What's the Matter with San Francisco? Redistribution and Support for Housing Growth

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Abstract

Renters in cities experiencing rising housing costs sometimes oppose housing growth, even though economic theory predicts that increasing the supply of housing leads to lower housing costs in equilibrium. This paper studies the inequity aversion hypothesis of support for housing growth, which proposes that inequity averse voters oppose housing growth if the benefits of growth are inequitably distributed. I use a novel dataset of local ballot measures in San Francisco to show that consistent with the inequity aversion hypothesis, support for proposed residential developments is associated with voters' preference for redistribution, with the direction of association conditional on whether the benefits from development are perceived to be equitably distributed. Data from a survey experiment also show that a development's affordability level is causally related to how support for the project varies with respondents' redistribution bias. I further document that in areas experiencing the largest increases in home prices, renters' support for the proposed developments is much less sensitive to redistribution bias. I draw on construal level theory to explain this finding.

Economic models of housing growth preference typically distinguish between the preference of home owners and renters (e.g. Ortalo-Magné and Prat, 2014). In these models, owners oppose housing growth because increasing the supply of housing leads to lower home values in equilibrium. For the same reason, renters are expected to support housing growth, because building more homes increases housing affordability. The political behaviour of renter groups in some U.S. cities poses a puzzle for such models. For example, the San Francisco Tenants Union endorsed a 2015 measure that would effectively impose an 18-month development moratorium in the Mission District neighborhood. Elsewhere in California, the Los Angeles Tenants Union endorsed a 2017 ballot measure that would effectively impose a city-wide moratorium on new residential construction for two years.

Why are renters in some cities opposed to new residential development? Some suggest that the liberal politics of these renters contributes to anti-development sentiment. One author proposes that in San Francisco, "many tenants came to vote against new development in an attempt to show

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their disdain for monied interests" (Metcalf, 2017). In this formulation, voters predisposed to reject inequitable or unfair distributions of income and wealth – in short, *inequity averse* – will oppose housing growth when the benefits from new development are perceived to be inequitably distributed. Empirically, it has been found that among Californian cities, an increase in a city's share of liberal voters is associated with a decrease in new housing production (Kahn, 2011).

In this paper I study the inequity aversion hypothesis of support for housing growth. The inequity aversion hypothesis states that voters who support income and wealth redistribution tend to be more opposed to housing growth – specifically market-rate or unsubsidised housing units – compared to economically conservative voters. The hypothesis rests on voters' perception that the main beneficiaries of new market-rate housing units, especially in cities experiencing large home price increases, are developers, corporate interests, and high-income homebuyers. We should expect to observe the same relationship between support for housing growth and inequity aversion among both renters and homeowners.

This paper leverages two novel datasets to study the inequity aversion hypothesis. The first dataset compiles precinct-level voting outcomes for 29 housing-related local ballot measures put to San Francisco voters between 2000 and 2016. I use a subset of these measures to estimate an index of income redistribution preference, or what I call redistribution bias, at the precinct level. I find that consistent with the inequity aversion hypothesis, redistribution bias is associated with support for proposed residential developments, with the direction of association conditional on whether the benefits from development are perceived to be equitably distributed. I complement the observational study with a survey experiment. In the experiment, respondents are randomly assigned to one of three groups, with each group presented with a different proposal for a mixed-use development. I show that the development's proposed affordability level is causally related to how support for the project varies with respondents' redistribution bias. I also document that in areas that have experienced the highest home price appreciation (HPA) over the last five years, renters' support for the proposed developments is much less sensitive to redistribution bias compared to renters in areas with low to moderate HPA. I draw on an insight from social psychology, construal level theory, to explain this finding.

The following two sections describe and discuss findings from the San Francisco ballot measures study and the survey experiment. The final section concludes by discussing implications for the communication and setting of housing growth policy in urban contexts.

1 San Francisco Ballot Measures

1.1 Data and Model

I construct a novel panel dataset of voting outcomes for about 600 precincts in San Francisco, California, on 29 housing-related ballot measures presented to voters between 2000 and 2016. The San Francisco Department of Elections publishes vote counts for each ballot proposition at the precinct level. In 2016, about 850 voters were registered in each precinct, on average. Because precinct boundaries change from election to election, I create a panel by matching precincts from a reference election (specifically the 2012 general election) to precincts from other elections based on the proportion of spatial overlap between precincts.

I assume that each precinct has a latent preference for certain types of land use and housing policies, or what I provisionally call *latent bias*. I estimate this bias using a two-parameter Item Response Theory (IRT) model, or equivalently a one-dimensional spatial voting model (see e.g. Clinton, Jackman and Rivers, 2004). For each ballot measure, we observe the total number of votes cast in each precinct, as well as the number of votes cast in favour of the measure. I model votes in favour of a measure as a binomial random variable:

$$V_{ij} = \text{Binomial}(N_{ij}, \pi_{ij})$$

where i and j index precincts and ballot measures respectively, π is the probability that a voter casts a "Yes" vote, and N is the total number of votes in a precinct for a given ballot measure. π is the value of an item response function in the form of a two-parameter logistic model:

$$\pi_{ij} = \text{logit}^{-1}(\beta_j \cdot x_i - \alpha_j).$$

The main parameters of interest are x_i, the bias of precinct i, and β_j, known in the IRT literature as the discrimination parameter. In our application, the discrimination parameter is a measure of how sensitive a ballot measure's outcome is to a precinct's bias. For brevity I call this parameter the *bias elasticity*.

I estimate the parameters using a hybrid Monte Carlo method, implemented via the Stan programming language. When estimating the IRT model, I omit six ballot measures that ask voters to approve (directly or otherwise) specific development projects. Omitting these ballot measures yields a measure of latent bias that excludes any information about how precincts voted on such projects.

Later in this section, I present results on whether a change in precinct-level latent bias predict a change in support for these projects.

1.2 Interpretation of latent bias and bias elasticity

Figure 1 plots the mean latent bias for each precinct on a map of San Francisco. The geographic distribution of the bias is consistent with qualitative descriptions of the city's political geography. Observers of San Francisco's politics refer to a "Conservative C" that stretches along the wealthy northern edge of the city, bordering the Presidio, down the middle- and upper-class west-side, and along the southern border, although neighborhoods in the south of the city are considered by some pundits to be swing districts.[1] Neighbourhoods in the center of the city and toward the eastern edge – the "Progressive Core" – score positively on the bias scale. The correspondence of negative and positive bias precincts to conservative and progressive neighbourhoods respectively suggest a *prima facie* interpretation of latent bias as a preference for redistribution. Even in a city known for its liberal politics, substantive geographical variation exists with respect to preferences over redistributive public policy.

To confirm the interpretation of latent bias as redistribution preference, I order the ballot measures by their bias elasticity. Figure 2 shows that the most positively bias elastic measures are propositions related to housing for lower-income households, such as bond issues to fund affordable housing and prioritising the release of public lands for affordable housing. The most negatively bias-elastic measure is a proposal to allow the conversion of rental apartment buildings into condominiums, which would reduce the supply of rental units in the city. Given that such proposals have clear distributive consequences – that is, they redistribute wealth across economic groups – they support an interpretation of latent bias as a bias in favour of (or against) redistributive public policy. For clarity of exposition, in the text that follows I refer to latent bias as redistribution bias.

As an illustration of how bias elasticity reflects the sensitivity of the support for a measure to redistribution bias, Figure 3 plots the proportion of votes in favour of a measure against redistribution bias for two measures with similar mean levels of support. Both the Affordable Housing Requirements Charter Amendment (2016 June Measure C) and to the Pier 70 Financing measure (2008 November Measure B) passed with 68 percent of the vote. However, whereas precincts with strong biases for and against redistribution were (almost) equally supportive of the 2008 measure on average, such precincts differed significantly in their support for the 2016 measure. Bias elasticity can therefore be described as a measure of a ballot proposition's ideological divisiveness.

[1] See http://www.dailykos.com/story/2012/11/19/1160963/-A-crash-course-in-San-Francisco-politics .

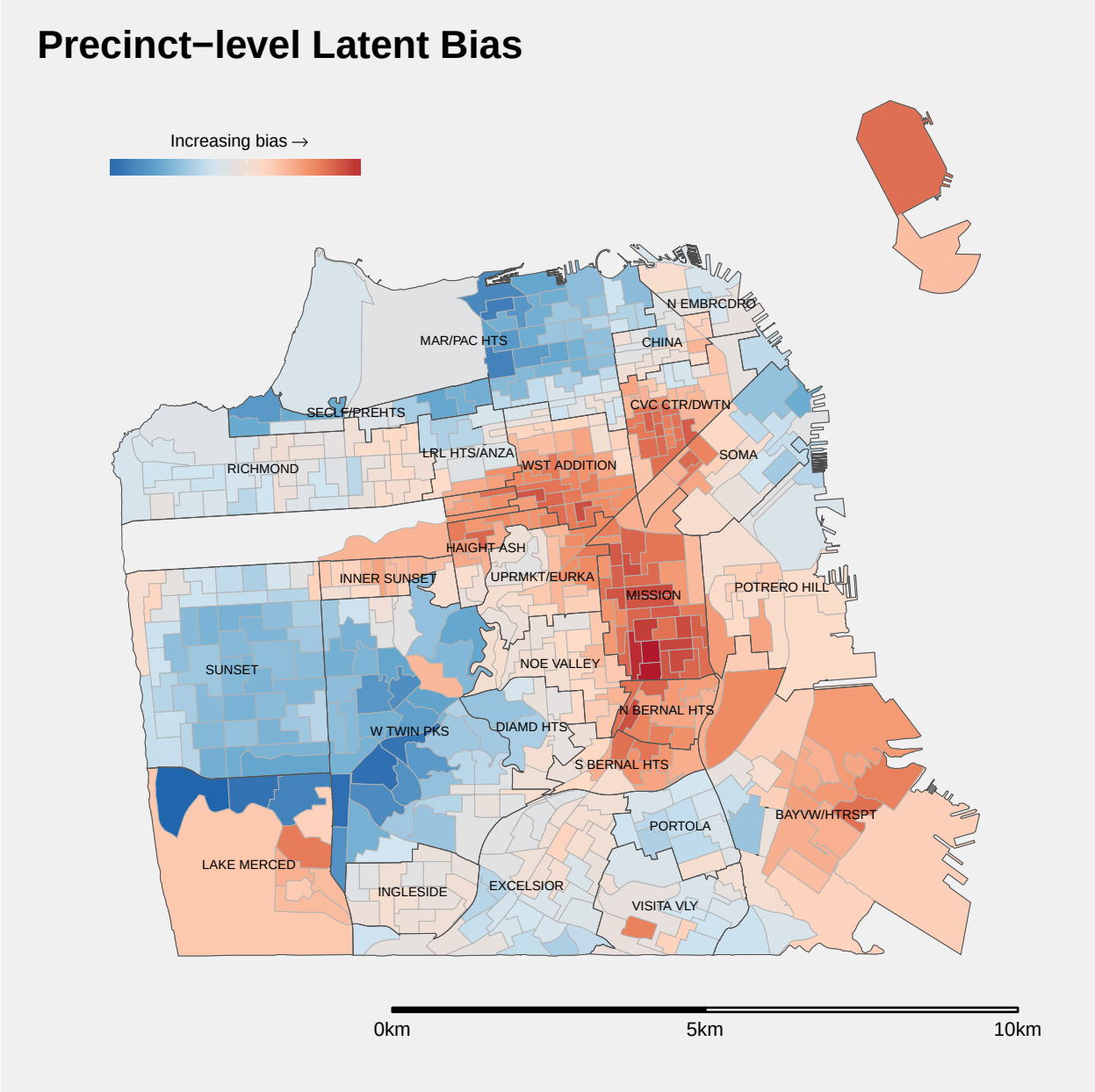

Figure 1: Mean estimates of latent bias for San Francisco precincts. The geographic distribution of the bias is consistent with qualitative descriptions of the city's political geography. The correspondence of negative and positive bias precincts to conservative and progressive neighbourhoods respectively suggest a *prima facie* interpretation of latent bias as a preference for redistribution.

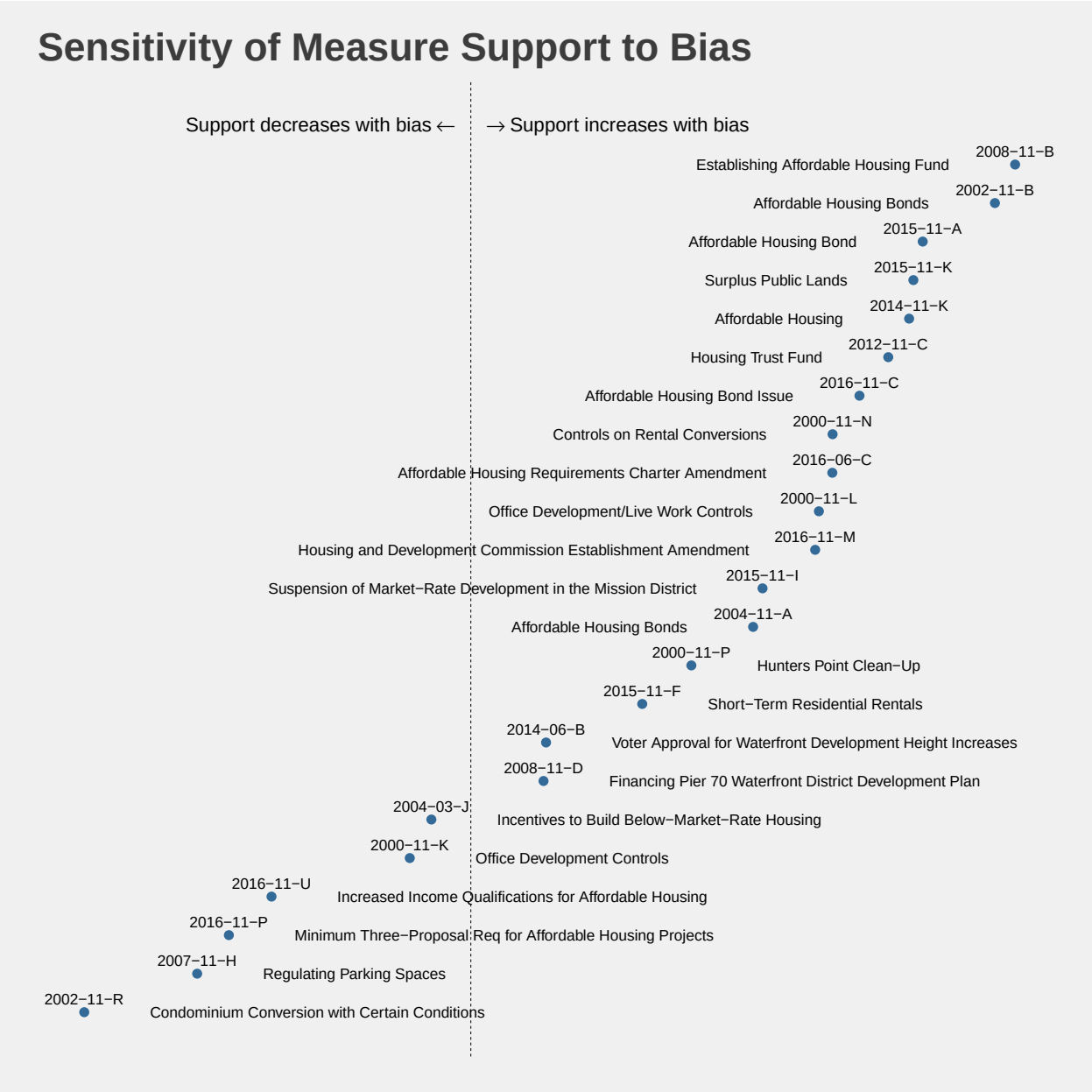

Figure 2: Mean estimates of bias elasticity for ballot measures. Measures further away from the vertical line in both directions have outcomes that are more sensitive to latent bias. Support for a measure increases (decreases) with bias for measures right (left) of the vertical line.

Figure 3: Comparison of two measures with similar mean level of support but different bias elasticities. The Affordable Housing Requirements Charter Amendment (2016 June Measure C) has a higher bias elasticity compared to the Pier 70 Financing measure (2008 November Measure B). That is, whereas precincts with strong biases for and against redistribution had similar levels of support for the 2008 measure, on average, such precincts differed significantly in their support for the 2016 measure. Both measures passed with 68 percent of the vote.

1.3 Redistribution bias and support for new developments

Since 2008, San Francisco's voters have voted on six measures related to approvals for four projects that add to the city's housing stock. Figure 4 indicates the locations of these projects. The projects were the subjects of ballot measures either because local legislation mandated voter approval for zoning or height limit changes (as with Bayview Hunters Point, Pier 70, and Mission Rock), or because proponents or opponents – or both – collected sufficient signatures for a petition to put a measure on the ballot (as with the 8 Washington project). In this section, I present a series of figures that plot the relationship between precinct-level support for these projects and the precinct's redistribution bias. I show that even the most ideologically divisive project, Bayview Hunters Point, is relatively bias inelastic compared to the most elastic measures (such as affordable housing bond issues). Voter approval for these projects and the concomitant support for housing growth appears to be relatively insensitive to redistribution bias.

Bayview Hunters Point

In June 2008, San Francisco voters voted on a proposed framework for the redevelopment of the Hunters Point Naval Shipyard and Candlestick Point (Measure G). City laws required voter approval to change the zoning of an existing stadium, classified as an open space, for commercial, residential, and recreational uses. The mayor further decided to expand the scope of the ballot measure to seek a mandate for the redevelopment of the site along guidelines proposed in the proposition. The proposal envisioned the production of 8,500 to 10,000 new housing units. The proposition text did not specify the affordability levels of these units. However, it made reference to a previous conceptual framework agreement that proposed at least 25 percent of the units be "affordable" to local residents, although the meaning of affordable was not defined in that document.[2] Partly in response to the lack of specificity in Measure G, opponents to the project gathered sufficient signatures to place a competing measure on the ballot (Measure F), which required the project to set aside at least 50 percent of new housing units as affordable housing, with varying levels of affordability benchmarked to median household income in the city.[3] In the discussion that follows, I focus on Measure G.

Because the language of Measure G was perceived by some as being relatively favourable to developers, our *ex ante* expectation should be that the measure has a negative bias elasticity.[4] That is,

[2] See http://sfocii.org/sites/default/files/FileCenter/Documents/2044-CONCEPTUAL%20FRAMEWORK%20FOR%20DEVELOPMENT.pdf

[3] Measure G passed with 63 percent of the vote; Measure F failed with 37 percent. About 160,000 votes were cast.

[4] San Francisco distributes voter pamphlets to voters that contain arguments and endorsements contributed by each proposition's proponents and opponents. In their official argument against Measure G, opponents begin with the claim that "Proposition G makes big promises but doesn't guarantee affordable housing, jobs for local residents, or any more parkland than already exists. Proposition G is a sweetheart deal for Lennar, an out-of-state developer that has already

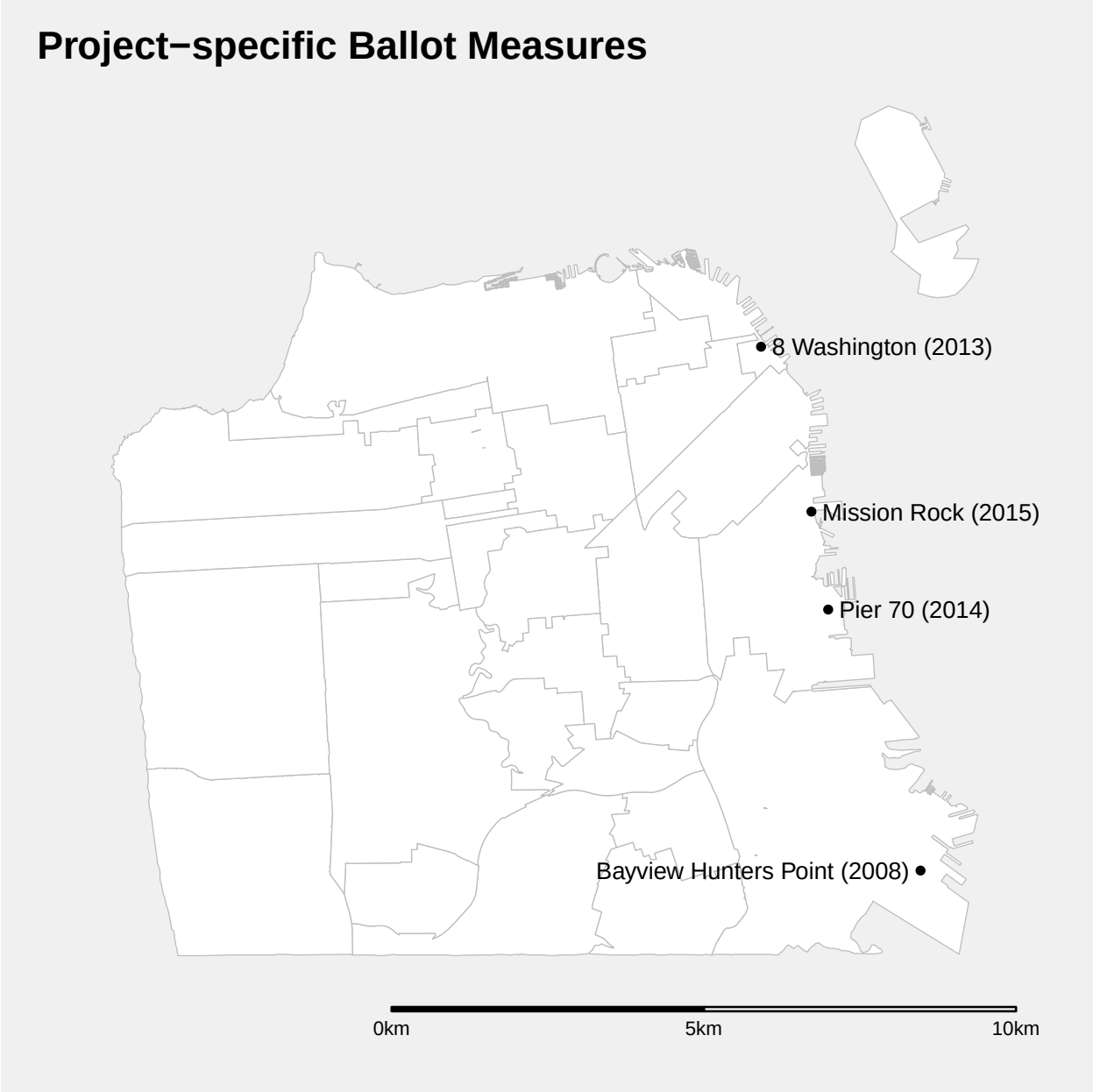

Figure 4: Locations of projects put on ballot for voter approval.

support for Measure G should be negatively associated with a precinct's redistribution bias. Figure 5 confirms this expectation. A one point increase in redistribution bias is associated with about a six percentage points decrease in the proportion of yes votes in a precinct on average. In other words, a voter in a precinct with a bias of +1 (e.g. a precinct in Haight-Ashbury) is expected to be about 12 percentage points less likely to support the measure compared to a voter in a precinct with a bias of -1 (e.g. a precinct in the Sunset District).

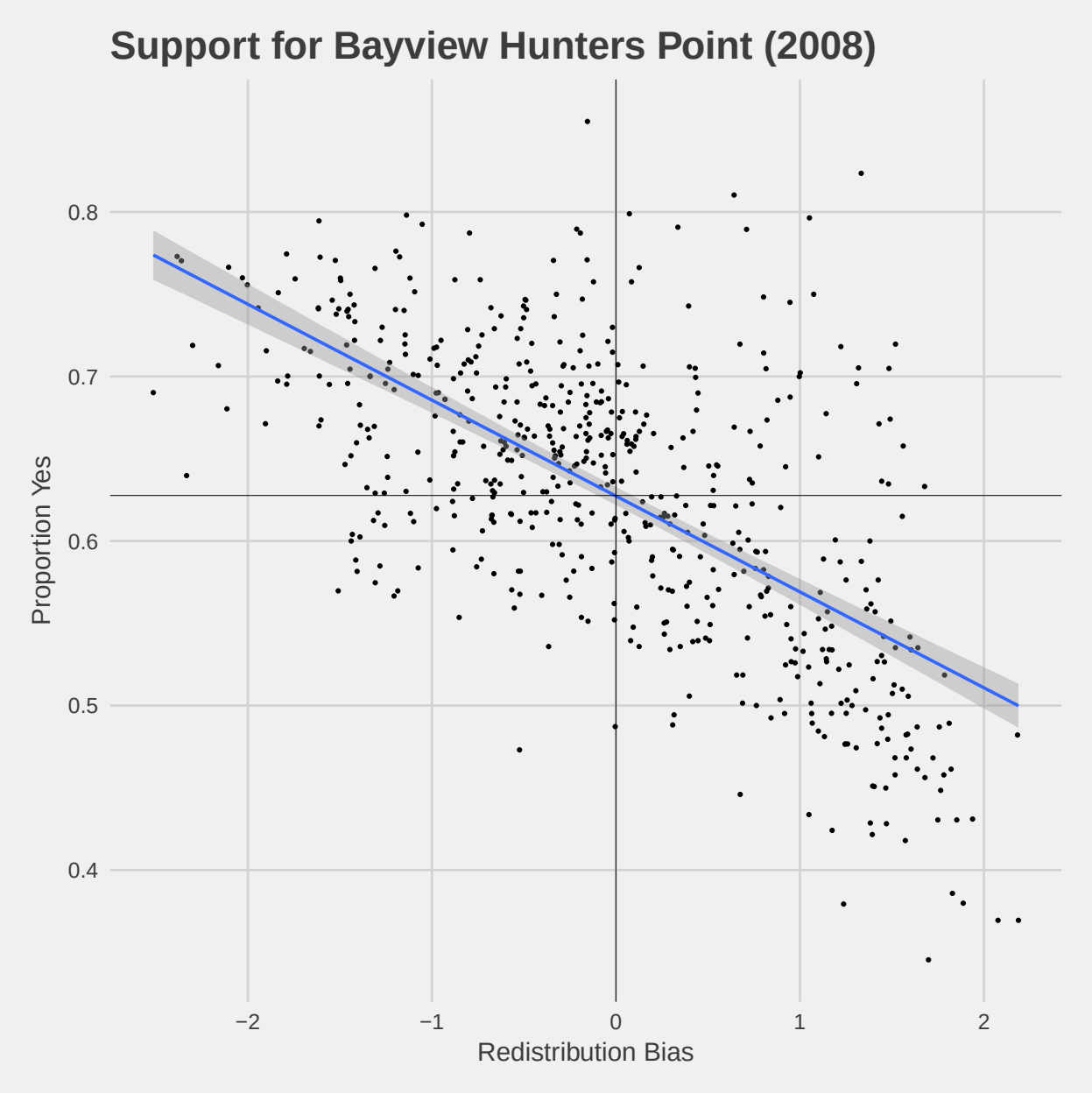

Figure 5: Scatterplot of precinct-level yes vote shares against redistribution bias.

spent over $1,000,000.00 on its political campaign. .... Transit 'improvements' promised by Lennar will primarily benefit new luxury condo owners, not the rest of Bayview."

The negative bias elasticity is present even when controlling for economic variables, as Figure 6 reports. In this figure, I group precincts into nine strata based on the proportion of renters and the median income in the precinct, using data from the 2010 Census, and generate separate scatterplots and best fit slopes for each stratum. Majority renter precincts' levels of support for the measure are most sensitive to redistribution bias (left-most column in the figure), with a one point increase in bias associated with seven to ten percentage points reduction in support, depending on the income stratum. Majority owner precincts tend to be more supportive of the measure, and their support is less sensitive to redistribution bias, as shown by the flatter slopes in the plots (right-most column).

Figure 7 demonstrates that the negative relationship between support for Measure G and redistribution bias is present even when we examine variation within neighbourhoods. This analysis addresses the concern that the observed relationship in Figure 5 is spurious due to unobserved neighbourhood characteristics. For example, if neighbourhoods closer to the project tend to be more supportive because (for example) developers have promised residents certain benefits, and such neighbourhoods happen to be more liberal compared to neighbourhoods further away, then the negative correlation between measure support and redistribution bias may be spurious. Figure 7 presents scatterplots for each neighbourhood, with the placement of each plot corresponding approximately to the neighbourhood's location in the city (Bayview/Hunters Point is in the lower right corner). Neighbourhoods tend to be ideologically homogeneous – we see that the points in each plot are clustered together along the horizontal axis – but with a handful of exceptions the relationship between measure support and redistribution bias is consistently negative across neighbourhoods.

The plots discussed here are consistent with the inequity aversion hypothesis: support for new developments decreases with voters' redistribution bias when benefits are perceived to be inequitably distributed. The results are robust to controls for voters' economic strata and unobserved neighbourhood characteristics. The following section evaluates this hypothesis using voting data from three other project-specific ballot measures.

8 Washington, Pier 70, and Mission Rock

The San Francisco Board of Supervisors passed an ordinance in 2012 that increased height limits on a triangular site near the waterfront, as part of the approvals for a recreational, retail, and residential development known as 8 Washington Street. Local law allows for citizens to reaffirm or overturn the board's decision in a referendum, and opponents of the height limit increases gathered sufficient signatures to put the question to voters in the November 2013 local elections (Measure C). Although Measure C was narrowly focused on the question of height limits, overturning the height limit increases would effectively prevent the project from proceeding. In response, proponents of the

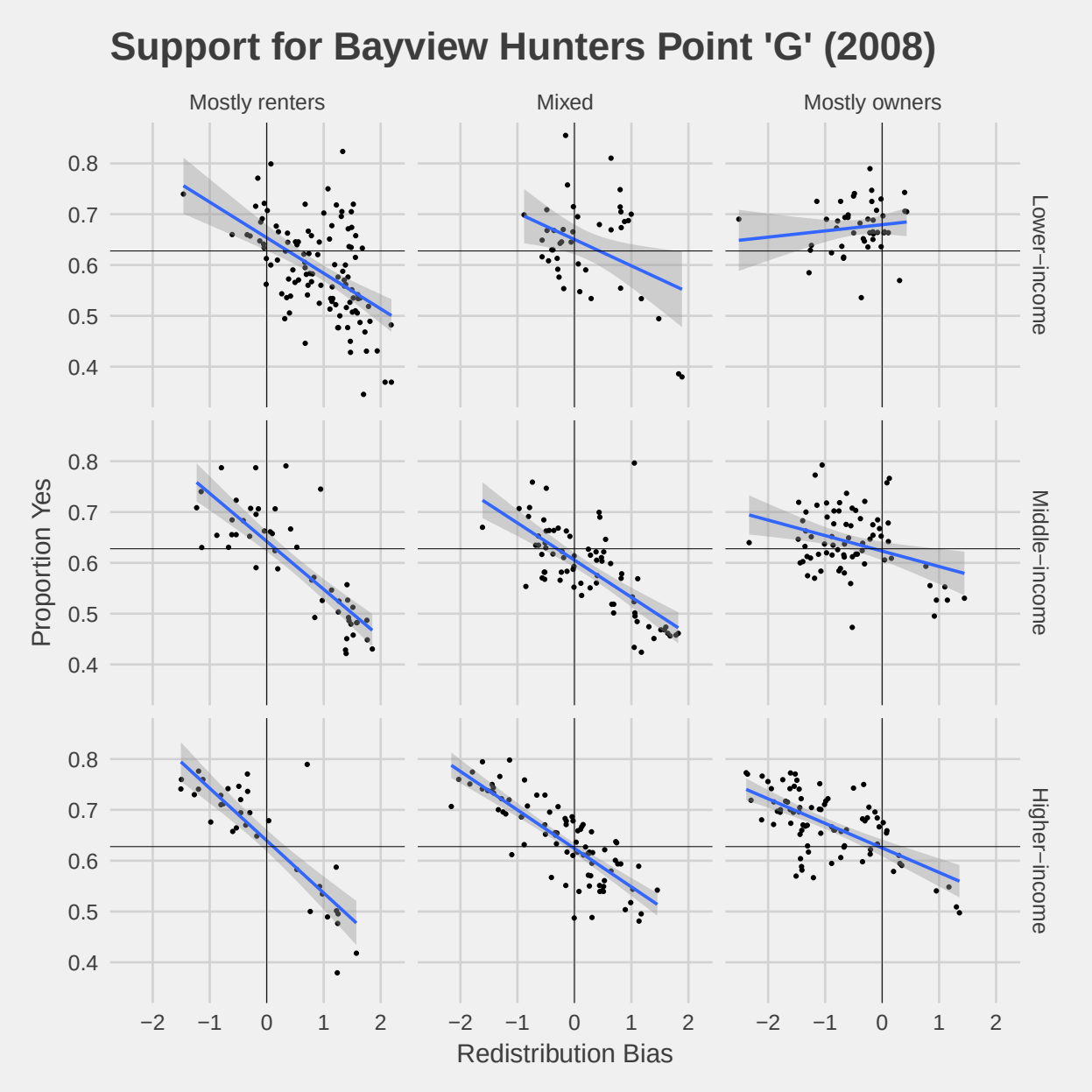

Figure 6: Scatterplot of precinct-level yes vote shares against redistribution bias, by economic strata. Majority renter precincts' support for the measure are most sensitive to redistribution bias (left-most column), with a one point increase in bias associated with seven to ten percentage points reduction in support, depending on the income stratum. Majority owner precincts tend to be more supportive of the measure, and their support is less sensitive to redistribution bias, as shown by the flatter slopes in the plots (right-most column).

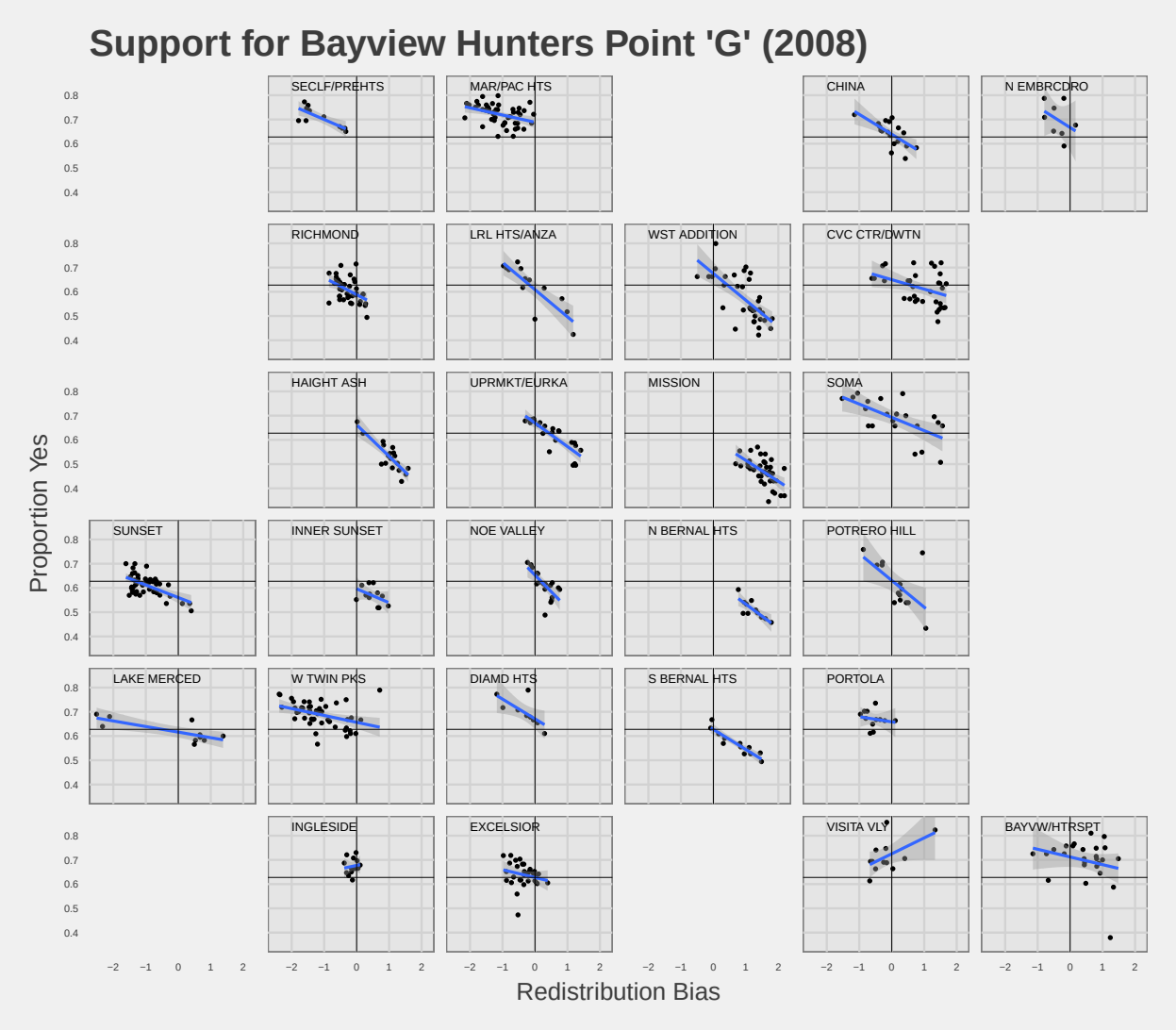

Figure 7: Scatterplot of precinct-level yes vote shares against redistribution bias, by neighbourhood. The placement of each plot corresponds approximately to the neighbourhood's location in the city. Neighbourhoods tend to be ideologically homogeneous, but with a handful of exceptions the relationship between measure support and redistribution bias is consistently negative across neighbourhoods.

project put a competing measure on the ballot (Measure B) for voters to approve the project.[5] The project as proposed would add 134 market-rate units to the housing stock. In addition, the developer pledged a $11 million contribution to the city's affordable housing fund. Although opponents' main complaint addressed the height limit increase, they also noted the absence of on-site affordable housing, and claimed that the new "luxury condos" would cost $5 million on average. In the following discussion, I focus on Measure B, the proponent's proposition.

As with the Bayview Hunters Point project, the emphasis of the project's opponents on the high-priced units and the absence of on-site affordable housing points to a negative bias elasticity for this measure. As Figure 8 shows, support for the project does decrease with redistribution bias. On average, a one point increase in bias is associated with about a two percentage points decrease in support for the measure. However, in comparison to the Bayview Hunters Point measure, support for 8 Washington is relatively bias inelastic: average support in precincts with a redistribution bias of +1 and -1 differs only by about four to five percentage points. Voting outcomes indicate that the 8 Washington project was not especially ideologically divisive, with a majority of voters across the ideological spectrum rejecting the project.

I now turn to the Pier 70 and Mission Rock projects. In June 2014, voters passed a ballot measure mandating voter approval for new projects along the waterfront that require height limit increases. The developer for the Pier 70 project, which had been engaging interest groups and community members on its plans for the site since 2011, felt sufficiently confident in its level of community support to put the project on the November 2014 ballot (Kuwada, 2015).[6] The project would add between 1,000 and 2,000 housing units to the city, with the developer committing to price 30 percent of the units at levels affordable to low- and middle-income households. The proportion of affordable housing units exceeded the 12 percent affordable requirement that was city law at the time. The Mission Rock project, which was on the November 2015 ballot, committed to an even higher proportion of affordable housing. The project envisioned 1,000 to 1,950 new housing units, of which at least 40 percent would be affordable to low- and middle-income households.[7]

Endorsements of the two measures published in official voter pamphlets underline the high proportion of affordable housing units proposed for these two projects. Supposing that voters perceive the distribution of benefits from housing growth as equitable in these developments, the inequity aversion hypothesis predicts positive bias elasticity. That is, support for the projects should increase with redistribution bias. Figure 9 presents vote outcomes for the two measures. The upward-sloping best fit line lends support to the inequity aversion hypothesis: a one point increase in redistribution

[5]Both measures failed with around 35 percent of the vote, with about 125,000 votes cast. The developer abandoned the project in 2016.

[6]The measure passed with about 73 percent of the approximately 220,000 votes cast.

[7]The measure passed with about 74 percent of the approximately 200,000 votes cast.

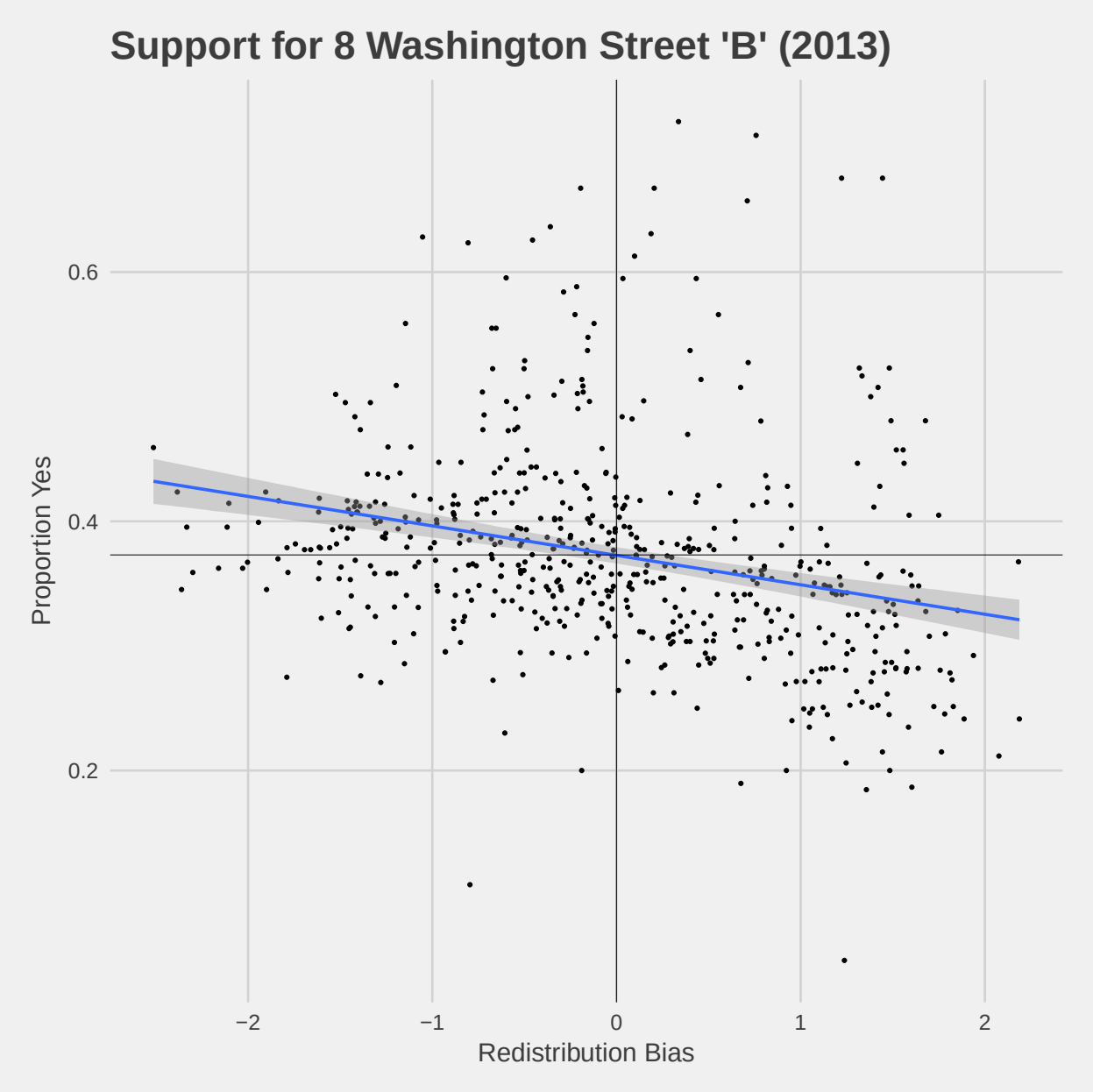

Figure 8: Scatterplot of precinct-level yes vote shares against redistribution bias.

bias is associated with about 3 percentage points more support for both measures. However, attention should be drawn again to the relative inelasticity of support with respect to redistribution bias. As with the 8 Washington project, the Pier 70 and Mission Rock projects were not particularly divisive along ideological lines. Bias elasticities for these projects of about two to three percentage points (per one point change in redistribution bias) are less than half that of more contentious ballot propositions, such as the Affordable Housing Requirements measure presented in Figure 3, which has an elasticity of almost 9 percentage points.

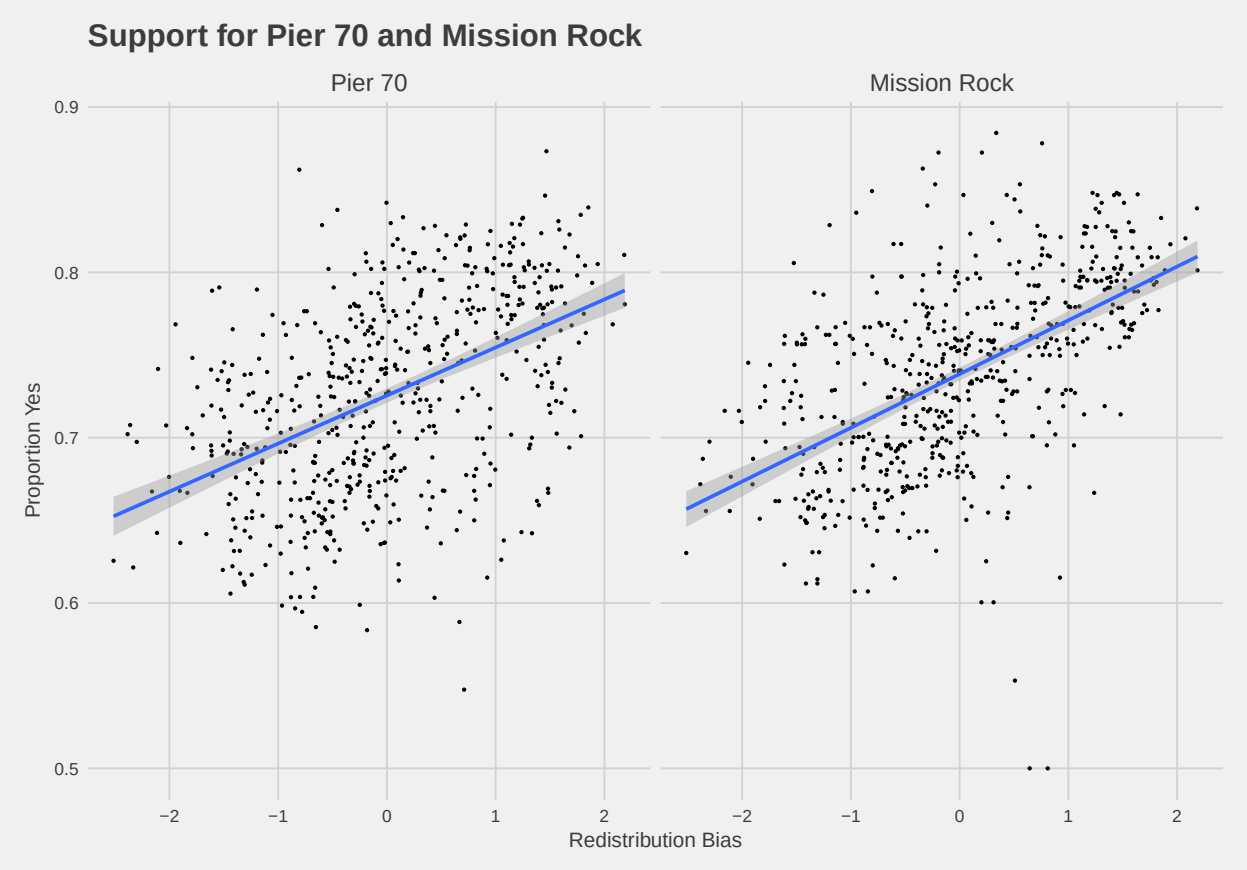

Figure 9: Scatterplot of precinct-level yes vote shares against redistribution bias.

1.4 Discussion

Voting data from the Bayview Hunters Point, 8 Washington, Pier 70, and Mission Rock projects are consistent with the inequity aversion hypothesis, but raise two related questions.

First, although differences in the four projects' commitment to housing affordability are predictive of the direction of the bias elasticity in each case, other differences – possibly unrelated to inequity aversion – may also explain the variation in bias elasticities. For instance, the worsening of housing

affordability in the city over time may cause liberals to change their attitudes toward housing growth. Alternatively, liberals may have been more receptive to the Pier 70 and Mission Rock projects because of the extensive efforts made by the developers to engage community members in shaping the projects. These explanations are not mutually exclusive, but they prevent us from making causal claims about the effect of affordable housing set-asides on support for the projects.

Second, for the four measures studied, the substantive magnitude of the bias elasticities is small. Existing studies find that liberals are between 10 and 20 percentage points more likely than conservatives to support a project with substantial affordable housing set-asides (Hankinson, 2016, Marble and Nall (2017)). These results raise the question of why a large ideological divide does not exist in support for new housing developments in the San Francisco case. Is San Francisco an idiosyncratic case, or are there systematic differences between cities like San Francisco and other cities? In the following section, I describe a survey experiment designed to address these questions, and present preliminary results from a pilot of the survey.

2 Survey Experiment

2.1 Survey design

The survey is primarily interested in respondents' attitudes toward a hypothetical mixed-use development in their local area at different levels of affordability mix. Survey respondents are told that "you and other residents where you live are being asked to vote on a redevelopment project." I then randomly allocate respondents into three groups, and present each group with a slightly different version of a graphic that contains information about the redevelopment project. The graphic takes the form of a Facebook newsfeed item posted by a fictitious local newspaper, and contains a rendering of the project that is identical across all three groups. The three graphics differ in the textual information provided to respondents (see Figure 10):

> *Version 1:* Local residents will vote this Saturday to approve redevelopment of a low-rise office park. Developers plan to build 500 apartments, *which will come with high-end finishes and appliances*. The project will also include office and retail space. Local opinion is divided on the project. (emphasis added)
>
> *Version 2:* Local residents will vote this Saturday to approve redevelopment of a low-rise office park. Developers plan to build 500 apartments, *including 100 units set aside for low-income households*. The project will also include office and retail space. Local opinion is divided on the project. (emphasis added)

> *Version 3:* Local residents will vote this Saturday to approve redevelopment of a low-rise office park. Developers plan to build 500 apartments, *including 200 units set aside for low-income households*. The project will also include office and retail space. Local opinion is divided on the project. (emphasis added)

Respondents are told that "A Yes vote will allow developers to redevelop an office park into a large-scale residential and commercial development. A No vote will keep the office park the way it is for now." Finally, respondents are asked whether they will vote for the proposal, on a five-point scale from "Definitely Yes" and "Probably Yes" to "Unsure", "Probably No", and "Definitely No".

I piloted the survey from late May to early June 2017. Respondents were recruited on Amazon's Mechanical Turk platform. Because this study is interested in the housing growth preferences of residents in large urban areas, respondents were limited to those living in the top 30 most populous metropolitan areas, based on the U.S. Census Bureau's 2016 population estimates. Respondents were asked for their zip codes, and the survey then terminated for those who did not reside in one of the 30 metropolitan areas. 395 completed surveys were collected, out of 897 total responses. Respondents were paid 5 cents for providing their zip code, and an additional 50 cents for completing the survey.[8] The median time taken to complete the survey was about 5.5 minutes. About 43 percent of respondents owned their homes. Non-owners either rented or lived with a family member.

2.2 Empirical findings

Differences by tenure types and income levels

The effect of changing affordability levels for the mixed-use project differs by respondents' tenure type i.e. whether they own their home or not (Figure 11). On average, renters are between 15 to 20 percentage points more likely to support a mixed-income development.[9] Support for the project increases from 50 percent, for the all market-rate project, to 70 and 65 percent for the 100 and 200 affordable units projects respectively. Owners do not express statistically significant difference in support between affordability levels. The effects of changing the affordability mix are comparable to those found by Hankinson (2016), which shows a 10 percentage points increase in support among renters between an all market-rate and 25 percent affordable development, and no change in support among owners.

In the analysis that follows, I combine the 100 and 200 affordable units treatments for clarity

[8] Respondents were also paid a bonus of between 10 to 80 cents for playing a short economic game embedded in the survey, the description and results of which are beyond the scope of this paper.

[9] For brevity I use "renters" to describe non-owners, even though not all non-owners are renters. For example, some report living with a family member.

Figure 10: Two versions of the graphics randomly assigned to respondents, with differences highlighted in red. The rendering in the graphics depicts a mixed-use development that was actually proposed in Santa Monica, California. The original developers abandoned the project after the City Council rescinded approvals for the project, due to a referendum drive organised by local residents opposed to the project.

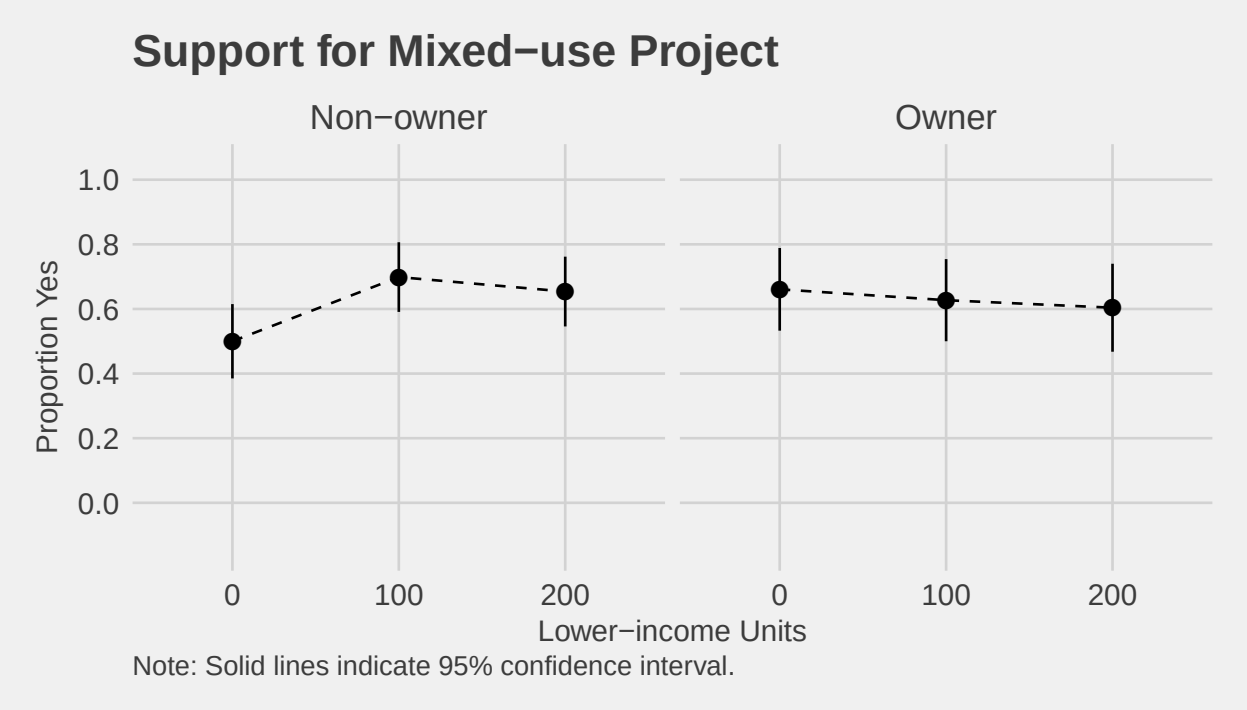

Figure 11: Support for mixed-use project by affordability mix and tenure type.

of exposition. The affordability mix should have different effects on support conditional on a respondent's income level: lower-income renters should show a larger increase in support for a mixed-income project compared to higher-income renters. Figure 12 reports support for the two projects among respondents whose household income are below and above the median income in their metropolitan area. Only a minority – 45 percent – of lower-income renters support the all market-rate project, and this proportion increases by 21 percentage points to 66 percent for a mixed-income project. Among higher-income renters, the increase is a smaller 5 percentage points (63 to 68 percent).[10] Lower-income owners are 15 percentage points more supportive of a mixed-income project (support increases from 53 to 68 percent), whereas higher-income owners are 11 percentage points less supportive (70 to 59 percent).

Redistribution bias

To measure respondents' redistribution bias, I use a battery of three questions designed to tap respondents' attitudes toward redistribution:

> *Role of government.* Some people think the federal government ought to reduce income differences between the rich and the poor. Suppose these people are at one end of

[10]However, the 16-point difference in treatment effects is not statistically significant due to the relatively small number of observations (219 renters), and in particular higher-income renters (77 observations).

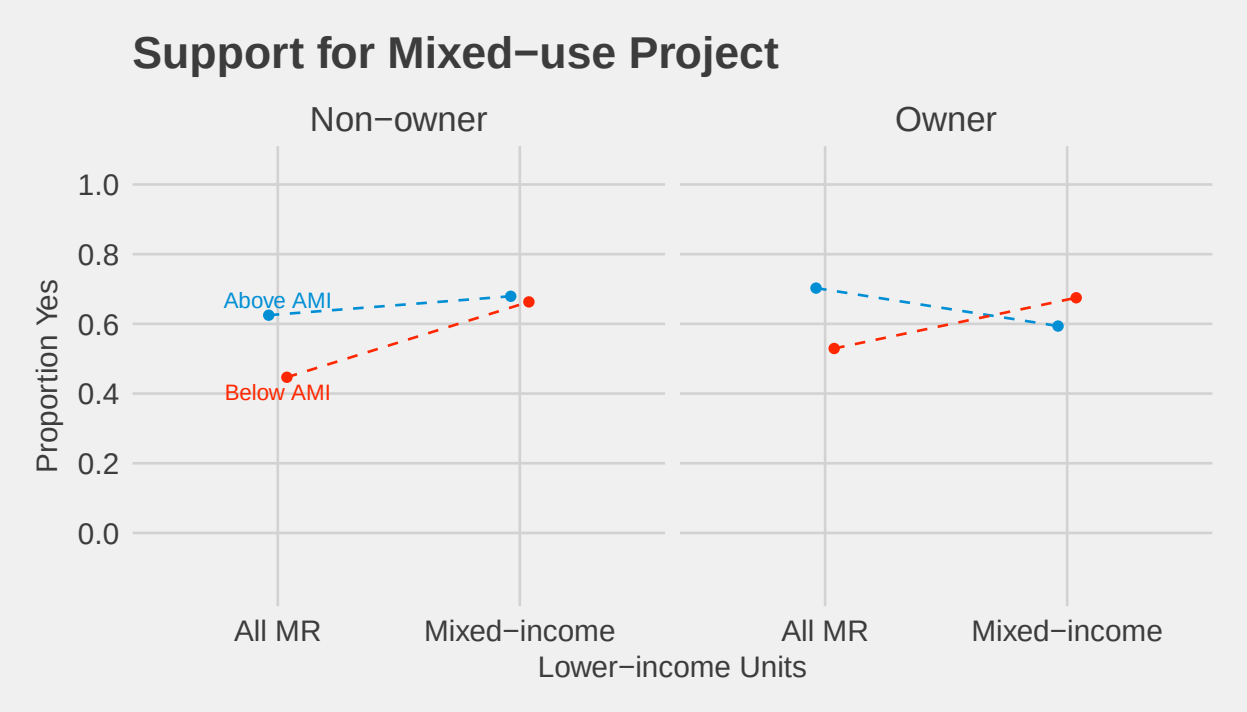

Figure 12: Support for mixed-use project by affordability mix, respondent income, and tenure type.

> a scale, at point 1. Others think that the government should not concern itself with reducing the income difference between the rich and the poor. Suppose these people are at the other end, at point 7. And of course, some other people have opinions somewhere in between. Where would you place yourself on this scale? (7-point scale)
>
> *Distribution of wealth.* Do you feel that the distribution of money and wealth in this country today is fair, or do you feel that the money and wealth in this country should be more evenly distributed among a larger percentage of the people? (Distribution is fair/Should be more evenly distributed/No opinion)
>
> *Taxation of rich.* [Tell us if you agree or disagree that…] Our government should redistribute wealth through heavy taxes on the rich. (4-point Likert scale/No opinion)

To reduce the dimensionality of the responses across the three questions, I construct a redistribution index using the first principal component of the data from a principal component analysis, following Marble and Nall (2017). The index is ordered such that larger positive values indicate a greater preference for income redistribution. Values of the index range from -4.2 to +2.8.

The inequity aversion hypothesis predicts that support for the all market-rate project should decrease with redistribution bias, and support for a mixed-income project should increase. Figure 13 reports data from the pilot survey, which are consistent with these predictions. Among renters, a one point

increase in redistribution bias is associated with a five percentage points increase in support for the mixed-income project, and a four precentage points decrease in support for the all market-rate project. The difference in the slopes is statistically significant (9 points, $p < 0.01$). Among owners, a one point increase in redistribution bias is also associated with a five percentage points increase in support for the mixed-income project. These results are consistent with findings from existing studies. Marble and Nall (2017) report that liberal renters (renters in the highest tercile of their redistribution index) are 35 percentage points more likely to support a 50 percent affordable apartment building compared to conservative renters (those in the lowest tercile). The liberal-conservative gap is 21 percentage points among owners. Using a similar metric, I find a gap of 29 percentage points among renters, and 19 percentage points among owners. In sum, the results from this and other studies buttress the argument that affordability mix has a causal effect on the sensitivity of support with respect to voters' redistribution preferences.

In contrast to estimates of the bias elasticities from ballot measures, the substantive magnitude of the slopes from the survey data is large. I theorize that the effect of ideology on support for new residential developments decreases as the political salience of housing affordability increases. This theory draws on insights from both political behaviour and social psychology. Research in political behaviour finds that symbolic considerations, such as partisanship, political ideology, and racial attitudes, dominate self-interest in political preference formation, unless a policy has direct, immediate, large, and tangible effects on a voter or her close associates (Sears, Lau and Tyler, 1980, Sears and Citrin (1985)). Construal level theory, from the social psychology literature, makes a similar and more general argument (Trope and Liberman, 2010). A construal is a mental representation of an object. A high-level construal is abstract, whereas a low-level construal is concrete. Construal level theory proposes that individuals use lower levels of construal to represent objects as their psychological distance to the object decreases, where psychological distance may refer to spatial or temporal distance, or hypotheticality. Researchers have applied construal level theory to explaining individuals' support for public policies. Branton et al. (2007) find that the partisan gap in support for a nativist ballot initiative in California decreases with distance to the U.S.-Mexico border. Similarly, Clarke et al. (2016) find that political ideology becomes less strongly associated with support for hydraulic fracturing as individuals' spatial distance from development sites decreases.

In the case of housing, I conjecture that voters map the affordability mix of a new housing development to political ideology when housing affordability issues are hypothetical to them. On the other hand, when housing affordability issues are immediate and tangible – psychologically proximate – political preferences, especially those related to concrete proposals such as a new housing development, become less strongly associated with ideology. To explore this conjecture,

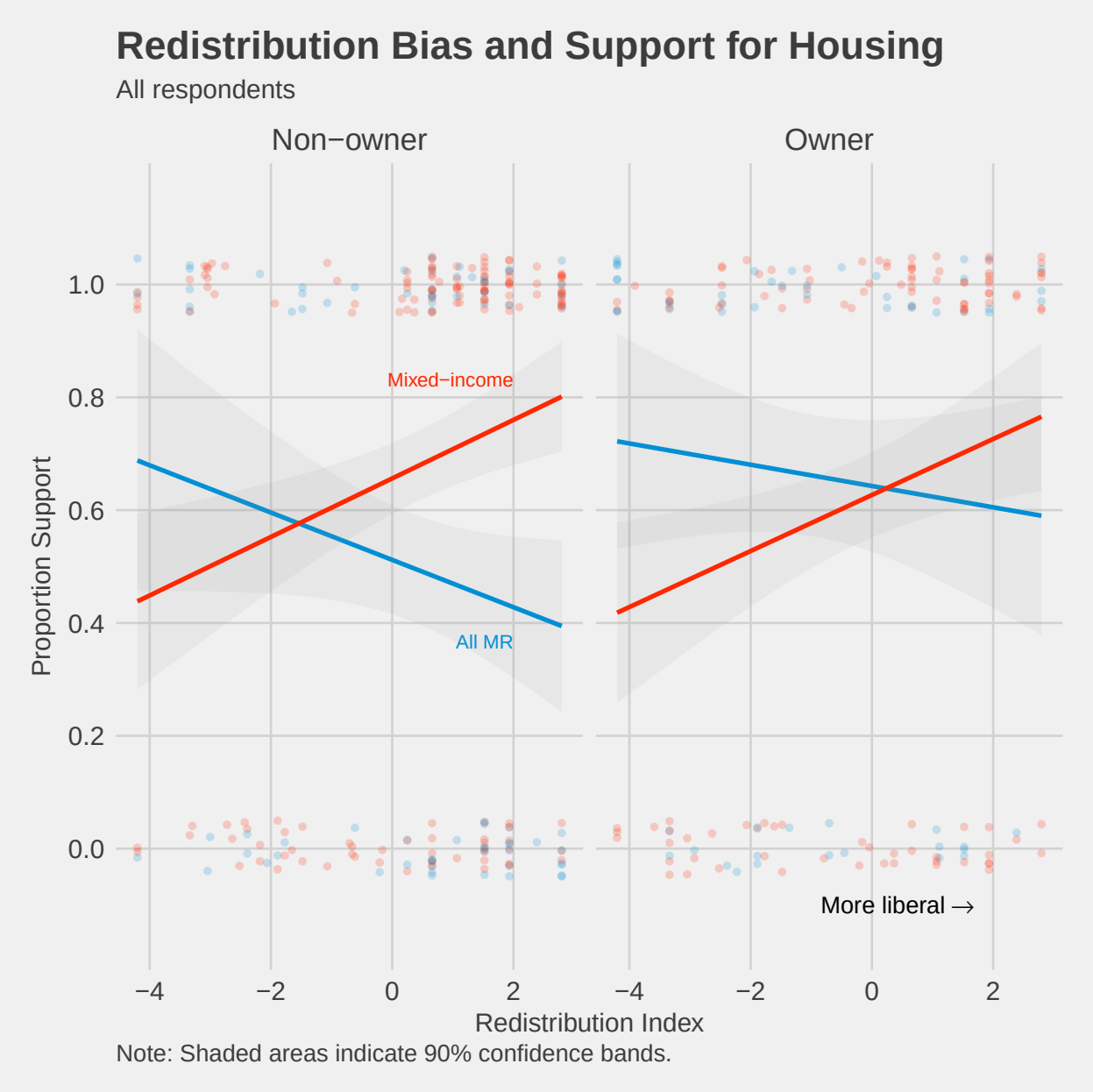

Figure 13: Support for mixed-use project by redistribution bias, affordability mix, and tenure type.

I compute 5-year annualised HPA terciles, based on HPA for each respondent's zip-code.[11] I generate separate scatterplots for renters and owners residing in zip codes with low to moderate HPA (lower two terciles), and those residing in zip codes with high HPA (highest tercile). The cut-off for "high HPA" is approximately 10 percent annualised HPA. Figure 14 shows that the slopes for a mixed-income project are flatter in the high HPA panels (bottom row), compared to the low to moderate HPA panels. Among renters living in low to moderate HPA neighbourhoods, a one point increase in redistribution bias is associated with an 8 percentage points increase in support for a mixed-income project; the increase is only 3 percentage points for renters in high HPA neighbourhoods. For the all market-rate project, renters' support decreases at a rate of 5 percentage points in low to moderate HPA areas, and only 1 percentage point (statistically indistinguishable from zero) in high HPA area. Indeed, it is worth noting that in high HPA areas, renters across the range of redistribution bias – even those who are economically conservative – are more likely on average to support the mixed-income project compared to the all market-rate project. Although this exercise cannot establish a causal relationship between local housing market conditions and bias elasticities for new housing developments, the data from the survey are consistent with predictions from construal level theory. In cities with the highest rates of home price increases, renters speak with one voice in preferring mixed-income developments, regardless of their ideological leanings.

3 Discussion

Using data from San Francisco ballot measures and a survey experiment, I show that inequity aversion is associated with support for housing growth, with the direction of association casually related to the affordability mix of the proposed residential development. In San Francisco, support for a new housing development increases with a precinct's average preference for redistribution when the project commits strongly to high levels of affordability. By contrast, support for projects that have weak commitments – whether real or perceived – to housing affordability decreases with a precinct's redistribution bias. The ballot measures study, however, does not allow us to examine the effect of affordability mix independent of other characteristics of a proposed project. In the survey experiment, all features of the proposed project are kept constant except for its affordability mix. Data from the pilot find a causal effect of having lower-income set-asides on the association between support for the project and individuals' redistribution preference.

I further show that the elasticity of support for a project with respect to redistribution bias is associated with local housing market conditions. Drawing on insights from political behaviour

[11] HPA data are sourced from Zillow, and measure annualised HPA between April 2012 and April 2017.

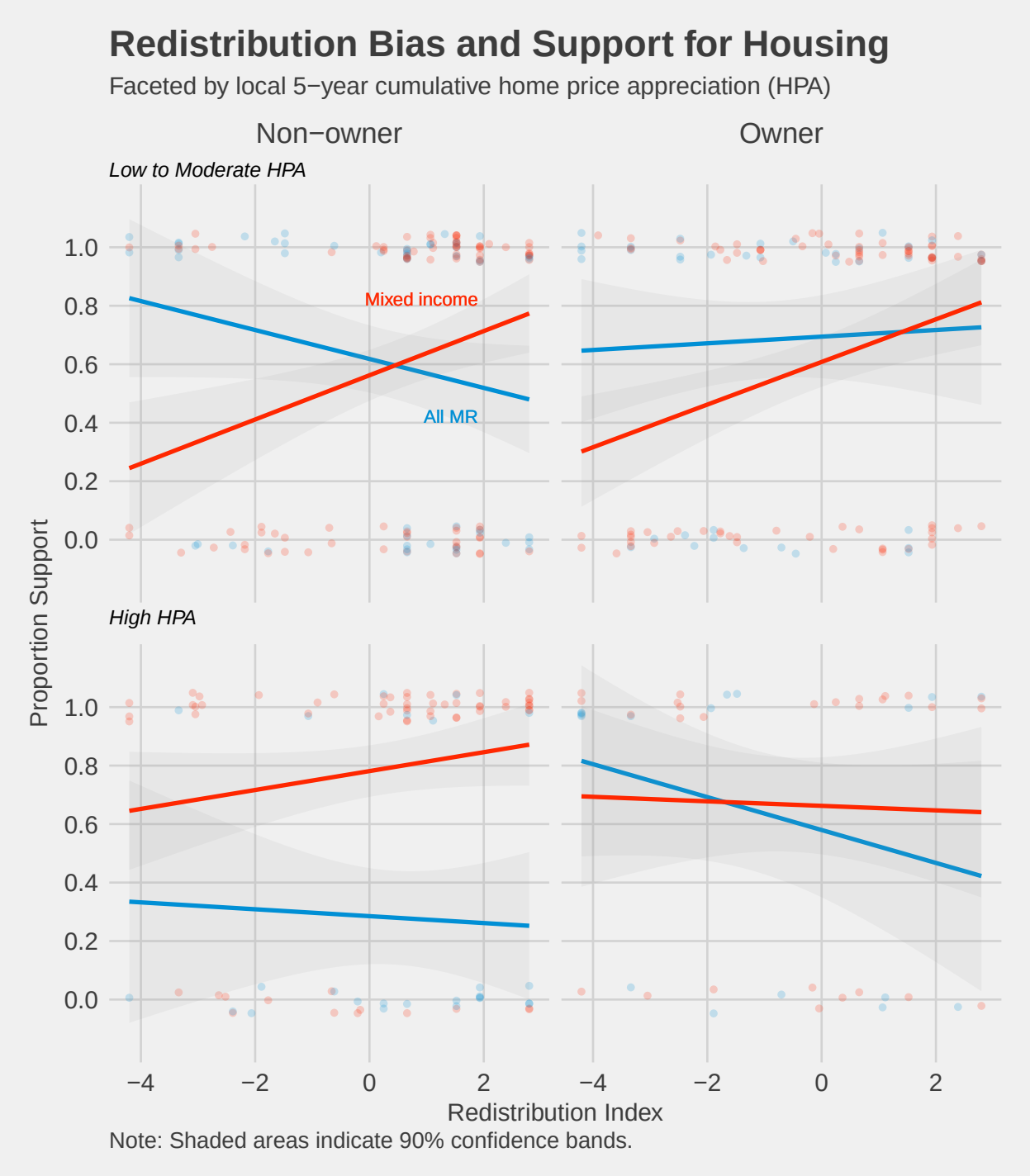

Figure 14: Support for mixed-use project by redistribution bias, affordability mix, local HPA, and tenure type.

and social psychology, I conjecture that in areas where housing affordability is an immediate and tangible concern for voters, support for new projects should be relatively inelastic to redistribution bias. Data from the pilot survey are consistent with this conjecture, with elasticities of support for a mixed-income project among renters in high HPA areas 60 to 80 percent lower compared to low to moderate HPA areas. This finding is consistent with the observation that projects in San Francisco that have gone before voters for their approval in the past few years are not ideologically divisive: liberal and conservative neighbourhoods do not differ by much, on average, in their support for or opposition to these projects.

The findings in this paper has implications for the communication and setting of housing growth policy in urban contexts. Particularly in areas with large proportions of inequity averse voters, housing advocates who aim to shift public opinion on housing growth should focus on the distributional consequences of new residential developments. I agree with Marble and Nall (2017), who contend that "[i]n generating support for more local housing, messaging focused on the economic virtues of housing markets and development may be less effective than appealing to voters' redistributive preferences." An argument that more housing at any income level – even housing geared toward higher-income households – will reduce housing costs in equilibrium does not speak to the distributional consequences of housing growth and is unlikely to be persuasive to inequity averse voters, even if the argument has a sound basis in economic theory.

Finally, it may well be the case that liberal housing advocates and their allies are the most vocal in insisting that the benefits of new development be distributed equitably. But as this paper shows, at least in cities experiencing high HPA, the gap between liberal and conservative voters in their evaluations of new residential developments is not all that large. Even though high level housing policy may continue to be ideologically divisive, advocates for specific development projects are likely to command broad-based support so long as they can demonstrate a commitment to an equitable affordability mix.

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