Residential Zoning Regulations and Wealth Inequality

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Abstract

In the United States, the last fifty years has seen the spread of municipal-level residential land use regulations that modify how land is 'zoned' for residential development so as to slow residential growth. The vast majority of studies have found that these zoning regulations lead to higher housing prices and less new construction. In this paper, I investigate whether these zoning regulations also lead to greater wealth inequality between homeowners and non-homeowners. I hypothesize that residential zoning regulations increase homeowners' wealth via housing value appreciation, and reduce non-homeowners' wealth via higher rental prices and decreased ability to transition to homeownership. Furthermore, because Blacks are less likely to be homeowners than are Whites, I hypothesize that these zoning regulations exacerbate Black-White wealth inequality. I test these hypotheses using nationally-representative longitudinal data on municipal-level residential land use regulations and restricted access geocoded data from the Panel Study of Income Dynamics.

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Introduction

The 1960s and 1970s in the United States saw the spread of residential land use regulations, typically adopted at the municipal level, that modified how land is 'zoned' for residential development– by including open space, parking, and minimum lot size requirements, building height restrictions, and/or lot-line setbacks–so as to slow residential growth. Research suggests that homeowners formed constituencies to push for these zoning regulations for several purposes: protecting suburban communities from the growth of industry and denser residential development (Fischel 2001), creating communities that are homogenous with respect to income so that tax burdens are shared equally (Hamilton 1978), and preventing racial minorities and/or low-income residents from moving in, even in the absence of fiscal motivations to do so (Ihlandfeldt 2004; Shertzer et al. 2016).

There are several mechanisms through which residential zoning regulations are theorized to increase housing prices. First, regulations such as down-zoning vacant plots of land or limiting development reduce the supply of available housing (e.g., Hilber and Vermeulen 2016; Wheaton et al. 2014), which then causes higher prices. Second, regulations that increase the number of development requirements increase the cost of building new dwellings (e.g., Levine 1999). Third, zoning restrictions in a neighborhood may lead potential buyers to have a more positive assessment of the character of the neighborhood, and thus to pay more to live there (Brueckner 1990). As predicted by these mechanisms, there is a robust cross-sectional relationship between residential zoning regulations and housing prices (e.g., Quigley and Rosenthal 2005), and studies that either a) use panel data to control for time-invariant location-specific characteristics or b) instrument for residential zoning regulations also generally indicate that greater zoning regulation leads to higher housing prices (e.g., Zabel and Dalton 2011; Jackson 2016; Ihlanfeldt 2007; though see Glaeser and Ward 2009).

These studies suggest that residential zoning regulations have important implications for inequality in the accumulation of household wealth between homeowners and non-homeowners. Household wealth is an important dimension of social stratification: net of confounding variables like income and education, household wealth is positively associated with the cognitive skills and academic performance of offspring, labor market outcomes, transitions to homeownership and marriage, and health (e.g., Killewald et al. 2017). However, despite the importance of household wealth for many

outcomes of interest, and the plausible link between residential zoning regulations and household wealth, we still do not know whether–and if so, to what extent–residential zoning regulations affect inequality in household wealth.

In this paper, I will draw on several nationally-representative surveys of municipal-level residential land use regulations to examine the relationship between residential zoning regulations and inequality in household wealth. I will examine several mechanisms through which these regulations may increase wealth inequality: by causing greater wealth accumulation for homeowners who benefit from higher housing values, by causing slower wealth accumulation for non-homeowners via higher rental payments, and by causing slower wealth accumulation for non-homeowners via decreased likelihood of transitioning to homeownership. Finally, I will examine whether residential zoning regulations leads to increased Black-White wealth inequality.

Hypotheses

I expect residential zoning regulations to have differential effects on the accumulation of household wealth for homeowners than for non-homeowners. In the United States, homes are the greatest component of household wealth for all homeowners but the extremely wealthy; for families in the middle three wealth quintiles, their principal residence constitutes approximately 63% of household wealth (Wolff 2016). Thus, if residential zoning regulations in a municipality lead to increases in housing values in that municipality, then they should also lead to a substantial increase in wealth among homeowners living in that municipality.

> **Hypothesis #1**: Residential zoning regulations in a municipality will lead to greater increases in wealth for homeowners living in that municipality.

Conversely, that residential zoning regulations lead to increased housing values should also depress wealth accumulation for non-homeowners, for two reasons. First, higher housing values likely lead to higher rental prices for non-homeowners, which means that non-homeowners should spend more of their wealth on rent in areas with residential zoning restrictions. Second, higher housing values are likely to delay the transition of non-homeowners to homeownership. This should further depress wealth accumulation because owning a home is not just a store of wealth but a source of future wealth; for example, Killewald and Byran (2016) look at middle-aged households in 2008 and

estimate that each additional year of homeownership led to an increase in wealth of almost $7,000.

> **Hypothesis #2A**: Residential zoning regulations in a municipality will lead to higher rental prices for non-homeowners living in that municipality.

> **Hypothesis #2B**: Residential zoning regulations in a municipality will lead to non-homeowners having slower rates of transitioning to homeownership.

The net effect on differences in wealth accumulation between homeowners and non-homeowners is then:

> **Hypothesis #3**: Gaps in wealth accumulation between homeowners and non-homeowners will be wider in municipalities with residential zoning regulations.

Further, I expect that residential zoning regulations are likely to not just increase inequality in household wealth between homeowners and non-homeowners, but also between Black and White households. Because White households are much more likely than Black households to own rather than rent their homes (Sullivan et al. 2015), residential zoning regulations that increase housing prices are likely to disproportionately increase the wealth of White households. Further, to the extent that residential zoning regulations are borne out of exclusionary motives to keep Black families to move to predominantly White neighborhoods, White homeowners may be more likely to realize wealth gains from residential zoning regulations than Black homeowners.

> **Hypothesis #4**: Gaps in wealth accumulation between Whites and Blacks will be higher in municipalities with residential zoning regulations.

Data

To measure the extent of municipal-level residential zoning regulations, I have collected and harmonized three different nationally-representative surveys of the land use regulations of local governments: one that collected data in 1994 (Pendall 1995), one that collected data in 2003 (Pendall et al. 2006), and one that collected data in 2005 (Gyourko et al. 2008). This data provide longitudinal coverage to test for the effects of changes in residential land use regulations on changes in wealth accumulation among homeowners and non-homeowners. I have also been informed that both Rolf Pendall and Joseph Gyourko have each (separately) conducted follow-up surveys to their respective

2003 and 2005 surveys, and that data for each survey will be released late in 2018 or early in 2019–in time for use in analysis in a presentation at PAA in April 2019. These surveys will allow me to extend the longitudinal coverage of municipal-level residential zoning regulations from 1994 to the present day.

Each of these three surveys asked the planning director of each municipality (or another government official, if no planning director existed) questions about the existence of regulations on maximum permitted residential density (and, if such regulations exist, what the maximum density is), growth containment measures, impact fees for new development, building permit caps, affordable housing programs, local political pressure, and the average amount of time that it takes to approve new development. Though I expect that most of these regulations will have some effect on housing values, the primary measure of residential zoning regulations that I will investigate will be restrictions on maximum permitted residential density.

One drawback to using these nationally-representative surveys is that they suffer from varying degrees of non-response bias. While I follow Gyourko et al. (2008) by constructing weights that account for the probability that a municipality will not respond to a survey, so as to make these surveys nationally representative, I will also make use of an alternative panel dataset that has comprehensive information on land use regulations in California cities from 1970-1995. This data is compiled by Kristoffer Jackson (2016) from regulatory surveys administered in 1989 (Glickfield and Levine, 1992) and 1992 (Levine et al. 1996) about the dates at which California cities adopted thirteen residential land use regulations. This data covers over 99% of the land area of California, and over 99% of California's population in 1990. Figure 1 shows the number of California cities that adopted various residential land use regulations between 1970 and 1995. We see that, while all regulations became more common over time, our primary measure of interest–restrictions on maximum permitted residential density, in the legend as "reduce density"–saw an especially sharp wave of adoptions in California cities in the late 1980s and early 1990s.

To measure household wealth, I will use data from the Panel Study of Income Dynamics (PSID), a longitudinal, nationally-representative survey which began in 1968 with a sample of approximately 5,000 households, and has now expanded to a sample of 10,000 households. The PSID first asked respondents a module of questions assessing wealth in 1984, asked this module a again in 1989 and 1994, and then have asked about wealth in every PSID wave since 1999 (PSID Main Interview

User Manual 2017). The longitudinal nature of the PSID will allow me to observe changes in the value of respondents' home (and in their overall wealth, more generally) over time.[1] Linking PSID respondents to municipalities requires access to PSID's restricted use data, which contains detailed information on where respondents live. I have received approval from PSID to access their restricted use data and will gain access to the data within the next month.

Methods

I will answer Hypotheses #1, #3, and #4 using marginal structural models, which account for time-dependent confounding by extending the use of inverse probability of treatment weights (IPTW) to a dynamic context (Robins et al. 2000). Following Killewald and Bryan (2016), who themselves rely on the model of Wodtke et al. (2011), I will estimate the probability that an individual experiences a trajectory of homeownership statuses (which, for the sake of simplicity, can be considered to be 'not owning a home in a municipality without restrictions on maximum permitted residential density', 'not owning a home in a municipality with restrictions on maximum permitted residential density', 'owning a home in a municipality without restrictions on maximum permitted residential density', and 'owning a home in a municipality restrictions on maximum permitted residential density') as the product of annual conditional probabilities. Each annual conditional probability expresses the likelihood that the individual experiences their homeownership status, given their history of homeownership and other individual-, household-, and area-level traits that may serve as confounding variables. I will then use the inverse of the product of these annual conditional probabilities as regression weights, which will create a re-weighted sample in which a homeownership status in each year is independent of prior confounding variables.

I will first use this sample to test Hypothesis #1 (that zoning regulations increase homeowners' wealth) by estimating the causal effect of one year of homeownership in a municipality with restrictions on maximum permitted residential density on household wealth, as compared to homeownership in a municipality without restrictions on maximum permitted residential density. Next, to test Hypothesis #3 (that zoning regulations increase homeownership-based wealth gaps), I will

[1] One concern when relying on respondents' self-reports about their home values is that these reports are systematically biased in one direction and that these biases differ by the traits of the respondent. However, this error appears to be relatively small, in-line with other components of net worth (Pfeffer et al. 2016) and not strongly associated with respondents' traits (Goodman and Ittner 1992).

use this sample to estimate differences in the return to homeownership in a municipality with restrictions on maximum permitted residential density (as measured by the causal effect of one year of homeownership in such a municipality, compared to one year of non-homeownership in such a municipality), as compared to the return to homeownership in a municipality without restrictions on maximum permitted residential density (measured as above). Finally, to answer Hypothesis #4 (that zoning regulations increase Black-White wealth gaps), I will use the results of the first two tests to estimate household wealth trajectories in a counterfactual world without restrictions on maximum permitted residential density, and compare Black-White wealth inequality in the counterfactual world to that actually observed in the PSID data.

To measure exactly how residential zoning regulations may slow wealth accumulation for non-homeowners (Hypotheses #2a and #2b), I will perform two tests. First, taking the sample of non-homeowners, I will use a within-person fixed-effect regression analysis that predicts housing rental payments as a function of a variable indicating whether an individual lives in a municipality restrictions on maximum permitted residential density, as well as other individual-, household-, and area-level predictors. A positive coefficient on the indicator variable for living in a municipality with restrictions on maximum permitted residential density will provide support for Hypothesis #2a–that residential zoning regulations lead to higher rental payments for non-homeowners. Second, I will use an event-history model (e.g., Wu 2003) to predict the transition to homeownership for the subset of person-years in the data for which a respondent had previously not owned a home. The dependent variable in this model will be a variable indicating whether a respondent owns their home, and the independent variables in this model will be as in the model for Hypothesis #2a. As above, a positive coefficient on the indicator variable for living in a municipality with restrictions on maximum permitted residential density in this model will provide support for Hypothesis #2b–that residential zoning regulations lead to a decreased likelihood of transitioning to homeownership for non-homeowners.

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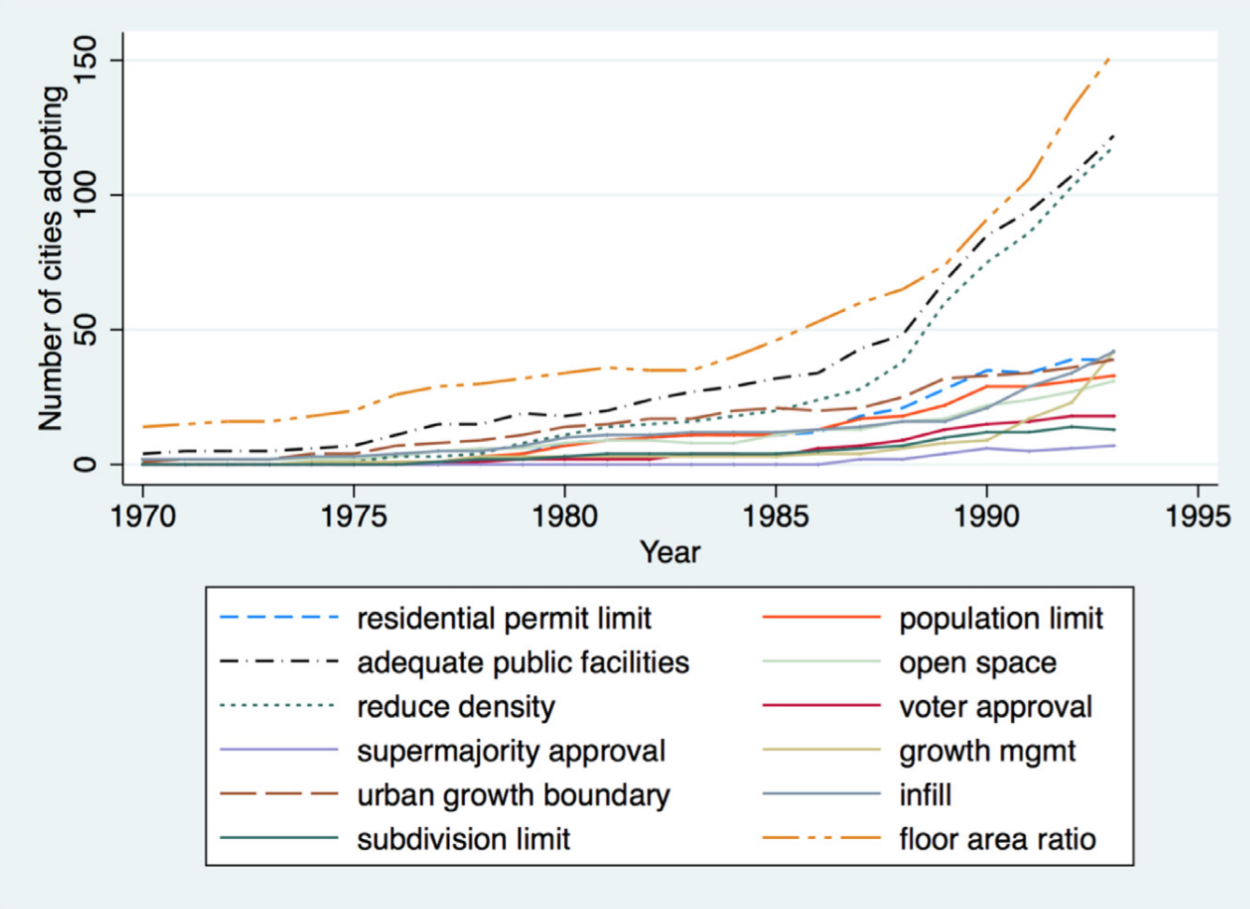
Figure 1: Number of California Cities Adopting Various Residential Land Use Regulations, 1970-1995



Source: Jackson (2016), figure 3. Data are drawn from two surveys (Glickfield and Levine 1992; Levine et al. 1996) of local land use authorities in 402 California cities.