Essays on the Behavioral Political Economy of Housing

by

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Submitted to the Department of Political Science
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Abstract

This dissertation examines the ways in which housing markets shape and are shaped by
the political decisions that citizens make, as well as the political beliefs that they hold. It
contributes to theoretical knowledge on the political economy of urban development and
housing by revisiting existing debates through a behavioralist lens.

The first paper develops the theory that a noticeable change in the built environment
serves as a reminder to vote when housing issues are salient. I analyze turnout in the 2015
San Francisco municipal election, and show that voters who lived in the neighborhood
of infill development projects that began construction just before the election were 3 to
4 percentage points more likely to vote than those who lived near projects that began
construction after the election.

The second paper explores how localism, the belief that the interests of established
members of the local community trump those of newcomers and outsiders, and liberal-
ism, a preference for egalitarian norms, jointly shape attitudes toward housing growth.
I use a novel survey instrument and rich observational data on land use ballot measures
in San Francisco to measure these two dimensions of political ideology, and document
that localism is negatively associated with support for development projects, whereas the
correlation between liberalism and support for development is moderated by features of the
development.

The third paper proposes the status quo bias hypothesis, which predicts that housing
wealth increases preference for status quo arrangements with respect to Social Security. The
hypothesis is tested using a survey experiment that induces different home price expectations
among respondents, as well as data from the 2000-2004 American National Election Studies
panel.

Thesis Supervisor: Kathleen Thelen
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MIT’s Department of Political Science has been a nurturing space over the past five years. I have learnt a great deal from the faculty. Thanks to everyone at HQ for their help with logistical matters great and small. I’m glad to have been a member of a wonderfully supportive graduate student community. In particular, friends in the 2013 cohort have made the trials and tribulations of graduate school easier to bear. I look forward to hearing about their accomplishments in the coming years.

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Introduction

Does exposure to new urban development mobilize voters in local elections? Why do liberal renters sometimes oppose housing growth, if an undersupply of homes raises housing costs? And does home price appreciation cause homeowners to become more conservative in their social policy preferences? These questions take on new urgency amidst worsening housing affordability, especially for low-income renters, in the most productive and culturally rich cities in the United States (Metcalf 2018). Rising housing costs lower the returns to urban migration for low-skill workers (Ganong and Shoag 2017). At the same time, home price appreciation widens the wealth gap between homeowners and renters (Rognlie 2015). Building more homes in high-growth urban areas helps to increase access to opportunity and lower barriers to housing wealth accumulation (Hsieh and Moretti 2017). But efforts to expand housing supply are frequently frustrated by the laws and regulations that emerge from local political contestation (Fischel 2001a; Been, Madar, and McDonnell 2014; Einstein, Glick, and Palmer 2017).

My dissertation examines the ways in which housing markets shape and are shaped by the political decisions that citizens make, as well as the political beliefs that they hold. Although each paper studies a different facet of the political economy of housing, they are linked by the theoretical insight that citizens’ political behavior are not only motivated by narrow economic self-interest, but are also influenced by behavioral biases and political beliefs. Prior research on housing, for example, has focused on how the material interests of homeowners and renters shape their attitudes toward issues as diverse as social insurance and local land use (Ansell 2014; Hankinson 2018). Models of political behavior based on economic self-interest are a useful starting point. At the same time, such models leave unexplained a great deal of observed behavior (Sears and Funk 1990; Gerber and Phillips 2003). Our understanding of political decision-making among individuals can be enriched by layering on cognitive limitations, behavioral biases, and political beliefs. For instance, inattention causes individuals to choose sub-optimal options (such as failing to turn out in
a salient election), when they would have acted differently if given a reminder (Dale and Strauss 2009; Karlan et al. 2016). Mental accounting, which compartmentalizes wealth according to spending objectives, attenuates the effect of a wealth shock in one domain (such as housing) on saving and consumption behavior (Levin 1998; Thaler 2011). And a belief that the interests of long-time residents take priority over those of newcomers or outsiders – in short, localism (Zimmerman 1938) – explains why some urban dwellers resist lowering barriers to housing growth, even if it might be in their interest to do so. My dissertation contributes to theoretical knowledge on the political economy of urban development and housing by revisiting existing debates through a behavioralist lens. It also introduces a range of novel empirical data to the study of these questions, including observational and experimental survey data, administrative datasets, and visual imagery.

Infill and Turnout: Development-in-my-backyard as a Noticeable Reminder to Vote

New construction in densely developed cities often involves the redevelopment of vacant or underused parcels, otherwise known as infill development. In my first paper, I propose that given a context in which gentrification and housing affordability are salient political issues, exposure to infill development can mobilize citizens to vote in local elections. I motivate this hypothesis by building on the Noticeable Reminder Theory (Dale and Strauss 2009; Malhotra et al. 2011), which claims that a noticeable reminder is sufficient to increase turnout rates among committed voters. I argue that a noticeable change in the built environment serves as a reminder to vote when housing issues are salient. Furthermore, I draw on a theory of contingent mobilization to argue that in high salience elections, new development has the largest effect on turnout among casual voters (Arceneaux and Nickerson 2009). To test these hypotheses, I analyze turnout in the 2015 San Francisco municipal election, comparing turnout rates among registered voters living near development sites that began construction in the months just before or just after the election. San Francisco provides a useful setting for my analysis, for two reasons. First, housing and land use was the key political issue in the 2015 municipal election, because of the housing affordability crisis facing the city. Second, the lengthy and unpredictable timeline for developers to obtain project approvals and building permits in San Francisco provides as-if random variation in the timing of new construction. I show that voters who lived in the neighborhood of projects that began construction before the election were 3 to 4 percentage points more likely to vote
than those who lived near projects that began construction after the election. Consistent with the contingent mobilization theory, exposure to development has the largest effects among voters who did not vote in the 2014 mid-term elections. I argue that the findings are unlikely to be due to social mobilization or differences in baseline turnout rates across neighborhoods.

**Our Town: Support for Housing Growth When Localism Meets Liberalism**

The second paper turns from the question of who votes in local elections in which land use and housing policies are highly salient, to the question of how citizens vote when they asked to make decisions on housing growth. Citizens have differing opinions about the desirable rate and nature of housing growth (Gerber and Phillips 2003; Hankinson 2015; Marble and Nall 2018). I argue that two types of political beliefs shape attitudes toward housing growth. Localism is the belief that the interests of local communities should be privileged relative to those of outsiders (Zimmerman 1938; Dye 1963; Merton 1968). Economic liberalism is the belief that political institutions should act to achieve equitable social and economic outcomes (Treier and Hillygus 2009; Feldman and Johnston 2014). I hypothesize that the relationship between liberalism and support for housing growth is conditional on whether new housing units are perceived to be equitably distributed across income groups. Localism, on the other hand, is negatively associated with support for housing growth, regardless of the type of development being proposed. I find empirical support for both hypotheses from two studies. In the first study, I measure liberalism and localism using primary principal components of responses to a battery of statements about economic redistribution, housing policy and local community preference. I show using an experimental manipulation that liberals are more supportive of a development project with mixed-income housing than one with luxury apartments. Conservatives, on the other hand, are indifferent between the two types of projects. However, support for both types of projects decreases with localism scores. The second study exploits rich elections data on housing and land use ballot measures in San Francisco, where voters have repeatedly gone to the polls to make decisions on land use. I show that precincts with high liberalism scores are more supportive of development projects where a large proportion of housing units have been set aside for low- and middle-income households, and less supportive of projects associated with “luxury condos.” I further document that localism is negatively
associated with support for all types of development projects.

The American Dream and Support for the Social Safety Net: Evidence from Experiment and Survey Data

Worsening housing affordability is not all bad news; for homeowners, rising home prices boosts housing wealth. It has been claimed that housing wealth erodes support for the welfare state, because housing wealth is a form of private financial buffer that substitutes for social insurance (Ansell 2014). Prior research in political science and sociology has examined the relationship between homeownership, housing wealth, and the welfare state, in particular the argument that widespread homeownership undermines support for social insurance programs (Kemeny 1981; Castles 1998; Conley and Gifford 2006). For instance, Malpass (2008) argues that welfare state retrenchment “relies on the existence of substantial amounts of quite widely distributed housing wealth in order to secure political acceptance of changes in service provision.” In contrast to this line of argument, I propose the status quo bias hypothesis, which predicts that housing wealth increases preference for status quo arrangements with respect to Social Security. I develop this hypothesis by building on mental accounting theory (Shefrin and Thaler 1988; Thaler 1990) and prospect theory (Kahneman and Tversky 1979; Tversky and Kahneman 1991). I test the hypothesis in two empirical studies. A survey experiment finds that homeowners informed about high historical home price appreciation (HPA) are about 8 percentage points more likely to prefer existing Social Security arrangements to privatized retirement accounts, compared to those informed about low historical HPA. Observational data from the 2000-2004 ANES panel show that homeowners who experience higher HPA are about 11 percentage points more likely to prefer status quo levels of spending on Social Security than those in the bottom HPA quartile. No significant HPA effects are observed among renters, and for other domains of social insurance among homeowners. The evidence suggests that housing wealth’s conservatizing effect should be interpreted as a status quo preference, rather than opposition to redistributive social policies.

A Note on IRB

The survey experiment in Paper 2 received IRB approval from MIT, COUHES Protocol #1704948281. The survey experiment in Paper 3 was approved under Protocol #1606605105. Access to restricted ANES data was approved under Protocol #1602469152.
Paper 1

Infill and Turnout:
Development-in-my-backyard as a Noticeable Reminder to Vote

1.1 Introduction

Changing neighborhoods shape political participation. In the United States, urban renewal programs of the 1950s and 1960s and the ensuing displacement of local residents galvanized community groups and mobilized them politically against renewal (Mollenkopf 1981). The urban renewal wave of the 1990s and 2000s, on the other hand, has been associated with decreased political participation among incumbent residents in gentrifying neighborhoods (Knotts and Haspel 2006; Hyra 2017, chap. 6). Demographic change resulting from redevelopment can also cause voter behavior in neighboring areas to change, due in some cases to a reduction in outgroup threat (Enos 2016). In communities everywhere, threats to existing socioeconomic homogeneity or the loss of valued natural and cultural amenities can catalyze political opposition (see e.g. Fischel 2001a; McCabe 2016, chap. 5). This phenomenon is of course not limited to the United States, as studies in other advanced democracies have shown (e.g. Barlow 1995; Ahlfeldt 2011; Stokes 2016).

Students of urban planning have long been sensitive to how the physical environment of a neighborhood affects civic engagement and political participation. Neighborhoods with homes that have porches, stoops, or windows adjacent to the sidewalk allow for what Jacobs (1961) calls “eyes on the street,” and promote a sense of communal ownership of the neighborhood. Leyden (2003) draws on a novel survey to document that the walkability
of a neighborhood is associated with increased political participation. By promoting interactions among residents, pedestrian-oriented, mixed-use neighborhoods enhance local social capital and deepen community engagement. Michener (2013), also drawing on survey data, shows that subjective perceptions of disorder – litter, graffiti, and vacant storefronts – predict local political participation in a non-linear way. Political engagement is highest with moderate levels of perceived disorder, and declines as perceived disorder becomes so severe as to be beyond remedy.

In this paper, I document the effect of a changing urban landscape on electoral participation. In recent decades, growing urban populations and economic expansion have been accompanied by a building boom in U.S. cities (Henderson 2016). New construction in densely developed cities frequently takes the form of infill development, where vacant or underused parcels – such as parking lots, gas stations, or low-rise buildings – are redeveloped. Building on prior research in the get-out-the-vote (GOTV) literature, in particular the Noticeable Reminder Theory proposed by Dale and Strauss (2009), I argue that a noticeable change in a domain that exhibits high electoral issue salience – such as infill development in a city with experiencing housing unaffordability – can serve as a noticeable reminder to vote. To identify the effect of development, I leverage plausibly as-if random construction start dates. Land entitlement – the process that a developer undertakes to obtain the municipal approvals needed to develop a property – can be a lengthy and unpredictable endeavor. The unpredictability of the entitlement timeline is especially true in San Francisco, the city that I study. I analyze turnout in the 2015 municipal election among registered voters living near development sites that began construction in the months just before or just after the election. Voters who lived in the neighborhood of projects that happen to begin construction before the election were about three to four percentage points more likely to vote than those near projects that happen to begin construction after the election. Dividing the sample of registered voters between those who voted in the 2014 mid-term elections and those who did not, I show that the effect of development is driven by those who did not vote in the previous election. This result is consistent with the contingent mobilization theory proposed by Arceneaux and Nickerson (2009), which predicts that in high salience elections, GOTV interventions are most effective among casual voters.

In addition to complementing the literature on urban development, this paper adds to research on the relationship between spatial scale and citizens’ attitudes toward housing growth. Cities that have high housing costs often have populations that are majority renter. Renters are a natural constituency in support of housing growth, because an increase in housing supply causes lower housing costs in equilibrium. Indeed, Hankinson (2018) finds,
drawing on a novel exit poll, that a large majority of voters who rent in San Francisco support housing growth in the city. However, Hankinson shows that even among those supportive of housing growth in the city, a small majority of renters oppose new housing growth in their neighborhoods. Hankinson conjectures that renter opposition to local growth may be due to worries about neighborhood gentrification. This paper adds to recent studies of attitude formation on urban development at the hyperlocal scale, by examining the local effects of development on political behavior, specifically the decision to vote. The main contribution of this paper is to provide estimates of the reminder effect of infill development on turnout. I obtain these estimates by virtue of geolocated voter data and a novel dataset of construction start dates that leverages historical street-level imagery.

This paper also contributes to research in social geography, which considers how citizens’ everyday interactions with other groups in an urban environment shape their political attitudes. For instance, Enos (2014) shows that perceived demographic change can cause individuals from a dominant ethnic group to become more supportive of exclusionary immigration policies. Hopkins (2010) argues that in order for individuals to draw political conclusions from the demographic changes they experience, they must have access to relevant frames, such as political rhetoric disseminated through mass media. Similarly, this paper focuses on the effects of noticeable change related to a salient issue domain in an urban context. In contrast to the literature on intergroup threat, which seeks to explain political attitudes, I study changes in political behavior – specifically voter turnout – in response to a noticeable change in the built environment.

Theoretically, this paper is closely related to prior research on voter mobilization, such as the studies summarized in Green and Gerber (2015), and especially Arceneaux and Nickerson (2009) and Dale and Strauss (2009). However, instead of voter mobilization interventions, this paper examines how changes to the physical environment independent of political campaigns can affect voter behavior. In this vein, this paper share similarities with Sinclair, Hall, and Alvarez (2011), which studies the effect of flooding in New Orleans on mayoral election turnout. More broadly, the paper contributes to a growing literature in behavioral science on the effects of attention and salience on individuals’ behavior. The study of issue salience and political attentiveness and their effect on political opinions is, of course, not new (e.g. Iyengar, Peters, and Kinder 1982; Behr and Iyengar 1985; Zaller 1992). A more recent body of work examines how salience shapes consumer decisions (e.g. Bordalo, Gennaioli, and Shleifer 2013; Karlan et al. 2016). This paper finds that salient

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1Data from the same exit poll also shows that a smaller majority of owners support housing growth.
change can also affect political choices.

The paper proceeds as follows. In Section 1.2, I discuss how noticeable change, issue salience, and electoral salience jointly affect voters’ decision to turn out in elections. In Section 1.3, I introduce the empirical setting, as well as features of the development permitting process in San Francisco that facilitate the research design. In Section 1.4, I describe the empirical evidence that support my findings. Section 1.5 presents conclusions.

1.2 A Generalized Noticeable Reminder Theory

Existing research in voter mobilization test the effects of GOTV interventions. A GOTV intervention is a bundle of treatments that frequently includes both social contact and a message that urges or reminds a citizen to vote. Dale and Strauss (2009) argue that social contact is not a necessary component of a successful voter mobilization intervention, if a citizen is committed to voting. However, citizens who commit to voting sometimes fail to vote. One reason for such failures is inattention: a citizen could forget to vote, or neglect to set aside the costly effort needed to research candidates and issues until the very last minute. Reminders can help to mobilize such voters by making the election “top of mind.” A reminder can be personal (e.g. face-to-face contact or a phone call from a campaign voter) or impersonal (e.g. a flyer or a robo-call) – what is important for the treatment to be effective is that the reminder is noticeable and that the voter registers the reminder.

To formalize how reminders work to increase turnout, I propose a simple model that follows and simplifies the model presented in Karlan et al. (2016). Suppose a voter determines that an upcoming election is important, and decides to vote. Voting requires costly effort – one might imagine this as the time needed to research the candidates or issues being voted on, or simply the effort needed to visit the polling station. An attentive voter can maximize her utility by smoothing the effort needed over time. However, an inattentive voter neglects to prepare for the election until election day. On election day, this voter has two options: she can change her plans in order to vote, or she can forgo voting. Some voters

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2 Karlan et al. (2016) propose this model in the context of a series of field experiments in which banks send their clients monthly reminders to help these clients achieve their savings goals.
This claim makes up the core of the noticeable reminder theory (NRT) proposed in Dale and Strauss (2009): a voter mobilization campaign can be successful so long as the intervention is noticeable and salient. Dale and Strauss test their theory with text message reminders, based on the premise that at the time of their study (2006), text messaging was still a relatively “spam” free medium. Compared to other forms of campaign outreach, receiving a GOTV text message would be relatively unexpected and hence noticeable. They find evidence for the theory from a field experiment with a text message intervention implemented during the 2006 elections.

Panagopoulos (2009) shows that voters do not even have to be directly contacted to be mobilized. Turnout can be increased by having volunteers, situated at high-traffic intersections adjacent to polling stations, hold up street signs urging citizens to vote. Again, the key characteristic of a successful intervention is its noticeability. “Noticeability,” as a concept, is not simply perceivability; there must also be a minimal level of unexpectedness. For example, the volume of televised political advertisements noticeably (perceivably) increases prior to an election, but campaign advertisements do not appear to mobilize voters (Huber and Arceneaux 2007; Krasno and Green 2008). Street signs and text messages, on the other hand, are noticeable in the sense that they represent surprising or unexpected deviations from the prevailing norm.

One might wonder whether NRT requires the intervention to be a literal reminder to vote. In other contexts, scholars have pointed out that noticeable changes can cause attitudinal shifts. Hopkins (2010) proposes the politicized places hypothesis to explain how changing demographics and salient political frames jointly trigger changes in attitudes toward immigrants and immigration policies. The politicized places hypothesis and NRT share the premise that people selectively incorporate information that they receive. Information about changes in a certain attribute (e.g. local ethnic heterogeneity) is more readily incorporated into attitude formation processes than levels of the attribute. Salient political frames – for example, political rhetoric about immigration disseminated through mass media – then allow citizens to connect information about changes to political attitudes

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More formally, suppose voters choose the amount of leisure to consume over 2 periods. Voters can consume a maximum of $L$ units of leisure each period, and the utility function $u$ is concave with respect to leisure. Voting costs $x$ units of leisure, which can be made over two periods or in just one period, and voters who vote receive additive utility $\bar{u}$. I assume for simplicity that voters do not discount the future. A fully attentive voter is one for whom $u(L - \frac{x}{2}) + u(L - \frac{x}{2}) + \bar{u} > u(L) + u(L)$. However, some voters are inattentive or forgetful, and consume $L$ units of leisure in the first period. In the second period, they forgo voting if $u(L - x) + \bar{u} < u(L)$. Reminders mobilize such voters by mitigating the effect of inattention.
and policy preferences.

Drawing on the politicized places hypothesis, I argue that NRT can be generalized such that a noticeable change in a domain that exhibits high electoral issue salience can serve as a noticeable reminder to vote. For exposition I call this type of intervention a Salient Issue, Noticeable Change (SINC) treatment. In the immigration case, the generalized NRT would predict that a sharp change in the proportion of immigrants in a given locality, prior to an election in which immigration is a salient issue, would increase voter turnout in that locality. A GOTV intervention is trivially a SINC treatment, in that whatever an election is about, it is also about casting votes, and a canvasser showing up unexpectedly at a voter’s doorstep is a noticeable change related to the domain of casting votes.

Finally, under what conditions are mobilization interventions most effective? Arceneaux and Nickerson (2009) propose a theory of contingent mobilization. According to this theory, voters are assumed to have a latent propensity to vote, which is “an enduring individual-level trait” (p. 4). Voter mobilization in an election campaign has an additive effect on this latent propensity, yielding an election-specific propensity to vote. Voters cast a vote when their vote propensity exceeds an election-specific threshold. It follows that GOTV treatments will have the largest effect on marginal voters; that is, those voters closest to the indifference threshold. Who these marginal voters are therefore depends on both voter and election characteristics. For a low salience election, the threshold is high, hence the marginal voter is a voter with a high propensity to vote. The converse is true for a high salience election. Arceneaux and Nickerson (2009) find evidence for this theory using pooled data from 11 door-to-door canvassing GOTV experiments. GOTV interventions are most effective in mobilizing low propensity voters in high salience elections, and high propensity voters in low salience ones. Malhotra et al. (2011) replicate Dale and Strauss (2009) for two elections in 2009 and 2010 with different salience levels, and find evidence for both the contingent mobilization theory and the NRT. Text messages increase turnout among habitual voters in a low salience election; conversely, the treatment increases turnout among casual voters in a higher salience election.

I conclude this section by placing the discussion above in the context of an election in which housing unaffordability and gentrification are salient issues. The noticeable change that I exploit in the empirics is the commencement of a large development project in a locality that had not previously experienced development. The generalized NRT predicts

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4The claim that voters have a stable latent propensity to vote finds support in Prior (2010). Drawing on panel data from the United States, Britain, Switzerland, and Germany, Prior shows that the level of political interest among individuals is stable over long periods of time.
that the construction of a large development in a given locality, prior to an election in which gentrification is a salient issue, increases voter turnout in that locality. Furthermore, given a high salience election, the contingent mobilization theory predicts that the development has a larger effect on turnout among casual voters, compared to those with a higher propensity to vote. Before presenting the data, I turn first to the empirical setting from which the data is drawn.

1.3 San Francisco’s Housing Affordability Crisis

San Francisco has a long history of gentrification and residential displacement. Urban renewal projects in the city were initiated not long after the end of the Second World War. A redevelopment program in the Western Addition neighborhood – which contained both Japantown and the city’s oldest black institutions – displaced about 4,000 individuals and households between 1956 and the mid 1960s (Mollenkopf 1981). In the late 1970s, tenant groups mobilized against large-scale evictions and steep rent increases, and won the enactment of a rent control ordinance in 1979 (Shaw 1998). Battles over rent control, vacancy decontrol (allowing a landlord the right to raise rents when the original tenant moves out), and evictions continued through the 1980s and 1990s. The growth of Silicon Valley in the late 1990s stoked the San Francisco housing market, and led to a number of local ballot measures that sought to set limits around the conversion of rental housing to owner-occupied property.

The global financial crisis and the 2008 to 2009 recession dampened home prices all across the United States, not least San Francisco (Figure 1.1, Panel A). Yet by 2012, home prices were on the rebound, together with housing construction. Construction began on more than 4,000 housing units in 2012, with the new homes adding to the housing stock over the following two years (Figure 1.1, Panel B). SPUR, a local urban planning and policy advocacy group, characterized the building activity in the city as a “construction bonanza,” and described the number of cranes dotting the city’s skyline (26) as “staggering by any historic standards” (Metcalf and Warburg 2012).

The construction boom did not go unchallenged by local residents. Although concerns about gentrification and evictions had been growing, the most high-profile political battle over development in 2013 was a city-wide referendum over a 134-unit condominium project on San Francisco’s waterfront, known as 8 Washington. 8 Washington would have replaced a recreational club and parking lot, and would not have resulted in any displacement. Rather,
opponents of the 8 Washington project complained that the project would ruin the waterfront, limit access to existing open space, and benefit the buyers of “luxury condominiums” rather than “average San Franciscans.” These opponents were able to collect enough signatures to put the project – technically the height limit increase approved by the Board of Supervisors – to a public vote. Voters rejected the project by a wide margin, with only about 35 percent of voters in support. Slow-growth advocates followed up on their success in the 2013 referendum by garnering voter support for a ballot measure in June 2014 that would require voter approval for height limit increases on certain sites along the eastern waterfront.

Housing and land use was the key political issue in the November 2015 municipal elections. Every candidate for mayor spoke to the issues of housing affordability, evictions, and homelessness in their candidate statements. Ed Lee, the incumbent, made a plan to build 30,000 new homes by 2020 the key priority in his campaign platform. In addition to electing a mayor, voters were also asked to vote on 11 ballot measures, of which five directly concerned housing or land use. Proposition A sought voter approval for a $310 million affordable housing bond. Proposition D sought approval for Mission Rock, a waterfront development project, as required by the June 2014 measure. Proposition F proposed limiting short-term rentals to 75 days a year, and was widely viewed as a measure to regulate short-term rental platforms such as Airbnb. Proposition I would impose a 18-month building moratorium in the city’s Mission District. Finally, Proposition K would allow the city to

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5These quotes are drawn from arguments against the project published in the city’s Voter Information Pamphlet.
Notes: Turnout rates in San Francisco for general elections (presidential and mid-terms) and municipal elections. Elections not held in November (e.g. primaries) are omitted. Mayoral elections take place every four years, the year before presidential elections. Elections for the city and county’s Board of Supervisors take place in even-numbered years. Source: San Francisco Department of Elections.

Among the measures, the Airbnb proposition drew the most attention. Tenant groups argued that short-term rentals reduced the number of homes available in the rental market for long-term residents, and benefited visitors and tourists at the expense of local renters. Airbnb spent about $8.5 million in its campaign against Proposition F, according to campaign finance filings. The company was also able to mobilize its users, especially those who were renting out their homes, to campaign against the proposition. In a post-election debrief, Airbnb reported that individuals working to defeat the ballot measure clocked almost 2,000 volunteer shifts, knocked on 285,000 doors, and contacted more than 105,000 voters, or almost a quarter of all registered voters. In addition to its GOTV campaign, Airbnb also put up advertisements on billboards and at bus stops around the city, reminding voters of the $12 million in hotel taxes that it generated each year. The advertisements were widely derided for their condescending tone. Airbnb took them down after about a day, amidst criticism and backlash from the public.

Excluding the 2005 municipal election, which coincided with a special statewide elec-
tion, the 2015 election recorded the highest turnout rate for a local election since 2003, with 45.5 percent of registered voters casting a vote (Figure 1.2). By comparison, national-level turnout rates in mid-term elections have averaged around 40 percent since the 1970s (McDonald 2014). Even though an election in which fewer than one in two registered voters cast a ballot may not seem very salient in absolute terms, this turnout is relatively high compared to all but the highest profile elections, such as presidential elections. For example, in their study of GOTV campaigns across 11 elections, Arceneaux and Nickerson (2009) describe an election with a turnout rate of 48 percent as a high salience election. Given the relatively high turnout rate, as well as the high-profile advertising and GOTV campaign run by Airbnb and its allies, I classify the 2015 municipal election as a high salience election.

The permitting process The research design that I describe in the following section leverages as-if random timing of construction start dates to estimate the effect of development on voter turnout. In San Francisco, obtaining the necessary approvals to develop a property (also known as entitlements) can be a lengthy process (Schuetz 2015). To begin the process, developers must file a Preliminary Project Assessment (PPA) application. The PPA allows the city’s Planning Department to provide feedback on the site plans, such as identifying possible impacts on public property or rights-of-way. Depending on the specifics of the project, the developer may also need to collect feedback from neighbors and neighborhood associations, and inform the Planning Department on how it plans to address community input. In addition, the developer must file an Environmental Evaluation application, and Environmental Planning staff will make a determination as to whether further environmental review is required. If planning staff exempts the project from further environmental review, local residents can appeal the decision.

After the pre-application phase, the developer submits applications for entitlements. If the developer wishes to use the parcel in a way that is not principally permitted under zoning regulations, it needs to apply for a Conditional Use authorization. Authorization is given by the Planning Commission, after a public hearing at which proponents and opponents of the project can state their cases. All property owners within a 300-feet radius of the development site must be notified about the hearing. The Planning Commission’s decision can be appealed to the city’s Board of Supervisors. The developer must also separately file for a building permit, which is first reviewed by the Planning Department, and then the Department of Building Inspection. Projects that successfully navigate the entitlements process may still be vulnerable to lawsuits or a referendum, as in the case of 8 Washington.

26
For large projects, the entitlement and permitting process can take a number of years. An example illustrates the unpredictability of the development timeline. The developer of a site at 490 South Van Ness Avenue acquired the parcel in 2009 and began the preliminary assessment process. The environmental evaluation process was held up in 2010 when its contractor failed to respond to a request for information. In April 2011, the developer was issued a permit to remove contaminated soil from the site, due to its previous use as a gas station. The Department of Public Health issued a stop work order in February 2012 after neighbors complained about benzene and gasoline odors. In June 2014, the Planning Department granted the project an exemption from environmental review. Over the summer, multiple public hearings took place, with the developer iterating on the site design based on feedback from the Planning Commission and members of the public. The Planning Commission finally approved the project in October 2014. However, in July 2015, the city announced that it would purchase the parcel from the developer, in order to develop a 100 percent affordable housing project. Over the following year, the city solicited bids to develop the project, and awarded the contract to a nonprofit affordable housing developer in November 2016. In September 2017, the Planning Department approved amendments to the original project, and a building permit was finally issued in February 2018.

This narrative is not simply an account of the many ways in which a project’s construction can be delayed. It also demonstrates why the timing of construction is exogenous to characteristics of the neighborhood that also affect political participation. Barring unanticipated events, the development at 490 South Van Ness Avenue could have commenced construction – plausibly – at any time after 2013. For example, the environmental review timeline might have been shortened if the contractor had expedited its response to the planning department. The stop work order was an unexpected speed bump. Even with these hiccups, construction could have started in early 2015 if the developer had decided to proceed with its original plan, instead of selling the parcel to the city. I exploit this as-if random timing of construction start dates to identify the effect of development on voter turnout.

In summary, San Francisco provides an ideal empirical setting for two reasons. First, I theorize that new development mobilizes voters conditional on housing and land use being a salient issue. While housing affordability is not an issue unique to San Francisco, in few other major cities is land use politics more intense. Second, the entitlements and permitting process in San Francisco can often be protracted and unpredictable. These characteristics

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6 This account draws on Hernandez (2011), Kuchar (2013), Bevk (2014), Elsen (2014), Hernandez (2015), and Wenus (2017), as well as publicly available filings at the San Francisco Planning Department.
of the development process mean that development start dates are also unpredictable, mitigating concerns about confounding.

1.4 Data and Method

Data

I bring together data from multiple sources that collectively allow me to observe voters’ demographic attributes and turnout history, describe the characteristics of their homes, track the construction of development projects, and observe aggregated demographics in neighborhoods across San Francisco. I discuss each of these data sources in turn.

**Voter information and turnout** I obtain the county voter file from San Francisco’s Department of Elections. The file was retrieved in February 2017, and contains information about all registered voters in San Francisco as of the retrieval date. The data include individuals’ name, street address, date of birth, gender (an optional field), party registration (if any), registration dates, and voting precinct. The data also include turnout in past elections, with the earliest election being the 2014 June primary election. The voter file does not include individuals who were registered voters for the 2015 municipal elections but were subsequently removed from the list of voters e.g. due to death or migration. It includes individuals who were not eligible for the 2015 elections because they were not registered or under the age of 18 at the time. These individuals were removed from the dataset. As my analysis depends on knowing where voters resided prior to the 2015 municipal elections, I exclude all voters whose registration was updated for a change of address after January 1, 2015. That is, the dataset I use only includes voters who resided at the same address between January 2015 and when the voter file was retrieved in February 2017. The dataset of voters I use hence contains 404,839 voters, compared to the official count of 446,828 registered voters for the 2015 elections.

Of the approximately 400,000 voters in the dataset, gender information is missing for 159,735 individuals. I impute gender using an algorithm that draws on historical datasets to predict gender based on first names and dates of birth, implemented in the R package gender (Blevins and Mullen 2015; Mullen, Blevins, and Schmidt 2016). The voter file does not include data on ethnicity. I impute ethnicity using an algorithm based on last names, locality, and Census data, described in Imai and Khanna (2016) and implemented in the R package wru.
**Structure information**  I define a structure, or equivalently an address, as a building in which a voter resides. A structure can be a single-family home, a multifamily building, single room occupancy housing (e.g. single tenant rooms with shared kitchens and bathrooms), or other types of residential arrangements. Information about addresses are obtained from the San Francisco secured property tax roll dataset, available from the San Francisco Office of the Assessor-Recorder. The dataset contains information about the location of a property and characteristics such as the year the structure was built, as well as the number of stories and units in the structure. Structure information is used to augment voter-level data.

**Development sites**  The San Francisco Planning Department maintains a dataset known as the Pipeline, which consolidates information from datasets maintained by the Planning Department and the Department of Building Inspection. These datasets record applications for development projects that would add residential units or commercial space, and report whether an application is under review, a permit has been issued, or a project is under construction. The Pipeline is updated quarterly. I retrieve all Pipeline reports published between the first quarters of 2015 and 2017, and select all projects for which building permits were issued or which were under construction. Among these projects I select large developments, defined as those with six or more residential units or gross square footage of at least ten thousand square feet. This criterion excludes smaller projects such as renovations to single-family homes or small multifamily structures. The dataset of construction sites contains 252 unique projects. In this paper, I use the terms “projects” and “sites” interchangeably.

Local residents note that neighborhood change is happening when they observe construction. Even though building permit data are readily available, using the calendar quarter in which a building permit is first issued for a development is not a good measure of when construction is first observed, for several reasons. First, there may be a significant lag between permit issuance and construction. Second, a project may only involve alterations to the interior of a structure, in which case no construction might be observed from the street level. Third, administrative gaps may result in inaccuracies or omissions in the underlying dataset. For these reasons, visual inspection is necessary to determine when construction was first observed at a site. Historical street-level imagery is available via Google’s Street View project. For each unique site, I programmatically retrieve all available images at or near the site captured between June 2014 and 2017. I augment these images with interactive panoramic imagery available on the Street View desktop application. The frequency at which images are available varies across sites. At some locations, images are refreshed
Figure 1.3—Coding Construction Start Dates Using Google Street View

Notes: A set of images of the same site (200 6th Street, San Francisco) on different dates. Images are retrieved from Google Street View both programmatically and interactively, and all images are visually inspected to code the quarter in which construction was first visible. In this example, construction is coded as having commenced in the first calendar quarter of 2015.

Every one to two months; less trafficked locations have gaps of about a year. Figure 1.3 presents an example of images from Street View.

When a site is empty prior to construction – e.g. when the plot was originally a surface parking lot, open field, or a gas station – I code construction as having commenced if I observe excavation or the presence of heavy machinery or building materials on the site. When a structure originally exists on the site, I code construction as having commenced when the structure is demolished, if scaffolding or safety netting is observed, or if heavy machinery or building materials are present. If a substantial amount of time has elapsed between a pre-construction image and the first construction image, I estimate when construction began based on how much visible development has already occurred. For the purpose of my primary analysis, it is only necessary to know whether visible construction commenced before January 2015, between January and October 2015, or after October 2015; the precise commencement date is secondary to the analysis.

Local demographics For each site, I collect demographic data for the Census block group in which the site is located. A Census block group typically has a population of 600 to 3,000 people. The source of the data is the 2015 American Community Survey 5-year data, which provide demographic information collected between 2011 and 2015. I collect data on the median household income in each block group, median gross rent (nominal rent plus cost of utilities, if not included in rent), the proportion of individuals aged 25 or above with
Comparing Turnout Near Development Projects

Voters who experience development in their neighborhood are different in many ways from those who do not. For example, zoning regulations may restrict structures in some neighborhoods to single-family homes, which precludes sizeable development projects. Residents in these neighborhoods are hence unlikely to experience development in the immediate vicinity of their homes. Conversely, residents living in neighborhoods zoned for high-rise buildings are more likely to experience large-scale development near their homes. Voters sort into neighborhoods based on both preference and their willingness to pay. Such attributes may themselves be correlated with turnout rates, resulting in confounding. As Figure 1.4 illustrates, large development projects are geographically concentrated. Large scale development is clustered in the northeast quadrant of the city and along the central waterfront on the eastern edge. In contrast, certain parts of San Francisco experience little to no major development over the 2015-2017 period, particularly the western and central neighborhoods.

I address threats from confounding by leveraging plausibly as-if random construction start dates. Rather than comparing turnout rates between voters who experience development in their neighborhoods and those who do not, I compare turnout rates between registered voters who first experience development just before the election (the pre-election or treatment group) and those who experience it just after (the post-election or control group). The quantity of interest is therefore a local (in a statistical sense) average treatment effect. I do not make inference on voters who have always had development in their neighborhoods, or who never experience local development. Rather, inference is restricted to voters whose first exposure to development in their neighborhood within a window around the 2015 election is conditional on the construction start date.

Figure 1.5 presents a stylized illustration of the research design. Each cell in the figure represents a neighborhood of registered voters. Each point in the figure represents a development project, the location of which is pre-determined. Triangles represent development that is ongoing at the start of the study period. Circles represent development that commences during the study period. In an ideal experiment, we are able to randomize the construction start dates of the projects represented by circles, so that development begins either before or after the election. Inference is based on turnout in neighborhoods represented by the shaded cells. Note that I exclude from the study sample the neighborhood that
Figure 1.4—Development Projects in San Francisco and Treatment Assignment

Notes: This map plots locations of development projects, as well as treatment and control voters. Treatment units (in blue) are defined as registered voters neighboring (living within 100 meters of) a development project that commenced construction between January and September 2015 (black squares), and who did not neighbor a development project at the end of December 2014. Control units (in red) are defined as registered voters neighboring a development project that commenced construction between January and September 2016 (black circles), and who did not neighbor a project between December 2014 and 2015. Grey triangles indicate projects that commenced construction either before January 2015 or after September 2017.
Notes: Each cell in the figure represents a neighborhood of voters. Each point in the figure represents a development project, the location of which is pre-determined. Triangles represent development that is ongoing at the start of the study period. Circles represent projects that commence during the study period. The color of the circles indicate if the project commences development pre- (blue) or post-election (red). The background color of the cells indicate if the neighborhood is assigned to treatment (blue) or control (red).

has both an ongoing project and a project that commences construction during the study period, since voters in that neighborhood are exposed to development prior to the election regardless of treatment assignment.

I define neighborhood in a narrow sense; specifically, voters are exposed to development if a major construction site is located within 100 meters of their address. For my main analysis, I define treatment units as registered voters who lived in the vicinity (within 100 meters) of a development project that commenced construction between January and September 2015, but did not live in the vicinity of a development project at the end of December 2014. For exposition I call those who live in the vicinity of a development site “neighbors” of the project. Control units are defined as registered voters who were neighbors of a development project that commenced construction between January and September 2016, and who were not neighbors of any project between December 2014 and 2015. The sample includes 9,096 voters, of which 6,107 are in the treated (pre-election) group and 2,989 are in the control (post-election) group.

Table 1.1 reports summary statistics and the normalized difference for each pre-treatment variable.\footnote{Normalized difference is the difference in means divided by the square root of the mean sample variance; see Gelman and Hill (2006, p. 202); Imbens and Rubin (2015, p. 310).} Imbens and Rubin (2015, p. 277) reiterates the rule-of-thumb, due to Cochran (1968), that covariates that are more than one-quarter or one-half of a standard deviation apart may result in biased inference that are not easily removable by standard regression methods. Normalized differences for almost all covariates reported in Table 1.1 fall well below this threshold. Normalized difference for age is about 0.4 standard deviation apart but the nominal difference (about 3 years) is substantively small. I also conduct a test for
Table 1.1—Baseline Observed Variables and Normalized Differences

<table>
<thead>
<tr>
<th>Variable</th>
<th>Treatment</th>
<th>Control</th>
<th>Norm Diff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sites</td>
<td>32</td>
<td>18</td>
<td>NA</td>
</tr>
<tr>
<td>Units in Project</td>
<td>60.72</td>
<td>74.11</td>
<td>-0.16</td>
</tr>
<tr>
<td>Non-residential Gross Square Ft. in Project</td>
<td>55072</td>
<td>40888</td>
<td>0.08</td>
</tr>
<tr>
<td>Median Household Income in Census Block Group</td>
<td>81169</td>
<td>81786</td>
<td>-0.01</td>
</tr>
<tr>
<td>Median Gross Rent (Rent and Utilities)</td>
<td>1629</td>
<td>1520</td>
<td>0.14</td>
</tr>
<tr>
<td>Proportion of Individuals in Blk Grp Age 25+ with College</td>
<td>0.54</td>
<td>0.56</td>
<td>-0.06</td>
</tr>
<tr>
<td>Proportion of Owner-Occupied Housing Units</td>
<td>0.26</td>
<td>0.26</td>
<td>0.01</td>
</tr>
<tr>
<td>Mean Number of Registered Voter Neighbors (RVN) Per Site</td>
<td>191</td>
<td>166</td>
<td>0.20</td>
</tr>
<tr>
<td>Average Age (2015) among RVN</td>
<td>44.96</td>
<td>47.77</td>
<td>-0.40</td>
</tr>
<tr>
<td>Proportion of Females among RVN</td>
<td>0.40</td>
<td>0.38</td>
<td>0.18</td>
</tr>
<tr>
<td>Proportion of Unknown Gender among RVN</td>
<td>0.06</td>
<td>0.06</td>
<td>0.04</td>
</tr>
<tr>
<td>Proportion of Non-Hispanic Whites among RVN</td>
<td>0.72</td>
<td>0.72</td>
<td>-0.02</td>
</tr>
<tr>
<td>Proportion of Asians among RVN</td>
<td>0.15</td>
<td>0.15</td>
<td>0.02</td>
</tr>
<tr>
<td>Proportion of Hispanics among RVN</td>
<td>0.10</td>
<td>0.11</td>
<td>-0.08</td>
</tr>
<tr>
<td>Proportion of Democrats among RVN</td>
<td>0.59</td>
<td>0.56</td>
<td>0.31</td>
</tr>
<tr>
<td>Proportion of Voters Without Party Registration among RVN</td>
<td>0.31</td>
<td>0.30</td>
<td>0.15</td>
</tr>
<tr>
<td>2014 General Election Turnout among RVN</td>
<td>0.43</td>
<td>0.40</td>
<td>0.31</td>
</tr>
</tbody>
</table>

Notes: The table reports summary statistics for treatment and control groups. Values are first summarized at the site (development project) level, then averaged across all sites in the treatment and control groups. Treatment units are defined as registered voters who lived in the vicinity (within 100 meters) of a development project that commenced construction between January and September 2015, but did not live in the vicinity of a development project at the end of December 2014. Control units are defined as registered voters who lived in the vicinity of a development project that commenced construction between January and September 2016, and who did not live in the vicinity of any project between December 2014 and 2015. Normalized difference is the difference in means divided by the square root of the mean sample variance; see Imbens and Rubin (2015, p. 310).

joint orthogonality by linearly regressing treatment assignment on covariates, and testing the null hypothesis that parameters are jointly equal to zero (Gerber and Green 2012, p. 107). In this case the null cannot be rejected with a randomization inference-based p-value of 0.66. This test gives us confidence that treatment assignment is plausibly as-if random.

Effect of Development on Probability of Turnout

I begin by estimating a linear probability model for voter-level turnout. Let \( \mathcal{V} \) be the set of voters who first experience a development project in the January to September 2015 or the January to September 2016 periods. The probability that voter \( i \in \mathcal{V} \) casts a ballot (\( Y_i = 1 \)) is

\[
\Pr(Y_{is} = 1) = \alpha T_s + \delta T_s V_i + X_i^\top \beta + W_s^\top \gamma.
\]

\( s \) indexes the site of which voter \( i \) is a neighbor. \( T_s \) is an indicator for whether construction commenced on site \( s \) in 2015. \( V_i \) is an indicator for whether voter \( i \) voted in the 2014 midterms. \( X_i \) is a vector of an intercept and individual-level covariates: age, imputed gender,
Figure 1.6—Effect of Development on Probability of Turnout

Notes: The figure shows heterogeneous effects of development on probability of turnout in the November 2015 municipal elections, controlling for covariates. Each pair of results presents estimated effects using different samples for control (sites where development began in 2016) and treatment (development began in 2015, prior to elections). For each pair, marginal effects of development are reported for registered voters who voted or did not vote in the 2014 general elections. Points and lines indicate point estimates from OLS regression with 95% confidence intervals based on cluster bootstraps at the development project level.

imputed ethnicity, party identification, whether the voter cast a ballot in the 2014 mid-term elections, and whether the voter resides in Supervisor District 3. The last variable controls for differential turnout among voters in District 3 because of the special supervisorial election for the district. $W_s$ is a vector of site-level covariates: the log median household income of the Census block group in which the site is located, the log median gross rent, proportion of individuals aged 25 or above with at least a college degree, proportion of housing units that are owner-occupied, units being developed on the site, and gross square footage being developed. The quantities of interest are $\alpha$, the effect of construction on a voter who did not vote in 2014, and $\alpha + \delta$, the effect on a voter who voted in 2014. For exposition I call the former a casual voter, and the latter an active voter.

Figure 1.6 reports ordinary least squares estimates, with confidence intervals estimated by cluster bootstrap. Among casual voters, the effect of development is statistically and substantively significant. Casual voters are 5.7 percentage points more likely to vote in the 2015 municipal elections if they are exposed to construction prior to the elections. The 2015 turnout rate among casual voters in the control group is 15 percent, so the treatment effect represents a 38 percent increase over the baseline rate. The substantive result is robust to variation in the treatment and control periods. The null of no effect for casual voters
cannot be rejected at the 95 percent confidence level when comparing the 2015 January to June period to the 2016 January to September period, but the result is significant at the 90 percent level. Over different combinations of treatment and control periods, the average treatment effect for casual voters range from 4 to 7 percentage points. The average treatment effect for active voters is 1.3 percentage points and statistically indistinguishable from zero.\(^8\) Averaged across both active and casual voters, the estimated treatment effect is 3.9 percentage points over a control turnout rate of 39 percent, although in general the effect cannot be statistically distinguished from zero at the 95 percent confidence level (see Figure A.1).\(^9\)

To place the effect size in context, I compare my estimates to findings from other studies, with the caveat that the settings and estimands in each of the following studies are different from this study. I focus on studies that similarly assess the effects of a change in the social environment on turnout (Huckfeldt and Sprague 1995). Sinclair, Hall, and Alvarez (2011) study the effect of flooding on turnout rates in the 2006 New Orleans mayoral election, which took place just after Hurricane Katrina. Among registered voters whose homes experienced minimal flooding, the turnout rate was around 43 percent. Compared to these voters, those whose homes experienced severe flooding were about 3 percentage points more likely to vote. When compared to those who suffered moderate flooding, the increase in turnout among those who suffered severe flooding is even larger – about 11 to 12 percentage points.\(^10\) The authors conjecture that these large effects can be attributed to either increased motivation or targeted mobilization among those who suffered the most extensive flooding. Panagopoulos (2009) studies the effect of street signs on turnout in the 2005 New York City municipal elections. In this study, volunteers situated at high-traffic intersections adjacent to polling stations held up signs urging citizens to vote, on the eve of Election Day. The author reports a treatment effect of 3 to 4 percentage points, over a control turnout rate of 33.2 percent. The effect of exposure to development appears to be similar in magnitude to that of other interventions that do not involve direct voter contact.
Figure 1.7—Scatterplot of 2015 and 2014 Turnout Rates

Notes: This figure shows the relationship between 2015 and 2014 turnout rates for sites in the January and September 2015 (treatment) and January and September 2016 (control) sample. Curves and shaded areas represent fitted Loess curves and 90% confidence intervals. The two vertical lines represent terciles for 2014 turnout rates.

Comparison Across Sites

The unit of observation in the previous section is the voter. We can similarly examine the effect of exposure to development at the site-level. For example, we might wish to know whether development has a larger effect at sites with low turnout rates at the previous election, compared to sites with high prior turnout. Figure 1.7 plots 2015 turnout rates at the site-level against 2014 turnout rates, where the vertical lines mark out terciles based on 2014 turnout rates. The plot suggests that in the bottom two terciles, treated sites – neighborhoods that experienced development between January and September 2015, but not before this period – reported higher 2015 turnout rates compared to control sites. In addition, the 2015 turnout gap between treated and control groups narrows as the 2014 turnout rate decreases.

---

8The turnout rate for active voters in the control group is 71.2 percent.
9In Figure A.2 I report estimated treatment effects using different cutoffs for distance to the development site. Among casual voters, effects diminish as the cutoff distance increases, implying that most of the effect is driven by voters nearest to the sites.
10See Figure 1 and Table 4 from Sinclair, Hall, and Alvarez (2011).
Figure 1.8—Effect of Development on Probability of Turnout

Notes: The figure shows heterogeneous effects of development on turnout rates in the November 2015 elections, controlling for covariates. Each set of results are estimates for the effect of development on 2015 turnout, among neighborhoods in each 2014 turnout tercile. Points and lines indicate point estimates from OLS regression with 95% confidence intervals based on robust standard errors.

Turnout rate increases, indicating that the effect of exposure to development diminishes with prior electoral participation.

More formally, for site \( s \) in the set of pre- and post-election sites, I estimate the model for turnout rate

\[
Y_s = \sum_{k \in \{1, 2, 3\}} \alpha_k 1[V_s = k] + \sum_{k \in \{1, 2, 3\}} \delta_k 1[V_s = k] T_s + \bar{X}_s^T \beta + W_s^T \gamma + \epsilon_s.
\]

\( V_s \) is a categorical variable indicating the tercile for site \( s \), and \( T_s \) indicates whether the site is in the pre-election (treatment) or post-election (control) group. \( \bar{X}_s \) is a vector corresponding to \( X_i \) in the previous section, with values of the covariates now aggregated at the site-level. Hence, for voters neighboring site \( s \), \( \bar{X}_s \) would record their mean age, the proportion of (imputed) women among those voters, the proportion of Democrats, and so on. \( W_s \) is a vector of site-level covariates, as above. The quantities of interest are \( \delta_k \) for \( k \in \{1, 2, 3\} \). There are 32 sites in the treatment group and 18 sites in the control group, corresponding to figures reported in the first row of Table 1.1.

Figure 1.8 presents estimates for the quantities of interest using various samples. For the baseline sample, consisting of sites that began development between January and September 2015 (treatment) and January and September 2016 (control), terciles for the 2014 turnout
rate are 38.3 percent and 48.7 percent.\textsuperscript{11} For sites in the lowest 2014 turnout tercile, the average turnout rate for the 2015 elections is 6.5 percentage points higher in the treatment group compared to the control group, controlling for covariates, although the estimate is imprecise and not statistically different from zero at the 95% confidence level. Across the four different sample groups reported in Figure 1.8, I obtain similar estimates for the difference in turnout rates among sites in the lowest tercile.\textsuperscript{12}

To summarize, using either voters or sites as the unit of observation, analyses comparing projects that began construction before the 2015 election to those that started after the election yield similar results. Exposure to development increases the probability of turnout in the 2015 elections among casual voters, and increases the turnout rate among communities with the lowest prior turnout rates.

**Difference-in-Differences Estimates**

Turnout gaps between the pre-election and post-election groups may be due to unobserved differences between voters or neighborhoods in the two groups. For instance, the demographic composition of voters in the two groups could differ in a way that is correlated with baseline propensities to vote. Another possibility is that get-out-the-vote campaigns could focus their efforts on neighborhoods that are experiencing demographic change, and such changes are correlated with development. The difference in turnout rates between pre-election and post-election sites might then reflect the effect of these campaigns rather than exposure to development. In previous sections I make the identifying assumption that development start dates for the sites in the study sample are uncorrelated with potential turnout outcomes, conditional on covariates. This assumption allows us to give a causal interpretation to the model estimates.

We may still worry that this assumption could be violated. An alternative approach to studying the effect of exposure to development on turnout is to compare turnout rates between voters residing nearest to a development site and those living slightly further away, while taking into account unobserved heterogeneity across neighborhoods. In other words, suppose neighborhoods have different baseline turnout rates, and further suppose voters residing nearest a development site have systematically different baseline turnout rates compared to those living further away. We use these two quantities to estimate a coun-

\textsuperscript{11}Turnout rates range from 9.5 percent to 63 percent.

\textsuperscript{12}The estimates for the 2015 April-September vs. 2016 January-September sample, and the 2015 January-September vs 2016 sample, are statistically significant at the 90% confidence level.
terfactual turnout probability for voters residing near development sites that commenced construction prior to the election. We do so by assuming that, in the absence of development, the turnout probability for voter $i$ residing in the neighborhood of development site $s$ is

$$\Pr(Y_{0is} = 1) = \mathbb{E}[Y_{0is}] = \eta_s + \alpha T_i$$

where voter $i$ is living “in the neighborhood” of a site if (say) she is within 200 meters of the site, and $T_i$ is an indicator for whether a voter is residing near a site – for example, within 100 meters of the site. $Y_0$ denotes whether or not a registered voter voted in the absence of development prior to the election. The equation says that in the absence of development, the turnout probability is determined by a neighborhood effect and a “nearness” effect that is common across neighborhoods. Figure A.3, which except for the addition of a ring of voters around each site (those living between 100 and 200 meters of the site) is similar to Figure 1.4, illustrates the geographic distribution of registered voters in this study sample.

The observed probability of turnout is then

$$\Pr(Y_{is} = 1) = \mathbb{E}[Y_{is}] = \eta_s + \alpha T_i + \delta T_i P_s$$

where $P_s$ denotes whether a development site commenced construction prior to the election. The quantity of interest is $\delta$, as in a difference-in-differences design.

There are therefore four groups of voters in this analysis. All voters in the study sample live in the neighborhood of a development site. As in the previous analysis, some voters reside in the neighborhood of sites that begin construction either before the 2015 elections, or after the elections. In addition, some voters live near (within 100 meters of) the sites, and others live further away (between 100 to 200 meters). Figure 1.9 presents turnout rates for each of these groups, reported separately for registered voters who voted in 2014 (active voters) and those who did not (casual voters).

The figure shows that with one notable exception, voters – whether active or casual – who reside near a development site voted at lower rates in 2015 compared to those who reside further away. I speculate that development tends to take place in locations where a higher proportion of residents are transient and hence less engaged in local politics. The exception to this pattern is casual voters residing in the neighborhood of sites that began construction pre-election, where those who reside near the site turn out at higher rates compared to those who reside further away. The pattern among other groups of voters suggest that in the absence of pre-election construction, the turnout rates for the former group of casual voters would have been lower.
Figure 1.9—Differences in Turnout Rates by Proximity to Sites and Development Start Dates

Notes: Turnout rates among voters who live near (within 100 meters) a development site, and those who live further away (between 100 to 200 meters). Turnout rates are reported separately for registered voters who voted in 2014 (active voters) and those who did not (casual voters).

To estimate the effect of development and incorporate controls, I estimate the following linear probability model of turnout for voter $i$ residing at address $a$ near project site $s$

$$\Pr(Y_{isa} = 1) = \alpha T_i + \delta T_i P_s + \eta_s + X_i^\top \beta + Z_a^\top \gamma$$

where $X_i$ is a vector of an intercept and individual-level covariates, as above. $Z_a$ is a vector of address-level covariates, including indicators for whether the structure is a single-family home, whether the structure has more than two stories, and whether information about the structure is missing. I estimate the model as stated, and an alternate version in which I interact 2014 turnout with $T_i$ and $T_i P_s$, in order to estimate heterogeneous effects for casual and active voters.

Figure 1.10 reports model estimates. On average, voters residing near a development site are about 4 percentage points more likely to cast a vote in the 2015 elections if construction commenced prior to the election – between January and September 2015 – than if construction commenced after the election. Among casual voters, the estimated
**Figure 1.10—Difference-in-Differences Estimates of Effect of Proximity to Project**

Notes: The figure shows difference-in-differences estimates for the effect of residing near a development project. Points and lines indicate point estimates from OLS regression with 95% confidence intervals based on cluster bootstraps at the project level.

The effect of development is about 5 percentage points. The estimated effect for active voters is about 1 percentage point and not statistically different from zero. These results are consistent with – and indeed, similar to – the findings from the voter-level analysis presented earlier (Figure 1.6).

**Alternative Explanations**

Higher turnout rates among registered voters in the vicinity of development sites, compared to those residing further away, could be due to reasons other than ongoing construction being a noticeable reminder to vote. I consider two alternative explanations. First, immediate neighbors of development sites where construction is ongoing may be mobilized to vote because of social contact among these voters. Those who live nearest development sites may be more likely to attend public hearings about the projects, because of self-interest, and because developers are required by planning regulations to notify neighbors about such hearings. Neighbors who have had face-to-face contact with each other during public hearings could be more likely to vote due to prosocial motivations. Gerber and Green (2000) build on this premise to argue that personal modes of political contact are more effective in mobilizing voters than impersonal modes. However, levels of social contact are unlikely to be systematically and significantly different between voters residing near sites that began construction just before the 2015 elections, and those that began construction just after. The narrative of the permitting process illustrates that the development timeline spans a number of years. Voters living in the vicinity of sites that began construction after
the election are likely to have had similar opportunities to mobilize each other as those living in the vicinity of sites that began construction before the election.

Second, exposure to a development site may not simply serve as a noticeable reminder. By making vivid the fact of neighborhood change, exposure to development calls attention to the reality of gentrification and housing affordability. In other words, seeing is believing. Among voters that are most vulnerable to displacement, those who are exposed to development may find the election especially salient. This hypothesis, based on the priming effects of development, is consistent with the finding that exposure to development has a larger effect on casual voters, to the extent that such voters are more likely to be affected by gentrification. Individual-level attitudinal data would be required to assess this hypothesis.

The evidence presented in this paper is limited in its ability to exclude an alternative explanation based on priming effects. But whether a noticeable change in the context of a salient issue primes or reminds, or both, does not detract from the evidence that a SINC treatment increases turnout.

1.5 Discussion

The evidence in this paper shows that a change in citizens’ immediate physical environment induces a change in their political behavior. The commencement of construction on a large development project, in a locality that had not previously experienced development, increases turnout rates among registered voters in a municipal election. The effect of development on turnout is strongest among casual voters, i.e. those who did not vote in the previous election. In contrast, development had no detectable effect among voters who voted in the previous election.

I argue that these findings are consistent with a generalized Noticeable Reminder Theory (Dale and Strauss 2009) and a theory of contingent mobilization (Arceneaux and Nickerson 2009). Studies of GOTV interventions show that a noticeable reminder to vote – one that manages to command a potential voter’s attention – can increase an individual’s probability of voting. I expand on the NRT by claiming that an effective intervention does not have to be a literal reminder to vote. A noticeable change in a domain that exhibits high electoral issue salience can serve as a noticeable reminder to vote, by keeping the election “top of mind.” I describe this type of stimulus as a Salient Issue, Noticeable Change (SINC) treatment. The commencement of construction on a large development project prior to an election in which housing is a salient issue is an example of a SINC treatment. The findings are
also consistent with contingent mobilization theory. In a high salience election, in which turnout rates are relatively high, the marginal voter is more likely to be a voter with a low propensity to vote. Noticeable reminders are hence most effective for these voters.

In this paper I focus on the local (in a statistical sense) and localized (in a geographical sense) effect of development on voter turnout. A related question is whether and how gentrification – a process of change in urban neighborhoods characterized by an inflow of higher socioeconomic status households and accompanied by rising property prices – affects political participation among existing residents. Students of gentrification have proposed competing “mobilization” and “destabilization” hypotheses (Knotts and Haspel 2006). Gentrification may increase turnout among existing residents by catalyzing grassroots activism in opposition to gentrifying forces. At the same time, because gentrification is a process that takes place over many years, it is less immediately noticeable and may gradually erode the capacity of incumbents to respond. Knotts and Haspel (2006), analyzing voter turnout data in the 2001 mayoral election in Atlanta, Georgia, find evidence for the latter hypothesis.

The theory I propose in this paper suggests that the effect of new development on political participation varies over the course of a gentrification process. In the early stages of neighborhood change, when gentrification is not politically salient, new development may not mobilize existing residents. When gentrification becomes a high salience issue, evictions, demolitions, or announcements of new projects are more likely to elevate voter turnout. Finally, the effect of new development is attenuated as demographic transition comes to an end. Both the mobilization effect of noticeable neighborhood change and the composition of the electorate are likely to be dynamic over the course of the gentrification process.

None of the evidence in this paper speaks to whether mobilized voters will vote in favor of or against pro-growth development policies. In my other research, I show that attitudes toward new developments depends on both the political priors of a given voter, and characteristics of the new development (Wong 2018). A voter who favors redistributive social policies is more likely to support a project in which a portion of the new homes are set aside for lower-income households. At the same time, if such a voter also favors greater local political control over neighborhood changes, then support for a new development could be dampened. Other recent contributions have also sought to understand the roles of self-interest and political beliefs in shaping attitudes toward development (Hankinson 2018; Marble and Nall 2018; Monkkonen and Manville 2018). Urban redevelopment has been, and continues to be, the site of intense political contestation. The housing affordability
crisis in the United States and other advanced industrialized economies lends new urgency to research on political mobilization that seeks to shape urban development and housing growth.
Paper 2

Our Town: Support for Housing Growth When Localism Meets Liberalism

2.1 Introduction

On February 4, 2014, the city council in Santa Monica, California, approved by a narrow margin a proposal to redevelop a shuttered pen factory into a mixed-use complex with homes, shops, restaurants, and offices. The factory had been closed since 2005 and Santa Monica, a seaside town at the heart of Southern California’s “Silicon Beach” west of Los Angeles, was experiencing a real estate boom. Hines, the developer that acquired the site in 2007, had planned to build more than 400 homes and 400,000 square feet of commercial space, across the street from a planned light-rail transit stop. The proposal was the culmination of a process spanning four years and numerous public hearings. Three months later, in the face of a referendum on the project, the city council reversed its decision. By the spring of 2015, Hines had sold the property to new owners, who subsequently redeveloped the site as a creative office complex with no residential component.¹

The outcome of the pen factory project is not, on its face, unusual. Economic self-interest offers one way to understand the outcome. In high-growth urban areas, homeowners wish to restrict the supply of new housing in order to preserve the value of their homes. Homeowners hence have an incentive to participate in local politics in order to block unwanted development (Fischel 2001a; Oliver, Ha, and Callen 2012; Been, Madar, and McDonnell 2014; McCabe 2016). Although renters typically favor housing growth, because new homes lower the price of housing, the threat of being displaced by redevelopment

¹I thank Frank Gruber for helpful context on development politics in Santa Monica and West Los Angeles.
motivates renters living in the proximity of proposed developments to oppose such projects as well (Mollenkopf 1983; Hankinson 2018).

While parsimonious, this account of housing growth preferences based on economic self-interest and an owner-renter dichotomy leaves unexplained some features of the Santa Monica case. First, homeowners and renters did not all share the same attitudes toward housing growth. The results of an anti-development ballot measure in the November 2016 elections (which failed, with 45 percent of voters in favor) showed that support for the measure was evenly distributed across the city, rather than being polarized between renter- and owner-dominated neighborhoods. Second, because the pen factory was located in an area zoned for office and industrial use, displacement was not an issue and did not figure among the concerns cited by Santa Monicans for Renters Rights (SMRR), the main interest group representing local renters. Instead, SMRR’s main complaints were that the project did not offer sufficient community benefits and affordable housing to offset the traffic burden it would generate (Sultan 2014).

Put another way, SMRR objected to the pen factory project on the grounds that it (i) was misaligned with the local community’s priorities and (ii) violated egalitarian norms. This framing suggests that the outcome in the pen factory project can be understood through the lens of political ideology. Whereas economic self-interest predicts support for development at the neighborhood-level, ideological priors may be more useful in understanding preferences at the city-level. Prior research has explored the role of liberal-conservative ideology in shaping attitudes toward development (Lewis and Baldassare 2010; Marble and Nall 2018; Hankinson 2018). In the context of local politics, beliefs about whether the needs and desires of established members of the local community should take priority over those of newcomers and outsiders – what I call localism – also matters for housing growth attitudes. I develop empirical hypotheses by integrating these two types of political beliefs with existing theories of choice under risk (Kahneman and Tversky 1979) and inequity aversion (Fehr and Schmidt 1999). Specifically, I hypothesize that liberals’ support for housing growth is moderated by the type of housing – mixed-income or high-end – being produced. Localism, on the other hand, is negatively associated with support for housing growth, regardless of the type of development being proposed.

I find empirical support for both hypotheses in a survey experiment and from rich observational data on housing and land use ballot measures in San Francisco. In the first study, I measure liberalism and localism using primary principal components of responses to a battery of statements about economic redistribution, housing policy and local community preference. I then ask survey respondents if they support a mixed-use development project,
where some respondents are told that new housing to be built are all luxury apartments, and others are told that some units will be set aside for low-income households. I show that liberals are more supportive of a project with mixed-income housing than one with luxury apartments. Conservatives, with the exception of those with extreme scores, are indifferent between the two types of projects. However, support for both types of projects decrease with localism scores.

The second study exploits rich elections data on housing and land use ballot measures in San Francisco, where voters have repeatedly gone to the polls to make decisions on land use. I decompose precinct-level vote outcomes on 19 ballot measures related to land use and housing policy into principal components, and again identify two components that are best interpreted as liberalism and localism. I then study how liberalism and localism correlate with vote outcomes for four redevelopment projects. I show that liberal precincts are more supportive of projects where a large proportion of housing units have been set aside for low- and middle-income households, and less supportive of projects associated with “luxury condos.” I further document that localism is negatively associated with support for all four projects.

The paper builds on several bodies of literature. A wide body of work explores economic self-interest as a motive for opposing housing growth and raising barriers to development. On one hand, homeowners wish to preserve the value of their homes (Fischel 2001a; Oliver, Ha, and Callen 2012; Been, Madar, and McDonnell 2014; McCabe 2016; Marble and Nall 2018). On the other hand, redevelopment may increase neighborhood housing prices (Autor, Palmer, and Pathak 2014; Hornbeck and Keniston 2017; Immergluck and Balan 2017). Renters concerned about the threat of displacement may therefore oppose development (Hankinson 2018). I depart from prior research by studying attitudes toward growth at the city-level, rather than the neighborhood-level as in, e.g. Hankinson (2018). The effect of a new development project on local house prices diminishes quickly with distance. Diamond and McQuade (2016) estimate that at a distance of 1-mile, affordable housing projects have no statistically significant effect on housing prices. Other studies have typically estimated price effects of development within a radius of 0.5-mile or less (Hornbeck and Keniston 2017; Immergluck and Balan 2017). The question thus arises of what motivates citizens who are not immediate neighbors of development sites to support or oppose new development. The question is theoretically important and empirically relevant because citizens are often mobilized to lobby or vote on developments that are not in their neighborhoods, as the Santa Monica case demonstrates (and as I show in the San Francisco case in this paper). Gerber and Phillips (2003) explore this question, drawing on
precinct-level results on development ballot measures in San Diego between 1996 and 1998. They report that variables tapping economic self-interest explain very little of the variance in vote outcomes across voters and ballot measures. Gerber and Phillips show instead that endorsements by interest groups like community planning boards and environmental organizations, as well as features of the development such as community benefits, are influential in shaping voter support for development measures. I build on this research by documenting that ideological factors are also predictive of support for housing growth.

Prior work focuses on self-reported liberal-conservative ideology and finds mixed results. Lewis and Baldassare (2010) reports that political ideology is consistently associated with support for dense and mixed-use developments, with liberals more supportive than conservatives. Marble and Nall (2018) on the other hand draw on a novel set of surveys and find that both homeowners’ and renters’ self-reported economic ideology are nearly uncorrelated with their attitudes towards local housing development. At the municipality-level, Kahn (2011) documents that liberal cities in California tend to issue fewer housing permits, compared to otherwise similar cities in the same metropolitan area. I build on this literature by arguing that there are minimally two ideological dimensions relevant for understanding attitudes toward housing growth. In addition to the conventional liberal-conservative dimension, I show that a second localist-cosmopolitan dimension predicts support for housing growth. Although localism has been the subject of earlier work in sociology (e.g. Zimmerman 1938; Dye 1963; Merton 1968), it has not been applied to contemporary studies of housing growth attitudes. I show that localism cross-pressures liberals to downgrade their support for development projects. Localism is more broadly an instance of group identity like race, party, or union membership (Fowler and Kam 2007; Huddy 2013) that is particularly salient in the context of development politics. My account of localism is consistent with ethnographic narratives that describe cleavages between existing residents and newcomers to a community, even conditional on homeownership and demographic characteristics (Kohn 2016, chap. 8; Pattillo 2008).

The paper proceeds as follows. Section 2.2 defines localism and liberalism, and presents a theory of how political beliefs shape support for residential development. Section 2.3 introduces urban redevelopment as the setting for the studies in this paper. It then describes and reports results from the survey experiment. Section 2.4 discusses the San Francisco

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2For examples of recent work in political science that explore the role of cosmopolitanism in political preference formation, see Jackman and Vavreck (2011), who study cosmopolitanism as a predictor of support for Obama in 2008, as well as Bechtel, Hainmueller, and Margalit (2014), who draw on localism and cosmopolitanism to explain citizens’ support for cross-border financial bailouts.
Section 2.5 offers implications for the practice of urban development and avenues for further research.

2.2 Theory

Although housing growth may affect the political economy in many ways, the importance of housing both as an asset (for homeowners) and consumption good (for both owners and renters) gives rents and home prices central roles in political economic theories of housing growth. The key insight is that homeowners make political decisions that best preserve or increase home values, a theory that Fischel (2001a) terms the “homevoter hypothesis.” Renters, on the other hand, support policies that (all else equal) lower rents (Hilber and Robert-Nicoud 2013; Ortalo-Magné and Prat 2014). An increase in the supply of housing reduces rents, which is capitalized into lower home prices. Renters are therefore expected to be more supportive of housing growth than homeowners. This proposition drives, for example, the conclusion from Ortalo-Magné and Prat (2014) that when citizens are given inducements to own homes and political institutions allow homeowners to block housing growth, city sizes are smaller than optimal in equilibrium. The owner-renter dichotomy also undergirds the analysis in Hankinson (2018), who predicts that the expectation of lower housing prices leads renters to support new housing at the municipality-level. Indeed, in an article that otherwise points to a limited role for economic self-interest in shaping sociopolitical attitudes, Sears and Funk (1991, p. 79) notes that self-interest may be especially relevant in the domain of local “doorstep” issues, because the personal stakes involved for the average voter are so large and unambiguous.

Empirical studies offer some evidence to support the claim that support for housing growth is at least partially motivated by economic considerations. Gerber and Phillips (2003) analyze ballot measures on urban development in San Diego between 1996 and 1998, and find that precinct-level support for development is negatively associated with homeownership rates. McCabe (2016, chap. 5) recounts numerous cases across the United States in which homeowners cite lower property values to justify opposing affordable housing developments. Marble and Nall (2018) use a novel survey experiment to show that liberal homeowners reduce their support for residential development when they are reminded that additional housing would likely reduce home prices. In an exception that proves the rule, Hankinson (2018) draws on an original exit poll of San Francisco voters to
document that renters are more supportive of a hypothetical neighborhood housing growth moratorium compared to homeowners. This pattern holds even among renters who support housing growth at the city-level. To explain this result, Hankinson use a separate conjoint experiment to show that heightened opposition to local housing growth only occurs among renters living in high-rent cities. The data are consistent with the theory that renters anxious about housing costs support housing growth at the city-level, but oppose development in their neighborhood because they worry that development will drive up neighborhood rents and increase their risk of being displaced.

Yet Gerber and Phillips (2003) also observe that empirically, models including only variables related to economic self-interest leave a great deal of variation in support for development projects unexplained. Consider again the question on a housing growth moratorium in San Francisco presented in Hankinson (2018). In addition to reporting whether they would support a hypothetical moratorium in their own neighborhood, exit poll respondents also reported how they voted on an actual ballot measure imposing a development moratorium in the Mission District, a neighborhood in San Francisco. For renters who do not live in the Mission, economic self-interest alone would suggest supporting a moratorium in their own neighborhood, but opposing a moratorium in the Mission. Building more housing elsewhere in the city would lower housing prices on average without the threat of local displacement. Yet exit poll data from Hankinson show that support for a growth moratorium in a respondent’s own neighborhood is highly correlated with support for a moratorium in the Mission. Most respondents who support a moratorium in their own neighborhood also support the Mission moratorium, and likewise for those who oppose a moratorium. My analysis of precinct-level voteshares (not reported in this paper) also indicates that even when precincts in the Mission are excluded, precincts with a higher proportion of renters are more likely to support the Mission moratorium. A large empirical residual remains after accounting for economic self-interest.

While citizens may look to their own self-interest to calibrate their support for land use policies that affect their neighborhood, ballot measures allow citizens to cast votes on policies that affect other neighborhoods. These neighborhoods, although part of the same city, may be some distance away. Research in cognitive psychology finds that individuals’ evaluations of attitude objects become increasingly influenced by their values and ideological beliefs as spatial, temporal, or social distance to these objects increase (Trope and

\[ \text{3The moratorium would suspend for 18 months building permit issuance for large development projects in the Mission District, excluding affordable housing projects.} \]

\[ \text{4Analysis is available from author on request.} \]
Evidence for this theory exists in issue domains such as immigration and energy policy. Branton et al. (2007) find that partisanship is more strongly associated with support for a nativist ballot proposition among voters further away from the U.S.-Mexico border, compared to those near the border. Clarke et al. (2016) likewise show that political ideology becomes increasingly predictive of support for hydraulic fracturing (“fracking”) as survey respondents’ distance from oil and gas development sites increases. These findings are consistent with the argument that deep-seated cultural and ideological factors dominate political attitude formation, except when policies have effects that are large, immediate, direct, and tangible (Sears and Citrin 1985; Sears and Funk 1990, 1991).

Political ideology may matter in the context of housing growth if new housing developments ameliorate or exacerbate social and economic inequities. Pro-growth advocates start from the premise that housing supply constraints exclude all but the wealthiest households from attractive cities. They then argue that those who favor egalitarian norms should also favor housing growth. Hence “progressives must see that scarcity is the enemy of equality” (Yglesias 2012) and that development restrictions “are a means by which owners of capital extract an outsized share of the surplus generated by job creation” (Avent 2014). But as Marble and Nall (2018) note, whereas liberal ideology is empirically correlated with support for redistributive social policies, it is at best weakly correlated with support for housing growth. Kahn (2011) documents that liberal cities in California in fact tend to issue fewer housing permits, compared to otherwise similar cities in the same metropolitan area. The author also finds that an increase in a city’s liberalism over time is associated with a decline in the growth rate of housing permits issued.

Why do liberal political beliefs not map onto support for housing growth? Some suggest that the failure of liberal cities to reform onerous land use regulations is due to liberal voters’ political and economic ignorance (Somin 2017). Others urge liberal urban dwellers to reflect on the perspective that “the hard economic realities of unaffordable housing, inequity of opportunity, and homelessness [...] are clearly of greater importance, and if you’re willing to sacrifice them at the altar of ‘neighborhood character’ then you need to take a moment and seriously question your commitment to progressive, inclusive values” (Phillips 2016). In short, it is claimed that liberals who oppose housing growth are either ignorant about economic realities or insincere about their political beliefs.

The main argument of this paper is that theorizing about how political beliefs shape preferences over local housing growth must go beyond a unidimensional liberal-conservative ideological spectrum. The ideological structure of mass attitudes with respect to local public policy has instead two distinct dimensions: localism and liberalism. The following sections...
develop these two concepts.

**Localism**

The concept of localism goes back at least to Zimmerman (1938). In Zimmerman’s formulation, localism describes an individual’s relative affect for her immediate community compared to the outer world. I build on Zimmerman’s definition by defining localism as the degree to which citizens are attached to their local communities. Following Hidalgo and Hernández (2001), I define attachment as the tendency to stay physically close to the object of attachment. Localism hence describes the extent to which a citizen feels anchored in her physical surroundings, as well as her affect for the people, places, and institutions that constitute the local community.

Localism is a continuum, with localists at one end, and “cosmopolitans” at the other (Dye 1963; Merton 1968). Compared to localists, cosmopolitans are less anchored in their local communities. While they may cherish their neighbors, local merchants, and community landmarks, they are equally (or more) oriented toward distant others and faraway places. To the extent that cosmopolitans are attached to their local communities, they are more likely to find comfort and take pride in the values or ideals that their communities represent (such as openness or tolerance) compared to localists, whose attachment is more physical and visceral.

In this paper, “local community” has a geographic meaning. The local community is a place. Places differ in scale, and a citizen is a member of multiple “local” communities, such as an apartment building, city block, neighborhood, city, or region (Hidalgo and Hernández 2001; Lewicka 2010). An individual’s localism can develop to different degrees towards places at different scales. Because this paper concerns political decision-making at the local government level, I define localism with respect to the town or city in which a citizen lives. In the institutional context that I study, the municipal government is the smallest political unit with formal authority over land use, and when citizens express their preferences over local land use at the ballot box, they do so as a member of the municipality.

When localism manifests itself politically, it does so by shaping beliefs about whether the needs and desires of established members of the local community should take priority
over those of newcomers and outsiders.\textsuperscript{5} For example, Dye (1963), drawing on a survey of residents and public officials in suburban communities in the Philadelphia metropolitan area, documents that localism is associated with support for exclusionary zoning regulations. Dye measures localism using a five-item instrument, in which respondents are asked about whether they agree with statements like the following:

No doubt many newcomers to the community are capable people but when it comes to choosing a person for a responsible position in the community, I prefer a man whose family is well established in the community.

Dye reports that when asked about whether respondents “favor using zoning laws to keep out of your community the type of people who usually build cheaper houses on smaller lots,” an overwhelming majority of residents (N = 123) support this type of zoning regulations, including all localists in the sample. Cosmopolitans comprise the majority of those who opposed exclusionary zoning. The study suggests that political preferences associated with localism often look like they are motivated by economic self-interest. But the data also show that not all locals are localists. Some locals are cosmopolitans who will tend to favor making it easier for newcomers to join the local community, even if these newcomers alter the existing physical, social, or economic character of the community. Localists, on the other hand, will favor political processes that allow local communities to manage the pace of change and to preserve local norms.\textsuperscript{6}

**Liberalism**

Economic liberalism, or liberalism in short, describes beliefs over the extent to which inequities in the distribution of income and wealth should be redressed through political

\textsuperscript{5}My definition of localism differs in this sense from that proposed by Jackman and Vavreck (2011), who conceptualize cosmopolitanism – the opposite of localism – as an openness toward, or a taste for, places and cultures different from one’s own. In its emphasis on obligations, my definition is more similar to that from Appiah (2006, p. xvi), who writes that the “one thought that cosmopolitans share is that no local loyalty can ever justify forgetting that each human being has responsibilities to every other.”\textsuperscript{6}This description of localism has echoes of what some authors term conservativism. For instance, Oakeshott (1991, pp. 408–410) provides this account: “To be conservative, then, is to prefer the familiar to the unknown, to prefer the tried to the untried, fact to mystery, the actual to the possible, the limited to the unbound, the near to the distant... [the conservative] has difficulty in reconciling himself to [changes], not because what he has lost in them was intrinsically any better than any alternative might have been or was incapable of improvement, nor because what takes its place is inherently incapable of being enjoyed, but because what he has lost was something he actually enjoyed and had learned how to enjoy and what takes its place is something to which he has acquired no attachment.” In my survey, I find that self-identified liberals and conservatives differ primarily with respect to egalitarian attitudes, and so – following existing scholarship – I refer to local community attachment as localism.
institutions (Treier and Hillygus 2009). Liberals are inequity-averse individuals who favor egalitarian norms and prefer redistributive public policies, whereas conservatives are those who believe that government should play a more limited role in remedying income and wealth inequities. As Treier and Hillygus (2009) show, economic liberalism is one of the primary ideological dimensions that organizes the political belief system of the mass public in the United States (see also Feldman and Johnston 2014 and references therein). Because the literature on economic liberalism as a core dimension of political ideology is extensive, I do not elaborate further on it here, except to reiterate that liberalism and localism are conceptually orthogonal. The distinction between cosmopolitan liberalism and localist liberalism is related to that between egalitarianism, on the one hand, and social identification (Fowler and Kam 2007; Shayo 2009; Huddy 2013) or parochial altruism (Bernhard, Fischbacher, and Fehr 2006) on the other. Liberals share in common a preference for equity in economic outcomes across individuals, but differ along the localism dimension in terms of whether ingroup members should be given preference in the application of egalitarian norms.

**Housing Growth Preferences**

Liberalism, localism, and the type of housing growth being proposed jointly shape voters’ preferences over growth. Liberals support housing growth to the extent that it directly redresses unequal economic shares or at the very least does not violate distributional norms. The violation of distributional norms (such as a proposal to build luxury apartments affordable only to high-income households) may be sufficient for liberals to oppose a development project, even if opponents to development agree that the economically worst-off will harmed by barriers to development.\(^7\) In experiments, inequity-averse individuals who perceive the violation of distributional norms have been shown to punish such violations, even if sanctions are costly to the victims of the violation (Fehr and Schmidt 1999; Fehr and Gächter 2000; Henrich 2000; Fehr and Fischbacher 2004).\(^8\) I hypothesize that all else equal, liberals should be more supportive than conservatives of mixed-income projects, i.e. projects in

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\(^7\)It is sometimes argued, for example, that in the absence of new development, a wealthy household will simply bid up the price of an existing housing unit, causing a less wealthy household to bid up the price of a less expensive unit, and so on. Ultimately, those who are least able to afford a home will be displaced from the city.

\(^8\)A widely replicated and elegant demonstration of this phenomenon is the two-player Ultimatum Game. A proposer proposes how a fixed endowment is to be divided among the two players. The respondent decides whether to accept the proposal or to reject it. In the latter case, neither player receives any of the endowment. Respondents frequently reject shares deemed to be unfair, at the cost of both players receiving nothing.
which at least some units are set aside for lower-income households. High-end or “luxury” projects, however, will receive less support from liberals compared to conservatives.

Unlike liberalism or conservatism, which are labels for political identification, localism is primarily a social identity marked by psychological attachment to the local community. As Huddy (2013) points out, social identities do not necessarily translate to political outlooks, but they can take on political content to become political identities. Localism becomes a political identity when urban growth imposes costs on local communities (Mollenkopf 1981) or upends existing social norms (Kohn 2016, chap. 8). I hypothesize that in such contexts, localists are less supportive of housing growth – both mixed-income and high-end developments – compared to cosmopolitans. The reasoning draws on prospect theory (Kahneman and Tversky 1979). In prospect theory, potential outcomes are defined as gains or losses relative to a reference point. Prospect theory postulates that a loss is felt more keenly than a gain of equal magnitude. In the context of housing growth, I conjecture that because localists are attached to the local community in its current form, the currently existing community constitutes the localist’s reference point. Expanding the housing stock to house newcomers can change the local community for better or worse relative to the status quo, but because negative outcomes are felt more acutely than positive ones, localists prefer to maintain the status quo. On the other hand, cosmopolitans view would-be residents dissuaded by high housing costs from joining the local community as gains foregone. Compared to localists, cosmopolitans are hence more likely to support a project that adds new homes to the city.

To summarize, I hypothesize that liberals are more supportive than conservatives of mixed-income projects, and less supportive of high-end projects. Localists are less supportive of both types of housing growth compared to cosmopolitans. Underlying these two hypotheses is the premise that the ideological structure of mass attitudes with respect to local public policy has minimally two distinct dimensions, localism and liberalism. The remainder of this paper presents two empirical studies to test these claims.

2.3 Survey Experiment

Setting

Relatively few plots of land remain undeveloped in the core areas of major metropolitan areas. Local governments and developers have responded to demand for new commercial and residential space in these cities by redeveloping underutilized industrial areas and adap-
tively reusing industrial buildings. When heavy industry left the South Boston waterfront in the mid 1950s, the neighborhood became the site of what was known as “the most scenic parking lot in Boston” (Cortese 2007). A master-planning process that began in the late 1990s culminated in the launching of a 21-acre mixed-use project in 2007. The Seaport District is now a bustling mix of offices, retail outlets, restaurants, as well as condominiums and apartments. In Atlanta, a 2.1-million square foot Sears distribution center built in 1926 was acquired by a developer in 2011 and renamed Ponce City Market. PCM (as it is known to locals) is now home to retail and dining outlets, offices for technology companies like MailChimp, and more than 250 apartments (Brown 2011). Similar projects have been or are being developed in cities all across the U.S., including the Papermate pen factory discussed in Section 2.1, and projects in San Francisco that will be examined in the following section.

The scale and scope of redevelopment projects are objects of political contestation. University Park, located between the MIT campus and Cambridge’s Central Square, provides an instructive example. The mixed-use development is a 21-building complex with 1.5 million square feet of lab and office space, a 210-room hotel, a supermarket, restaurants, and more than 600 apartments. The MIT-owned project took two decades to complete, and faced an uncertain future at its birth (Diesenhouse 2005). MIT began to acquire plots from the Simplex Wire and Cable Company in 1969, and by 1982 had assembled a 23-acre site neighboring Cambridgeport. The following year, MIT selected the developer Forest City to redevelop the industrial site into a mixed-use project. The project encountered neighborhood opposition even before the plans had been announced. Residents in the neighboring community protested the lack of affordable housing, and demanded a less dense development that would generate less traffic (Ackerman 1989). Years of rallies, petitions, counter-petitions, and City Council meetings led up to the occupation of a vacant lot by protesters over the fall of 1987. However, in January 1988, the city granted Forest City the zoning approvals that would allow the project to proceed. Community activists did not get everything they wanted, but won a major concession: MIT and Forest City agreed to build at least 400 homes, setting aside 100 for low-income families and 50 for moderate-income families, an increase from the 110 homes originally proposed (Yudis 1988).

I use redevelopment projects as a vehicle to study support for housing growth for two reasons. First, these projects are ubiquitous and politically salient. Because growing cities have limited opportunities to undertake residential and commercial construction at scale, especially in urban cores, redevelopment projects are potentially transformative for their cities. As a result, these projects are politically contested. These contests are especially salient if local government permission or voter approval is required e.g. to change land
use, increase height limits, or to increase the density of a project. Second, redevelopment projects provide a unique setting to study the relationship between political beliefs and housing growth preferences. As the pen factory and University Park vignettes suggest, in a redevelopment setting the choice voters have to make is not whether there will be a new development: some sort of development is inevitable. Rather, voters have the opportunity to influence the characteristics of the development. In particular, voters have the choice of whether the development will include new residential units, and if so how economically diverse the new resident population will be. In other words, the redevelopment setting isolates the effect of pro-housing attitudes from pro- or anti-development attitudes, because development is a given.

**Design and Sample**

I conduct a survey experiment to test the theory described in Section 2.2. To my knowledge, no existing survey about housing or land use has asked respondents about both liberalism and localism. Lewis and Baldassare (2010) report that self-identified conservatives are less supportive of compact development (i.e. high density, mixed-use neighborhoods) compared to moderates and liberals. They do not address localism. Instead, they conjecture that racial and fiscal aspects of conservatism shape development preferences, but acknowledge that their findings are suggestive. Monkkonen and Manville (2018) draw on a survey experiment to show that priming respondents about developers’ profits increases opposition to a development project, suggesting that inequity aversion influences support for development. Marble and Nall (2018) document that liberals are more supportive of mixed-income housing compared to market rate housing (projects with no set-asides for lower-income households), but also do not consider localism.

Hankinson (2018) conducts a conjoint experiment in which an attribute of a hypothetical development is whether the local community supports or opposes the project. To the extent that this attribute has an effect on a voter’s support for a project, it may be interpreted in either (or both) of two ways. First, one could believe that the interests of the local community should be given weight, regardless of the reasons given by the local community to support or oppose the project. Second, one could believe that the local community has some private knowledge about the social welfare implications of a project, and its support or opposition is a signal of this knowledge. My concept of localism is closer to the former interpretation.

The experimental component of the survey randomizes the type of redevelopment
project voters are asked to approve. Respondents are informed either that the project is a mixed-use development with high-end housing (“luxury apartments”) or that it is a mixed-use development with mixed-income housing. Respondents are told that if the proposal is rejected by voters, the development defaults to a commercial-only project, with no housing.

I use an experimental design in which respondents only see either the high-end or mixed-income proposal, rather than show respondents both proposals, for two reasons. First, the binary choice to approve or reject a proposal is typical of a ballot initiative or referendum, and enhances the external validity of the findings. Voters are not typically given the choice between high-end or mixed-income housing; rather, they are asked to vote up or down the proposal as presented. Second, presenting both high-end and mixed-income options to respondents may lead some respondents to choose as if they were being asked to signal their liberalism. The inferential concern is that respondents’ self-report of their own treatment effect may be systematically biased. This concern is addressed by the experimental design.

**Data Collection**

The survey was fielded in November 2017. Respondents were recruited on Amazon’s Mechanical Turk (MTurk) platform. The task was listed as a one-question qualification screener that paid $0.05. Respondents were also told that the full survey would take about five minutes, and those who qualified and completed the survey would earn an additional $0.70 (for a total of $0.75). The one-question screener asked respondents for the zip code in which they lived, but respondents did not know the nature of the screener before they accepted the task.

Respondents were screened based on their zip codes. Because redevelopment projects are most common in densely populated urban areas, only respondents who lived in the 300 most densely populated counties were invited to complete the full survey. 3,253 workers answered the screener, of which 2,034 (63 percent) qualified and completed the survey. The one-question screener asked respondents for the zip code in which they lived, but respondents did not know the nature of the screener before they accepted the task.

Respondents were screened based on their zip codes. Because redevelopment projects are most common in densely populated urban areas, only respondents who lived in the 300 most densely populated counties were invited to complete the full survey. 3,253 workers answered the screener, of which 2,034 (63 percent) qualified and completed the survey. The median time taken by a qualified respondent to complete the survey was 4.25 minutes, for an effective hourly payment of $10.63.

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9The task was only shown to MTurk workers who lived in the United States, had completed at least 100 tasks with an approval rate of over 95 percent, and had not participated in the pilot survey. The pilot was fielded in May and June 2017. 897 participants were recruited for the pilot, of which 395 qualified for and completed the full survey.

10County population density is based on data from the 2010 Census, available at https://factfinder.census.gov/bkmk/table/1.0/en/DEC/10_SF1/GCTPH1.US05PR. About 176 million people lived in these 300 counties in 2010, or about 57 percent of the U.S. population. The last county to make the cut-off is Nueces County, Texas, which contains the city of Corpus Christi. The 2010 Census reports that Nueces County had a population density of 405.8 people per square mile.
Survey Instrument

The survey has three sections. The first section includes twelve attitudinal statements, divided into three sets of four (see Appendix Section B.1). Respondents are asked if they agree or disagree with each statement, on a four-point Likert scale with a fifth “no opinion” option. These statements are designed to measure respondents’ political beliefs. The second section records the respondent’s redevelopment preference. After the randomized treatment, respondents are asked if they will vote for or against the proposed project, on a four-point Likert scale with an “unsure” option. Respondents are also asked to briefly explain their decision. The third section includes typical questions on the respondent’s demographic and political characteristics, such as party identification and ideology on a conservative-liberal spectrum.

Treatment

The treatment module begins as follows:

Local governments sometimes ask voters to make important decisions about the places where they live. We would like you to imagine that you are being asked to make such a decision. Imagine that in your town or city, developers recently bought some warehouses about a 5-minute drive from where you live. They wish to replace the warehouses with new apartments, shops, and offices. The Facebook post below has more information about the project. Please read it carefully.

Stipulating that the project is a 5-minute drive away (about 2 miles) conveys the idea that the project is near enough to be in the same city as the respondent, but distant enough to be in a different neighborhood. Information about the project is presented as a Facebook post by a local news outlet. This format allows for a short vignette to be presented together with a rendering of the proposed development in a realistic way; see Figure 2.1.11 The text of the vignette reads:

The owners of the former Jones Industries warehouses are proposing an ambitious redevelopment plan for the site. The development is expected to bring 500 apartments, [which will come with high end finishes and appliances / including 100 units set aside for low-income households], as well as office and retail space. Opponents say new residents will place burdens on local services.

11 The artist’s rendering is taken from documents filed by the developers of the pen factory project, described in Section 2.1.
Notes: Respondents are shown a graphic for either the “high-end” project (left) or the mixed-income project (right). The graphic presents information about the project, as well as an artist’s rendering of the proposed development.

The graphic primes respondents to consider the potential costs of the project by highlighting in the main text and in the rendering’s caption that the new development may strain local public services. The vignette is identical for respondents in both treatment groups, except for the section enclosed within brackets. Finally, respondents are reminded that

• A Yes vote will allow developers to build 500 [luxury / mixed-income] apartments, as well as offices and shops.
• A No vote will allow developers to build office space and shops, but no new apartments.

The reminder emphasizes that the vote is not about whether there will be development – in both cases, commercial development will proceed – but whether the project will include residential uses. Respondents are then asked to state if they will vote yes or no on the project on a four-point Likert scale, with a fifth “Unsure” option. On the same page of the
Table 2.1—Summary Statistics and Comparison to Major Cities

<table>
<thead>
<tr>
<th></th>
<th>MTurk</th>
<th>Boston</th>
<th>Chicago</th>
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<th>NYC</th>
<th>SF</th>
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</tr>
<tr>
<td>No college education</td>
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<td>0.40</td>
<td>0.43</td>
<td>0.43</td>
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</tr>
<tr>
<td>Some college education</td>
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<td>0.26</td>
<td>0.27</td>
<td>0.23</td>
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</tr>
<tr>
<td>Has 4-year college degree</td>
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<td>0.56</td>
<td>0.53</td>
<td>0.37</td>
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<td>0.17</td>
</tr>
</tbody>
</table>

Notes: Summary statistics for major cities are based on the American Community Survey 2012-2016 5-year estimates.

survey, they are asked to justify their decision “in a few words.” Although respondents are free to write as few or as many words as they like, the request for a justification encourages respondents to take an additional moment to consider their decision.12

Summary Statistics

It is well known that the MTurk population differs from the general population on a number of dimensions (see e.g. Huff and Tingley 2015). Table 2.1 reports demographic characteristics of the sample who completed the survey, and compares these summary statistics to the demographics of several major U.S. cities based on the 2012-2016 American Community Survey 5-year estimates. The MTurk sample has more females and is younger than the populations of the selected cities, but is similar in some other respects. For example, 40 percent of respondents in the MTurk sample are homeowners, a number comparable to Los Angeles and San Francisco (37 percent of households), as well as Chicago (44 percent). In terms of education attainment, 55 percent of the MTurk respondents have at least a 4-year college degree, a number higher than most cities, but comparable to San Francisco (53 percent). Finally, 82 percent of respondents report household income of less than $100,000, a figure comparable to Chicago (77 percent), Los Angeles (75 percent), and New York (73 percent). Because population characteristics differ from city to city, I do not weight observations to reflect any particular target population.

12The median length of the open-ended response is 17 words.
Results

Measuring Liberalism and Localism

Responses to the twelve attitudinal statements are used to estimate the structure of political ideology with respect to local public policy. I convert the responses on the Likert agree-disagree scale to continuous variables ranging from 1 to 4, with “No opinion” given a value of 2.5. Each variable is then scaled to have mean 0 and unit variance. I apply principal components analysis (PCA) on responses to the statements. PCA transforms a set of possibly correlated observed variables into a set of orthogonal latent variables, or principal components (PCs). Each component is a linear combination of responses to the attitudinal statements. To give substantive meaning to the components, or latent variables, I inspect the factor loadings, or weights, for each of the statements. I pay particular attention to the loadings for two families of statements. The liberalism family includes the following statements:

- The distribution of money and wealth in this country today is fair.
- The government should not concern itself with reducing the income difference between the rich and the poor.
- Our government should redistribute wealth through higher taxes on the rich.
- Everyone born in this country has an equal chance to succeed in life, whether their family is rich or poor.

The localism family includes the following statements:

- Local government should focus on helping local businesses do well, rather than attracting new firms to the area.
- Every resident of a town or city should have an equal say on local issues, whether they just arrived or are long-time residents.

Liberalism and localism scores are the principal components that most heavily weigh responses in the respective families. To understand what these scores mean substantively, I show how the scores correspond to raw responses to each attitudinal statement. For each attribute, liberalism and localism, I categorize respondents into terciles based on their scores, and report the proportion of respondents in each tercile who agree or disagree with each statement. The left column of Figure 2.2 reports proportions agreeing, conditional
It is the government's duty to make sure everyone can afford decent housing.

It is not the local government's job to regulate home prices and rents in my town or city.

On balance, the free market is the fairest way to allocate housing.

People who cannot afford their rent should move to somewhere cheaper, instead of asking the government for help.

Every resident of a town or city should have an equal say on local issues, whether they just arrived or are long-time residents.

Local government should focus on helping local businesses do well, rather than attracting new firms to the area.

Big business has too much influence over the decisions made by our government today.

Corporations should focus on making money for their shareholders, rather than being socially responsible.

The distribution of money and wealth in this country today is fair.

The government should not concern itself with reducing the income difference between the rich and the poor.

Everyone born in this country has an equal chance to succeed in life, whether their family is rich or poor.

Our government should redistribute wealth through higher taxes on the rich.

Notes: The figure shows the proportion of respondents who agree with each statement, conditional on liberalism and localism score terciles. Error bars indicate 95% confidence intervals. Respondents at different ends of the liberalism scale are differentiated by responses to statements about economic equality and redistribution (in bold). Respondents at different ends of the localism scale are differentiated by responses to statements about local community (in italics).
on liberalism scores. Consider responses to the first statement, “Our government should redistribute wealth through higher taxes on the rich.” 97 percent of respondents in the top liberalism tercile (those with the highest scores) agree with this statement, compared to 33 percent of respondents in the bottom tercile. In contrast, 58 percent of respondents in the bottom liberalism tercile agree with the statement that “The government should not concern itself with reducing the income difference between the rich and the poor,” compared to 1 percent of those in the top tercile. The conditional distributions of the responses demonstrate that liberalism scores differentiate respondents in favor of economic equity and redistributive social policies from those opposed to such policies.

The right column of Figure 2.2 likewise reports the proportions of respondents agreeing to each statement conditional on the liberalism scores. Respondents in the highest and lowest terciles for liberalism differ most significantly in their responses to statements in the liberalism family. For example, only 58 percent of respondents in the top tercile (highest liberalism score) agree that “Every resident of a town or city should have an equal say on local issues, whether they just arrived or are long-time residents,” compared to 94 percent of those in the lowest tercile. Similarly, 91 percent of respondents in the top tercile agree that “Local government should focus on helping local businesses do well, rather than attracting new firms to the area,” compared to only 36 percent of those in the bottom tercile. The differences in the responses to statements in the liberalism family, on the other hand, are relatively small. 69 percent of those in the top liberalism tercile agree that “Our government should redistribute wealth through higher taxes on the rich,” a proportion similar to the 71 percent of those in the bottom tercile who agree.

Note that the type of localism described by this principal component does not necessarily incorporate a heightened concern for displacement. 36 percent of respondents in the top localism tercile agree that “People who cannot afford their rent should move to somewhere cheaper, instead of asking the government for help,” only marginally lower than the 41 percent in the bottom tercile who agree. Concern for displacement – more precisely, support for social policies to mitigate displacement risk – is instead incorporated into the liberalism component. Put another way, cosmopolitans and localists alike may support (or oppose) anti-displacement legislation. Rather, what divides cosmopolitans and localists is the belief that locals – long-time residents and (to a lesser extent) legacy businesses – should be given priority over newcomers and outsiders, whether in terms of political voice or economic development initiatives.

Table 2.2 presents estimates for linear regressions of liberalism and localism on gender, race, age, education, income, and housing status. Socioeconomic variables are associated
with liberalism with the expected signs; for instance, liberalism decreases with income and is lower among homeowners compared to renters. However, income and homeownership are not statistically significant predictors of localism. Instead, education turns out to be significantly predictive of localism. All else equal, respondents who do not have a college degree have higher localism scores on average than those with college degrees. On its face, this finding could be explained by geographic mobility. That is, respondents with higher education attainment may be less likely to express localist attitudes because they are more geographically mobile and hence more likely to be newcomers now or in the future. However, other indicators of geographic mobility, such as income, homeownership, or whether the respondent is a long-time resident in her current town or city, are not associated with localism. Alternatively, education may be associated with localism because the college experience fosters interaction within more diverse and cosmopolitan social networks (Case, Greeley, and Fuchs 1989; Chandler and Tsai 2001). These results therefore suggest that localism may be driven by cultural or ideational mechanisms rather than economic self-interest.

Support for Redevelopment Projects

Before turning to the relationship between political beliefs and support for redevelopment projects, I discuss a simple model of support in which voters prefer the type of project (high-end or mixed-income apartments) that maximizes narrow economic benefits for themselves. In this model, renters at each income level prefer the project type that produces more housing units at their income level. The reason is that an increase in the supply of housing units in a given market segment decreases rents for that type of housing. This model hence predicts that lower-income renters prefer the mixed-income project over the high-end apartments, whereas high-income renters would prefer the converse. Homeowners prefer the project type that leads to a greater increase (or smaller decline) in home prices. All else equal, homeowners across income groups should not differentially prefer one project type over another. Suppose, however, that lower-income homeowners live in neighborhoods with lower home prices, compared to the neighborhoods in which high-income homeowners live. Then, lower-income homeowners should prefer the high-end project over the mixed-income project, to the extent that the mixed-income project would introduce new lower- and middle-income housing units into the housing stock and depress home prices in the lower-income market segment.

Figure 2.3 reports support for each project type among non-owners (renters) and owners
### Table 2.2—Predictors of Liberalism and Localism

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<td>(0.163)</td>
<td>(0.076)</td>
</tr>
<tr>
<td>Income &gt; $150,000</td>
<td>−0.434</td>
<td>−0.167</td>
</tr>
<tr>
<td></td>
<td>(0.251)</td>
<td>(0.117)</td>
</tr>
<tr>
<td>Homeowner</td>
<td>−0.616</td>
<td>−0.074</td>
</tr>
<tr>
<td></td>
<td>(0.107)</td>
<td>(0.050)</td>
</tr>
<tr>
<td>Resident &gt; 4 years</td>
<td>0.165</td>
<td>0.062</td>
</tr>
<tr>
<td></td>
<td>(0.103)</td>
<td>(0.048)</td>
</tr>
<tr>
<td>5-year HPA &gt; median</td>
<td>0.163</td>
<td>0.021</td>
</tr>
<tr>
<td></td>
<td>(0.096)</td>
<td>(0.045)</td>
</tr>
<tr>
<td>Constant</td>
<td>−0.338</td>
<td>−0.370</td>
</tr>
<tr>
<td></td>
<td>(0.172)</td>
<td>(0.080)</td>
</tr>
</tbody>
</table>

| Observations        | 1,941      | 1,941    |
| R²                  | 0.062      | 0.064    |
| Adjusted R²         | 0.056      | 0.059    |

**Notes:** OLS estimates of linear models for liberalism and localism. Numbers in parentheses report standard errors. Base category for education is 4-year college degree; base category for income is $60-100,000; median 5-year home price appreciation (HPA) is based on Zillow data, median of 100 largest cities. “Resident > 4 years” means respondent has lived in the current town or city for 5 or more years.
Figure 2.3—Support for Project by Household Income and Tenure

Notes: The figure shows the proportion of respondents that support each project type, for each income category within each housing tenure type (non-owners and homeowners). Error bars indicate 95% confidence intervals.

across three income groups. Support is defined as choosing “Definitely yes” or “Probably yes” for the vote choice question. High-income renters are more likely to support the high-end project, compared to lower-income renters. However, contrary to the predictions of the model sketched out above, renters at every income level prefer the mixed-income project to the high-end project. Lower-income homeowners are also more likely to support the mixed-income project compared to the high-end project. Furthermore, homeowners’ support for the high-end project is positively associated with their income, a pattern that is not well-explained by narrow, short-run economic self-interest.

Data from the survey experiment exhibit patterns consistent with the ideology-based theory discussed in Section 2.2. As Figure 2.4 shows, support for the mixed-income project increases with liberalism (left panel). The predicted probability of supporting the mixed-income project increases from 60 percent for a voter with a liberalism score at the 20th percentile, to 82 percent for a voter with a liberalism score at the 80th percentile, an increase of 22 percentage points.\textsuperscript{13} The positive association between liberalism and support for the project is reversed when the apartments are all high-end. As a result, the treatment effect

\textsuperscript{13} Predicted probabilities are computed based on a LOESS fit.
Notes: The figure shows the bivariate relationship between respondents’ support for each project type, and liberalism and localism scores. Lines are LOESS curves. Density curves at the bottom of the plots show the distribution of the scores; note that the probability densities are scaled for aesthetic reasons and do not correspond to the tick marks on the y-axis. Shaded areas indicate 95% confidence intervals. The vertical dashed lines represent the 20th and 80th percentiles for the respective scores.

(i.e. the relative preference for the mixed-income over the high-end project) increases from -1 percentage point (statistically insignificant) to 39 percentage points over the same range of liberalism (from the lowest to the highest quintile). Among liberal voters, setting aside units for lower-income households has a substantively and statistically significant effect on support for the mixed-use project. Whereas only a minority of liberal voters support the mixed-use over the commercial-only project when all apartments are marketed as high-end, an overwhelming majority of such voters support the mixed-income project.14

In contrast to liberalism, localism is negatively associated with support for both mixed-income and high-end projects. The predicted probability of supporting the mixed-income project decreases from 77 percent for a voter with a localism score at the 20th percentile, to 67 percent for a voter with a score at the 80th percentile, a decline of 10 percentage points.14

14The relationship between liberalism and support for each type of project may be amplified due to question ordering effects. Because respondents were asked about their political attitudes immediately prior to the treatment module, they may be primed to express support for the projects in line with their previously stated beliefs. To the extent that political campaigns also work to activate liberal or localist attitudes prior to an election, this critique is not a concern for external validity.
Likewise, the probability of supporting the high-end project decreases from 62 percent to 48 percent over the same range, or a decline of 14 percentage points. While it is not a prediction made by the model, it is intriguing that strong cosmopolitans – respondents at the extreme low end of the localism scale – do not appear to discriminate between the types of project. For example, at the 1st percentile of localism, the predicted probability of supporting the mixed-income project is 77 percent, compared to 74 percent for the high-end project, a difference of 3 percentage points (not statistically distinguishable from zero at the 95% confidence level; see Figure B.1). Cosmopolitans – respondents who tend to be open to both newcomers and new businesses – are equally happy to support both high-end and mixed-income developments. The finding is consistent with the expansive view of “community” espoused by proponents of residential development at all income levels.

The estimated relationships between support for the projects and liberalism and localism may be confounded by unobserved variables. For example, given that lower-income individuals tend to be more liberal, the positive association between support for a mixed-income project and liberalism may simply reflect the effect of income. I estimate linear models of support for each type of project, controlling for gender, race, age, education, income, housing tenure, and local home price appreciation. Figure 2.4 suggests that the relationships between support and the two ideological dimensions can be approximated with a quadratic function, so I include squared terms for liberalism and localism in the models. Table B.1 shows that the associations between political beliefs and support for each project type are robust to the inclusion of covariates.

Figure 2.5 reports the combined effect of liberalism and localism on support for each type of project. Like Figure 2.4, the plots report the predicted probabilities of support for a project based on LOESS fits; the difference is that in these plots, support is modelled as a function of both liberalism and localism. The figure shows that liberal localists are least supportive of the high-end project (top right corner of the left panel), whereas liberal cosmopolitans are most supportive of the mixed-income project (bottom right corner of the right panel).

In this section, I document how housing growth preferences are shaped by individuals’ political beliefs. I focus on two dimensions of political ideology specific to local public policy that I call liberalism and localism. The sign of the association between liberalism and support for housing growth is conditional on the type of housing growth being proposed, whereas localism is negatively associated with support regardless of type. The treatment effect of a mixed-income project – that is, the preference gap for a mixed-income project over a high-end project – is positive and substantively large among liberals, but small
and statistically insignificant among conservatives (and negative among very conservative individuals). The preference gap for the mixed-income project is positive across most values of localism, but strong cosmopolitans tend to be equally supportive of both projects.

### 2.4 San Francisco’s Land Use Ballot Measures, 2007-2016

One concern about the survey experiment is that it does not use actual behavior as its outcome variable. Survey respondents may support or oppose a project simply as a way to express underlying attitudes, given that there are no real-life costs or benefits at stake. This section bridges the gap between reported preferences and observed political behavior by studying voting outcomes in a city where liberalism and localism shape responses to a housing affordability crisis.

In this section I exploit rich elections data on housing and land use ballot measures in California. A report published by California’s Legislative Analyst’s Office in 2015 enu-
merated the causes of housing supply shortfalls in the state’s coastal areas, beginning with “Community Resistance to New Housing” (Alamo and Uhler 2015). The report highlighted the effect of local ballot measures on limiting development, noting that “California’s high degree of voter involvement in land use decisions appears to be unique” (p. 17). I focus on one city, San Francisco, where voters have repeatedly gone to the polls to make decisions on land use. The goals of this study are to discover the latent structure of political preferences that undergirds observed vote outcomes, ascertain if any dimensions of this structure can be plausibly described as liberalism and localism, and finally estimate the association between these latent factors and support for redevelopment projects.

San Francisco provides a useful empirical setting for two reasons. First, San Francisco is an exemplar of a set of high-wage, high-growth cities in which land use and housing are highly regulated. These cities include large urban cores like New York and Los Angeles, as well as smaller cities like Seattle, Portland, Boulder, and Austin. Similarities in the liberal leanings of these cities and the political institutions governing land use suggest the generalizability of findings from San Francisco to these other settings (as Hankinson 2018 also notes). Second, San Francisco’s tradition of direct democracy, especially in the domains of land use and housing, generates a rich set of fine-grained behavioral measures that can be used to recover latent ideological dimensions, much like roll-call votes. Ballot initiatives and referenda, also called propositions or measures, are the main instruments of direct democracy. The next section provides additional background on ballot measures.

Setting

Land Use and Housing Ballot Measures

California’s state constitution empowers its cities to pass ordinances on traditional municipal matters without prior authorization from the state legislature, to the extent that such ordinances do not conflict with a general state law (Article XI, section 7). The empowerment of localities by the state to pass laws and ordinances without a prior delegation of authority from the state is known as home rule, and the basis for such laws and ordinances is founded in local police power, which gives local governments the right to act in a way that promotes the health, safety, and general welfare of the community.\(^1\) Land use regulation, in particular, has its basis in police power.

Citizens can influence local public policies in several ways. They can elect or lobby

\(^1\)See for example the discussions in Fischel (2001a, pp.19ff) and Berman (2015, pp.70ff).
public officials. In some states, including California, they can also petition to place legislation on the ballot to be voted on directly by the electorate. The same process also allows citizens to repeal legislation passed by elected officials. In California, the use of such ballot initiatives and referenda – also called ballot measures or ballot propositions – to shape local land use planning began in the 1970s (Fulton and Shigley 2012, p. 244). Initiatives restricting growth first appeared on local ballots in the San Francisco area, but gradually spread to localities in Southern California over the course of the 1970s and 1980s.

The most common type of land use ballot measures restrict (or ease restrictions on) development. For example, Proposition M in San Francisco’s 1986 November elections placed an annual cap on the square footage of office space in high-rise buildings; subsequent measures have sought to amend or circumvent this cap. Measures could also seek to impose development moratoria in certain neighborhoods. Other measures have more subtle effects on growth. For example, parking requirements stipulate the minimum number of parking spaces developers would need to include in new projects. Reduced minimum parking requirements, especially in neighborhoods well served by public transit, can reduce per-unit costs for developers and increase housing density. Measures that seek to amend parking requirements thus have a subtle but direct effect on housing growth.

A second type of measures introduces or amends procedural barriers to development. Such measures might mandate voter approval for zoning changes or increases to height limits. Conversely, a measure might require the city to let a project proceed so long as it meets certain criteria, allowing the project to circumvent hearings, appeals, and petitions. Another example would be a measure that requires publicly-funded projects, such as affordable housing developments, to receive a minimum number of bids or proposals. To the extent that such projects are complex and require specialized expertise, such a mandate may limit the number of types of projects that can be built.

A third type of ballot propositions is fiscal measures. Such measures could require that a proportion of tax revenues be set aside for specific uses, such as acquiring or preserving open space, affordable housing, and so on. These measures do not raise new revenue, but provide dedicated funding sources for certain public projects. Voter approval is also needed for bond issues. Over the last two decades, San Francisco voters have gone to the polls thrice – in 2002, 2004, and 2015 – to approve new bond issuance to fund affordable housing programs.

A fourth type of propositions relates to voter approvals for specific projects. These projects are described in more detail in the following section. The specifics of each project require additional exposition because of our theorizing that citizens’ political beliefs are
Notes: The figure shows the locations of four projects that sought voter approval between 2008 and 2015.

differentially associated with support for redevelopment, depending on the characteristics of each redevelopment project.

Redevelopment Projects

Since 2008, San Francisco’s voters have voted on six measures related to approvals for four redevelopment projects. Figure 2.6 indicates the locations of these projects. The projects were the subjects of ballot measures either because existing local legislation requires voters to approve zoning or height limit changes in specific situations (as with the Hunters Point Shipyard, 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). I describe the projects in more detail below, noting in particular whether each project was perceived as being sufficiently attentive to housing affordability or not.
Hunters Point Shipyard  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). The proposition was placed on the ballot because the site included an existing stadium, which together with its surrounding parking lots were classified as open space. Since city laws already required voter approval to change the zoning of open space for other uses, the mayor took the opportunity to seek a broad mandate for the redevelopment of the site. The proposal envisioned the production of 8,500 to 10,000 new housing units. The proposition text did not, however, specify the affordability levels of these units.\textsuperscript{16} The language of Measure G was perceived by some as being relatively favorable to developers.\textsuperscript{17} Partly in response to perceived slipperiness in Measure G as regards the project’s commitment to housing affordability, opponents to the project gathered sufficient signatures to place a competing measure on the ballot (Measure F). The competing measure 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. Measure G passed with 63 percent of the vote; Measure F failed with 37 percent. About 160,000 votes were cast.

8 Washington  In 2012, the San Francisco Board of Supervisors passed an ordinance that increased height limits for a site on the city’s eastern waterfront, as part of the approvals for a recreational, retail, and residential development known as 8 Washington Street. Local law allows citizens to reaffirm or overturn the Board’s decision in a referendum, and opponents of the height limit increase 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 project put a competing measure on the ballot (Measure B) for voters to approve the project. The project as proposed would have added 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’

\textsuperscript{16}A Community Benefits Agreement signed by the developer and community organizations in May 2008 committed the developer to pricing at least 32 percent of units at affordable levels. See https://d10benefits.org/wp-content/uploads/2013/01/lennar_ad10_ccba_executed-1.pdf.

\textsuperscript{17}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 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.”
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. About 125,000 votes were cast, and the project was rejected by about 65 percent of voters. The developer abandoned the project in 2016.

**Pier 70 and Mission Rock**  In June 2014, voters passed a ballot measure (Measure F) mandating voter approval for height limit increases on certain sites along the eastern waterfront. The measure directly affected two developments, Pier 70 and Mission Rock. Pier 70’s developer, 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). 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. Endorsements of the two measures published in official voter pamphlets underlined the high proportion of affordable housing units proposed for these two projects. Both measures won at the ballot box with similar margins – 73 to 74 percent ‘Yes’ votes – on over 200,000 votes cast.

**Data and Measurement**

**Dataset**

I construct a novel panel dataset of voting outcomes for about 600 precincts in San Francisco, California, on 19 city-level housing and land use related ballot measures presented to voters between 2007 and 2016. The set of measures used in the analysis was defined by including all measures belonging to the “land use” category as coded by researchers at the California Elections Data Archive, a project co-sponsored by the Office of the California Secretary of State. The initial list of measures was then supplemented by measures that included

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18 Incidentally, Pier 70’s developer is Forest City – the same firm that developed University Park, described at the beginning of Section 2.3.

19 The project’s website is at [http://www.csus.edu/isr/projects/ceda.html](http://www.csus.edu/isr/projects/ceda.html).
the words “land” or “development” and are clearly related to land use. The latter set of measures mostly relate to affordable housing issues and approvals for specific projects.

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 may 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. In other words, each precinct from the 2012 general elections is matched to a precinct in every other election to create the panel.

**Measures of Liberalism and Localism**

Similar to the study in Section 2.3, I apply principal components analysis to observed precinct-level vote outcomes to generate uncorrelated latent dimensions. I then inspect the loadings for each principal component to determine if any of the components can be plausibly interpreted as measuring liberalism or localism. The interpretation of the components is complicated by the fact that unlike attitudinal survey questions, which researchers can design to tap specific political attitudes, ballot measures often do not map clearly onto an ideological space. For example, a ballot measure that updates the city charter to include lower-income constituencies in the policymaking process may be viewed as raising procedural barriers to development, or an effort to ensure economically equitable development outcomes, or both. Voters’ interpretations of the ballot measures may also be guided by how the measures are framed by elites, such as politicians, community leaders, local think-tanks, or neighborhood groups. The challenge for the researcher is to identify political beliefs that best describe the variation in voting patterns along latent ideological dimensions.

Consistent with prior research in American political behavior, the first component has a clear interpretation as a measure of economic liberalism (e.g. Ansolabehere, Snyder, and Stewart 2001; Treier and Hillygus 2009; Tausanovitch and Warshaw 2013). To illustrate the substantive interpretation of this latent dimension, I categorize precincts into terciles according to their PC scores, and report the average vote share by terciles for a selected set of ballot measures (Figure 2.2). Precincts that score highly on the first component are more supportive of ballot measures that have redistributive objectives or have the ostensible intention of protecting economically vulnerable groups (left column of Figure 2.2). Consider the Affordable Housing Bond measure of 2015, in which voters approved $310
million of municipal borrowing for housing affordability programs, to be paid down using property tax revenues. Among precincts in the top tercile of PC1 scores, average vote share in support of the measure was 84 percent, compared to 75 percent and 64 percent among precincts in the middle and bottom tercile respectively. The same pattern is observed for the Affordable Housing measure of 2014, which is a non-binding policy declaration stating the city’s goal of building or rehabilitating 30,000 homes by 2020, together with affordability targets for these homes. Average vote share in favor of this measure was 76 percent among precincts in the top PC1 tercile, compared to 67 percent and 55 percent in the middle and bottom tercile respectively.

To identify a latent dimension associated with localism, I inspect the loadings to find a component that differentiates precincts on ballot measures that limit or enhance voter control over development. These measures include November 2014 Measure I, which limits local residents’ ability to block improvements to recreational facilities that would at least double the usage of a facility, as well as the aforementioned June 2014 Measure F, which mandates voter approval for height limit increases on certain sites along the eastern waterfront. Based on this criterion, I select the third component as a measure of localism (right column of Figure 2.2). Although this component explains significantly less variance in the observed vote outcomes compared to the liberalism dimension, it can still be differentiated from subsequent components in terms of the proportion of variance explained (see Figure B.2). Consider the 2014 “Renovation of Playgrounds” measure, which would limit the ability of local communities to block certain public works improvements, so long as the improvements double the use of the public facility. Among precincts in the top tercile of PC3 scores – the most localist precincts – the average vote share in support of this measure was 51 percent, compared to 56 percent and 60 percent in the middle and bottom terciles respectively. PC3 also differentiates precincts on the “Voter Approval for Waterfront Development Height Increases” measure, for which mean vote shares were 63, 60, and 55 percent for the top, middle, and bottom PC3 terciles respectively. I therefore label the third principal component as localism.

The maps in Figure 2.8 report the values of the liberalism and localism scores for each

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20 For both the abovementioned measures, differences between terciles are statistically significant at the \( p < 0.01 \) level, using robust standard errors clustered at the neighborhood level.

21 The second component differentiates precincts on measures finely tailored to the San Francisco context – e.g. allowing billboards in a specific section of the business district – and does not have obvious generalizable implications.

22 Differences between terciles are statistically significant at the \( p < 0.01 \) level, using robust standard errors clustered at the neighborhood level.
Figure 2.7—Support for Ballot Propositions across Liberalism and Localism Categories

Notes: The figure shows the mean precinct-level vote in favor of each ballot proposition, conditional on liberalism and localism score terciles. Error bars represent 95 percent confidence intervals.
precinct in San Francisco. The geographic distribution of liberalism (top panel of figure) is consistent with qualitative descriptions of San Francisco’s political geography. Observers of the city’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. Neighborhoods in the center of the city and toward the southeastern edge – the “Progressive Core” – are on the other ideological pole. Even in a city known for its liberal politics (where neighborhoods are “conservative” only to the extent that they are less liberal than other San Francisco neighborhoods), substantive geographic variation exists with respect to preferences over redistributive public policy.

Localism has a different geographic distribution (bottom panel of figure). Neighborhoods on different ends of the liberalism spectrum can become proximate in terms of localism. The Mission district, one of the most liberal neighborhoods, looks more similar to the conservative Sunset district on the localism dimension than its liberal neighbors in Noe Valley and the Castro (labelled as EURKA on the map, for Eureka Valley). On the other hand, the conservative Pacific Heights neighborhood (MAR/PAC HTS) is similar to the Castro in terms of its cosmopolitanism. Figure 2.9 visualizes these relationships.

Categorizing San Francisco’s neighborhoods along two dimensions – liberalism and localism – allows for a richer understanding of the city’s political geography. Figure B.3 shows the clustering of neighborhoods based on the interaction of whether they score above or below the median on liberalism (liberal or conservative) and whether they score above or below the median on localism (localist or cosmopolitan). The theory described in Section 2.2 implies that support for redevelopment projects should vary systematically across the four different categories of neighborhoods.

Support for Redevelopment Projects

Support By Liberalism-Localism Categories

In Section 2.2, I hypothesize that a voter’s support for a project should increase with liberalism when new homes are perceived to be equitably distributed, and decrease with liberalism when it is characterized as a high-end project. Localism, by contrast, should be negatively associated with support for a project regardless of the project type. In this section, I present results from an analysis of ballot measure outcomes on the four projects described above.

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Figure 2.8—Geographical Distribution of Liberalism and Localism

Notes: The maps show the liberalism and localism scores for each precinct in San Francisco.
**Figure 2.9—San Francisco Neighborhoods on a Liberalism-Localism Space**

Notes: The figure locates neighborhoods in San Francisco on a liberalism-localism space, based on median neighborhood scores on each dimension. Neighborhoods that are distant on one dimension may be proximate on another. For example, the Sunset and Mission neighborhoods are on opposite ends of the liberalism dimension, but are nearer to each other in terms of localism.

I report category mean vote shares for each of the four projects (Figure 2.10). There are four categories of precincts, defined by crossing liberal-conservative types with localist-cosmopolitan types. The findings reported in Figure 2.10 are consistent with theoretical expectations. On average, liberal precincts (those with above-median liberalism scores) are less supportive of the Shipyard and 8 Washington projects than conservative precincts. The pattern is reversed for the Pier 70 and Mission Rock projects, which receive more support from liberal precincts than conservative ones. As mentioned above, developers for the latter pair of projects committed to setting aside at least 30 percent of newly constructed housing units for low- and middle-income households. By contrast, opponents to the Shipyard project argued that it “doesn’t guarantee affordable housing,” and the 8 Washington project included no on-site affordable housing units.

The dotted lines in the figure connecting each pair of points illustrate how localism is negatively associated with support for projects, regardless of the project type. When controlling for liberalism, vote shares for cosmopolitan precincts are at least as high as
**Figure 2.10—Support for Project by Liberalism and Localism Categories**

Notes: The figure shows the proportion of respondents that support each project type, for each liberalism-localism category. Error bars indicate 95% confidence intervals.
those of localist precincts. These correlations are robust to the inclusion of controls for homeownership rates and household income (see Table B.2). Finally, Figure 2.10 shows that liberalism moderates the relationship between localism and support for new developments, particularly for projects with a more equitable distribution of new homes (bottom pair of panels). Although localist precincts are less supportive of new developments compared to cosmopolitan precincts, the drop-off in support among liberal precincts is smaller compared to that among conservative precincts. These findings suggest that at the margins, affordable housing set-asides can be a means of winning support for new developments from liberal localists.

**Alternative Measures of Liberalism and Localism**

Interpretations of the principal components are subjective. That is, although I show that the first and third components from a principal components analysis of ballot measure outcomes are systematically associated with vote outcomes for redevelopment projects in a manner consistent with expectations from a theory of two-dimensional ideology, interpretations of the components may differ across researchers. To address this concern, I use vote outcomes on individual ballot propositions as measures of liberalism and localism. I select propositions that express liberalism and localism with the least ambiguity. To measure liberalism, I use precinct-level vote shares for November 2015 Proposition A. As mentioned above, the proposition sought voter approval to borrow $310 million for the development and preservation of low- and middle-income housing, as well as financial assistance for middle-income homebuyers. To measure localism, I use vote shares for June 2014 Proposition B, which sought to require voter approval for increasing height limits on waterfront developments.

Figure 2.11 shows how support for the Shipyard and Mission Rock projects varies with vote shares for the two ballot measures. As in Figure 2.5, I use local regression to fit support for each redevelopment project to vote shares for Propositions A and J, and plot predicted vote shares over a range of values for both regressors. Recall that the Shipyard project was perceived by opponents to be developer-friendly, whereas the Mission Rock project set aside a relatively high proportion of housing units for lower- and middle-income households. Predicted vote shares for both projects decrease with localism (i.e. moving from the bottom to the top of each plot), but exhibit different patterns for liberalism, decreasing with liberalism in the case of the Shipyard project, and increasing with liberalism for the Mission Rock project. The gradients of support for each project echo those from Figure 2.5, with Shipyard corresponding to the “high-end” project from the experiment, and Mission
Figure 2.11—Contour Plots of Support for Projects

Notes: The figure reports predicted support for the Shipyard and Mission Rock projects from LOESS estimates. Levels of predicted support are indicated by colors in the plot as well as labels on the contour lines. The predictors are the proportion of votes in each precinct supporting November 2015 Prop A (Affordable Housing Bond) and June 2014 Proposition B (Voter Approval for Waterfront Development). The vertical and horizontal dashed lines represent the 20th and 80th percentiles for the proportion of votes supporting the propositions.

In this section, I demonstrated how a panel dataset of precinct-level vote outcomes from housing and land use ballot measures can be used to estimate liberalism and localism scores for each precinct. Findings from precinct-level observational data are consistent with those from the individual-level experimental data presented in Section 2.3. Localism is negatively associated with support for new mixed-use developments, regardless of the income mix of the new homes. The association between liberalism and support for the developments is moderated by the income mix, with liberals more supportive of developments in which a high proportion of homes is set aside for lower- and middle-income households.

2.5 Discussion

The model in this paper presents a way to understand support for housing growth in dense, urban areas. As prior research has shown, economic self-interest plays an important
role in shaping support for new housing in a voter’s own neighborhood. However, land use decisions are typically made at the municipality-level, and voters are asked to make political decisions that affect not only their own neighborhood but also other neighborhoods in the city. At the city-scale, political beliefs become more important in influencing evaluations of land use and housing policy. Recent work examines the relationship between liberal-conservative ideology on attitudes toward new residential development, and I add to this work by drawing on an earlier body of literature on the localist-cosmopolitan dimension of political ideology. I show that liberalism, localism, and the type of housing growth being proposed jointly shape voters’ preferences over growth. I document that liberals are more supportive than conservatives of mixed-income projects, and less supportive of high-end projects. Localists are less supportive of both types of housing growth compared to cosmopolitans.

These results offer implications about the efficacy of measures to engender support for new residential development. Fischel (2001b) begins from the premise that homeowners fear changes to the neighborhood could erode the value of their homes, and proposes a variety of financial innovations that could mitigate these concerns. The findings from this paper suggest why measures to protect housing wealth may be ineffective in boosting support for new development. If objections to new market-rate development among urban dwellers are motivated by sincere concerns about economic equity, then they are unlikely to be overcome by home price guarantees. In a similar vein, lawmakers in California writing legislation to boost housing production have included anti-displacement provisions in order to address renters’ economic concerns. Yet because the legislation’s main strategy to increase housing production is to limit local communities’ ability to impede development, it has failed to find support among localist constituencies who are otherwise sympathetic to the goals of the legislation.

In this respect, inclusionary zoning laws – requirements that a proportion of new housing units be set aside for low- or middle-income households – may help to ease the politics of development, in cities where local residents are already favorably predisposed to redistributive public policy. Local resident preferences that offer priority for affordable housing units to residents who live around the project may make new development projects more compelling for localists. Whether inclusionary zoning laws in fact promote housing affordability is a matter of some debate (Glaeser and Gyourko 2008, p. 82). Local resident
preference programs, if not carefully crafted, may perpetuate socioeconomic segregation. Yet to the extent that housing development is inherently a political process, planners and developers are likely to find most success when projects are consistent with the political dispositions of local constituencies.

Finally, this study foregrounds the role of localism in shaping attitudes toward residential development. Localism should not be conflated with dogmatic opposition to local development. Analysis of redevelopment projects in San Francisco shows variation in the association between localism and support for these projects. Kuwada (2015), for example, persuasively argues that community engagement was critical for gaining the necessary approvals in the case of Pier 70. More precise conceptualization and measurement of localism would advance the understanding of support for housing growth of different kinds. For instance, a localism that privileges current residents may have different implications for attitudes toward housing growth than a localism that favors community members broadly considered, including non-residents who serve local communities. As a political issue, urban redevelopment relates to strongly held conceptions of community identity and neighborhood character, as well as beliefs about access to and exclusion from the urban commons. Research on attitudes toward housing growth will play a valuable role in informing the practice of urban development, at a time when so many are seeking to participate in urban life.

\[24\] In 2016, the U.S. Department of Housing and Urban Development blocked San Francisco’s neighborhood preference plan on the grounds that such preferences violated the 1968 Fair Housing Act. The plan was permitted only after amendments were made.
3.1 Introduction

Do rising home values reduce support for social insurance among homeowners? Home- homeownership has long been part of the American Dream.¹ Although homeownership may have positive benefits for households and communities—homes are vehicles for wealth accumulation, and homeownership is positively associated with greater community involvement (DiPasquale and Glaeser 1999)—some scholars worry that rising homeownership rates undermine support for the social safety net (Kemeny 1981; Conley and Gifford 2006; Malpass 2008). It is argued that housing wealth, as a form of private insurance or financial buffer, substitutes for social insurance (Ansell 2014). Homeowners may become less supportive of social safety nets as home values rise, because they feel more secure about their own financial situation in retirement or if an adverse life event should happen (Hacker, Rehm, and Schlesinger 2013).

Call the argument that housing wealth reduces support for social insurance the hous-

¹In a September 2013 poll conducted by the Washington Post and the Miller Center at the University of Virginia, 61 percent of respondents said that owning a home “is very much what [they] understand the American Dream to mean.” 79 percent of respondents in a March 2013 CNBC poll said that “Owning a home is an essential part of the American Dream.” 73 percent of respondents in a September 2014 Fox News survey said that owning a home was either very or extremely important for achieving the American Dream. The survey results reported here were obtained from searches of the iPOll Databank and other resources provided by the Roper Center for Public Opinion Research.
ing wealth hypothesis. Ansell (2014) finds evidence for this claim in panel data from the American National Election Study (ANES) and British Household Panel Survey (BHPS). The ANES data demonstrate that, conditional on covariates, homeowners who experience a larger increase in house prices from 2000 to 2004 are less likely to desire more government spending on Social Security. Similarly, the BHPS data show that homeowners who experience higher home price appreciation (HPA) are less likely to support full employment policies. The relationship between home values and attitudes toward social insurance leads Ansell to conjecture that “housing booms during the 1990s and 2000s... potentially reduced support for social insurance” (p. 401).

Existing research suggests this claim warrants more study. First, the effects of material self-interest on policy preferences are cognitively narrow (Sears and Funk 1990). That is, self-interested preferences in one policy domain do not tend to spill over into other domains or predict general ideological dispositions. Doherty, Gerber, and Green (2006) implement a quasi-experimental design that examines the effect of wealth on policy preferences by studying the random assignment of wealth to lottery winners. They show that although the amount of winnings predicts lottery winners’ opposition to the estate tax, it is uncorrelated with attitudes toward income redistribution and the role of government in meeting citizens’ social welfare needs. Bagues and Esteve-Volart (2016) also exploit the random assignment of wealth through lotteries, and find in the Spanish setting that a one-time increase in wealth has no effects on voters’ assessments of the government or the opposition. Studies that exploit quasi-experimental variation in wealth do not find an effect of wealth on preferences over social insurance policies in particular or political attitudes in general.

Second, housing wealth is an imperfect substitute for financial buffers or private insurance. Gorea and Midrigan (2017) show that high refinancing expenses make it prohibitively costly for households to tap home equity in response to negative income shocks. Empirical studies on whether housing wealth substitutes for other forms of saving find mixed results. Hoynes and McFadden (1994) find no evidence that non-housing savings responds to changes in housing wealth expectations. Other studies find, however, that housing wealth does affect saving and consumption behavior. Skinner (1996) estimates that a $1 increase in housing wealth reduces saving by about 1 cent (Engelhardt 1996; Benjamin, Chinloy, and Jud 2004; Case, Quigley, and Shiller 2005; Bostic, Gabriel, and Painter 2009 likewise find that housing wealth reduces marginal propensity to save). The evidence suggests that although housing wealth does substitute for other forms of saving, it is not a perfect substitute.

I propose the status quo bias hypothesis, an amendment to the housing wealth hypothesis
that builds on mental accounting theory and prospect theory from behavioral economics. Mental accounting posits that individuals do not perceive their wealth as being fungible. Rather, they categorize their assets into different accounts, such as a consumption account, a rainy day fund, and a retirement account. A wealth shock in one account primarily affects preferences relevant to that account. Because home equity is closely associated with other retirement assets, I argue that housing wealth shocks mainly affect public policy preferences related to retirement income. How do these preferences change? Prospect theory suggests that the effect of wealth shocks depends on whether the shock leaves an individual facing a shortfall or surplus relative to a reference level. Individuals who face a shortfall are more likely to prefer risky deviations from the status quo, compared to those who face a surplus relative to expectations. I hypothesize that homeowners who expect or experience higher HPA exhibit higher rates of status quo preference with respect to public policies that affect retirement assets, compared to those who expect or experience lower HPA.

This paper presents results from two empirical studies that test the status quo bias hypothesis. The first study is a survey experiment in which I randomly assign different types of information about historical home price appreciation to participants. Homeowners informed that historical HPA has been high are about 8 percentage points more likely to prefer staying with the existing Social Security system instead of switching to privatized retirement accounts, compared to those informed that historical HPA has been low. The second study combines responses from the ANES 2000-2004 Panel Study with fine-grained zip-code level HPA and economic data. The panel structure of the survey data allows us to account for individual-level unobserved heterogeneity. I find that among homeowners, local HPA is positively associated with support for maintaining federal spending on Social Security at the existing level. HPA is uncorrelated with preferences over federal spending in other policy areas, such as aid to poor people. I also document that HPA has no effects on federal spending preferences for renters. The results from both studies are consistent with the status quo bias hypothesis.

The findings in this paper make a number of contributions to the understanding of how individuals update their preferences over social insurance policies. The paper relates to research on preference formation based on information about macroeconomic conditions (e.g. Durr 1993; Erikson, Mackuen, and Stimson 2002; Kam and Nam 2007). Barabas (2006) finds that sharp declines in stock market indices are associated with increased opposition to Social Security privatization, and theorizes that when equity returns are strong, individuals look to stocks as an alternative to Social Security. Conversely, during market downturns, Social Security’s annuity-like payouts become more attractive compared
to stocks. This paper highlights how, among those who have direct exposure to home prices, housing markets can also affect Social Security privatization attitudes alongside fluctuations in the stock market.

In its experimental approach, this paper provides a novel test of the housing wealth hypothesis that goes beyond macro-level comparisons and observational survey data. A large body of research in political science and sociology examines the relationship between homeownership, housing wealth, and the welfare state, in particular the argument that widespread homeownership undermines support for social insurance programs (Kemeny 1981; Castles 1998; Conley and Gifford 2006). For instance, Malpass (2008) argues that welfare state retrenchment “relies on the existence of substantial amounts of quite widely distributed housing wealth in order to secure political acceptance of changes in service provision” (p. 8). This line of research draws mostly on case studies or small-\( n \) cross-country comparisons. A related body of research investigates the causal effect of homeownership on political attitudes and partisan preferences using survey data, and have generally found null effects for homeownership (Lowery and Sigelman 1981; Kingston, Thompson, and Eichar 1984; Kingston and Fries 1994; Gilderbloom and Markham 1995; Huberty 2011). This paper is most closely related to work that frames financial and housing wealth as private insurance (Hacker, Rehm, and Schlesinger 2013; Ansell 2014). It complements existing research through an experimental design that mitigate inferential concerns due to confounders.

This paper adds to a growing set of studies that explore the effects of randomized information treatments on preferences over public policy and vote choice. Recent studies that randomize the provision of information about income inequality to survey respondents find that such information has no effects on preferences over top tax rates, minimum wage, food stamps, and demands for income redistribution (Kuziemko et al. 2015; Trump 2017). Alt, Lassen, and Marshall (2015) randomly assign information about unemployment rate forecasts to a group of Danish survey respondents. They show that information treatments affect vote intentions by way of voters’ unemployment expectations, but only among politically sophisticated voters and when the information is assessed to be credible. These studies are consistent with the claim that the average voter does not tend to situate economic information in a political context, except in specific settings. Findings from this paper suggest that among homeowners, Social Security may be one such setting in which information about home prices is incorporated. More generally, the paper is related to research in psychology and behavioral economics on how wealth and prior gains are integrated into decision-making over risky choices (Shefrin and Thaler 1988; Thaler and
This paper highlights the fruitful ways in which findings from psychology and behavioral economics, in particular narrow framing, mental accounting, and prospect theory, can be incorporated into research questions of theoretical and practical interest to political science.

The paper proceeds as follows. Section 3.2 introduces the mental accounting model and prospect theory, and develops the status quo bias hypothesis. Section 3.3 presents the design and findings from the survey experiment. Section 3.4 describes the ANES and home price data and reports empirical findings from these data. Section 3.5 proposes directions for future work and offers concluding remarks.

### 3.2 Mental Accounts and Prospect Theory

I build on theories in behavioral economics and political behavior to develop hypotheses on how housing wealth shapes attitudes toward social insurance policies. The argument proceeds in two steps. First, I introduce a theory of mental accounts to claim that the direct effects of wealth on economic behavior and political attitudes depends on how the wealth shock is encoded. Wealth effects on political attitudes are also limited to the extent that political belief systems in the mass public lack ideological constraint. Second, I describe how prospect theory provides a useful framework for evaluating choices when a homeowner experiences a housing wealth surplus or shortfall. I conclude this section with some conjectures on how housing wealth effects on attitudes toward social insurance policies vary across the life cycle.

#### Mental Accounts and Ideological Constraint

A large body of literature studies how households respond to wealth shocks. If households behave in a utility-maximizing fashion, they would smooth consumption over their lifetime. The effect of a windfall on a household’s consumption in each time period would thus be equivalent in theory to the payments they would receive from buying an annuity with the windfall. This intuition undergirds the “life cycle” hypothesis of saving (Modigliani and Brumberg 1954; Ando and Modigliani 1963) and the “permanent income hypothesis” (Friedman 1957). Carroll (1997) builds on the life cycle and permanent income hypotheses by incorporating the idea of a buffer-stock. In Carroll’s model, households wish to maintain a target level of wealth for precautionary purposes (the “buffer-stock”). Households’ responses to wealth shocks depends on whether they have a deficit or surplus relative to their
target. If a windfall causes household wealth to exceed the target level, then the household is expected to dissave. Ansell (2014) draws on these theories of saving to suggest that an increase in housing wealth reduces demand for hedges against economic risks, in particular social insurance and redistributive social policies.

Thaler (1990) critiques the assumption of fungible wealth implicit in classical life cycle theories of saving. Wealth fungibility implies that the form of wealth is analytically irrelevant: a pay raise with a present value of $X would have the same effect on a household’s saving and consumption behavior as winning $X in the lottery or a $X increase in housing wealth. If wealth is not fungible, then for some questions of interest – such as whether an increase in wealth affects precautionary savings or demand for insurance – the type of wealth is analytically important. Shefrin and Thaler (1988) propose that household wealth can be decomposed into three components or accounts: current spendable income, current assets, and future income. (Thaler 2011 inserts home equity as an intermediate category between current assets and future income.) Individuals code their wealth in different mental accounts to guard against the temptation of over-consuming and leaving too little for emergencies or in retirement. Individuals incur costs (monetary or psychic, or both) when they tap assets in each of these accounts for unrelated purposes. For example, an individual who prematurely withdraws funds from a retirement savings account may have to pay a monetary penalty, and may also feel bad about deviating from her financial plan. Mental accounting theory suggests that to the extent housing wealth affects demand for other types of assets (including insurance), the effect depends on whether housing wealth is coded in the same account as the alternative asset. For instance, if households regard home equity primarily as a retirement nest egg, then housing wealth may affect demand for retirement assets, such as Social Security, but not (or to a lesser extent) unemployment or health insurance.

Although the domain-specific encoding of the wealth shock limits its direct effect on policy attitudes in other domains, it may still have indirect effects on related policy atti-

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2Empirically, Levin (1998) documents that consumption is sensitive to changes in income, but less sensitive to changes in the values of assets such as houses and social security. Hoyes and McFadden (1994) find no evidence that non-housing savings responds to changes in housing wealth expectations. Poterba, Venti, and Wise (1996) show that the introduction of personal retirement saving plans in the U.S. resulted in contributions to those plans without offsetting declines in other financial asset saving, indicating that wealth is not fungible. Skinner (1996) documents a propensity to consume of 1-2 cents for every dollar of housing wealth increase, consistent with the claim that housing wealth decreases the rate of saving for precautionary purposes. Engelhardt (1996) estimates that a $1 increase in housing capital gains results in a 14.2 cents reduction in saving. Recent empirical evidence supports the conclusion that the marginal propensity to save decreases with housing wealth (Benjamin, Chinloy, and Jud 2004; Case, Quigley, and Shiller 2005; Bostic, Gabriel, and Painter 2009). The evidence points toward housing wealth being an imperfect substitute for other forms of saving.
tudes, if individuals feel psychologically compelled to maintain ideological consistency. For instance, a voter who shifts toward fiscally conservative views in one policy domain (e.g. reduce Social Security benefits) as a result of wealth shocks may also update her opinions in related domains (e.g. unemployment insurance) if her attitudes are functionally interdependent. Converse (1964) argues that among the mass public, political belief systems usually lack interdependence or “constraint.” Ideologically unconstrained voters who change their opinions on a given policy do not worry too much about bringing related policy attitudes into alignment. Doherty, Gerber, and Green (2006) demonstrate the absence of attitudinal spillovers by exploiting quasi-experimentation variation in wealth shocks to lottery winners. They show that among lottery winners, the size of winnings increases opposition to the estate tax, but does not affect attitudes toward redistribution and social welfare policies. Chong, Citrin, and Conley (2001) likewise document that homeownership predicts support for the mortgage interest deduction, but is not associated with support for other types of public policies.

The theories of mental accounts and looseness in ideological constraint among members of the mass public jointly suggest the following theoretical predictions. To the extent that individuals code both housing wealth and Social Security in the “future income” account, shocks to housing wealth will shape attitudes toward policies and programs that affect their retirement income, such as Social Security. However, these shocks should not affect individuals’ judgments about other types of social insurance programs.

**Prospect Theory**

Suppose the housing market is stronger (or weaker) than a homeowner expects. How might the projected housing wealth surplus (or shortfall) affect the decisions homeowners make about saving, as well as their attitudes toward retirement income programs like Social Security? Prospect theory offers a useful framework for evaluating such choices (Kahneman and Tversky 1979; Tversky and Kahneman 1991). I characterize the problem as one of choosing between (a) a housing wealth surplus (or shortfall), or (b) a housing wealth surplus (or shortfall) plus a risky bet with a positive or negative pay-off. As an example, the risky bet might be directing one’s Social Security contributions toward investments such as stocks or mutual funds. Because of the riskiness of such investments, investment proceeds could be more or less than Social Security payments under the status quo. Prospect theory proposes a value function that maps pay-offs to the utility that the decision-maker obtains. The value function has two parts: the function is concave in the region of gains, and convex
in the region of losses. The value function implies, for example, that a sure gain of $15 will be preferred to a 50/50 bet on a $10 gain or a $20 gain, whereas a sure loss of $15 will be rejected in favor of a 50/50 bet on a $10 loss or a $20 loss. In the context of housing wealth, this theory predicts that homeowners with a housing wealth surplus will be less likely to take risky bets that deviate from the status quo, while owners with a housing wealth shortfall will be more likely to do so. This prediction differs from the housing wealth hypothesis proposed by Ansell (2014). As described in the previous section, the housing wealth hypothesis predicts that homeowners with larger housing wealth surpluses are more likely to prefer removing protective economic hedges, if given the option to do so.

**Life-cycle Variation in Housing Wealth Effects**

Home price appreciation and near-term housing wealth expectations should have heterogeneous effects across the life cycle. Imagine a young individual who has recently bought a home, and an older homeowner who intends to retire in the near future. I assume that these two individuals are respectively long- and short-horizon homeowners, where horizon refers to the expected length of time until the housing wealth is liquidated, either by selling the home outright or trading into a smaller home. Near-term expectations are less likely to affect the long-horizon homeowner’s saving and consumption decisions, compared to the short-horizon homeowner, because such expectations make up a smaller proportion of the horizon. In more informal language, near-term expectations are diluted over time for a long-horizon homeowner. This intuition is consistent with findings from Campbell and Cocco (2007), who document that home price increases have a larger effect on the consumption behavior of old homeowners compared to younger owners. In the context of housing wealth effects on preferences over social insurance policies, housing wealth expectations should have a larger effect on the status quo preference of older homeowners.

In sum, I integrate mental accounting theory, prospect theory, and a theory of life-cycle variation in housing wealth effects to make the following predictions, which I collectively term the status quo bias hypothesis. First, among homeowners, higher HPA expectations increase support for the status quo with respect to Social Security. Second, among homeowners, HPA expectations do not affect attitudes toward other forms of social insurance policies. Third, HPA has no effect on support for social insurance among renters. Fourth, among homeowners the effect of HPA expectations on status quo preference increases with age. The following section presents an empirical test of these predictions.
3.3 Information Treatments and Support for Social Insurance

Political attitudes toward social insurance policies are correlated with a range of demographic and economic variables that are themselves correlated with home prices. Mian and Sufi (2011) document that between 2002 and 2005, mortgage credit expansion was associated with higher home prices in U.S. localities with low credit scores. Hariri et al. (2017) reports that household debt burdens are correlated with demand for some types of social policies. Unobserved variables such as household balance sheets may thus be correlated with both HPA and attitudes toward social policies, resulting in biased estimates of HPA effects. More generally, localities that experience high HPA could be systematically different from those with low HPA in terms of their underlying political characteristics.

To address inferential threats, I design an experiment that uses a randomized information treatment to manipulate respondents’ HPA expectations. The experiment leverages a known behavioral bias in which individuals use readily available information to inform their beliefs about an unknown quantity, a phenomenon known as anchoring. I provide respondents with information about historical HPA, but randomly vary the type of information across respondents. I first show that information about historical HPA affects respondents’ expectations of future HPA. I then measure respondents’ preferences on four policy questions related to Social Security and wealth redistribution. The housing wealth hypothesis predicts that homeowners primed with information about high historical HPA are more likely to favor private risk-taking over status quo Social Security arrangements. In addition, they are less likely to support social insurance programs and wealth redistribution than those primed with information about low historical HPA. By contrast, the status quo bias hypothesis predicts that homeowners in the high HPA condition are more likely to prefer status quo arrangements with respect to Social Security. They should be no different, on average, from homeowners in the low HPA condition in terms of attitudes toward other forms of social insurance and redistributive policies.

Experiment and Survey Design

Information Treatments

Individuals rely on mental shortcuts, or heuristics, when asked to estimate quantities about which they have limited insight. One such heuristic is adjustment-and-anchoring (Tversky
and Kahneman 1974). When asked to estimate an unknown quantity, people start from some initial value and make adjustments to yield the final answer. The initial value may be suggested by the formulation of the problem, or it may simply be information that is most readily available. In experimental settings, researchers have found that subjects frequently use information provided to them as an anchor. Likewise, I expect information provided to respondents about historical housing market conditions to shape their forecasts of future housing market conditions.

I randomly assign information about historical HPA to survey respondents. I refer to information that HPA in the past year was 5.7 percent as the high HPA treatment, and information that annualized HPA over the last ten years was 0.4 percent per year as the low HPA treatment. These figures were obtained from the Federal Housing Finance Agency (FHFA), and were factually accurate at the time of the experiment. I also include a pure control condition in which respondents are given no information about historical HPA. In addition to information about historical HPA, respondents are given information about the projected values of their homes (or a typical home in their neighborhood, if they are not homeowners) in five years’ time. These projections are extrapolated from respondents’ own estimates of current home values, using the randomly assigned information as the annualized rate of home price increase.

In summary, the high and low information treatments differ in two ways. First, the historical HPA and lookback periods provided to respondents in the high and low HPA treatment groups are numerically different, although the language is otherwise the same. Second, respondents in the high treatment group observe projected home values that are systematically higher than those observed by respondents in the low treatment group.

Survey Flow

The survey instrument starts by asking about the respondent’s age, housing tenure (whether the respondent rents, owns a home with a mortgage, owns a home free and clear, lives with a family member, or has some other living arrangement), and party identification. Respondents are grouped into eight blocks, based on whether or not they are older than 40, own their homes, and identify as a Republican (including those who report leaning Republican). Information treatments are randomly assigned within each block.

\footnote{For a recent example of information treatment in political science, see Alt, Lassen, and Marshall (2015), who show that information about projected unemployment rates affects survey respondents’ own unemployment rate expectations.}
After these initial questions used for block randomization, respondents are asked for their zip code, and their best guess of the value of either their home (if they are a homeowner) or a typical home in their zip code (if they are not a homeowner). Next, respondents are told to think about the future value of either their home or a typical home in their zip code. Respondents in the high and low information treatment groups are presented with the following prompt:

Over the last [year / 10 years], house prices in the United States increased by [5.7 percent / 0.4 percent per year], on average. At that rate, (your home / a typical home in your zip code) would be worth about $X 5 years from today. Just your best guess: What do you think the value of (your home / a typical home in your zip code) will be, 5 years from today? Please keep this number in mind, as we may come back to it later.

The value of X in the prompt is calculated based on each respondent’s estimate of home values today. Respondents in the pure control group are not provided with any information about historical HPA, and only asked about their estimates of home values five years hence. Respondents’ implied HPA expectations are derived by comparing their estimates of current home values and their five-year forecasts.

I collect data on four outcome variables: (i) whether the respondent would invest some Social Security contributions in stocks and mutual funds if given the option, or remain in the current system, (ii) whether the Social Security deficit should be balanced by decreasing benefits or increasing taxes, (iii) proportion of local property taxes that should be retained by the local community (with the remainder redistributed by the state), (iv) the role of government in ensuring a job and a decent standard of living. Table C.1 presents the full text of the questions as well as the choices available to respondents.

These four questions are chosen to tap different elements of a complex of attitudes toward redistribution and social insurance, in particular attitudes that may plausibly be shaped by housing wealth. First, support for social insurance can refer to a relative preference for a specific government-run social insurance program such as the currently existing Social Security system, over private insurance or self-insurance such as privatized retirement accounts. Second, support for social insurance can take the form of sustaining a social insurance program by raising taxes, rather than cutting benefits. Third, support for social insurance may be expressed as a preference for geographical risk pooling, i.e. raising

[^4]: I also ask respondents about their attributional beliefs, that is, their view about why some people are financially secure and others are not. As this outcome is not central to the present paper, I do not discuss it here.
property taxes to fund services in neighboring communities. Fourth, support for social insurance can mean a preference for a larger role for government in guaranteeing a social minimum, for example by ensuring employment for labor force participants or a decent minimum standard of living for all citizens. Estimating the effect of HPA on attitudes toward these different aspects of social insurance sheds light on whether and how housing wealth shapes support for social insurance. I randomize the order in which the four questions about policy preferences are presented to respondents, so as to mitigate the effects of question ordering on responses.

The survey instrument concludes with a short battery of questions on respondent demographics, specifically gender, race, education, and income.

Data

A pilot study with 508 respondents, recruited on Amazon’s Mechanical Turk (MTurk) platform, was conducted between June 23 and July 1, 2016. Based on results from the pilot, the sample size for this study was calibrated, and questions on privatized Social Security and local property taxes were added to the survey instrument to investigate other aspects of support for social insurance. For the actual study, 2023 respondents were recruited through MTurk between August 4 and September 7, 2016. Respondents were paid $0.60 each to complete the survey, and the median time taken to complete the survey was around 5 minutes. 39 cases were dropped because technical problems encountered during survey administration prevented treatment from being assigned. After pre-processing, 1984 cases were available for analysis. Table 3.1 presents summary statistics for the dataset.

Effects of Information Treatments

Effects of Information Treatments on House Price Expectations

Figure 3.1 plots the distribution of five-year cumulative HPA expectations for each treatment group. For comparison, the figure also plots forecasts from a survey of economists and real estate professionals. The figure shows clear differences in the distribution of HPA expectations across treatment groups, with the sample mean of expected HPA in the control group falling between those in the low and high HPA treatment groups. Among respondents in the pure control group, mean cumulative HPA expectations over five years is 14.4 percent. Mean expectations in the high and low HPA groups are 22.4 and 6.8 percent respectively.

The survey of economists and real estate professionals was sponsored by Zillow, a real estate website.
Table 3.1—Summary Statistics

<table>
<thead>
<tr>
<th></th>
<th>All respondents</th>
<th>Non-owners</th>
<th>Owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>1984</td>
<td>1202</td>
<td>782</td>
</tr>
<tr>
<td>Mean Age</td>
<td>35.7</td>
<td>32.6</td>
<td>40.4</td>
</tr>
<tr>
<td>35 and below (Millennials)</td>
<td>0.60</td>
<td>0.72</td>
<td>0.40</td>
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<td>36-51 (Gen X)</td>
<td>0.28</td>
<td>0.20</td>
<td>0.41</td>
</tr>
<tr>
<td>52 and above (Boomers)</td>
<td>0.12</td>
<td>0.08</td>
<td>0.20</td>
</tr>
<tr>
<td>Female</td>
<td>0.48</td>
<td>0.44</td>
<td>0.55</td>
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<tr>
<td>White</td>
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<td>0.08</td>
<td>0.07</td>
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<td>0.06</td>
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</tr>
<tr>
<td>Income &gt; $60,000</td>
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<td>0.35</td>
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<tr>
<td>Democrat</td>
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<td>0.65</td>
<td>0.54</td>
</tr>
<tr>
<td>Median Zillow Home Value Index</td>
<td>199,500</td>
<td>208,150</td>
<td>182,800</td>
</tr>
<tr>
<td>Median Reported Home Prices</td>
<td>180,000</td>
<td>180,000</td>
<td>175,000</td>
</tr>
</tbody>
</table>

Notes: Non-owners include all respondents who do not report owning their homes; they may include respondents living with family members who are homeowners. Median Zillow Home Value Index reports zip-code level homes values estimated by Zillow, and using respondents’ zip codes. Median Reported Home Prices is based on respondents’ self-reported estimates of their home values (for homeowners) or the value of a typical home in respondents’ neighborhoods (for non-homeowners).

For comparison, the expert panel (surveyed in late July and early August 2016 by Zillow) has a mean five-year cumulative HPA forecast of 18.7 percent.\(^6\) Table C.3 summarizes respondents’ estimated present and expected home values. In dollar terms, the median five-year forward expected home value in the high treatment group is $30,000 more than that in the low treatment group.

On average, respondents given the high HPA treatment report five-year cumulative expected HPA that is 15.6 percentage points (s.e. 0.8) higher than those given the low HPA treatment.\(^7\) The average treatment effect (ATE) is smaller for homeowners (12.2 percentage points) compared to non-owners (17.9 percentage points). The ATE also exhibits heterogeneity across age groups. Following existing research on intergenerational differences in political and social attitudes (e.g. Pew Research Center 2011, 2014), I divide respondents into three groups by year of birth, and label the groups “Millennials” (respondents born in

\(^6\)Data available at [http://www.zillow.com/research/data/#additional-data](http://www.zillow.com/research/data/#additional-data). Note that experts were asked to forecast national home prices, while survey respondents were asked about HPA in their neighborhoods, which partly explains smaller sample variance in the expert panel compared to survey responses.

\(^7\)Table C.2 reports summary statistics for each group.
Figure 3.1—5-year Cumulative HPA Expectations

Notes: Distributions of 5-year cumulative HPA expectations by treatment groups and among experts. Each box indicates the first and third quartiles, as well as the median. × indicate means. Upper (lower) whisker extends from the third (first) quartile to largest (smallest) value no further than 1.5 times the inter-quartile range from the quartile. For graphical exposition, the x axis is left-truncated at -25 percent and right-truncated at 50 percent so that points outside of this range are not visible.

1981 or after, aged 35 and below at the time of the survey), “Gen X” (born between 1965 and 1980, aged between 36 and 51), and “Boomers” (born before 1965, aged 52 and above). Given that the data represents a snapshot at a point in time, I cannot distinguish between generation (i.e. cohort) and age effects, and use generation labels only for expository purposes. Within each housing tenure group (owners and non-owners), ATEs are highest for Millennials and lowest for Boomers. The results suggest that the ATE of HPA information on HPA expectations is moderated by housing market experience. Figure C.2 summarizes these results.

Effects of Information Treatments on Support for Social Insurance

I now turn to the effects of the information treatments on various measures of support for social insurance. Figure 3.2 presents the main results of this study. For comparability, all outcome variables have been rescaled so that the minimum and maximum values are 0 and 1 respectively. Consistent with the status quo bias hypothesis, homeowners in the high HPA group are less likely to prefer switching to private retirement accounts if given the choice, and more likely to stay within the current Social System, compared to those in the low HPA group (top row, left column in Figure 3.2). HPA treatment has no statistically significant effects at conventional confidence levels on other outcome variables. In addition, no significant treatment effects are observed among non-owners.

Figure 3.3 disaggregates responses to the private retirement accounts item by treatment
Figure 3.2—Average Treatment Effects on Support for Social Insurance

Notes: Points represent difference in means of the outcome variables between high and low HPA information treatment groups. For comparability, variables are rescaled to range between 0 and 1. Lines indicate 90 percent confidence intervals. The plot shows that owners in the high HPA group are less likely to switch to a privatized Social Security program if given the option, compared to those in the low HPA group. Renters in the high HPA group are more likely to switch, although the ATE is not significant at conventional confidence levels. Null hypotheses of no effect are not rejected for other outcome variables.

Group and generation (or age group). 53 percent of all respondents indicate that they would invest part of their Social Security contributions in stocks or mutual funds.8,9 Preferences for privatized Social Security differ across age groups (or generations), in particular between Boomers and other groups. These results are consistent with those reported in previous polls.10 Treatment effects are as predicted by the life-cycle variation theory (Figure 3.4). The ATE among all homeowners is a decrease in preference for private accounts of 7.9 percentage points (s.e. 4.3 percentage points) and heterogeneous across age groups. Among


9 For comparison, Barabas (2006) analyzes 96 surveys on Social Security privatization conducted between the second quarter of 1996 and the second quarter of 2004, and report a long-run average support for Social Security privatization of 54 percent. It should be noted that most surveys ask about whether workers should be given the option to contribute into private retirement accounts, rather than whether the respondent would do so if given the choice. However, responses to both questions are strongly correlated. Data from a Pew Research Center poll show that about 80 percent of respondents give the same answer to both questions. Source: See previous footnote.

10 From the same Pew Research poll, 64 percent of respondents aged 18 to 29 (excluding “Don’t Know’s”) would invest in private accounts, compared to 38 percent of those aged 50 to 64. Source: See previous footnote.
Milennial owners, the point estimate of the ATE is close to zero, although imprecisely estimated. The ATEs are statistically significant for Gen X and Boomer owners at the 90 percent confidence level, with point estimates of 12 percentage points (19 percent decrease) and 17 percentage points respectively (41 percent decrease). High HPA expectations cause older homeowners to reduce their support for private retirement accounts by a substantively large magnitude, but have no effects on young owners.

The increased status quo preference does not imply that HPA expectations have similar effects on support for social insurance in general or Social Security in particular. The survey asks respondents how they would prefer to address the Social Security deficit, i.e. the fact that the Social Security system currently pays out more each year in benefits than it receives in contributions. Respondents are asked to choose between reducing benefits or raising taxes on a four-point scale. If housing wealth decreases support for social insurance, as the housing wealth hypothesis suggests, then high HPA expectations should increase preference for reducing benefits rather than raising taxes. Figure 3.2 (second row) reports no evidence to reject the null hypothesis of no effect. Figure C.3 in the Appendix further documents

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Notes: Proportion of respondents who prefer to invest Social Security contributions privately, if given the option. Statistics computed for each housing tenure, generation, and treatment group. Preferences for privatized Social Security differ across generations, in particular between Boomers and other generations. Lines indicate 90 percent confidence intervals.

11 These ATEs are estimates from a linear probability model that includes both the treatment indicator and an indicator for Republican party identification, which is a variable used in the block randomization.
Figure 3.4—Average Treatment Effects on Preference for Privatized Social Security

Notes: ATE on preference for privatized Social Security by housing tenure and generation. The ATEs are heterogeneous by generation, with the largest absolute effects observed among Boomers. Effects are statistically insignificant among Millennials. Lines indicate 90 percent confidence intervals.

that the null cannot be rejected across all age groups.

I make a final observation on Figure 3.4 to conclude this section. Although ATE estimates for non-owners are statistically insignificant at conventional confidence levels, the sign of the point estimates are consistent with predictions from prospect theory that individuals in the region of losses are more likely to take up a risky bet than those in the region of gains. Renters are typically not hedged against a rise in housing costs. High HPA expectations may therefore cause households to project lower real future income as housing costs increase. To make up for the shortfall relative to prior expectations, households may be moved to take more risk. While the signs are in the predicted direction, the estimates are too imprecise to support this claim empirically.

3.4 Home Prices and Status Quo Preference

Results from the survey experiment show that when given a choice between the current Social Security system and one in which they can invest their own Social Security contributions, homeowners primed with information about high historical HPA are more likely
to prefer the current system, compared to those primed with information about about low historical HPA or those not given any information. Although the experimental design allows for causal inference, it does not directly estimate the effect of housing wealth on attitudes toward social insurance. This shortcoming is true in two ways. First, historical HPA information may affect social insurance preferences through channels other than HPA expectations. For example, the high HPA treatment might remind homeowners about the volatility in home prices over a boom and bust cycle, and induce risk aversion among homeowners. Barabas (2006) shows that volatility in asset markets reduces support for Social Security privatization. Second, even if the information treatment shapes HPA expectations, higher expected housing wealth is less tangible than higher actual housing wealth, which may explain the absence of estimated effects for outcome variables other than Social Security privatization.

To address these critiques, I draw on observational data that combine a geocoded survey dataset with a granular dataset of local HPA. A key drawback in using observational data is that individuals who live in high HPA areas may be systematically different from those in low HPA areas in ways that affect their preference for the status quo. I follow Ansell (2014) in using the ANES 2000-2004 Panel Study and leveraging the panel structure of the data to mitigate inferential issues related to unobserved individual-level heterogeneity. The main conceptual difference between Ansell (2014) and the present analysis is that whereas Ansell examines changes in the degree of support for Social Security spending, I focus on preference for the status quo. I show that the evidence is more consistent with a status quo bias interpretation, rather than the claim that housing wealth decreases support for social insurance.

**Support for Social Insurance**

**Data**

I use data from the 2000-2004 ANES Panel Study. 840 respondents were interviewed in the fall of 2000 and re-interviewed in the fall of 2004. I delete 3 respondents from the dataset because of missing data on their homeownership status. I requested additional restricted data on respondents’ zip code and county, not available in the public dataset, from the ANES.
<table>
<thead>
<tr>
<th>Variable</th>
<th>All</th>
<th>Owners</th>
<th>Renters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents</td>
<td>837</td>
<td>665</td>
<td>172</td>
</tr>
<tr>
<td>HPA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min.</td>
<td>-0.07</td>
<td>-0.07</td>
<td>-0.07</td>
</tr>
<tr>
<td>1st Quartile</td>
<td>0.13</td>
<td>0.14</td>
<td>0.13</td>
</tr>
<tr>
<td>Median</td>
<td>0.18</td>
<td>0.18</td>
<td>0.19</td>
</tr>
<tr>
<td>3rd Quartile</td>
<td>0.33</td>
<td>0.33</td>
<td>0.33</td>
</tr>
<tr>
<td>Max.</td>
<td>0.67</td>
<td>0.67</td>
<td>0.66</td>
</tr>
<tr>
<td>Wage growth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min.</td>
<td>-0.15</td>
<td>-0.15</td>
<td>-0.15</td>
</tr>
<tr>
<td>1st Quartile</td>
<td>0.11</td>
<td>0.11</td>
<td>0.11</td>
</tr>
<tr>
<td>Median</td>
<td>0.13</td>
<td>0.13</td>
<td>0.13</td>
</tr>
<tr>
<td>3rd Quartile</td>
<td>0.16</td>
<td>0.16</td>
<td>0.16</td>
</tr>
<tr>
<td>Max.</td>
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<td>0.30</td>
<td>0.22</td>
</tr>
<tr>
<td>Region</td>
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<td></td>
</tr>
<tr>
<td>Northeast</td>
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<td>0.17</td>
<td>0.21</td>
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<tr>
<td>Midwest</td>
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<td>0.30</td>
<td>0.19</td>
</tr>
<tr>
<td>South</td>
<td>0.34</td>
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</tr>
<tr>
<td>West</td>
<td>0.21</td>
<td>0.20</td>
<td>0.24</td>
</tr>
</tbody>
</table>

Notes: This table reports quartiles for the distribution of home price appreciation (HPA) and county-level wage growth between 2000-2004, for respondents in the dataset used. It also reports the proportion of respondents in each Census region.

HPA data are sourced from the Federal Housing Finance Agency (FHFA) and Zillow. I include county-level wage growth as a measure of local economic conditions. Wage data are obtained from the Bureau of Labor Statistics’ Quarterly Census of Employment and Wages. Wage growth is calculated as the difference in logged average weekly wages between the third quarters of 2000 and 2004. Table 3.2 reports summary statistics for HPA and wage growth.

The main outcome variable is respondents’ answers to whether they think federal spending on Social Security should increase, decrease, or stay the same. Respondents were asked for their preferences in both 2000 and 2004 waves. I begin with a graphical analysis of the conditional distribution of responses. Figure 3.5 reports, separately for owners and non-owners, the distribution of responses in 2004, conditional on the respondent’s preference.
Notes: Conditional distributions of Social Security spending preferences in 2004. Column heights indicate the proportion of respondents in each HPA quartile reporting a preference for decreasing, maintaining, or increasing the amount that the government spends on Social Security, conditional on respondents' preference in 2000 and housing tenure. Numbers indicate the raw number of responses. Lines indicate 90 percent confidence intervals. Conditional on responses in 2000, homeowners in the bottom HPA quartile (light blue column) are less likely to prefer Social Security spending to stay the same, compared to those in the top HPA quartile (dark blue column). Homeowners in the bottom HPA quartile are more likely to prefer spending to increase, compared to those in the top quartile.

in 2000 and local HPA between 2000 and 2004. For example, focusing on the right-most set of columns in the lower-left panel, about 75 percent of respondents who preferred an increase in Social Security spending in 2000 also preferred an increase in 2004. The proportion of respondents in the bottom HPA quartile who preferred an increase in 2004 is larger than the proportion in the top HPA quartile.

The housing wealth hypothesis predicts that support for social insurance declines with housing wealth. The proportion of respondents who support an increase in Social Security spending should therefore decline with HPA. This prediction is borne out in the data: among

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13 In the figure and the analysis that follows, HPA is recoded into quartiles to allow for more flexible modeling.
homeowners (left panel), the proportion of respondents who support increased spending in 2004 (right-most set of columns) is highest among those in the bottom HPA quartile, and lowest among those in the top HPA quartile. This pattern is observed regardless of whether the respondent preferred spending to decrease (top row), stay the same (middle row), or increase (bottom row) in 2000. At the same time, under the housing wealth hypothesis, the proportion of respondents who support a decrease in Social Security spending in 2004 (left-most set of columns) might also be expected to increase with HPA. This pattern is not observed in the data: among the few homeowners who reported a preference to decrease spending in 2004, HPA does not appear to be correlated with their preference.

The data is however consistent with the status quo bias hypothesis, which predicts that preference for the status quo option – for spending on Social Security to stay the same – should increase with HPA (middle set of columns). The fact that a relative status quo preference is observed among owners living in high HPA localities, but not among non-owners, suggests a causal mechanism that runs through housing wealth. The following section presents estimates of the relationship between HPA and status quo preference that control for possible confounders.

**Empirical Results**

To test the status quo bias hypothesis, I estimate the following model

$$
\mathbb{E}[Y_{it}] = f(\Delta_{it}) + X_{it}^\top \beta + \eta_t + \alpha_i,
$$

where $i$ and $t$ index the respondent and the period (2000 or 2004) respectively. $Y_{it}$ is a binary variable equals to one if the respondent chooses the “stay the same” option. $\Delta_{it}$ is HPA, the log-point change in local home prices between 2000 and period $t$, and is hence 0 for the first period. $f(\cdot)$ denotes the functional form of the relationship between HPA and the outcome variable. In the following analysis I recode HPA into quartiles and estimate a coefficient for each quartile (using the second quartile as the reference category) in order to incorporate potential non-linearities in the relationship between HPA and status quo preference.\(^{14}\) $X_{it}$ is a basic set of covariates including the respondent’s income category, as well as wage increase in the respondent’s county between 2000 and period $t$ (like HPA, this variable is equal to 0 for all respondents in the first period). $\eta_t$ estimates differences across periods. $\alpha_i$ captures each respondent’s baseline preference for the status quo.

\(^{14}\)In the dataset, HPA over the 2000 to 2004 timespan ranged between -6.8 percent (a house price decline) and 67 percent, with the quartiles being 13, 18, and 33 percent. See Table 3.2.
Figure 3.6—HPA Effects on Preference for Maintaining Same Spending Level, Owners Only

Notes: Coefficient estimates for HPA quartiles, among homeowners only. Lines indicate 95% confidence intervals using robust standard errors. The second quartile is the reference category.

In the main set of analyses I focus on the 2004 period. I only model the outcome variable for 2004 (dropping the $t$ subscript from the specification), but leverage information from the panel survey by using the respondent’s preference in 2000 to model $\alpha_i$. That is, I control for the respondent’s preference in 2000, by entering a set of dummy variables for whether the respondent preferred spending to decrease, stay the same, or increase. The Appendix reports results from supplementary panel analyses (Table C.2), where $\alpha_i$ is estimated as individual fixed or random effects.\textsuperscript{15}

Estimates for HPA quartile coefficients are shown in Figure 3.5 (left panel), where the dependent variable is preference for Social Security spending to stay the same, and the sample only includes homeowners. The estimate for the bottom HPA quartile is negative and statistically significant, indicating that homeowners who experience the lowest HPA (or even home price declines) are about 11 percentage points less likely to choose the status quo over other options. Equivalently, homeowners in the second to top quartiles are more likely

\textsuperscript{15}The signs and magnitudes of the point estimates for HPA quartiles are robust to different estimation strategies, although using fixed effect assumptions, larger interval estimates render results statistically insignificant at conventional confidence levels. I also estimate a conditional logit model that eliminates the need to estimate the individual-level effects. Estimates for HPA quartiles are substantively and statistically significant.
to choose the status quo, although there is no evidence that those in the top quartiles have a stronger preference for the status quo compared to respondents in the second quartile. To the extent that homeowners in the bottom HPA quartile perceive themselves as suffering from a housing wealth shortfall relative to other owners, this result is consistent with the idea from prospect theory that in the region of relative losses, individuals are more likely to countenance a deviation from the certainty of the status quo.

The stronger preference of homeowners in the bottom HPA quartile to deviate from the Social Security spending status quo – in practical terms a preference for the federal government to spend more, because so few respondents prefer less spending – is not observed with respect to federal spending on aid to poor people (Figure 3.5, right panel). None of the HPA quartile coefficient estimates is statistically different from zero, indicating that all else equal, homeowners at different HPA levels do not exhibit discernably different preferences for maintaining spending on aid to the poor. The stronger preference of homeowners in the bottom HPA quartile for increased federal spending on Social Security does not extend to aid to the poor, consistent with the theories of mental accounts and ideological constraint discussed in Section 3.2. Although housing wealth affects how homeowners think about other sources of retirement income, weak interdependence between political attitudes means that a preference shift in one policy domain does not propagate to other domains. I also estimate the same models on a sample that only includes non-owners (Figure C.4). None of the estimates for HPA quartiles is statistically significant, suggesting that the association between HPA and status quo preference runs through housing wealth, rather than unobserved locality-specific variables.

Finally, to test the life-cycle variation hypothesis, I estimate the models for Social Security spending separately for three sub-samples of homeowners, partitioned by age terciles. Results are shown in Figure 3.7. Because the sample sizes are small (each sub-sample only includes about 200 observations), the estimates are imprecise. However, they indicate that the stronger preference to deviate from the status quo among owners in the bottom HPA quartile is driven primarily by owners in the middle tercile, aged between 46 and 61 in 2004. These results are consistent with the life-cycle variation theory, which predicts that short-horizon homeowners – those who anticipate liquidating their housing wealth in the near future – are most influenced by housing wealth in terms of their saving and consumption decisions, as well as related political attitudes. These results are not dispositive because of the limitations of the data, but suggest that further investigation of this hypothesis will be fruitful.

Taken together, evidence from both the survey experiment and panel survey corroborate
the status quo bias hypothesis. Homeowners exposed to information about high HPA are less likely to participate in private retirement accounts if given the option, and more strongly prefer to stay in the current Social Security system. ANES data show that homeowners in the top HPA quartiles have a stronger preference for the federal government to maintain its current level of spending on Social Security. These results are not observed in other policy domains or among renters. Finally, sub-sample analysis indicates that HPA is most strongly associated with status quo preference among homeowners who are most likely to liquidate their housing wealth in the near future.

3.5 Discussion

This paper studies the hypothesis that rising home values reduce support for social insurance among homeowners. Drawing on a survey experiment, as well as observational survey and economic data, it finds no evidence for this hypothesis. I instead propose the status quo bias hypothesis, which predicts that homeowners who expect or experience higher home price appreciation exhibit more status quo preference with respect to public policies that affect retirement income. I find evidence in support of this hypothesis from a novel survey experiment and panel data from the ANES. Information about high historical HPA
increases homeowners’ preference for remaining in the current Social Security program, over switching into privatized retirement accounts. Compared to individuals in a low HPA treatment group and a control group, those in the high HPA treatment group are about 8 percentage points more likely to prefer staying in the existing Social Security system, over a baseline status quo preference of about 43 percent. I also find that homeowners residing in areas that experience higher (second to fourth quartile) HPA in the 2000 to 2004 period are about 11 percentage points more likely to prefer the status quo level than those in the lowest HPA quartile. Together, the two studies suggest that homeowners who experience or expect housing wealth gains are more likely to support the status quo when it comes to Social Security. A housing market boom may have reduced support for expanding old age insurance programs, and increased support for the status quo, but it is unlikely to have reduced support for social insurance. The effects of real or perceived HPA are limited: neither HPA information treatments nor actual HPA have effects on other measures of support for social insurance policies. Whether home values affect support for social insurance policies depend on exactly what these policies are.

Previous studies find that housing wealth and the size of a household’s financial buffer are negatively associated with support for social insurance policies (Hacker, Rehm, and Schlesinger 2013; Ansell 2014). In this study, I find no effects of housing wealth on support for social insurance in general. On the contrary, information about high historical HPA increases support for status quo Social Security arrangements compared to a privatized Social Security scheme. Nonetheless, it is possible to reconcile previous findings with the results from this study. Hacker, Rehm, and Schlesinger (2013) show that the amount of liquid financial resources available to a household is negatively associated with feelings of financial insecurity, which are in turn associated with support for various social insurance programs. However, as noted in Section 3.1, it is costly to extract liquidity from housing wealth, and relatively few homeowners monetize housing wealth for precautionary purposes. Because an increase in home values does not result in a corresponding increase in liquid resources for a homeowning household, results from Hacker, Rehm, and Schlesinger (2013) are consistent with the findings from this study that housing wealth has no effects on support for social insurance in general. Finally, it should be noted that since the panel survey study builds on Ansell (2014), it arrives at similar empirical findings. The main difference is in interpretation. By placing the empirical findings in the context of prospect theory and the results from the survey experiment, I argue that the results are more consistent with status quo preference than an erosion of support for social insurance.

Indeed, the argument that rising housing wealth increases preference for the status quo
is suited to explaining another episode in American politics that happened four decades ago. Rising home values and a corresponding increase in property taxes precipitated the tax revolt of the late 1970s, which introduced tax limitation laws that had the effect of circumscribing revenues available for public social spending; see, for example, Sears and Citrin (1985). While the tax revolt may seem to support the housing wealth hypothesis, a recent account of the tax revolt argues that its origins can be traced to “a progressive movement for social protection from the market” (Martin 2008, p. 22). Homeowners who experienced rising home values did not want to undermine social insurance. Rather, they were seeking to defend the tax privileges that had prevented their property taxes from rising proportionately with their home values – in other words, “tax privileges that would provide social insurance for homeowners” (p. 97).

It therefore would not be wrong to claim that housing wealth does have a conservatizing effect, in the sense that it induces a preference for the way things currently are. The evidence from both the survey experiment and the ANES study are consistent with the claim that homeowners draw cognitive linkages between home values and retirement income, and growth in the former increases satisfaction with status quo arrangements for the latter. Furthermore, preference for the *de jure* status quo may lead to a *de facto* erosion of social protection through the process of policy drift (Hacker 2004). But such conservatizing effects, if they exist, appear to be relatively limited and specific. Future work may wish to explore the effects of home values on domains other than social insurance. For instance, rising home values may increase homeowners’ opposition to new residential development in their neighborhoods, even if such development is potentially economically advantageous to homeowners. Status quo preference suggests the hypothesis that homeowners who experience high HPA will prefer to preserve the way things currently are, over taking a bet on whether the neighborhood will be improved by new development. Such preferences have social welfare outcomes if they prevent newcomers from moving to areas of opportunity.

Another open question is how the reference point is determined. Analysis of the ANES data suggests that status quo preference does not vary linearly with HPA. In this dataset, the inflection point appears to be around 13-18 percent cumulative HPA over four years. Homeowners who experience HPA below this level are more likely to demand changes to Social Security spending compared to those who experience this level of HPA or above. Further research is needed to evaluate if there is any significance to these numbers in particular, or if the reference point is a function of the distribution of HPA. In other words, we might hypothesize that status quo preference depends not on the level of home price appreciation that a homeowner experiences, but where the homeowner stands relative to
other homeowners.

Ansell (2014) is correct to observe that examining changes in income and employment alone is insufficient to explain change and continuity in the mass public’s attitudes toward redistribution and social insurance. Wealth and asset ownership are also key factors in shaping such attitudes. Housing wealth is particularly salient given that capital’s growing share of the economic pie over the second half of the 20th century in advanced industrialized economies can be attributed largely to returns to housing assets (Rognlie 2015). In addition to social insurance, housing wealth may also affect other dimensions of public policies that have a direct impact on households’ economic welfare. For instance, it is argued that in the United States, local land use regulations restrict housing supply and decrease housing affordability, and that such regulations are supported by homeowners who wish to protect their home values (Fischel 2001a; Gyourko and Molloy 2015 and references therein; but see Gerber and Phillips 2003 for a counterpoint). Housing wealth has potentially far-reaching effects on public support for policies that mitigate or exacerbate economic inequality. The worry is not that housing wealth motivates a rejection of social welfare or egalitarian social policies. Rather, the danger is that reform-minded political leaders, whatever their ideological leanings, might find a nation of contented homeowners resistant to any change at all.
Appendix A

Supporting Materials for Paper 1

Figure A.1—Effect of Proximity to Project on Probability of Turnout

Notes: This figure shows the effects of development on probability of turnout in the November 2015 municipal elections, controlling for covariates. Each estimate is based on a different sample for control (sites where development began in 2016) and treatment (development began in 2015, prior to elections). Points and lines indicate point estimates from OLS regression with 95% confidence intervals based on cluster bootstraps at the development project level.
Figure A.2—Effect of Proximity to Project on Probability of Turnout by Voter Type

Notes: This figure shows the effects of development on probability of turnout in the November 2015 municipal elections, controlling for covariates, at different levels of proximity to the site. For instance, the estimate for “400” is the effect of development on turnout for voters who lived within 400 meters of a development site that started construction between January and September 2015 or between January and September 2016, and did not live within 400 meters of any development site as of January 2015. Among casual voters, effects diminish as the radius expands, implying that most of the effect is driven by voters nearest to the sites.
**Figure A.3—Voters in Neighborhoods Near Development Projects**

Notes: Each point on the map represents a registered voter that was first exposed to a development project between January to September 2015 (the pre-election period, in blue) or between January to September 2016 (the post-election period, in red). These voters are then separated into two groups: those living within 100 meters of a development site (dark colors), and those living between 100 to 200 meters of the site (light colors).
Appendix B

Supporting Materials for Paper 2

B.1 Political Beliefs

The following attitudinal questions were used to construct composite measures of liberalism and localism. Each set of statements appears on a different page in the survey.

Set 1:

1. The distribution of money and wealth in this country today is fair.
2. It is the government’s duty to make sure everyone can afford decent housing.
3. Local government should focus on helping local businesses do well, rather than attracting new firms to the area.
4. The government should not concern itself with reducing the income difference between the rich and the poor.

Set 2:

5. Big business has too much influence over the decisions made by our government today.
6. Our government should redistribute wealth through higher taxes on the rich.
7. It is not the local government’s job to regulate home prices and rents in my town or city.
8. Corporations should focus on making money for their shareholders, rather than being socially responsible.

Set 3:

9. Everyone born in this country has an equal chance to succeed in life, whether their family is rich or poor.
10. On balance, the free market is the fairest way to allocate housing.

11. People who cannot afford their rent should move to somewhere cheaper, instead of asking the government for help.

12. Every resident of a town or city should have an equal say on local issues, whether they just arrived or are long-time residents.
B.2 Figures and Tables

Figure B.1—Average Treatment Effects by Liberalism and Localism Scores

Notes: The figure shows the average treatment effect (ATE), or the relative preference for the mixed-income project over the high-end project, across a range of liberalism and localism scores. The ATE corresponds to the difference between the LOESS curves reported in Figure 2.4. The support (range) for each plot consists of values between the 1st and 99th percentiles for each index. Shaded areas indicate bootstrapped 95% confidence intervals. The vertical dashed lines represent the 20th and 80th percentiles for the respective scores.
### Table B.1—Regressions of Support for Project on Liberalism and Localism

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<th>Mixed-income (2)</th>
<th>High-end (3)</th>
<th>Mixed-income (4)</th>
</tr>
</thead>
<tbody>
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<td>Liberalism</td>
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<td>0.050 (0.007)</td>
<td>−0.040 (0.008)</td>
<td>0.049 (0.008)</td>
</tr>
<tr>
<td>Liberalism-squared</td>
<td>−0.006 (0.003)</td>
<td>−0.002 (0.003)</td>
<td>−0.006 (0.003)</td>
<td>−0.003 (0.003)</td>
</tr>
<tr>
<td>Localism</td>
<td>−0.088 (0.015)</td>
<td>−0.041 (0.014)</td>
<td>−0.077 (0.016)</td>
<td>−0.043 (0.015)</td>
</tr>
<tr>
<td>Localism-squared</td>
<td>0.005 (0.010)</td>
<td>0.001 (0.010)</td>
<td>0.004 (0.010)</td>
<td>0.005 (0.010)</td>
</tr>
<tr>
<td>Female</td>
<td>−0.104 (0.032)</td>
<td>0.002 (0.029)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>0.010 (0.037)</td>
<td>0.058 (0.034)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age &lt; 35</td>
<td>−0.022 (0.034)</td>
<td>0.010 (0.031)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No 4-year college degree</td>
<td>−0.025 (0.035)</td>
<td>−0.008 (0.031)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-graduate degree</td>
<td>−0.005 (0.047)</td>
<td>−0.035 (0.046)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income &lt; $60,000</td>
<td>−0.082 (0.038)</td>
<td>0.043 (0.034)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income $100-150,000</td>
<td>0.009 (0.055)</td>
<td>0.018 (0.049)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income &gt; $150,000</td>
<td>0.086 (0.078)</td>
<td>0.093 (0.082)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homeowner</td>
<td>−0.013 (0.036)</td>
<td>−0.031 (0.032)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resident &gt; 4 years</td>
<td>−0.032 (0.035)</td>
<td>−0.006 (0.031)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-year HPA &gt; median</td>
<td>−0.033 (0.032)</td>
<td>0.007 (0.029)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.561 (0.022)</td>
<td>0.730 (0.020)</td>
<td>0.720 (0.066)</td>
<td>0.668 (0.060)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Observations</th>
<th>1,007</th>
<th>982</th>
<th>970</th>
<th>971</th>
</tr>
</thead>
<tbody>
<tr>
<td>R²</td>
<td>0.062</td>
<td>0.072</td>
<td>0.085</td>
<td>0.080</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.058</td>
<td>0.068</td>
<td>0.071</td>
<td>0.066</td>
</tr>
</tbody>
</table>

Notes: OLS estimates of linear probability models for project support.
Figure B.2—Proportion of Variance Explained

Notes: The figure shows the proportion of variance explained by each principal component.
**Figure B.3—Geographical Distribution of Political Preferences**

*Notes:* The map shows the geographic distribution of four categories of political preferences. Precincts are categorized by the interaction of whether they score above or below the median on liberalism (liberal or conservative) and whether they score above or below the median on localism (localist or cosmopolitan).
### Table B.2—Regressions of Support for Project on Localism and Liberalism

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>Shipyard (1)</th>
<th>Shipyard (2)</th>
<th>8 Wash. (3)</th>
<th>8 Wash. (4)</th>
<th>Pier 70 (5)</th>
<th>Pier 70 (6)</th>
<th>Mis. Rock (7)</th>
<th>Mis. Rock (8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Localism</td>
<td>−0.027</td>
<td>−0.029</td>
<td>−0.015</td>
<td>−0.018</td>
<td>−0.029</td>
<td>−0.023</td>
<td>−0.026</td>
<td>−0.023</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.008)</td>
<td>(0.008)</td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.004)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Liberalism</td>
<td>−0.061</td>
<td>−0.065</td>
<td>−0.025</td>
<td>−0.030</td>
<td>0.031</td>
<td>0.031</td>
<td>0.032</td>
<td>0.021</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.007)</td>
<td>(0.008)</td>
<td>(0.009)</td>
<td>(0.005)</td>
<td>(0.003)</td>
<td>(0.004)</td>
<td>(0.004)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.628</td>
<td>0.644</td>
<td>0.330</td>
<td>0.356</td>
<td>0.725</td>
<td>0.717</td>
<td>0.739</td>
<td>0.766</td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td>(0.014)</td>
<td>(0.008)</td>
<td>(0.021)</td>
<td>(0.006)</td>
<td>(0.006)</td>
<td>(0.005)</td>
<td>(0.007)</td>
</tr>
<tr>
<td>Strata fixed effects</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>578</td>
<td>578</td>
<td>578</td>
<td>578</td>
<td>578</td>
<td>578</td>
<td>578</td>
<td>578</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.580</td>
<td>0.602</td>
<td>0.179</td>
<td>0.257</td>
<td>0.496</td>
<td>0.606</td>
<td>0.531</td>
<td>0.643</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.579</td>
<td>0.595</td>
<td>0.176</td>
<td>0.243</td>
<td>0.495</td>
<td>0.599</td>
<td>0.529</td>
<td>0.637</td>
</tr>
</tbody>
</table>

*Notes:* OLS estimates of linear models for project support. Numbers in parentheses report standard errors, clustered by neighborhood. Coefficients for localism and liberalism represent change in vote share for a standard deviation change in the predictor value. Strata are generated by first computing terciles for precinct-level median household income and precinct-level homeownership rates, then interacting both categorical variables to form nine cells. Household income and homeownership rates come from the 2010 Census, and are imputed to precincts from Census geographies using conversion tables from the Statewide Database, available at [http://statewidedatabase.org/conversion.html](http://statewidedatabase.org/conversion.html).
## Supporting Materials for Paper 3

### Table C.1—Text of Questions for Outcome Variables

<table>
<thead>
<tr>
<th>Question</th>
<th>Choices</th>
</tr>
</thead>
<tbody>
<tr>
<td>As you may know, many different proposals have been considered to change Social Security from what it is today. In one plan, you could invest part of your Social Security taxes in stocks or mutual funds. Depending on the performance of your investments, you could end up with more or less than the regular Social Security benefit. If Social Security changes into a system where individuals could choose to invest some of their own Social Security tax contributions themselves, do you think you would choose to invest some Social Security money in stocks or mutual funds, or would you choose to stay within the current system?</td>
<td>- Invest some Social Security money in stocks or mutual funds</td>
</tr>
<tr>
<td></td>
<td>- Stay within the current system</td>
</tr>
<tr>
<td>Currently, the government pays out more each year in Social Security benefits than it receives in Social Security taxes. There is a lot of discussion about the possible ways to change Social Security to make sure that all people who retire can get their Social Security benefits. Some people think the government should reduce the benefits paid, for example by raising the retirement age, or reducing monthly payments to retired people. Other people think the government should keep the amount of money paid to retired people the same as it is now, but increase Social Security taxes for people who are currently working. Which of the following best describes how you think?</td>
<td>- Change Social Security only by reducing benefits</td>
</tr>
<tr>
<td></td>
<td>- Change Social Security mostly by reducing benefits</td>
</tr>
<tr>
<td></td>
<td>- Change Social Security mostly by increasing taxes</td>
</tr>
<tr>
<td></td>
<td>- Change Social Security only by increasing taxes</td>
</tr>
</tbody>
</table>
Local property taxes are an important source of money to pay for public schools, parks, and other social services in most states. Some people think that local property tax money should only be spent on schools, parks, and social services in the community where the tax is raised, because people living in places where home values have gone up should not have to pay more in property taxes for the benefit of other communities. Others think that property tax money should be spread out across the state to pay for schools, parks, and social services in all communities, so that less well-off communities can have services about as good as those in wealthy communities. Imagine that citizens in your state are being asked to decide how local property tax money should be spent. Out of every $100 collected in local property taxes, how much money do you think should be spent locally? For example, if you choose $100, it means that every town or city will keep all the property tax money it collects and only spend it on its own community. If you choose $0, it means that all the property tax money collected in the state will be spread out across all towns and cities.

Some people feel the government in Washington should see to it that every person has a job and a decent standard of living. Suppose these people are at one end of a scale, at point 1. Others think the government should just let each person get ahead on their own. 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?
Figure C.1—Mean 5-year HPA Expectations

Notes: Mean 5-year HPA expectations by housing tenure, generation, and treatment group. The high HPA information treatment increases HPA expectations for both owners and non-owners, and across generations. Lines indicate 90 percent confidence intervals.

Table C.2—HPA Expectations by Treatment Groups — Five-Year Cumulative HPA, Percent

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Low</th>
<th>High</th>
<th>Experts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>641</td>
<td>648</td>
<td>650</td>
<td>110</td>
</tr>
<tr>
<td>Mean</td>
<td>14.4</td>
<td>6.8</td>
<td>22.4</td>
<td>18.4</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>20.3</td>
<td>11.7</td>
<td>16.2</td>
<td>7.6</td>
</tr>
</tbody>
</table>

Notes: “Experts” are not part of this study. Data for experts come from a survey of economists and real estate professionals conducted in late July and early August 2016 by Zillow, a real estate website.

Table C.3—Present and Expected Home Values by Treatment Group

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Median Present value</th>
<th>Median Expected value in 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>175000</td>
<td>200000</td>
</tr>
<tr>
<td>Low</td>
<td>180000</td>
<td>190000</td>
</tr>
<tr>
<td>High</td>
<td>185000</td>
<td>220000</td>
</tr>
</tbody>
</table>

Notes: Home values based on respondents’ self-reported estimates and forecasts of their home values (for homeowners) or the value of a typical home in respondents’ neighborhoods (for non-homeowners).
Figure C.2—Average Treatment Effects on HPA Expectations

Notes: ATE on HPA expectations, by housing tenure and generation. The ATE of the information treatment is larger for non-owners compared to owners. Controlling for housing tenure, the ATE is largest for Millennials and smallest for Boomers. The results suggest that the ATE is moderated by housing market experience. Lines indicate 90 percent confidence intervals.

Figure C.3—Average Treatment Effects on Addressing Social Security Deficit by Reducing Benefits

Notes: ATE on preference for addressing Social Security deficit by reducing benefits, by housing tenure and generation. Positive numbers indicate respondents prefer to reduce benefits rather than raise taxes. Effects are statistically insignificant in aggregate and within groups. Lines indicate 90 percent confidence intervals.
Table C.4—Regression Estimates from Panel Data

<table>
<thead>
<tr>
<th></th>
<th>Preference for Status Quo on Soc. Sec. Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OLS</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>HPA: [-0.068,0.13]</td>
<td>−0.123</td>
</tr>
<tr>
<td></td>
<td>(0.087)</td>
</tr>
<tr>
<td>HPA: (0.13,0.18]</td>
<td>−0.013</td>
</tr>
<tr>
<td></td>
<td>(0.089)</td>
</tr>
<tr>
<td>HPA: (0.33,0.67]</td>
<td>−0.015</td>
</tr>
<tr>
<td></td>
<td>(0.092)</td>
</tr>
<tr>
<td>County wage growth: (0.12,0.15]</td>
<td>0.075</td>
</tr>
<tr>
<td></td>
<td>(0.075)</td>
</tr>
<tr>
<td>County wage growth: (0.15,0.3]</td>
<td>0.040</td>
</tr>
<tr>
<td></td>
<td>(0.076)</td>
</tr>
<tr>
<td>Middle Income</td>
<td>0.019</td>
</tr>
<tr>
<td></td>
<td>(0.083)</td>
</tr>
<tr>
<td>High Income</td>
<td>0.015</td>
</tr>
<tr>
<td></td>
<td>(0.104)</td>
</tr>
<tr>
<td>Year = 2004</td>
<td>−0.110</td>
</tr>
<tr>
<td></td>
<td>(0.068)</td>
</tr>
</tbody>
</table>

Region FE N.A. Yes N.A.
Individual Effects Fixed Random Fixed
Individuals/Events 651 651 479
Observations 1,302 1,302 1,302

*Note:* Column 1 reports estimates assuming fixed individual effects. Column 2 reports estimates assuming random individual effects. Column 3 reports estimates from a conditional logit model. Column 4 reports estimates from a generalized linear mixed-effects model estimated via MCMC. Standard errors reported in parentheses, and are clustered by individuals in Column 1.
Figure C.4—HPA Effects on Preference for Maintaining Same Spending Level, Non-owners Only

Notes: Coefficient estimates for HPA quartiles, among non-owners only. Lines indicate 95% confidence intervals using robust standard errors. The second quartile is the reference category.
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