))
interval1<-qnorm((1-.9)/2)
interval2<-qnorm((1-.95)/2)
ideologyFrame$Variable <- factor(ideologyFrame$Variable, levels = c("1/8 mile (2 minute walk)","1/2 mil
ideology_affordable<-ggplot(ideologyFrame, aes(colour=modelName, shape=modelName))+ scale_y_continuous(
ideology_affordable<-ideology_affordable+theme_bw()+scale_colour_grey(end=.5)+geom_hline(yintercept=0, 
ideology_affordable<-ideology_affordable+geom_linerange(aes(x=Variable, ymin=Coefficient-SE*interval1, 
                                                            ymax=Coefficient+SE*interval1), lwd=1, posi
ideology_affordable<-ideology_affordable+geom_pointrange(aes(x=Variable, y=Coefficient, ymin=Coefficien
                                                             ymax=Coefficient+SE*interval2), lwd=1/2,
                                                         position=position_dodge(width=1/2),  fill="WHI
ideology_affordable<-ideology_affordable+coord_flip()+ labs(y="Change in Probability Building Preferred
ideology_affordable<-ideology_affordable+theme(legend.title=element_blank(),axis.title.y=element_blank(
```

```
ideology_affordable<-ideology_affordable+theme(plot.margin=unit(c(0,0,0,0),"mm"))+ggtitle("Homeowners, 


print(ideology_affordable)


# Figure C.3 Proximity by Affordability Homeowners and Renters ####

affordable_values<-c("None of the units", "One-quarter of the units", "Half of the units", "All of the 
est1<-rep(NA, length(affordable_values))
se1<-rep(NA, length(affordable_values))
for(i in 1:4){
  mod1<-amce(select ~ distance + community + height + site + tenant + units,
             data=subset(owners.conjoint, affordable==affordable_values[i]), cluster=T, respondent.id =
  est1[i]<-summary(mod1)$amce[5,3]
  se1[i]<-summary(mod1)$amce[5,4]
}
mod1ests<-as.data.frame(cbind(affordable_values,est1,se1))
mod1ests$uCI<-est1+se1*1.96
mod1ests$lCI<-est1-se1*1.96

est2<-rep(NA, length(affordable_values))
se2<-rep(NA, length(affordable_values))
for(i in 1:4){
  mod2<-amce(select ~ distance + community + height + site + tenant + units,
             data=subset(renters.conjoint, affordable==affordable_values[i]), cluster=T, respondent.id =
  est2[i]<-summary(mod2)$amce[5,3]
  se2[i]<-summary(mod2)$amce[5,4]
}
mod2ests<-as.data.frame(cbind(affordable_values,est2,se2))
mod2ests$uCI<-est1+se1*1.96
mod2ests$lCI<-est1-se1*1.96
mod2ests
#combine data

mod1<-mod1ests
class(mod1$est)
mod1$quintle<-c("None of the units", "One-quarter of the units", "Half of the units", "All of the units
mod1$modelName<-"Homeowners"
names(mod1)<-c("affordability","est","se","uci","lci","Quintile","modelName")
mod2<-mod2ests
mod2$quintle<-c("None of the units", "One-quarter of the units", "Half of the units", "All of the units
mod2$modelName<-"Renters"
names(mod2)<-c("affordability","est","se","uci","lci","Quintile","modelName")
modFrame<-data.frame(rbind(mod1,mod2))
modFrame$Quintile <- factor(modFrame$Quintile, levels = c("None of the units", "One-quarter of the unit
interval1<-qnorm((1-.9)/2)
interval2<-qnorm((1-.95)/2)
modFrame$est<-as.numeric(as.character(modFrame$est))
modFrame$se<-as.numeric(as.character(modFrame$se))

modFrame$modelName<-factor(modFrame$modelName, levels=c("Homeowners","Renters"))
modFrame
```

```r
renters_type_nimby<-ggplot(modFrame, aes(colour=modelName, shape=modelName))+ scale_y_continuous(limits
renters_type_nimby<-renters_type_nimby+theme_bw()+scale_colour_grey(end=.5)+geom_hline(yintercept=0, co
renters_type_nimby<-renters_type_nimby+geom_linerange(aes(x=Quintile, ymin=est-se*interval1,
                                                         ymax=est+se*interval1), lwd=1, position=posit
renters_type_nimby<-renters_type_nimby+geom_pointrange(aes(x=Quintile, y=est, ymin=est-se*interval2,
                                                          ymax=est+se*interval2), lwd=1/2,
                                                       position=position_dodge(width=1/2),  fill="WHITE
renters_type_nimby<-renters_type_nimby+coord_flip()+ labs(y="Change in Probability Building Preferred",
renters_type_nimby<-renters_type_nimby+theme(legend.title=element_blank())+ theme(aspect.ratio = .5)
renters_type_nimby<-renters_type_nimby+theme(plot.margin=unit(c(0,0,0,0),"mm")) + ggtitle("Proximity by


print(renters_type_nimby)


# Figure C.4 Renters Proximity by each level of affordability, by City ####

quantile(conjoint4$zri_city, probs=seq(0,1,.2), na.rm=T)

zri_values<-c(0,1217,1480,1936,2427,7500)
est1<-rep(NA, length(zri_values))
se1<-rep(NA, length(zri_values))
for(i in 1:5){
  mod1<-amce(select ~ distance+ community + height + site + tenant + units,
             data=subset(renters.conjoint, zri_city>zri_values[i] & zri_city<=zri_values[i+1]&affordabl
  est1[i]<-summary(mod1)$amce[5,3]
  se1[i]<-summary(mod1)$amce[5,4]
}
mod1ests<-as.data.frame(cbind(zri_values,est1,se1))
mod1ests$uCI<-est1+se1*1.96
mod1ests$lCI<-est1-se1*1.96

est2<-rep(NA, length(zri_values))
se2<-rep(NA, length(zri_values))
for(i in 1:5){
  mod2<-amce(select ~ distance+ community + height + site + tenant + units,
             data=subset(renters.conjoint, zri_city>zri_values[i] & zri_city<=zri_values[i+1]&affordabl
  est2[i]<-summary(mod2)$amce[5,3]
  se2[i]<-summary(mod2)$amce[5,4]
}
mod2ests<-as.data.frame(cbind(zri_values,est2,se2))
mod2ests$uCI<-est2+se2*1.96
mod2ests$lCI<-est2-se2*1.96

est3<-rep(NA, length(zri_values))
se3<-rep(NA, length(zri_values))
for(i in 1:5){
  mod3<-amce(select ~ distance+ community + height + site + tenant + units,
             data=subset(renters.conjoint, zri_city>zri_values[i] & zri_city<=zri_values[i+1]&affordabl
  est3[i]<-summary(mod3)$amce[5,3]
  se3[i]<-summary(mod3)$amce[5,4]
}
mod3ests<-as.data.frame(cbind(zri_values,est3,se3))
```

```
mod3ests$uCI<-est3+se3*1.96
mod3ests$lCI<-est3-se3*1.96

est4<-rep(NA, length(zri_values))
se4<-rep(NA, length(zri_values))
for(i in 1:5){
  mod4<-amce(select ~ distance+ community + height + site + tenant + units,
             data=subset(renters.conjoint, zri_city>zri_values[i] & zri_city<=zri_values[i+1]&affordabl
  est4[i]<-summary(mod4)$amce[5,3]
  se4[i]<-summary(mod4)$amce[5,4]
}
mod4ests<-as.data.frame(cbind(zri_values,est4,se4))
mod4ests$uCI<-est4+se4*1.96
mod4ests$lCI<-est4-se4*1.96

#combine data
mod1<-mod1ests[-6,]
mod1$quintle<-c("Least Expensive","2nd","3rd","4th","Most Expensive")
mod1$modelName<-"None of Units"
names(mod1)<-c("zri","est","se","uci","lci","Quintile","modelName")

mod2<-mod2ests[-6,]
mod2$quintle<-c("Least Expensive","2nd","3rd","4th","Most Expensive")
mod2$modelName<-"Quarter of Units"
names(mod2)<-c("zri","est","se","uci","lci","Quintile","modelName")

mod3<-mod3ests[-6,]
mod3$quintle<-c("Least Expensive","2nd","3rd","4th","Most Expensive")
mod3$modelName<-"Half of Units"
names(mod3)<-c("zri","est","se","uci","lci","Quintile","modelName")

mod4<-mod4ests[-6,]
mod4$quintle<-c("Least Expensive","2nd","3rd","4th","Most Expensive")
mod4$modelName<-"All of Units"
names(mod4)<-c("zri","est","se","uci","lci","Quintile","modelName")

modFrame<-data.frame(rbind(mod1,mod2,mod3,mod4))
modFrame$Quintile <- factor(modFrame$Quintile, levels = c("Least Expensive","2nd","3rd","4th","Most Exp
interval1<-qnorm((1-.9)/2)
interval2<-qnorm((1-.95)/2)
modFrame
modFrame$modelName<-factor(modFrame$modelName, levels=c("None of Units","Quarter of Units","Half of Uni
renters_type_nimby<-ggplot(modFrame, aes(colour=modelName, shape=modelName))+ scale_y_continuous(limits
renters_type_nimby<-renters_type_nimby+theme_bw()+theme(legend.title = element_blank())+scale_colour_gr
renters_type_nimby<-renters_type_nimby+geom_linerange(aes(x=Quintile, ymin=est-se*interval1,
                                                          ymax=est+se*interval1), lwd=1, position=posit
renters_type_nimby<-renters_type_nimby+geom_pointrange(aes(x=Quintile, y=est, ymin=est-se*interval2,
                                                           ymax=est+se*interval2), lwd=1/2,
                                                        position=position_dodge(width=1/2),  fill="WHITE
renters_type_nimby<-renters_type_nimby+coord_flip()+ labs(y="Change in Probability Building Preferred",
renters_type_nimby<-renters_type_nimby+theme(plot.margin=unit(c(0,0,0,0),"mm"))+ggtitle(("Renters, Prox
```

```
print(renters_type_nimby)


# Figure C.5 Renters Proximity by Affordability and Average Rent by ZIP ####

quantile(conjoint4$zri, probs=seq(0,1,.2), na.rm=T)
zri_city_values<-c(0,1204,1526,1959,2488,13000)
est1<-rep(NA, length(zri_city_values))
se1<-rep(NA, length(zri_city_values))
for(i in 1:5){
  mod1<-amce(select ~ distance+ community + height + site + tenant + units,
             data=subset(renters.conjoint, zri>zri_city_values[i] & zri<=zri_city_values[i+1]&luxury==1)
  est1[i]<-summary(mod1)$amce[5,3]
  se1[i]<-summary(mod1)$amce[5,4]
}
mod1ests<-as.data.frame(cbind(zri_city_values,est1,se1))
mod1ests$uCI<-est1+se1*1.96
mod1ests$lCI<-est1-se1*1.96
est2<-rep(NA, length(zri_city_values))
se2<-rep(NA, length(zri_city_values))
for(i in 1:5){
  mod2<-amce(select ~ distance+ community + height + site + tenant + units,
             data=subset(renters.conjoint, zri>zri_city_values[i] & zri<=zri_city_values[i+1]&luxury==0)
  est2[i]<-summary(mod2)$amce[5,3]
  se2[i]<-summary(mod2)$amce[5,4]
}
mod2ests<-as.data.frame(cbind(zri_city_values,est2,se2))
mod2ests$uCI<-est2+se2*1.96
mod2ests$lCI<-est2-se2*1.96
#combine data
mod1<-mod1ests[-6,]
mod1$quintle<-c("Least Expensive","2nd","3rd","4th","Most Expensive")
mod1$modelName<-"Market Rate"
names(mod1)<-c("zri","est","se","uci","lci","Quintile","modelName")
mod2<-mod2ests[-6,]
mod2$quintle<-c("Least Expensive","2nd","3rd","4th","Most Expensive")
mod2$modelName<-"Affordable"
names(mod2)<-c("zri","est","se","uci","lci","Quintile","modelName")
modFrame<-data.frame(rbind(mod1,mod2))
modFrame$Quintile <- factor(modFrame$Quintile, levels = c("Least Expensive", "2nd","3rd", "4th", "Most E
interval1<-qnorm((1-.9)/2)
interval2<-qnorm((1-.95)/2)
modFrame
modFrame$modelName<-factor(modFrame$modelName, levels=c("Market Rate","Affordable"))
renters_type_nimby<-ggplot(modFrame, aes(colour=modelName, shape=modelName))+ scale_y_continuous(limits
renters_type_nimby<-renters_type_nimby+theme_bw()+scale_colour_grey(end=.5)+geom_hline(yintercept=0, co
renters_type_nimby<-renters_type_nimby+geom_linerange(aes(x=Quintile, ymin=est-se*interval1,
                                                          ymax=est+se*interval1), lwd=1, position=posit
renters_type_nimby<-renters_type_nimby+geom_pointrange(aes(x=Quintile, y=est, ymin=est-se*interval2,
                                                           ymax=est+se*interval2), lwd=1/2,
                                                       position=position_dodge(width=1/2),  fill="WHITE
renters_type_nimby<-renters_type_nimby+coord_flip()+ labs(y="Change in Probability Building Preferred",
renters_type_nimby<-renters_type_nimby+theme(legend.title=element_blank()) + theme(aspect.ratio = .5)
```

```r
renters_type_nimby<-renters_type_nimby+theme(plot.margin=unit(c(0,0,0,0),"mm"))+ ggtitle("Renters, Prox


print(renters_type_nimby)



# Figure C.6 Homeowners Proximity by each level of affordability, by City ####

quantile(conjoint4$zri_city, probs=seq(0,1,.2), na.rm=T)
zri_values<-c(0,1217,1480,1936,2427,7500)
est1<-rep(NA, length(zri_values))
se1<-rep(NA, length(zri_values))
for(i in 1:5){
  mod1<-amce(select ~ distance+ community + height + site + tenant + units,
             data=subset(owners.conjoint, zri_city>zri_values[i] & zri_city<zri_values[i+1]&affordable=
  est1[i]<-summary(mod1)$amce[5,3]
  se1[i]<-summary(mod1)$amce[5,4]
}
mod1ests<-as.data.frame(cbind(zri_values,est1,se1))
mod1ests$uCI<-est1+se1*1.96
mod1ests$lCI<-est1-se1*1.96


est2<-rep(NA, length(zri_values))
se2<-rep(NA, length(zri_values))
for(i in 1:5){
  mod2<-amce(select ~ distance+ community + height + site + tenant + units,
             data=subset(owners.conjoint, zri_city>zri_values[i] & zri_city<zri_values[i+1]&affordable=
  est2[i]<-summary(mod2)$amce[5,3]
  se2[i]<-summary(mod2)$amce[5,4]
}
mod2ests<-as.data.frame(cbind(zri_values,est2,se2))
mod2ests$uCI<-est2+se2*1.96
mod2ests$lCI<-est2-se2*1.96

est3<-rep(NA, length(zri_values))
se3<-rep(NA, length(zri_values))
for(i in 1:5){
  mod3<-amce(select ~ distance+ community + height + site + tenant + units,
             data=subset(owners.conjoint, zri_city>zri_values[i] & zri_city<zri_values[i+1]&affordable=
  est3[i]<-summary(mod3)$amce[5,3]
  se3[i]<-summary(mod3)$amce[5,4]
}
mod3ests<-as.data.frame(cbind(zri_values,est3,se3))
mod3ests$uCI<-est3+se3*1.96
mod3ests$lCI<-est3-se3*1.96

est4<-rep(NA, length(zri_values))
se4<-rep(NA, length(zri_values))
for(i in 1:5){
  mod4<-amce(select ~ distance+ community + height + site + tenant + units,
             data=subset(owners.conjoint, zri_city>zri_values[i] & zri_city<zri_values[i+1]&affordable=
```

```
  est4[i]<-summary(mod4)$amce[5,3]
  se4[i]<-summary(mod4)$amce[5,4]
}
mod4ests<-as.data.frame(cbind(zri_values,est4,se4))
mod4ests$uCI<-est4+se4*1.96
mod4ests$lCI<-est4-se4*1.96

#combine data
mod1<-mod1ests[-6,]
mod1$quintle<-c("Least Expensive","2nd","3rd","4th","Most Expensive")
mod1$modelName<-"None of Units"
names(mod1)<-c("zri","est","se","uci","lci","Quintile","modelName")

mod2<-mod2ests[-6,]
mod2$quintle<-c("Least Expensive","2nd","3rd","4th","Most Expensive")
mod2$modelName<-"Quarter of Units"
names(mod2)<-c("zri","est","se","uci","lci","Quintile","modelName")

mod3<-mod3ests[-6,]
mod3$quintle<-c("Least Expensive","2nd","3rd","4th","Most Expensive")
mod3$modelName<-"Half of Units"
names(mod3)<-c("zri","est","se","uci","lci","Quintile","modelName")

mod4<-mod4ests[-6,]
mod4$quintle<-c("Least Expensive","2nd","3rd","4th","Most Expensive")
mod4$modelName<-"All of Units"
names(mod4)<-c("zri","est","se","uci","lci","Quintile","modelName")

modFrame<-data.frame(rbind(mod1,mod2,mod3,mod4))
modFrame$Quintile <- factor(modFrame$Quintile, levels = c("Least Expensive","2nd","3rd","4th","Most Expe
interval1<-qnorm((1-.9)/2)
interval2<-qnorm((1-.95)/2)
modFrame
modFrame$modelName<-factor(modFrame$modelName, levels=c("None of Units","Quarter of Units","Half of Uni

renters_type_nimby<-ggplot(modFrame, aes(colour=modelName, shape=modelName))+ scale_y_continuous(limits
renters_type_nimby<-renters_type_nimby+theme_bw()+theme(legend.title = element_blank())+scale_colour_gre
renters_type_nimby<-renters_type_nimby+geom_linerange(aes( x=Quintile, ymin=est-se*interval1,
                                                            ymax=est+se*interval1), lwd=1, position=posi
renters_type_nimby<-renters_type_nimby+geom_pointrange(aes(x=Quintile, y=est, ymin=est-se*interval2,
                                                            ymax=est+se*interval2), lwd=1/2,
                                                        position=position_dodge(width=1/2),  fill="WHITE
renters_type_nimby<-renters_type_nimby+coord_flip()+ labs(y="Change in Probability Building Preferred",
renters_type_nimby<-renters_type_nimby+theme(plot.margin=unit(c(0,0,0,0),"mm"))+ggtitle(("Homeowners, Pr


print(renters_type_nimby)


renters_city_low_mod<-amce(select ~ distance  + community + height + site + tenant + units,
                           data=subset(renters_aff, city_interest<0) , cluster=T,  respondent.id = "Case
renters_city_high_mod<-amce(select ~ distance  + community + height + site + tenant + units,
                            data=subset(renters_aff, city_interest>=0), cluster=T,  respondent.id = "Ca
```

```
renters_city_low_mod_frame<-data.frame(Variable=(summary(renters_city_low_mod)$amce)$Level,
                                       Coefficient = (summary(renters_city_low_mod)$amce)$Estimate,
                                       SE=(summary(renters_city_low_mod)$amce)$'Std. Err',
                                       modelName="Price Anxious")
renters_city_high_mod_frame<-data.frame(Variable=(summary(renters_city_high_mod)$amce)$Level,
                                        Coefficient = (summary(renters_city_high_mod)$amce)$Estimate,
                                        SE=(summary(renters_city_high_mod)$amce)$'Std. Err',
                                        modelName="Price Neutral")
rentersCityFrame<-data.frame(rbind(renters_city_low_mod_frame, renters_city_high_mod_frame))
rentersCityFrame<-subset(rentersCityFrame, Variable=="1/8 mile (2 minute walk)"|Variable=="1/2 mile (10
rentersCityFrameIntercepts<-data.frame(Variable=c("2 miles (40 minute walk)", "2 miles (40 minute walk)
rentersCityFrame<-data.frame(rbind(rentersCityFrame,rentersCityFrameIntercepts))
interval1<-qnorm((1-.9)/2)
interval2<-qnorm((1-.95)/2)
rentersCityFrame$Variable <- factor(rentersCityFrame$Variable, levels = c("1/8 mile (2 minute walk)","1/
renters_anxious_nimby<-ggplot(rentersCityFrame, aes(colour=modelName, shape=modelName))+ scale_y_contin
renters_anxious_nimby<-renters_anxious_nimby+theme_bw()+scale_colour_grey(end=.5)+geom_hline(yintercept=
#+ scale_color_manual(values=c('#990099','#33CC00'))
renters_anxious_nimby<-renters_anxious_nimby+geom_linerange(aes(x=Variable, ymin=Coefficient-SE*interva
                                                                ymax=Coefficient+SE*interval1), lwd=1, 
renters_anxious_nimby<-renters_anxious_nimby+geom_pointrange(aes(x=Variable, y=Coefficient, ymin=Coeffi
                                                                 ymax=Coefficient+SE*interval2), lwd=1/
                                                              position=position_dodge(width=1/2), fill="
renters_anxious_nimby<-renters_anxious_nimby+coord_flip()+ labs(y="Change in Probability Building Prefe
renters_anxious_nimby<-renters_anxious_nimby+theme(legend.title=element_blank(),axis.title.y=element_bl
renters_anxious_nimby<-renters_anxious_nimby+theme(plot.margin=unit(c(0,0,0,0),"mm")) + ggtitle("Renter


print(renters_anxious_nimby)


# Figure C.8. Renters Suppport for Supply Cityiwde, Average ZIP Rent ####

quantile(socpoc$zri, probs=seq(0,1,.2), na.rm=T)
zri_city_values<-c(0,1204,1526,1958,2488,13000)
est1<-rep(NA, length(zri_city_values))
se1<-rep(NA, length(zri_city_values))

for(i in 1:5){
  section<-subset(renters.socpoc, zri>zri_city_values[i] & zri<=zri_city_values[i+1])
  est1[i]<-mean(section$supply_dummy,na.rm=T)
  se1[i]<-sqrt((est1[i]*(1-est1[i]))/nrow(section))
}

mod1ests<-as.data.frame(cbind(zri_city_values,est1,se1))
mod1ests$uCI<-est1+se1*1.96
mod1ests$lCI<-est1-se1*1.96

mod1estimates<-mod1ests[1:5,]
colnames(mod1estimates)<-c("Rent","Estimate", "StdErr", "UpperCI", "LowerCI")
mod1estimates$Quintile<-c(1,2,3,4,5)
mod1estimates
mod1estimates$Cost<-factor(c("Least Expensive","2nd","3rd","4th","Most Expensive"))
```

```
levels(mod1estimates$Cost)
pd <- position_dodge(0.1)
mod1estimates$Cost <- factor(mod1estimates$Cost, levels = c("Least Expensive","2nd","3rd","4th","Most E
mod1estimates
renter_zip_supply<-ggplot(mod1estimates, aes(x=Cost, y=Estimate))+scale_y_continuous(limits = c(0, 1))+
  geom_errorbar(aes(ymin=LowerCI, ymax=UpperCI), width=.1, position=pd) +
  geom_point(position=pd)+  labs(x = "Average ZIP Rent (Quintiles)", y="Support for Supply (%)")+ggtitl
  theme_bw()+scale_fill_grey()


print(renter_zip_supply)

# Figure C.9. Homeowners Support for Supply Citywide, Average City Rent ####
quantile(socpoc$zri_city, probs=seq(0,1,.2), na.rm=T)
zri_city_values<-c(0,1217,1480,1936,2427,7344)

est2<-rep(NA, length(zri_city_values))
se2<-rep(NA, length(zri_city_values))

for(i in 1:5){
  section<-subset(owners.socpoc, zri_city>zri_city_values[i] & zri_city<=zri_city_values[i+1])
  est2[i]<-mean(section$supply_dummy,na.rm=T)
  se2[i]<-sqrt((est2[i]*(1-est2[i]))/nrow(section))
}

mod2ests<-as.data.frame(cbind(zri_city_values,est2,se2))
mod2ests$uCI<-est2+se2*1.96
mod2ests$lCI<-est2-se2*1.96

mod2estimates<-mod2ests[1:5,]
colnames(mod2estimates)<-c("Rent","Estimate", "StdErr", "UpperCI", "LowerCI")
mod2estimates$Quintile<-c(1,2,3,4,5)
mod2estimates
mod2estimates$Cost<-factor(c("Least Expensive","2nd","3rd","4th","Most Expensive"))
levels(mod2estimates$Cost)
pd <- position_dodge(0.1)
mod2estimates$Cost <- factor(mod2estimates$Cost, levels = c("Least Expensive","2nd","3rd","4th","Most E
owners_city_supply<-ggplot(mod2estimates, aes(x=Cost, y=Estimate))+scale_y_continuous(limits = c(0, 1))
  geom_errorbar(aes(ymin=LowerCI, ymax=UpperCI), width=.1, position=pd) +
  geom_point(position=pd)+ggtitle("Homeowners Support for Supply Citywide, by Average Rent")+
  labs(x = "Average City Rent (Quintiles)", y="Support for Supply (%)")+ theme(aspect.ratio=.5)+
  theme_bw()+scale_fill_grey()


print(owners_city_supply)
```

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