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Increasing Access to Affordable Housing Opportunities in Silicon Valley

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Executive Summary

Just cause for evictions and rent control ordinances are two policy strategies that can be used to protect tenants from residential displacement. This study examines residential mobility patterns from 2002 to 2018 in four Silicon Valley cities that currently have just cause for evictions and/or rent control ordinances: East Palo Alto, Mountain View, San Jose, and Los Gatos. The analysis draws on two unique databases: the Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data—a large-scale, longitudinal consumer credit database—and a novel database of protected units based on Zillow assessment data and subsidized housing data from the California Housing Partnership Corporation. The main findings from these four cities are:

- **Rent control policies mitigate outmigration from neighborhoods.** Neighborhoods with greater shares of rent controlled units decrease the probability of moving out of one's neighborhood (census block group) after controlling for individuals' and neighborhood characteristics. These effects are stronger for renters and residents with low credit scores (measured by Equifax Risk Scores). The overall effects, however, are moderate, which is likely due to the limited analysis to the four cities, where tenant protection policies were only recently implemented or effectively strengthened in recent years.
- **Rent control policies can mitigate outmigration from neighborhoods under strong restrictions.** When we compare rates of residents moving out of their neighborhood between neighborhoods in the four cities with tenant protection policies to neighborhoods with similar characteristics in other Silicon Valley cities without protected units, we find that the passage or strengthening of policies mitigates outmigration in some cities. In neighborhoods in Los Gatos with rent control, outmigration rates were no longer higher than comparable neighborhoods without rent-controlled units after the passage of rent control policies in 2004. In Mountain View, outmigration rates were no longer substantially higher than comparable cities in the one year since tenant protection policies—both just cause and rent control—were passed in 2017. However, in San Jose, we do not observe mitigated outmigration associated with rent control, which was implemented in 1979 with relatively loose restrictions, and only recently amended in 2017.
- **Rent control policies mitigate downward mobility.** The destinations of financially disadvantaged renters from blocks with protected units have higher homeownership and median rents on average relative to similar residents moving from blocks without these protections. This suggests that the moves from blocks with protected units are planned and that tenant protections may be preventing displacement.

While a larger study focused on more places with and without tenant protection policies, including places where tenant protection policies have been available for a longer time following the passage of the policies, is necessary for a more robust analysis of the effectiveness of tenant protection policies, these findings offer evidence suggesting that rent control policies can be effective in mitigating residential mobility patterns that reflect displacement.

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Abstract

The ever-growing concern about gentrification and displacement has resulted in a wide range of policy and programmatic solutions. Yet, little research has assessed the effectiveness of anti-displacement strategies, making it difficult to prioritize solutions. This study explores how renter protections affect mobility trends. This study focuses on the four Silicon Valley cities that currently have just cause for evictions and rent control ordinances: East Palo Alto, Mountain View, San Jose, and Los Gatos. Using a variety of datasets, including that Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data (CCP), we examine how the presence of these ordinances affects mobility trends. We address four primary research questions: (1) How are outmigration rates of residents from neighborhoods related to the presence of tenant protection policies?; (2) How do outmigration rates from neighborhoods vary by household tenure, socioeconomic status, and policy?; (3) Where do people who leave neighborhoods with protected units move to?; and, (4) What is the effect of tenant protections on the likelihood of outmigration of residents from their neighborhoods? Results from this preliminary analysis suggest that rent control policies mitigate outmigration and downward mobility. The overall effects on outmigration, however, are moderate and likely due to the limited analysis to these four cities, where tenant protection policies were only recently implemented or effectively strengthened in recent years. When we compare outmigration among neighborhoods with tenant protection policies within each city to comparable neighborhoods, we find that the passage or strengthening of policies mitigates outmigration in some cities. When we examine the destinations of financially disadvantaged renters from blocks with and without units protected by just cause or rent control policies, we observe upward moves on average relative to similar residents moving from blocks without these protections, implying that tenant protections may be preventing displacement. A larger study focused on more places with and without tenant protection policies, including places where tenant protection policies have been available for a longer time following the passage of the policies, is necessary for a more robust analysis of the effectiveness of tenant protection policies.

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I. Background

The ever-growing concern about gentrification and displacement has resulted in a wide range of policy and programmatic solutions. Yet, little research has assessed the effectiveness of anti-displacement strategies, making it difficult to prioritize and pass politically sensitive solutions. Furthermore, baseline displacement information is scarce, making the monitoring and evaluation of the impacts of actions challenging.

Previous studies have attempted to examine displacement, but with limitations, and thus inconclusive results. Zuk et al. (2018) summarizes the displacement discussion that lacks evidence-based research to draw definitive conclusions about the relationship between gentrification, displacement, and the role of public investment. Two studies of the relationship between transit station proximity and change in low-income households found mixed effects depending on station location within the region (Boarnet et al., 2017; Chapple et al., 2017); these studies were both limited to rail transit. Although the Boarnet et al. study (2017) improved methodologies by looking at individual mobility, it drew upon a Franchise Tax Board dataset that may undercount low-income households. Chapple et al. (2017) did explicitly link transit investment to displacement, but lacked individual level mobility data. Thus, studies to date have not been able to examine the displacement impact, raising questions that may contribute to political conflict and impede the passage of legislation.

While tenant protection policies have been addressed in the economic literature, attention has been paid to the impact on tenancy mobility and landlords' propensity to remove controlled housing from the market. Recent works by Autor, Palmer, and Pathak (2014) and Diamond, McQuade, and Qian (2018) have examined the treatment effect of rent control on the housing stock, and found that rent control causes price pressure on controlled units, thus giving landlords an incentive of conversion to owner-occupied housing. In response to market price increases, landlords may demolish a vacant building or apply to convert the building to condominiums, both of which essentially transition the property to the non-controlled market. Several studies have explored the costs and benefits of rent control using the New York City Housing and Vacancy Survey, finding that renters with high rent control benefits are unlikely to move (Ault and Saba, 1990; Gyourko and Linneman, 1989; Simmons-Mosley and Malpezzi, 2006). However, these studies fail to isolate the impact of rent control by comparing the changes in household mobility over time between residents in cities with and without rent control.

This study seeks to fill this gap and advance anti-displacement policy-making by combining unique datasets of property data and proprietary credit data to better understand mobility patterns in Santa Clara and San Mateo communities and their association with the various tenant protections. By focusing on solutions, this report explores how renter protections affect mobility trends. We focus on the four Silicon Valley cities that currently have just cause for evictions and rent control ordinances: East Palo Alto, Mountain View, San Jose, and Los Gatos, and we examine how the presence of these ordinances affects mobility trends.

II. Tenant Protections in Silicon Valley cities

A. East Palo Alto

In 1988, East Palo Alto first adopted the Rent Stabilization and Eviction for Good Cause Ordinance (1988 RSO). The 1988 Ordinance covered both dwelling unit tenancies and mobile home park space tenancies. In 2010, the 1988 Ordinance was repealed regarding dwelling unit tenancies, but it still applies to mobile home park tenancies. With the adoption of the Rent Stabilization and Just Cause for Eviction Ordinance (2010 RSO), the city now regulates most residential tenancies, allowing annual rent increases by 80 percent of the increase in the prior year's Consumer Price Index for All Urban Consumers (CPI-U) in the Bay Area with the option to bank rent increases that are limited to 10 percent in any one year. The requirements of the Costa-Hawkins Act enacted by the state of California in 1995 have also been incorporated, including vacancy decontrol which has allowed landlords of rent-controlled units to establish the initial rent at the market rate for new tenants. The updates of rent control also include an interest allowance for amortized capital improvement expenditures for landlords. Under the 2010 ordinance, landlords are required to provide information on existing tenancies and notice of any new tenancy. For just cause for eviction, the city requires landlords to give tenants notice of an alleged violation of a lease and a reasonable opportunity to cure the violation before serving a three-day notice to evict. Additional rules have also limited owner move-in evictions and evictions for repairs. While these changes offered a stronger protection, the 2010 RSO puts burdens on administration and gathering information about regulated units and their rents.

In 2016, the city approved amendments to the 2010 RSO to clarify operational aspects and to simplify administrative processes. The 2016 amendments also include clearly defining maximum allowable rent, revising the registration fee, and allowing evictions based upon proven nuisances or hazards. Currently, landlords must file at the beginning of each year to register their units or claim exemption, and tenants have the right to file a petition if landlords fail to do so, increase rent above acceptable levels, or fail to maintain habitability. The City Council appoints a rent board to, among other functions, oversee such petitions. Landlords must submit notice, both to the tenant and the city, in case of eviction - with 120 days for removal from the rental market and three days for failure to pay. Relocation benefits do apply for demolition and removal from the market. While there are local legal aid providers for tenant petitions, the city ensures strict enforcement by playing an active role in landlord compliance.

Enforcement of these ordinances are generally strong in East Palo Alto, and tenants have a high awareness of the program due to the program's long duration and three annual mailers. The city has a database that conducts calculations that allow for automatic enforcement. Landlords are required to update this unit-by-unit data if rents increase. The city also has a rent registry, but it is not accessible digitally to the public.

B. Mountain View

In 2017, Mountain View adopted the Community Stabilization and Fair Rent Act that offers rent control and just cause for eviction. With regard to rent control, the allowed rent increase, formally known as the Annual General Adjustment (AGA), is set by the Rental Housing Committee, which is appointed by the city council, at no less than 2 percent and no more than 5 percent annually. The initial AGA for 2017 was 3.4 percent; it is currently 3.5 percent. A

bankable rent increase of 2.6 percent may be allowed for landlords of certain covered rental units that has complied with applicable requirements. To protect evictions, tenancies can only be terminated for certain conditions indicated in the ordinance. Temporary eviction for substantial renovations is also permissible, but tenants must receive the first right of return at comparable rates. The city also requires landlords and managers of multifamily rental units to register in order to facilitate appropriate implementation. As a result, 90 percent of all multifamily housing in the city is rent controlled, while the rest are new market-rate developments.

There is a tiered system for tenant petitions and the Rental Housing Committee is responsible for handling appeals. Landlords must inform new tenants if their units are subject to rent control and file copies of termination notices to both the city and tenant in case of eviction. Because the system is complaint based, the city does not proactively enforce the regulations. Also, awareness and enforcement have been relatively weak as protections are newly implemented. The city has recently begun sending mailers to every tenant covered by the program and offers an online resource where tenants can see if the property they rent falls under rent control.

C. San Jose

San Jose adopted the Rent Stabilization Ordinance for mobilehome parks and apartments in 1979. However, in 1985 the city council voted to divide this ordinance into two ordinances: the Mobilehome Rent Ordinance and the Apartment Rent Ordinance. The Apartment Rent Ordinance was updated in 2017. Before the update, the city used to allow an 8 percent increase and even a 21 percent increase if the previous increase was more than 24 months prior. The amendment of the Apartment Rent Ordinance lowered the allowable annual rent increase from 8 percent to 5 percent, though landlords may receive additional increases through a petition for capital improvements or fair return increase. Banking of rent increases, however, is not allowed. In 2018, the city amended the Apartment Rent Ordinance again to primarily improve timelines in both petition and hearing processes. In the case of the Mobilehome Rent Ordinance, it remained unchanged since 1985, allowing park owners to increase space rents with a minimum of 3 percent and a maximum of 7 percent, set by 75 percent of the increase in the prior year's Consumer Price Index for All Urban Consumers (CPI-U) in the Bay Area.

In 2017, the Tenant Protection Ordinance was enacted to protect tenants living in certain apartments from eviction. The Tenant Protection Ordinance requires landlords to provide tenants with a notice to vacate based on a list of just cause terminations. If serving a notice of eviction, landlords must inform the tenant of a program that offers tenant services. Landlords also must notify the city within three days specifying for which cause the tenant is being evicted. Relocation benefits must be paid to the tenant for reasons based on landlord decision or consequence of action. There is also a tenant right of return for temporary eviction due to substantial rehabilitation. Despite such efforts, the city received 10,000 eviction notices between 2017 and 2018, which was much higher in number than expected. In 2018, the city amended the Tenant Protection Ordinance to require landlords not to disclose or threaten to disclose tenants' immigration or citizenship status to authorities for the intent of retaliation.

There is no rent board in San Jose, but an advisory committee gives recommendations on rent control revisions, while the mayor and city council approve policy updates. A recently launched rental registry receives eviction notices from landlords, and an online map shows the units that are subject to both the Apartment Rent Ordinance and Mobilehome Rent Ordinance.

Similar to East Palo Alto, San Jose has an automatic enforcement mechanism through a rent database. However, enforcement hasn't been strong as the process is largely petition and complaint based. Furthermore, one major development goal in San Jose is to build near transit, which raises the question of where rent-controlled units will be demolished and taken off the market.

D. Los Gatos

Los Gatos has no just cause for eviction in place, but in 2004, it did adopt the Rental Dispute Mediation and Arbitration Ordinance, which has some functions of rent control. The ordinance offers counseling and information services to both tenants and landlords in all rental housing dispute situations through the Rental Dispute Program. For rent control, an annual maximum increase of either 5 percent or 70 percent of the applicable Consumer Price Index (CPI) is allowed, whichever is greater. If a landlord seeks to apply an annual rent increase beyond the 5 percent level, the requested increase must be justified with increases in operations and maintenance expenses or debt service on the property. Enforcement and policy design are weak overall, and the policy requires a minimum tenant number, at least 25 percent of the affected tenants, in order to come into effect. Arbitration and mediation services are also available to both tenants and landlords.

E. Summary of Policies by City

Table 1 provides a summary table of the policies in each city and relevant timelines. Table 2 displays the number of units that we estimate are covered by tenant protection policies in each city based on our database of tenant protected units described in more detail below. Figure 1 displays the share of total housing units that are covered by these policies. While nearly all units in East Palo Alto are covered by some protection, less than 15 percent of units are protected by at least one of the policies in San Jose and Los Gatos. In Mountain View, over 40 percent of units are protected. Nearly all protected units in Mountain View and San Jose are covered by both policies, while Los Gatos only contains the Rental Dispute Program (hereafter, rent control) and only about one-third of units in East Palo Alto are covered by both policies.

Table 1. Summary of Policy Timelines by City

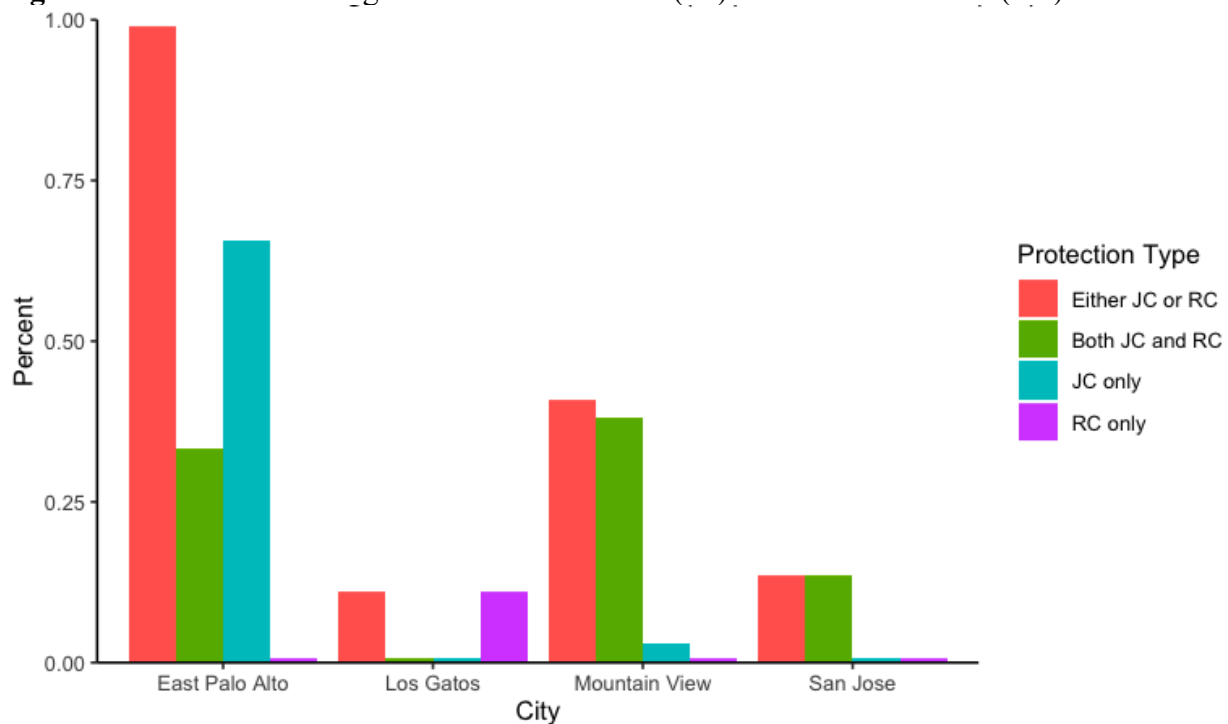
| | Just Cause for Evictions | Rent Control |
|----------------|---|---|
| East Palo Alto | Adopted in 1988; Amended in 2010 and 2016 | Adopted in 1988; Amended in 2010 and 2016 |
| Mountain View | Adopted in 2017 | Adopted in 2017 |
| San Jose | Adopted in 2017 | Adoped in 1979; Amended in 2017 |
| Los Gatos | No policy | Adopted in 2004 |

Table 2. Units with Tenant Protections by City

| | Just Cause and Rent Control | Just Cause only | Rent Control only | No Just Cause or Rent Control | Total Units |
|----------------|--------------------------------|--------------------|----------------------|----------------------------------|-------------|
| East Palo Alto | 2,342 | 4,628 | - | 80 | 7,050 |
| Mountain View | 13,617 | 1,031 | - | 21,155 | 35,803 |
| San Jose | 45,283 | - | - | 288,304 | 333,587 |
| Los Gatos | - | - | 2,062 | 16,571 | 18,633 |

Source: Zillow Assessment Records and California Housing Partnership Corporation subsidized housing data, 2014-2015

Figure 1. Percent of Housing Units with Just Cause (JC) and/or Rent Control (RC) Protections



Source: Zillow Assessment Records and California Housing Partnership Corporation subsidized housing data, 2014-2015

III. Research Design

A. Research Questions

This study addresses four primary research questions: (1) How are outmigration rates of residents from neighborhoods related to the presence of tenant protection policies?; (2) How do outmigration rates from neighborhoods vary by household tenure, socioeconomic status, and policy?; (3) Where do people who leave neighborhoods with protected units move to?; and, (4) What is the effect of tenant protections on the likelihood of outmigration of residents from their neighborhoods? Focusing on Santa Clara and San Mateo counties, we compare outmigration

patterns—both the rate at which residents move out of their neighborhoods (census block groups) and where movers go—between cities that have just cause for evictions and/or rent control ordinances and other Silicon Valley cities. We also compare blocks in cities with tenant protections with comparable blocks in terms of demographic, socioeconomic, and housing characteristics in cities without any protections. For East Palo Alto, in which both rent control and just cause for eviction have been implemented since 1988, we assess the impact of just cause for eviction separately. Finally, we estimate a linear probability model predicting outmigration from one’s neighborhood to capture the effects of just cause for eviction and rent control particularly for renters and residents with low Equifax Risk Scores.

B. Data and Methods

i. Tenant Protection Data

Data on tenant protections was built by quantifying tenant protection ordinances using Zillow assessment data and subsidized housing data from the California Housing Partnership Corporation (CHPC). Zillow assessment data offers counties’ assessor information at the parcel level. With information from Zillow between 2014 and 2015, including tenure, year built, and land use, we quantify the number of units in the Silicon Valley cities that are both subject to and exempted from just cause for eviction and rent control based on review of tenant protection ordinances by city. Then we estimate the number of units that are covered by just cause for eviction and rent control by subtracting the number of subsidized units. Receiving quarterly updates from the Regional HUD office, CHPC maintains data on properties with HUD subsidized mortgages and/or Section 8 contracts, USDA Section 514 and 515 rural properties, and properties with Low Income Housing Tax Credits. We use tenant protection data provided by each city (East Palo Alto, Mountain View, San Jose, and Los Gatos) as a benchmark to calibrate our estimates in other cities.

ii. Residential Mobility Data

Data on residential mobility come from a unique, large-scale consumer credit database—the Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data (CCP). The data range from 2002 to 2018. The data made available to researchers do not include identifying information, such as social security numbers, names, or addresses but do include quarterly information on individuals’ census blocks; year of birth; Equifax Risk Score (i.e., credit scores); and the quantity, balance, and payment activity of mortgages and other credit accounts for an anonymized 5% random sample of consumers over 18 years old who have Social Security numbers and a credit history. Similar information is also provided for all other adult consumers in the same household, based on their residential address. The sampling universe includes consumers with at least one credit account or collection/public record, such as bankruptcy or foreclosure, as well as anyone with closed or authorized user accounts (Lee and van der Klaauw 2010). Thus, although Wherry and colleagues (2019) estimate that 45 million adults in the U.S. do not have a credit score, nearly half of these individuals are represented in our data (Brevoort et al. 2016). Because the sample is designed to be a nationally representative sample of

consumers in a given quarter, about 1 to 3 percent of consumers are dropped and a similar share added to the panel each year.

In our analysis, we examine mobility patterns across the entire sample and separately consider renters and financially disadvantaged renters. We use household mortgage status to proxy if individuals are renters. While homeowners may not have a current mortgage on their property, in the San Francisco Bay Area, homeownership levels from the American Community Survey data (57.4% in 2009) were similar to the share of households in the CCP data with a mortgage (53.6% in 2009). We consider an individual to be financially disadvantaged if they have an Equifax Risk Score below 580 or if they have a missing score. The Equifax Risk Score ranges from 280 to 850 and is a proprietary credit score that estimates the likelihood that an individual will pay his or her debts without defaulting. Higher scores indicate greater financial health and stability, and credit scores have important implications for opportunities in the housing market as landlords use credit scores for screening tenants and lenders use them for determining mortgage products to offer. Credit bureaus do not factor income or wealth into calculating credit scores, but other studies show they correlate highly with these factors (Bostic, Calem, and Wachter 2005; Brevoort et al. 2016). Nonetheless, they capture a distinct dimension of socioeconomic status that reflects financial stability. Other research has found that compared to income, credit scores are better predictors of foreclosures (Mester 1997). The score 580 is commonly used in credit underwriting. For example, the Federal Housing Administration uses this score for low down-payment products (see <http://archives.hud.gov/news/2010/pr10-016.cfm>). Missing scores for individuals within the sample indicate a “thin” file—a file containing very few accounts or new credit such that there is too little information to estimate a score—and are often associated with financial disadvantage (Brevoort et al. 2016).

While the CCP data provide rich temporal and geographic information, they do not contain information on race, ethnicity, or income and exclude those lacking credit or a credit history, which may underrepresent younger individuals, noncitizens or undocumented immigrants, and extremely poor individuals. The Consumer Financial Protection Bureau estimates one in 10 adults in U.S. do not have a credit history (Brevoort et al. 2016), with low-socioeconomic status (SES) and minority residents overrepresented among this group. Our ability to assess mobility among people experiencing homelessness and those who are severely residentially unstable is also limited as their address data is likely inconsistent or misreported. Further, we are not able to match individual residents to specific housing units; therefore, we do not know if an individual lives in a protected unit. Despite limitations, the CCP data is currently unparalleled by alternate sources of data for examining residential mobility patterns because it contains detailed geographical information over frequent time intervals in recent years, over a relatively long time period, and for a very large number of people.

iii. Comparable Cities

We identified comparable cities to the cities that we focus on in this study to compare outmigration trends. To identify comparable cities, we selected cities that are similar to those with tenant protection policies—East Palo Alto, Mountain View, San Jose, and Los Gatos—in terms of eight demographic, socioeconomic, and housing characteristics at the census-designated place level using data from the 2000 U.S. Census: (1) total population, (2) percentage of non-Hispanic whites, (3) percentage of college-graduated, (4) median household income, (5) percentage of renter-occupied units, (6) percentage of multifamily housing (three or more units),

(7) median value, and (8) median gross rent. We divide all census-designated places in the Bay Area into 25 groups based on the distribution of each characteristic, and calculate the number of characteristics under which the census-designated place falls into the same or nearby group to each city with tenant protections. Finally, cities with five or more similar characteristics are defined as comparable cities. For East Palo Alto, San Pablo city is selected; for Mountain View, Sunnyvale city, San Mateo city, Santa Clara city, and Strawberry CDP are selected; for Los Gatos, Menlo Park city and San Carlos city are selected. For San Jose, because there are no cities that have five or more similarities, cities with four similar characteristics, Fremont city and Millbrae city, are selected. Table 3 presents the characteristics of each of the cities that we focus on in this analysis and their comparable cities.

Table 3. Summary Characteristics of Cities

| | | % White (non- Hispanic) | % College- graduated | Median household income | % Renter- occupied units | % Multifamily housing (3 or more units) | Median value | Median gross rent |
|-----------------------|---------|-------------------------------|-------------------------|-------------------------------|--------------------------------|---|-----------------|----------------------|
| East Palo Alto | 29,450 | 6.00% | 10.60% | \$45,006 | 56.70% | 39.40% | \$302,100 | \$854 |
| San Pablo | 30,121 | 16.10% | 10.40% | \$37,184 | 50.20% | 35.80% | \$146,100 | \$687 |
| Mountain View | 70,467 | 54.90% | 55.30% | \$69,362 | 58.60% | 54.20% | \$546,900 | \$1,222 |
| San Mateo | 92,372 | 56.30% | 38.60% | \$64,757 | 46.10% | 41.60% | \$477,300 | \$1,168 |
| Santa Clara | 102,104 | 48.10% | 42.40% | \$69,466 | 53.90% | 43.80% | \$396,500 | \$1,238 |
| Strawberry | 5,354 | 80.20% | 62.30% | \$70,432 | 56.30% | 47.70% | \$737,300 | \$1,122 |
| Sunnyvale | 131,905 | 46.70% | 50.80% | \$74,409 | 52.40% | 44.50% | \$495,200 | \$1,270 |
| San Jose | 893,889 | 35.80% | 31.60% | \$70,243 | 38.20% | 26.80% | \$394,000 | \$1,123 |
| Fremont | 203,413 | 41.30% | 43.20% | \$76,579 | 35.50% | 28.00% | \$363,400 | \$1,196 |
| Millbrae | 20,727 | 56.40% | 33.80% | \$68,404 | 35.90% | 28.40% | \$552,500 | \$1,161 |
| Los Gatos | 28,683 | 82.40% | 58.90% | \$94,319 | 34.60% | 25.60% | \$784,600 | \$1,331 |
| Menlo Park | 30,786 | 66.30% | 61.70% | \$84,609 | 43.00% | 36.60% | \$778,500 | \$1,319 |
| San Carlos | 27,697 | 79.90% | 49.80% | \$88,460 | 26.90% | 23.30% | \$626,400 | \$1,181 |

Source: Census 2000

iv. Comparable Neighborhoods

Even when a city has tenant protection ordinances, not all areas of the city are affected equally since different types of units qualify for protections. To assess the effect of tenant protection policies based on the neighborhoods which have units covered by them, we identified comparable census block groups to those in the neighborhoods within the cities that we focus on in this study to compare outmigration trends. Census blocks represent a polygon of streets, typically four street segments, and the housing units contained in them. They are nested within census block groups. Census block groups, which we interchangeably refer to as neighborhoods in this report, contain about 600 to 3,000 people and are the smallest aggregation of demographic and housing data publicly available. Census block groups contain about 39 blocks on average.

To identify control groups for neighborhoods, we select block groups within San Mateo and Santa Clara counties that are similar to block groups with units covered by either just cause for eviction or rent control, relying on data from the 2000 U.S. Census at the block group level. We considered 11 block-group characteristics: (1) percentage of non-Hispanic whites, (2)

percentage of Hispanic, (3) percentage of college-graduated, (4) percentage of linguistically isolated, (5) median household income, (6) poverty rate, (7) percentage of renter-occupied units, (8) percentage of multifamily housing (three or more units), (9) median value, (10) median gross rent, and (11) vacancy rate. For each characteristic, we calculate the 25th and 75th percentile range of block groups that are associated with each city with tenant protections. For those in each city with each kind of policy, control groups are determined if the block group is not located in cities with tenant protections, has at least one housing unit, and has six or more characteristics that fall into the 25th and 75th percentile range of block groups for each city. We defined control groups for policies that have been in place before 2002 (e.g. just cause for eviction and rent control in East Palo Alto and rent control in San Jose) or that have been implemented during our analysis period (e.g. rent control in Los Gatos), in order to explore outmigration patterns related to the presence of tenant protection policies. Table 4 summarizes the number of block groups with and without units with tenant protections in each respective city and the total number of control block groups used in our analysis.

Table 4. Comparable Neighborhoods by Policy and City

| | |
|---|-------|
| Total block groups | 1,452 |
| <i>Just Cause (JC) in East Palo Alto</i> | |
| Block groups with JC units in East Palo Alto | 14 |
| Block groups without JC units in East Palo Alto | 0 |
| Control block groups | 35 |
| Other block groups | 1,403 |
| <i>Rent Control (RC) in East Palo Alto</i> | |
| Block groups with RC units in East Palo Alto | 10 |
| Block groups without RC units in East Palo Alto | 4 |
| Control block groups | 27 |
| Other block groups | 1,411 |
| <i>Rent Control (RC) in San Jose</i> | |
| Block groups with RC units in San Jose | 264 |
| Block groups without RC units in San Jose | 284 |
| Control block groups | 291 |
| Other block groups | 613 |
| <i>Rent Control (RC) in Los Gatos</i> | |
| Block groups with RC units in Los Gatos | 20 |
| Block groups without RC units in Los Gatos | 29 |
| Control block groups | 156 |
| Other block groups | 1,247 |

Source: Census 2000; Zillow Assessment Records, California Housing Partnership Corporation subsidized housing data, 2014-2015

v. Additional Analysis

After comparing outmigration trends in similar cities and block groups, we estimate a linear probability model predicting whether an individual in the four cities moves out of their block group based on the degree to which there are units with tenant protections in their block group. For each year, we include in the model an indicator for whether the city has a just cause ordinance in place and an indicator for whether the city has a rent control ordinance in place. Our main independent variables are the percent of units in a block protected by just cause policies and the percent of units in a block protected by rent control. In the years in which the policies are not implemented in the respective cities, this percentage is zero. We control for a basic set of observed individual and block group characteristics that may affect one's likelihood of moving. These control variables include the individual's age, their household's mortgage status, whether they have a low or missing Equifax Risk Score, and several block group characteristics, including population, share of non-Hispanic whites, share of Hispanics, poverty rate, share of college-educated residents, vacancy rate, and percent of units that are renter-occupied. For block group characteristics, we assigned data from the 2000 U.S. Census to cohorts of individuals between 2002 and 2005, the 2006-2010 American Community Survey 5-year estimates to the 2006-2012 cohorts, and the 2013-2017 American Community Survey 5-year estimates to the 2013-2017 cohorts. Finally, we account for time trends by including control variables for each yearly cohort of individuals in the dataset. We further test if just cause and rent control ordinances are affecting outmigration differently among renters and low-score residents compared with homeowners and higher-score residents. We test this by including interaction terms in subsequent models between the percent of units protected by the policies and the renter and low-score resident indicators.

We also assess the effectiveness of just cause ordinances without rent control policies by comparing outmigration trends in blocks in East Palo Alto with units protected by both just cause and rent control policies and blocks in East Palo Alto with units that are only protected by just cause policies. Finally, we compare the destinations of low-score movers from blocks with tenant protections and other blocks without them within the same city.

IV. Tenant Protections and Household Mobility

A. Trends in Tenant Protections and Household Mobility by City

Table 5 provides descriptive statistics of the average block group characteristics for blocks in each city with each type of policy based on data from the 2000 U.S. Census and the 2013-2017 (hereafter, 2017) American Community Survey 5-year estimates. The table provides average block group, or neighborhood, characteristics for all blocks in each city, as well as for blocks containing units with various combinations of tenant protections.

In East Palo Alto, where just cause and rent control ordinances have been in place since 1988 and were amended in 2010 and 2016, the share of whites did not change substantially from

2000 to 2017.² However, the city experienced increases in socioeconomic indicators, such as the share of college-educated residents and median household incomes as well as large increases in housing prices for both median home values and median rents. The overall share of renter-occupied units also increased over time. Blocks with units with both rent control and just cause for evictions tenant protections compared to those without rent control have much higher rates of renter-occupancy and more multifamily housing. These blocks tend to be in block groups with greater shares of whites and college-educated residents, but they also have higher poverty rates, lower household incomes, and a higher share of linguistically isolated households. Notably, median rents in these block groups are lower, but median housing values are higher than in blocks without rent control. These trends likely reflect the effects of the presence of rent controlled units keeping low-income and poor households on the block with low rents, while other units are more expensive and are occupied by higher-socioeconomic status residents. We do not observe substantially different changes over time in block group characteristics between blocks with and without rent-controlled units.

We observe similar overall trends in Mountain View, where tenant protection ordinances were not implemented until 2017, and San Jose, where just cause ordinances were only implemented in 2017. Although San Jose has had a rent control ordinance since 1979, it was recently amended in 2017, lowering the rent cap to 5 percent. Prior to the amendment, the rent cap was 8 percent but also allowed rent increases up to 21 percent if the previous increase was more than 24 months earlier. Thus, the weaker tenant protections prior to 2017 may explain these trends. In both cities, the shares of non-Hispanic whites declined, while the shares of college-educated residents increased. Median household incomes and housing prices increased substantially, but there was little change in homeownership rates or multiunit housing. Blocks with tenant protections began the period with fewer shares of whites than blocks without protections, and they had lower incomes and housing prices. Thus, although the policies were implemented relatively recently, blocks that had more units that were eligible for tenant protections, which are often older multifamily apartments, tended to have residents with lower-socioeconomic status (SES) and more affordable housing. Changes over time are similar between blocks with and without protections in these cities.

Los Gatos, which implemented rent control in 2004, exhibited similar overall trends to Mountain View and San Jose. When comparing neighborhood characteristics of blocks with units with rent control and those without it, racial and ethnic compositions are similar, as well as the share of college-educated residents and poverty rates. However, median household incomes are lower in blocks with rent-controlled units, and the share of renter-occupied units and multifamily units is much higher. Like East Palo, median gross rent is lower in blocks with rent control, while median home values are higher.

Figure 2 presents outmigration rates—the percent of residents who move—over time across the city for all residents and renters. Within each city, our dataset contains about 700 (East Palo Alto), 2,650 (Mountain View), 31,000 (San Jose), and 1,100 (Los Gatos) residents. We consider a resident to have moved if they changed census block groups in the following year. While the CCP data provide quarterly information, we assess one-year intervals for mobility in case of lagged reporting for addresses. Data for 2004 are not included in the results because the

² We list percent non-Hispanic white for brevity. In East Palo Alto, minorities are predominantly Hispanic but are both Asian and Hispanic in other cities. East Palo Alto also has a larger share of blacks than the other cities.

geographic data are not consistent across the year due to changes in geocoding procedures by the data vendor in that year.

Figure 2a shows that for the entire sample mobility rates generally lie between 10 and 20 percent. These rates were higher during the Recession years and have declined across all cities. Notably, Mountain View has substantially higher mobility rates than the other cities, and East Palo Alto has lower mobility rates than other cities in recent years. Among renters, shown in Figure 2b, mobility rates are substantially higher compared to the entire sample, which is expected for renters, but they follow similar trends over time as compared to all residents.

Table 5. Average Block Group Characteristics for Blocks in Each City by Tenant Protection Policies

| East Palo Alto | <u>2000</u> | | | <u>2017</u> | | |
|---------------------------|-------------|-----------|-----------|-------------|-----------|-----------|
| | JC+RC | JC Only | All | JC+RC | JC Only | All |
| % non-Hispanic White | 8% | 4% | 6% | 9% | 6% | 7% |
| % Linguistically Isolated | 18% | 12% | 14% | 16% | 8% | 11% |
| % College-Educated | 12% | 8% | 10% | 19% | 16% | 17% |
| Poverty Rate | 17% | 14% | 15% | 15% | 12% | 13% |
| Median Household Income | \$65,838 | \$74,752 | \$71,504 | \$81,815 | \$94,758 | \$90,043 |
| % Renter-Occupied | 60% | 36% | 45% | 67% | 46% | 54% |
| % Multifamily (5 or more) | 39% | 10% | 21% | 39% | 10% | 21% |
| Median Gross Rent | \$1,231 | \$1,436 | \$1,360 | \$2,092 | \$2,513 | \$2,342 |
| Median Value | \$443,555 | \$424,829 | \$431,650 | \$775,894 | \$736,306 | \$748,702 |
| N | 51 | 89 | 140 | 51 | 89 | 140 |

| Mountain View | <u>2000</u> | | | <u>2017</u> | | |
|---------------------------|-------------|-----------|-----------|-------------|-------------|-------------|
| | JC+RC | No JC/RC | All | JC+RC | No JC/RC | All |
| % non-Hispanic White | 55% | 64% | 61% | 45% | 53% | 50% |
| % Linguistically Isolated | 9% | 7% | 8% | 7% | 5% | 6% |
| % College-Educated | 54% | 57% | 56% | 65% | 71% | 69% |
| Poverty Rate | 7% | 4% | 5% | 7% | 5% | 6% |
| Median Household Income | \$97,433 | \$121,688 | \$97,433 | \$152,460 | \$189,069 | \$175,407 |
| % Renter-Occupied | 64% | 37% | 47% | 63% | 34% | 45% |
| % Multifamily (5 or more) | 44% | 24% | 32% | 44% | 21% | 30% |
| Median Gross Rent | \$1,701 | \$1,935 | \$1,701 | \$2,629 | \$2,926 | \$2,810 |
| Median Value | \$690,685 | \$809,856 | \$690,685 | \$1,310,043 | \$1,597,306 | \$1,492,252 |
| N | 202 | 351 | 560 | 202 | 351 | 560 |

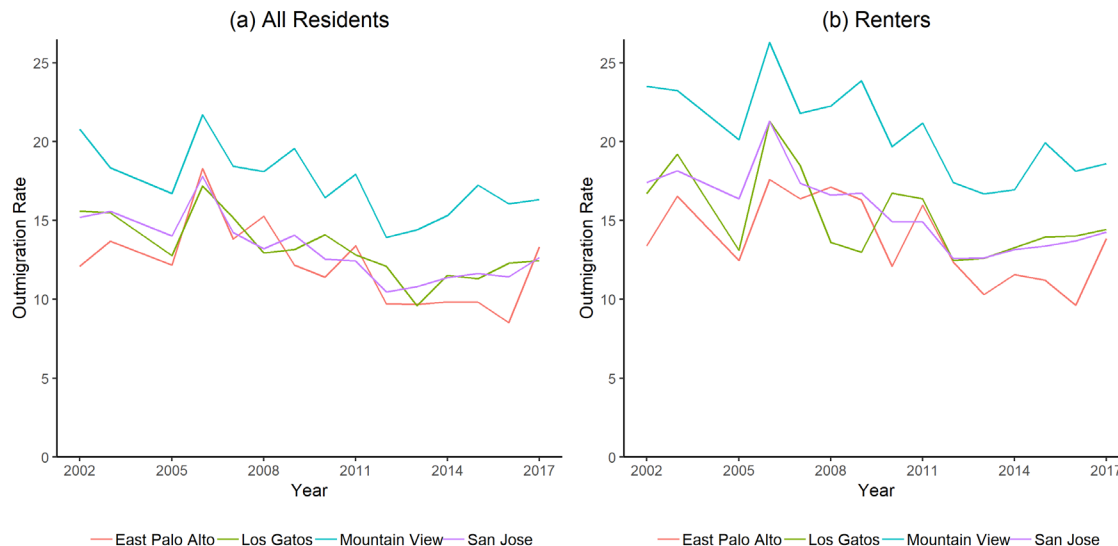
| Los Gatos | <u>2000</u> | | | <u>2017</u> | | |
|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | RC | No RC | All | RC | No RC | All |
| % non-Hispanic White | 84% | 83% | 83% | 75% | 75% | 75% |
| % Linguistically Isolated | 2% | 2% | 2% | 2% | 2% | 2% |
| % College-Educated | 59% | 60% | 60% | 66% | 68% | 68% |
| Poverty Rate | 5% | 4% | 4% | 5% | 3% | 4% |
| Median Household Income | \$123,680 | \$157,681 | \$154,469 | \$173,686 | \$210,702 | \$207,202 |
| % Renter-Occupied | 47% | 23% | 25% | 46% | 22% | 24% |
| % Multifamily (5 or more) | 27% | 10% | 12% | 25% | 9% | 10% |
| Median Gross Rent | \$1,773 | \$2,029 | \$2,003 | \$2,594 | \$2,812 | \$2,787 |
| Median Value | \$1,154,884 | \$1,071,679 | \$1,079,536 | \$1,884,548 | \$1,765,352 | \$1,776,633 |
| N | 73 | 700 | 773 | 73 | 700 | 773 |

| San Jose | <u>2000</u> | | | <u>2017</u> | | |
|---------------------------|-------------|-----------|-----------|-------------|-----------|-----------|
| | JC+RC | No JC/RC | All | JC+RC | No JC/RC | All |
| % non-Hispanic White | 35% | 45% | 44% | 29% | 34% | 33% |
| % Linguistically Isolated | 16% | 10% | 11% | 15% | 11% | 11% |
| % College-Educated | 26% | 34% | 33% | 37% | 45% | 44% |
| Poverty Rate | 14% | 7% | 8% | 15% | 8% | 9% |
| Median Household Income | \$76,653 | \$113,151 | \$108,727 | \$104,136 | \$150,480 | \$144,921 |
| % Renter-Occupied | 60% | 28% | 32% | 61% | 30% | 34% |
| % Multifamily (5 or more) | 32% | 11% | 13% | 35% | 12% | 15% |
| Median Gross Rent | \$1,444 | \$1,921 | \$1,863 | \$2,107 | \$2,766 | \$2,679 |
| Median Value | \$496,774 | \$587,206 | \$576,247 | \$846,942 | \$978,589 | \$963,418 |
| N | 918 | 6,658 | 7,576 | 918 | 6,658 | 7,576 |

Note: All dollar values are adjusted to 2017 dollars.

Source: Census 2000; ACS 2017 5-Year Estimates; Zillow Assessment Records and California Housing Partnership Corporation subsidized housing data, 2014-2015.

Figure 2. Outmigration Rates for Each City for (a) All Residents and (b) Renters.



Source: FRBNY Consumer Credit Panel/Equifax Data

B. Comparing Cities

In this section, we compare the outmigration trends in comparable cities based on our analysis of demographic and housing characteristics described earlier for the three samples of residents. Figures 3 and 4 plot outmigration rates for the overall sample and renters, respectively, in each of the four cities and in each of the control cities. In East Palo Alto, outmigration rates for all residents (Figure 3a) were similar to its comparison city, San Pablo, throughout the period, and these patterns are consistent for renters (Figure 4a). While the rates appear lower in the latter half of the period, these differences are not statistically significant. We may not observe any differences between the overall migration trends in these two cities because we include residents who do not live in blocks with tenant protections in calculating the migration rates for the overall city. It is possible that East Palo Alto has higher outmigration rates among households that are not protected by tenant protection policies due to distinct characteristics about East Palo Alto compared to San Pablo, while those who have protections may have lower rates. We examine this possibility in the next section of this report.

In Mountain View, which did not pass any tenant protection policies until 2017, the outmigration rates are significantly higher than its comparable cities for all residents (Figure 3b) and renters (Figure 4b). Prior to the passage of these ordinances, Mountain View had a larger number of demolitions, losing 842 rental units, which were replaced with a much larger number of new market rate rental units (6,326 were added), which may explain the relatively higher rates of outmigration in Mountain View relative to its comparable cities.³ These trends also indicate that the tenant protection policies in Mountain View may have been necessary for many years. In 2017, when the new policies were passed, outmigration rates in Mountain View for all residents and renters were no longer statistically different from its comparable cities, except for San

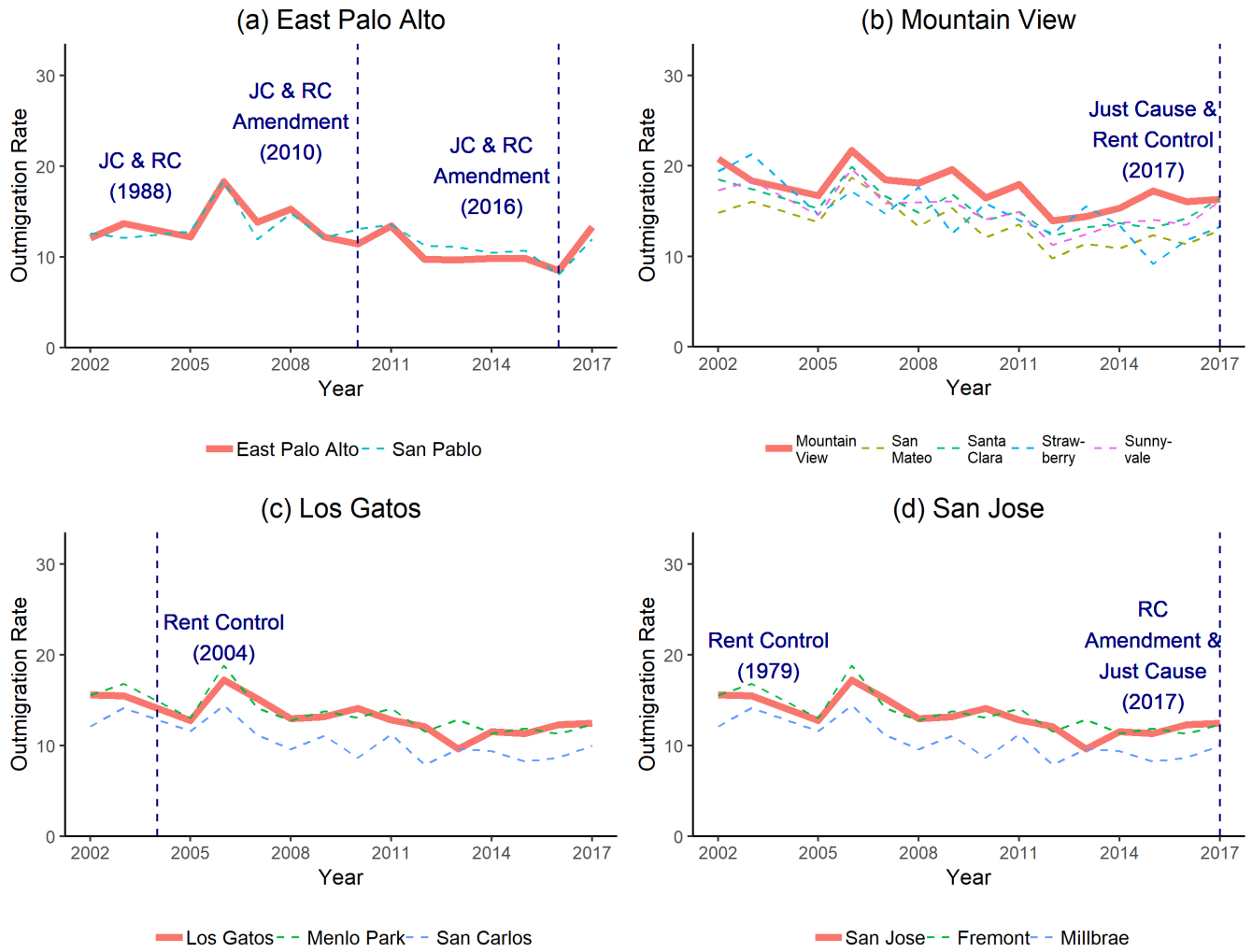
³ We removed Strawberry CDP from the analysis due to the small sample of low-score *renters* in the CCP data.

Mateo, which has consistently lower outmigration rates. Although we can only observe one year following the passage of the policy in our data, these results suggest that these policies may have been effective in mitigating displacement among renters.

Los Gatos, which implemented rent control in 2004, has similar outmigration trends with one of its comparable cities—Menlo Park—for all residents but higher outmigration rates compared to San Carlos, its other comparable city for the entire period (Figure 3c). Among renters, however, the rates are not statistically different from both of its comparable cities except for in 2010 and 2016 (Figure 4c). When we restrict the analysis to renters, however, the outmigration rates are similar in Los Gatos to both comparable cities except in 2010 (Figure 5c). We do not observe any notable differences in the overall outmigration rates for the entire cities with the passage of rent control policies. As in East Palo Alto, we may not be observing any differences because this analysis includes residents that do not necessarily live in blocks with rent-controlled units. Thus, we separately analyze neighborhoods by policy protections in the next section of the report.

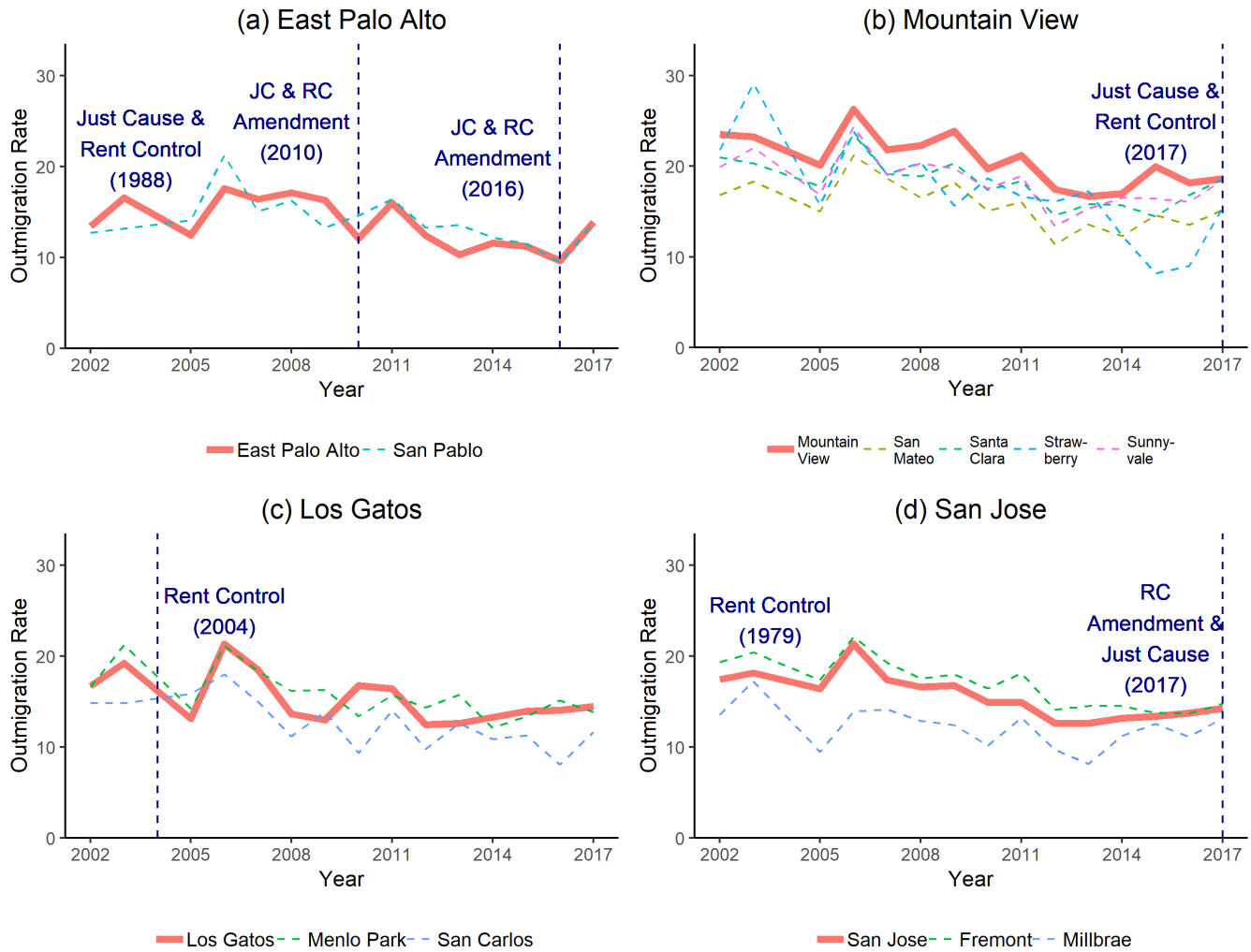
Lastly, in San Jose, where rent control has been in place since 1979 but just cause was not implemented until 2017 and the rent control ordinance was amended in 2017, outmigration rates are generally similar to one of its comparable cities—Fremont—but are higher than outmigration rates in Millbrae for all residents (Figure 3d). Among renters, however, San Jose has significantly lower outmigration rates than Fremont in the years following the Recession (2010-2014) but still has higher rates than Millbrae throughout most of the period (Figure 4d), suggesting that the rent control policies in San Jose prior to the 2017 amendment were less effective. In 2017, when San Jose passed just cause ordinances and amended the rent control caps, outmigration rates were no longer statistically different between San Jose and Millbrae for all residents, but, rather than slowing down outmigration in San Jose, this shift reflects an increase in outmigration in Millbrae. Nonetheless, it is likely that we will need to assess outmigration in these cities for a longer time period beyond 2017 to see any effects of the new policies on outmigration in San Jose.

Figure 3. Comparison of Outmigration Rates for All CCP Residents in (a) East Palo Alto; (b) Mountain View; (c) Los Gatos; and (d) San Jose and Comparable Cities



Source: FRBNY Consumer Credit Panel/Equifax Data

Figure 4. Comparison of Outmigration Rates for CCP Renters in (a) East Palo Alto; (b) Mountain View; (c) Los Gatos; and (d) San Jose and Comparable Cities



Source: FRBNY Consumer Credit Panel/Equifax Data

C. Comparing Neighborhoods

Next, we compare neighborhood characteristics and outmigration trends in comparable block groups for each policy—just cause or rent control—in the cities in which they have been enacted during the period of analysis. Therefore, we examine just cause and rent control policies in East Palo Alto and rent control policies in San Jose and Los Gatos. Table 6 presents average block group characteristics in East Palo Alto for block groups containing units protected by just cause for eviction, which was amended in both 2010 and 2016, and comparable block groups in San Mateo and Santa Clara Counties based on the criteria described earlier. The table shows that the control block groups began the period with higher shares of non-Hispanic whites than similar

block groups in East Palo Alto with eviction protections but saw decreases in these shares from 2010 to 2017, while protected block groups in East Palo Alto experienced small increases in these groups. At the same time, incomes, home values, and rents increased by larger amounts in East Palo Alto from 2010 to 2017. Further, the share of units that are renter-occupied increased to a greater extent. Overall, the trends here are mixed. Some trends suggest that the protections are generally preserving the minority population but not necessarily keeping housing prices, including rents, down. Instead, the protections appear to be associated with greater housing price increases. The other three cities do not have just cause ordinances implemented during the period, so they are not included in this analysis.

Table 6. Average Block Group Characteristics for East Palo Alto with Just Cause and Control Block Groups

| <i>East Palo Alto</i> | <u>Just Cause</u> | | | <u>Control</u> | | |
|---------------------------|-------------------|-----------|-----------|----------------|-----------|-----------|
| | 2000 | 2000-2010 | 2010-2017 | 2000 | 2000-2010 | 2010-2017 |
| % White alone | 9% | 2% | 1% | 22% | -5% | 2% |
| % Linguistically Isolated | 13% | 9% | -10% | 15% | 5% | -5% |
| % College-Educated | 10% | 7% | 3% | 15% | 4% | 4% |
| Poverty Rate | 14% | 2% | -2% | 10% | 3% | 0% |
| Median Household Income | \$66,269 | \$4,235 | \$16,674 | \$74,407 | \$11,288 | \$6,572 |
| % Renter-Occupied | 40% | 9% | 7% | 52% | 1% | 3% |
| % Multifamily (5 or more) | 16% | 12% | -1% | 20% | 3% | 1% |
| Median Gross Rent | \$1,279 | \$523 | \$425 | \$1,325 | \$365 | \$286 |
| Median Value | \$391,666 | \$236,333 | \$95,167 | \$440,330 | \$251,548 | \$72,697 |
| N | | 14 | | | 35 | |

Note: All dollar values are adjusted to 2017 dollars.

Source: Census 2000; ACS 2010 5-Year Estimates; ACS 2017 5-Year Estimates; Zillow Assessment Records and California Housing Partnership Corporation subsidized housing data, 2014-2015

When we examine block groups with rent control, we find different trends between the cities. We show in Table 7 average characteristics for block groups with rent control in the three cities with rent control ordinances—East Palo Alto, Los Gatos, and San Jose—along with block groups in these respective cities without units with rent control and comparable block groups without rent control in other cities. In East Palo Alto, the shares of non-Hispanic whites increased by 3 percentage points in block groups with rent control, while the shares declined by 3 percentage points in block groups without rent control during this period. In block groups with rent control, housing prices increased at similar levels from 2000 to 2010 but to a greater degree from 2010 to 2017 compared to the control block groups. Block groups with rent control protections also had declines in median household incomes in 2000 to 2010 but larger income increases from 2010 to 2017 compared to control block groups. These trends suggest that the rent control protections may have stalled gentrification in these block groups during the 2000 to 2010 period, but this is no longer the case.

In Los Gatos, demographic trends are similar between block groups with rent controlled units and the control block groups. However, rent increases were greater from 2000 to 2010 compared with the control block groups but were lower from 2010 to 2017. Further, home value increases were lower in rent controlled block groups than the control groups. Given that rent

control was implemented in Los Gatos in 2004, the implementation of rent control may have inflated local rent prices in the short-term, but, in the long-term, the changes did not continue at higher than expected levels.

Like Los Gatos, demographic changes in San Jose were similar between block groups with rent controlled units and control group block groups. However, increases in both housing values and rents were lower in block groups with rent controlled units in San Jose compared to the control group. San Jose, which has had rent control in effect since 1979, did not experience inflated increases in housing prices to a greater extent than the control group blocks.

Figure 5 compares outmigration rates for all residents in block groups in each city with tenant protection policies and comparable block groups for each policy and city. Figure 6 presents similar figures for renters

In East Palo Alto, we observe lower outmigration rates up to 2005, prior to the Recession, slightly higher outmigration rates up to 2018, and low outmigration rates in 2010 among all residents in block groups with just cause units versus comparable block groups. These rates, however, increase significantly in 2011 and return to comparable rates in the years that follow (Figure 5a). The decline in 2010 may be related to the amendments in the just cause and rent control policies that were passed in 2010. The city amended its tenant protection ordinance to protect more units under control: any property with two or more rental units, which were not covered previously by either just cause or rent control, became subject to rent control and paired with just cause for eviction, with the exception of owner-occupied duplexes or triplexes. This change might have helped many residents maintain secure housing in the short-term. One possible factor in the subsequent increase in 2011 may be the city's documented high eviction rates that year (Harris and Cespedes 2015).

There are larger differences during this pre-Recession period between block groups with rent controlled units versus comparable block groups (Figure 5b). As explained above, a decline in outmigration rates in 2010 might be attributed to the 2010 amendments. We also observe greater declines in 2016 and subsequent increases at the end of the period, but these differences are not statistically significant. The return to comparable outmigration rates in the year following the 2016 amendments to both rent control and just cause suggest that the effects of the rent control amendments may have had short-term effects in mitigating outmigration. The trends for renters are nearly identical (Figures 6a and 6b). Because the amendment took place in 2016, a longer period of analysis following the amendment is necessary to distinguish if these trends reflect an irregularity for this particular year or a general trend following the policy amendments in 2016.

In Los Gatos, which passed rent control protection policies in 2004, we observe slightly higher outmigration rates among all residents in block groups with rent controlled units relative to comparable block groups prior to the passage of the policy (Figure 5c). Following the passage, the outmigration rates were similar to comparable groups but generally continued to remain slightly higher. When we examine only renters in Figure 6c, however, the effectiveness of rent control policies in Los Gatos becomes clearer: outmigration rates are higher in block groups with rent controlled units prior to the passage of rent control policies in 2004 but are similar for the rest of the period.

In San Jose, on the other hand, outmigration rates in block groups with rent-controlled units were higher than comparable block groups without rent-controlled units, and these differences were statistically significant throughout the period for all residents and the analysis including only renters (Figures 5d and 6d). Although we would expect lower outmigration rates,

particularly among renters, in block groups with rent-controlled units, the rent control policy prior to the amendment in 2017 may have been relatively ineffective in mitigating outmigration. Nonetheless, a longer time period is needed to assess the effects of these changes.

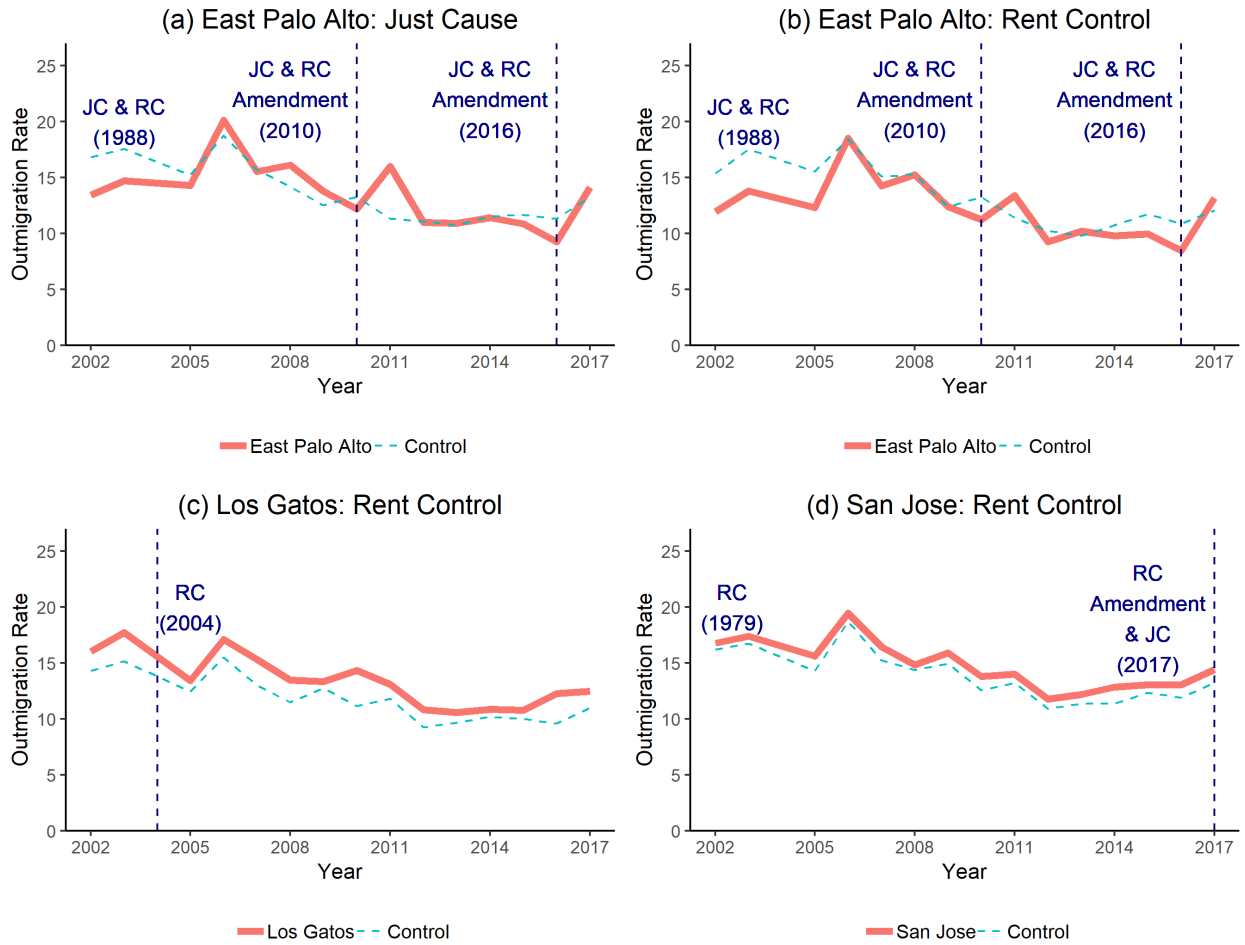
Table 7. Average Block Group Characteristics for East Palo Alto, Los Gatos, and San Jose with Rent Control, without Rent Control, and Control Block Groups

| | <u>Rent Control</u> | | | <u>No Rent Control</u> | | | <u>Control Group</u> | | |
|---------------------------|---------------------|-----------|-----------|------------------------|-----------|-----------|----------------------|-----------|-----------|
| | 2000 | 2000-2010 | 2010-2017 | 2000 | 2000-2010 | 2010-2017 | 2000 | 2000-2010 | 2010-2017 |
| <i>East Palo Alto</i> | | | | | | | | | |
| % White alone | 5% | 3% | 0% | 21% | 1% | 1% | 24% | -7% | 4% |
| % Linguistically Isolated | 15% | 10% | -11% | 5% | 1% | -4% | 14% | 6% | -5% |
| % College-Educated | 10% | 6% | 3% | 11% | 14% | 0% | 15% | 5% | 4% |
| Poverty Rate | 16% | 2% | -4% | 7% | 1% | 3% | 11% | 0% | -1% |
| Median Household Income | \$73,669 | -\$1,570 | \$13,267 | \$47,772 | \$18,684 | \$32,571 | \$75,602 | \$12,116 | \$7,382 |
| % Renter-Occupied | 44% | 12% | 7% | 29% | -12% | 5% | 48% | 2% | 3% |
| % Multifamily (5 or more) | 18% | 15% | 0% | 12% | -4% | -6% | 16% | 3% | 3% |
| Median Gross Rent | \$1,353 | \$439 | \$416 | \$1,097 | \$857 | \$723 | \$1,342 | \$415 | \$256 |
| Median Value | \$448,663 | \$233,770 | \$92,880 | \$249,175 | \$179,153 | \$116,167 | \$476,589 | \$287,360 | \$18,438 |
| N | | 10 | | | 4 | | | 27 | |
| <i>Los Gatos</i> | | | | | | | | | |
| % White alone | 81% | -5% | -6% | 82% | -6% | -8% | 72% | -9% | -6% |
| % Linguistically Isolated | 3% | -1% | 1% | 2% | 1% | 0% | 4% | 2% | 0% |
| % College-Educated | 54% | 5% | 4% | 56% | 6% | 4% | 57% | 7% | 5% |
| Poverty Rate | 5% | 0% | 0% | 3% | 1% | -1% | 4% | 0% | 0% |
| Median Household Income | \$130,694 | \$20,234 | \$31,232 | \$159,385 | \$15,325 | \$36,417 | \$132,720 | \$27,704 | \$34,986 |
| % Renter-Occupied | 36% | 2% | -2% | 17% | -1% | 2% | 29% | -1% | 1% |
| % Multifamily (5 or more) | 17% | 0% | 0% | 4% | 1% | 0% | 16% | 1% | 1% |
| Median Gross Rent | \$1,851 | \$426 | \$350 | \$2,137 | \$282 | \$816 | \$2,026 | \$276 | \$718 |
| Median Value | \$945,095 | \$250,578 | \$385,319 | \$976,500 | \$206,507 | \$432,226 | \$920,287 | \$287,360 | \$440,638 |
| N | | 20 | | | 29 | | | 156 | |
| <i>San Jose</i> | | | | | | | | | |
| % White alone | 40% | -7% | -3% | 44% | -9% | -4% | 41% | -7% | -3% |
| % Linguistically Isolated | 14% | 4% | -3% | 9% | 2% | 0% | 11% | 2% | -1% |
| % College-Educated | 28% | 4% | 6% | 35% | 5% | 6% | 31% | 5% | 6% |
| Poverty Rate | 12% | 3% | -2% | 5% | 1% | 0% | 7% | 1% | 0% |
| Median Household Income | \$86,398 | \$9,617 | \$17,031 | \$120,838 | \$15,566 | \$21,395 | \$89,784 | \$16,898 | \$18,053 |
| % Renter-Occupied | 50% | 1% | 2% | 21% | 2% | 3% | 48% | -1% | 2% |
| % Multifamily (5 or more) | 26% | 3% | 1% | 5% | 2% | 1% | 26% | -1% | 2% |
| Median Gross Rent | \$1,567 | \$223 | \$434 | \$2,059 | \$292 | \$624 | \$1,638 | \$324 | \$523 |
| Median Value | \$522,124 | \$247,419 | \$97,293 | \$593,523 | \$260,916 | \$129,595 | \$546,512 | \$296,468 | \$127,413 |
| N | | 264 | | | 284 | | | 291 | |

Note: All dollar values are adjusted to 2017 dollars.

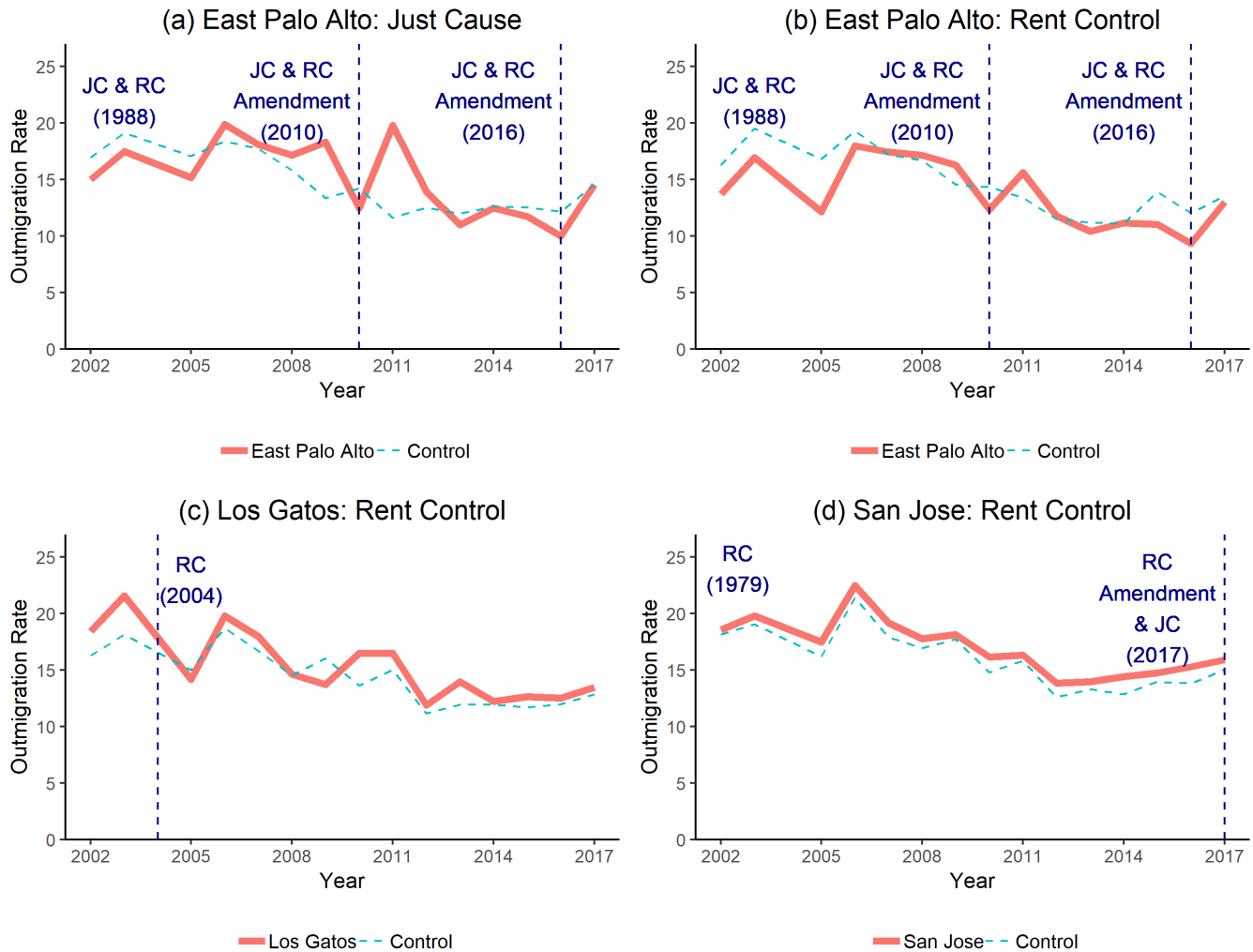
Source: Census 2000; ACS 2010 5-Year Estimates; ACS 2017 5-Year Estimates; Zillow Assessment Records and California Housing Partnership Corporation subsidized housing data, 2014-2015

Figure 5. Comparison of Outmigration Rates for All CCP Residents in Block Groups with (a) Just Cause in East Palo Alto; (b) Rent Control in East Palo Alto; (c) Rent Control in Los Gatos; and (d) Rent Control in San Jose and Comparable Block Groups



Source: FRBNY Consumer Credit Panel/Equifax Data

Figure 6. Comparison of Outmigration Rates for CCP Renters in Block Groups with (a) Just Cause in East Palo Alto; (b) Rent Control in East Palo Alto; (c) Rent Control in Los Gatos; and (d) Rent Control in San Jose and Comparable Block Groups



Source: FRBNY Consumer Credit Panel/Equifax Data

D. Predicting Outmigration by Tenant Protection Policies

Next, we estimate a linear probability model predicting whether an individual moves out of their block group. Our main independent variables of interest are the shares of units on blocks with just cause and rent control protections. Table 8 presents the results from this analysis. Model 1 shows results for a baseline model with no individual or neighborhood control variables. Model 2 accounts for individuals' age, mortgage status, and Equifax Risk Score and for neighborhood demographic and socioeconomic characteristics. Model 3 tests if there are differences in the effects of just cause and rent control protections for individuals in households without mortgages. Finally, Model 4 tests if there are distinct effects on outmigration for residents with low SES based on their Equifax Risk Scores.

The intercept in the baseline model (Model 1) indicates that, within these four cities, the average outmigration rate is 19 percent in cities without rent control or just cause ordinances. The results from the model suggest that there is no effect of the presence or absence of just cause ordinances on outmigration rates. However, the negative coefficient for the share of units protected by just cause in one's block group indicates that more units protected by just cause slightly lowers the probability of moving out of one's residence. Further, the negative coefficient of -0.053 for the presence or absence of a rent control ordinance in the city indicates that having rent control protections in one's city lowers the probability of moving out of one's residence by 5.3 percentage points. The share of rent controlled units on a block group, however, is positively associated with outmigration within cities that have rent control ordinances in place. This may seem counterintuitive, but this is likely explained by differences in who lives in areas with more rent controlled units. As we demonstrated above, neighborhoods with more rent controlled units are much different than neighborhoods without them, given that rent control generally applies to older, multifamily housing. Therefore, it is necessary to account for these differences, which we do in the subsequent models.

Once we account for observed individual and neighborhood characteristics that often explain differences in outmigration in Model 2, the effectiveness of various policies come into clearer view. The results show that, while having just cause and rent control policies within a city do not affect outmigration rates, the share of units on a block group with rent control decrease the likelihood of outmigration by 3.3 percentage points. The results also demonstrate that individual and neighborhood characteristics are indeed important factors predicting the degree to which individuals move out of their neighborhoods. Thus, although block groups with more units protected by rent control tend to have higher outmigration rates on average due to other characteristics about the people living on these blocks and characteristics of the blocks themselves, as shown in Model 1, once we account for these differences in Model 2, we find that greater shares of rent control lower the probability of moving out of one's neighborhood.

Nonetheless, the effect of rent control in this model reflects the average affect for all individuals, including owners. While we account for the differences between renters and owners in this model, examining how this policy affects renters specifically would provide a more precise estimate of the policy's effect. We test this in Model 3 by including an interaction term in the model to assess the effect of rent control on renters. Once we test for differences in the effects of the share of rent controlled units in a neighborhood for renters, we find that higher shares of rent controlled units further mitigate outmigration for renters. Renters in neighborhoods without rent controlled units have a probability of moving that is 3.8 percentage points higher than owners. For renters, as the share of rent-controlled units increases, the probability of outmigration decreases. The marginal effect indicates that, an increase by 10 percentage points in the share of units covered by rent control on block groups decreases the probability of moving by .39 percentage points. In addition, the results suggest that just cause ordinances have additional effects for renters in lowering the probability of moving out of one's neighborhood by .14 percentage points for every increase in the share of units protected by just cause ordinances by 10 percentage points.

In Model 4, we run a similar model with a focus on individuals with low Equifax Risk Scores as a proxy for financial disadvantage.⁴ The results show a stronger mitigating effect for low-score renters in blocks with higher shares of rent-controlled units. An increase by 10

⁴ We do not examine low-score renters because the sample sizes for this group are very small in the analysis cities besides San Jose.

percentage points in the share of units covered by rent control on block groups decreases the probability of moving by .85 percentage points. Just cause protections do not appear to differentially effect low-score residents relative to others, but the coefficient for the share of units covered by just cause protections lowers the probability of outmigration by 1.3 percentage points.

These effects are moderate but still significant and suggest that these policies, especially rent control, are indeed helping vulnerable households. The moderate results are likely driven by the fact that most of the individuals in the sample are from San Jose, and as discussed above, the rent control policies prior to the amendment in 2017 may have been ineffective at mitigating outmigration. Further analysis of the effectiveness of these policies should include more cities and towns that have had longer histories of these ordinances and should compare residents beyond these four cities to provide a more robust analysis.

Table 8. Regression Results Predicting Outmigration on Share of Units on Block Group with Just Cause and Rent Control Protections

| | (1) | | (2) | | (3) | | (4) | |
|---|--------|-------------|--------|-------------|--------|-------------|--------|-------------|
| | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. | Coef. | Std. Err. |
| (Intercept) | 0.190 | (0.002) *** | 0.228 | (0.004) *** | 0.228 | (0.004) *** | 0.227 | (0.004) *** |
| Just Cause policy in city | -0.004 | (0.006) | -0.012 | (0.006) | -0.013 | (0.006) * | -0.010 | (0.006) |
| Rent Control policy in city | -0.053 | (0.002) *** | 0.002 | (0.002) | 0.001 | (0.002) | 0.001 | (0.002) |
| Share of units on block group with just cause protections | -0.014 | (0.006) * | -0.009 | (0.006) | 0.000 | (0.007) | -0.013 | (0.006) * |
| Share of units on block group with rent control protections | 0.096 | (0.002) *** | -0.033 | (0.003) *** | -0.019 | (0.005) *** | -0.018 | (0.003) *** |
| Renter | | | -0.003 | (0.000) *** | 0.038 | (0.001) *** | -0.012 | (0.001) *** |
| Age | | | 0.035 | (0.001) *** | -0.003 | (0.000) *** | -0.003 | (0.000) *** |
| Low Risk Score | | | -0.021 | (0.001) *** | -0.020 | (0.001) *** | 0.035 | (0.001) *** |
| <i>Block group characteristics</i> | | | | | | | | |
| Population | | | 0.000 | (0.000) *** | 0.000 | (0.000) *** | 0.000 | (0.000) *** |
| Share of non-Hispanic white | | | -0.002 | (0.003) | -0.002 | (0.003) | -0.002 | (0.003) |
| Share of Hispanic | | | -0.019 | (0.004) *** | -0.019 | (0.004) *** | -0.019 | (0.004) *** |
| Share below poverty | | | -0.024 | (0.007) *** | -0.025 | (0.007) *** | -0.023 | (0.007) *** |
| Share of college-educated | | | 0.033 | (0.004) *** | 0.033 | (0.004) *** | 0.034 | (0.004) *** |
| Share of vacant units | | | 0.114 | (0.010) *** | 0.115 | (0.010) *** | 0.114 | (0.010) *** |
| Share of renter-occupied units | | | 0.115 | (0.003) *** | 0.114 | (0.003) *** | 0.114 | (0.003) *** |
| Share of units on block group with just cause protections * Renter | | | | | -0.014 | (0.006) * | | |
| Share of units on block group with rent control protections * Renter | | | | | -0.020 | (0.005) *** | | |
| Share of units on block group with just cause protections * Low-score | | | | | | | 0.007 | (0.007) |
| Share of units on block group with rent control protections * Low-score | | | | | | | -0.067 | (0.006) *** |

Note: ***p<.001; **p<.05; *p<.01, †p<.10. N = 606,812 person-years (2002-2017, excluding 2004). Models include year fixed effects.

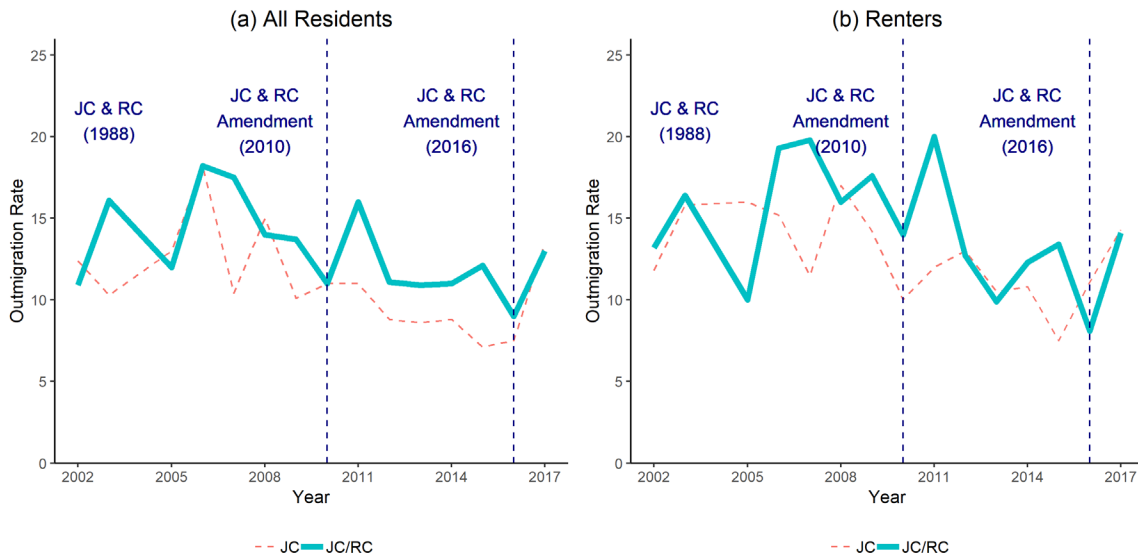
Source: FRBNY Consumer Credit Panel/Equifax Data; Census 2000; ACS 2010 5-Year Estimates; ACS 2017 5-Year Estimates; Zillow Assessment Records and California Housing Partnership Corporation subsidized housing data, 2014-2015

E. Assessing Just Cause for Evictions

In this section, we assess the impact of just cause for eviction policies by comparing outmigration rates from blocks with units only protected by just cause ordinances with outmigration rates in blocks with units with both just cause for evictions and rent control protections. East Palo Alto is the only city with some blocks that have units covered by both policies and other blocks that have units that are not protected by rent control. In East Palo Alto, most single-family homes and some duplex and triplex homes are subject to just cause ordinances but not rent control.

Figure 7 presents these comparisons for all residents in the sample and renters and indicates the years in which the amendments for just cause and rent control were implemented and amended. The trends suggest that, in the years beyond the Recession, individuals in blocks with both just cause and rent control policies have higher outmigration rates than residents in blocks with units only covered by just cause, which is the opposite of what we would expect. However, these differences are not statistically significant for most years. Notably, in 2011, the year following the passage of the 2010 amendments to the just cause and rent control policies, outmigration rates in blocks that contained units covered by just cause but not rent control had lower outmigration rates than blocks covered by both policies. These differences are likely explained by the higher shares of multifamily housing on blocks with rent control coverage compared with those without it. In future years, there may be more differences after more time has passed since the passage of the rent control amendments in 2016.

Figure 7. Comparison of Outmigration Rates for CCP Low-Score Renters in Blocks in East Palo Alto with Protected Units for (a) All Residents and (b) Renters.



Source: FRBNY Consumer Credit Panel/Equifax Data

F. Neighborhood Attainment Among Low-Score Renters

In the last section of our analysis, we examine the neighborhood attainment of low-score renters who move. In Table 9, we show the average neighborhood characteristics between the origin and destination block groups for these movers. For those who moved between 2002 and 2009, we present characteristics based on the American Community Survey 2006-2010 5-year estimates (labeled 2010); for those who moved between 2010 and 2017, we present characteristics based on 2013-2017 5-year estimates (labeled 2017). We further separate movers by the tenant protections on the block from which they moved. For example, in East Palo Alto, we compare movers from blocks containing units with both just cause and rent control protections with movers from blocks with units that only have just cause protections. We do not include Mountain View in this analysis since both just cause and rent control ordinances were not implemented until 2017.

Low-score movers from East Palo Alto moved to block groups with substantially greater shares of non-Hispanic whites and higher SES. Nonetheless, movers from blocks without rent control moved to places with high shares of renter-occupied and multifamily units and lower rents, while movers from blocks with rent control moved to blocks with higher homeownership rates, lower shares of multifamily units, and higher rents. This likely reflects the fact those moving from blocks with rent control are making planned and upward moves. These movers may not necessarily be the residents who live in rent-controlled units, or they may have been able to make an upward move after saving money from living in a rent-controlled unit. This also suggests that movers from blocks without rent control appear to be moving to more affordable areas and thus may be undergoing displacement due to rising housing prices.

In San Jose, we assess blocks with rent control and those without it. We do not assess blocks with just cause units since this policy was not passed until 2017. Movers in blocks with protected units and those in blocks without them tended to move to similar neighborhoods as where they started. Those moving from blocks with protected units moved to areas with slightly higher SES and housing prices, reflecting the likely selection of movers out of these protected blocks. Nonetheless, these small differences may also reflect the weak effect of the rent control policies prior to the 2017 amendment.

The trends in Los Gatos are much different than other cities. Low-score renters who moved in Los Gatos moved to neighborhoods with substantially lower shares of whites. Movers from blocks without units with rent control protections moved to areas with lower median household incomes, while those moving from units with rent controlled units moved to areas on average with similar incomes prior to 2010 and higher incomes after 2010. All movers moved to neighborhoods with lower housing values, though the average median rents are similar for movers from blocks with rent controlled units. These trends again reflect the selective outmigration of low-score renters from blocks with tenant protections.

Overall, these findings suggest that protections appear to be effective in preventing downward moves. Those who move from blocks with protected units appear to make upward moves, suggesting that they are making planned moves. However, we see substantial downward trajectories for low-score movers from blocks without units with tenant protections, which suggests that residents are more likely to be undergoing displacement without tenant protections.

Table 9. Average Block Group Characteristics for Destinations of Low-Score Movers by Tenant Protection Policy of Origin Block

| | 2002-2009 Movers | | | | 2010-2017 Movers | | | |
|---------------------------|------------------|-----------|------------------|-----------|------------------|-------------|------------------|-------------|
| | 2010 origin | | 2010 destination | | 2017 origin | | 2017 destination | |
| | JC + RC | JC only | JC + RC | JC only | JC + RC | JC only | JC + RC | JC only |
| East Palo Alto | | | | | | | | |
| % non-Hispanic White | 11% | 7% | 31% | 27% | 10% | 8% | 30% | 21% |
| % Linguistically Isolated | 29% | 15% | 14% | 16% | 16% | 8% | 11% | 14% |
| % College-Educated | 19% | 15% | 37% | 32% | 19% | 19% | 45% | 36% |
| Poverty Rate | 14% | 18% | 12% | 13% | 17% | 11% | 11% | 10% |
| Median Household Income | \$52,963 | \$58,813 | \$91,867 | \$76,301 | \$59,039 | \$73,303 | \$106,914 | \$90,641 |
| % Renter-occupied | 71% | 37% | 49% | 53% | 77% | 45% | 52% | 56% |
| % Multifamily (5 or more) | 57% | 9% | 27% | 31% | 58% | 7% | 31% | 32% |
| Median Gross Rent | \$1,326 | \$1,741 | \$1,644 | \$1,572 | \$1,576 | \$1,983 | \$1,948 | \$1,914 |
| Median Value | \$541,578 | \$505,159 | \$634,487 | \$588,577 | \$638,196 | \$588,216 | \$982,623 | \$797,876 |
| N | 117 | 70 | 117 | 70 | 90 | 70 | 90 | 70 |
| | 2002-2009 Movers | | | | 2010-2017 Movers | | | |
| | 2010 origin | | 2010 destination | | 2017 origin | | 2017 destination | |
| | RC | No RC | RC | No RC | RC | No RC | RC | No RC |
| San Jose | | | | | | | | |
| % non-Hispanic White | 26% | 28% | 28% | 29% | 24% | 25% | 26% | 25% |
| % Linguistically Isolated | 21% | 15% | 18% | 16% | 17% | 13% | 15% | 14% |
| % College-Educated | 28% | 31% | 31% | 33% | 36% | 37% | 37% | 37% |
| Poverty Rate | 19% | 11% | 14% | 12% | 16% | 10% | 12% | 10% |
| Median Household Income | \$64,515 | \$90,861 | \$79,852 | \$87,616 | \$71,522 | \$96,815 | \$87,400 | \$94,199 |
| % Renter-occupied | 68% | 38% | 51% | 45% | 69% | 40% | 53% | 46% |
| % Multifamily (5 or more) | 44% | 18% | 29% | 25% | 45% | 19% | 29% | 24% |
| Median Gross Rent | \$1,344 | \$1,728 | \$1,544 | \$1,624 | \$1,628 | \$2,017 | \$1,857 | \$1,957 |
| Median Value | \$536,831 | \$575,446 | \$560,488 | \$583,002 | \$628,901 | \$649,790 | \$664,796 | \$667,676 |
| N | 1646 | 2863 | 1646 | 2863 | 1646 | 2142 | 1646 | 2142 |
| | 2002-2009 Movers | | | | 2010-2017 Movers | | | |
| | 2010 origin | | 2010 destination | | 2017 origin | | 2017 destination | |
| | RC | No RC | RC | No RC | RC | No RC | RC | No RC |
| Los Gatos | | | | | | | | |
| % non-Hispanic White | 77% | 79% | 57% | 55% | 71% | 72% | 50% | 56% |
| % Linguistically Isolated | 3% | 3% | 8% | 8% | 3% | 3% | 7% | 7% |
| % College-Educated | 60% | 62% | 51% | 47% | 60% | 64% | 59% | 59% |
| Poverty Rate | 4% | 3% | 5% | 9% | 6% | 5% | 7% | 6% |
| Median Household Income | \$117,815 | \$136,817 | \$116,365 | \$106,312 | \$125,305 | \$148,782 | \$133,297 | \$137,536 |
| % Renter-occupied | 46% | 30% | 44% | 39% | 47% | 28% | 46% | 36% |
| % Multifamily (5 or more) | 25% | 14% | 28% | 22% | 25% | 12% | 29% | 22% |
| Median Gross Rent | \$1,848 | \$1,987 | \$1,808 | \$1,760 | \$2,032 | \$2,180 | \$2,109 | \$1,997 |
| Median Value | \$933,041 | \$926,511 | \$755,405 | \$725,082 | \$1,431,652 | \$1,431,968 | \$1,083,032 | \$1,197,314 |
| N | 35 | 75 | 35 | 75 | 35 | 49 | 35 | 49 |

Note: All dollar values are adjusted to 2017 dollars.

Source: FRBNY Consumer Credit Panel/Equifax Data; ACS 2010 5-Year Estimates; ACS 2017 5-Year Estimates; Zillow Assessment Records and California Housing Partnership Corporation subsidized housing data, 2014-2015

V. Summary and Conclusions

This report analyzed mobility trends in four Silicon Valley cities with tenant protection policies—East Palo Alto, Mountain View, San Jose, and Los Gatos. Drawing on two unique datasets—individual-level mobility data and a database of units covered by tenant protections—this study sheds light on how these policies affect mobility in these areas. This report outlined a number of analyses: comparing outmigration trends in comparable Silicon Valley cities to these four cities, comparing outmigration trends in comparable Silicon Valley neighborhoods to those with tenant protection policies in these four cities, predicting outmigration within these four cities based on the share of units in neighborhoods protected by these policies, and comparing the destinations of financially disadvantaged renters who move from blocks with protected units with those moving from blocks without protected units.

Altogether, the results suggest that rent control policies are effective in mitigating outmigration and downward mobility. The effects on the probability of moving out of a neighborhood are relatively moderate. However, these moderate impacts are likely due to the limited analysis of these four cities, where tenant protection policies were only recently implemented or effectively strengthened. Given that tenant protection policies in Mountain View were adopted in 2017 and East Palo Alto and San Jose amended their rent control policies in 2016 and 2017, respectively, a longer time frame after the passage of these ordinances is necessary to interpret whether lowered rates of outmigration are a result of these policies. Nonetheless, when we examine the destinations of financially disadvantaged renters from blocks with and without units protected by just cause or rent control policies, we observe upward moves on average relative to similar residents moving from blocks without these protections. These findings imply that tenant protections may be preventing displacement.

Our findings further suggest that recently passed or amended tenant protection policies may have reduced outmigration for those cities that adopted them. For example, Mountain View had much higher outmigration rates compared to the other analysis cities and compared to similar cities throughout most of the analysis period. After the passage of both just cause and rent control ordinances in 2017, the outmigration rates in Mountain View were no longer higher than most of its comparable cities, suggesting that the new ordinances may have been effective. While San Jose had a rent control ordinance in place since 1979, it did not increase the rent cap and pass other measures to strengthen the policy until 2017. In our analysis, rent control in San Jose does not seem to mitigate outmigration based on differences with comparable cities or differences between San Jose neighborhoods with rent controlled units and similar neighborhoods without them. In Los Gatos, where a rent control ordinance was passed in 2004, the higher outmigration rates prior to the ordinance compared to similar neighborhoods without rent control, followed by similar outmigration rates, suggests that this ordinance effectively mitigated outmigration in Los Gatos.

Nonetheless, we view these results as a preliminary. Our analysis is a case study of four cities located in the Silicon Valley, which has a distinct housing market relative to the rest of the country, with varying tenant protection policies, both in terms of strength and timing. While we attempted to identify comparable cities and block groups, these control groups are imperfect. Each city has unique characteristics that explain why some cities have tenant protection policies and others do not, and neighborhoods have distinct characteristics that explain why they have more tenant protected units relative to those that do not. A larger study focused on more places with and without tenant protection policies and with longer time following the passage of the

policies is necessary for a more robust analysis of the effectiveness of tenant protection policies. Despite limitations, this research underscores how fine-grained data can inform the kinds of questions that we address in this report. While the findings are suggestive that these tenant protections can help in mitigating outmigration and downward mobility, further research is needed to continue to advance our understanding of tenant protections and mobility trends.

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Appendix

Table A1. Outmigration Rates Presented in Figure 2

| | | 2002 | 2003 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---------------|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| All Residents | East Palo Alto city | 12.1 | 13.7 | 12.2 | 18.3 | 13.8 | 15.3 | 12.2 | 11.4 | 13.4 | 9.7 | 9.7 | 9.8 | 9.8 | 8.5 | 13.3 |
| | Mountain View city | 20.8 | 18.3 | 16.7 | 21.7 | 18.4 | 18.1 | 19.6 | 16.5 | 17.9 | 13.9 | 14.4 | 15.3 | 17.3 | 16.1 | 16.3 |
| | Los Gatos town | 15.6 | 15.5 | 12.8 | 17.2 | 15.2 | 12.9 | 13.2 | 14.1 | 12.8 | 12.1 | 9.6 | 11.5 | 11.3 | 12.3 | 12.5 |
| | San Jose city | 15.2 | 15.6 | 14.0 | 17.8 | 14.2 | 13.2 | 14.1 | 12.6 | 12.4 | 10.5 | 10.8 | 11.4 | 11.6 | 11.4 | 12.6 |
| Renters | East Palo Alto city | 13.4 | 16.5 | 12.5 | 17.6 | 16.4 | 17.1 | 16.3 | 12.1 | 16.0 | 12.4 | 10.3 | 11.6 | 11.2 | 9.6 | 13.9 |
| | Mountain View city | 23.5 | 23.3 | 20.1 | 26.3 | 21.8 | 22.3 | 23.9 | 19.7 | 21.2 | 17.4 | 16.7 | 17.0 | 19.9 | 18.1 | 18.6 |
| | Los Gatos town | 16.7 | 19.2 | 13.1 | 21.3 | 18.5 | 13.6 | 13.0 | 16.7 | 16.4 | 12.5 | 12.6 | 13.3 | 14.0 | 14.0 | 14.4 |
| | San Jose city | 17.4 | 18.2 | 16.4 | 21.3 | 17.4 | 16.6 | 16.7 | 14.9 | 14.9 | 12.6 | 12.6 | 13.2 | 13.4 | 13.7 | 14.3 |

Source: FRBNY Consumer Credit Panel/Equifax Data

Table A2. Outmigration Rates Presented in Figure 5

| | | 2002 | 2003 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---------------------------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| East Palo Alto, Just Cause | Policy | 13.4 | 14.7 | 14.3 | 20.1 | 15.5 | 16.1 | 13.7 | 12.2 | 16.0 | 11.0 | 10.9 | 11.4 | 10.8 | 9.3 | 14.1 |
| | Control | 16.8 | 17.6 | 15.2 | 18.8 | 15.7 | 14.2 | 12.5 | 13.2 | 11.3 | 11.1 | 10.7 | 11.5 | 11.6 | 11.3 | 13.3 |
| East Palo Alto, Rent Control | Policy | 11.9 | 13.8 | 12.3 | 18.5 | 14.3 | 15.2 | 12.4 | 11.2 | 13.4 | 9.2 | 10.2 | 9.8 | 10.0 | 8.5 | 13.2 |
| | Control | 15.4 | 17.5 | 15.5 | 18.4 | 15.1 | 15.3 | 12.4 | 13.3 | 11.4 | 10.3 | 9.8 | 10.7 | 11.7 | 10.8 | 12.1 |
| Los Gatos, Rent Control | Policy | 16.0 | 17.7 | 13.4 | 17.1 | 15.3 | 13.5 | 13.4 | 14.3 | 13.1 | 10.8 | 10.6 | 10.9 | 10.8 | 12.3 | 12.5 |
| | Control | 14.3 | 15.2 | 12.4 | 15.5 | 13.0 | 11.5 | 12.8 | 11.1 | 11.8 | 9.2 | 9.7 | 10.2 | 10.0 | 9.6 | 11.0 |
| San Jose, Rent Control | Policy | 16.8 | 17.4 | 15.6 | 19.5 | 16.4 | 14.8 | 15.9 | 13.8 | 14.0 | 11.8 | 12.2 | 12.9 | 13.0 | 13.1 | 14.4 |
| | Control | 16.2 | 16.7 | 14.3 | 18.7 | 15.3 | 14.4 | 15.0 | 12.5 | 13.2 | 10.9 | 11.4 | 11.4 | 12.4 | 11.9 | 13.2 |

Source: FRBNY Consumer Credit Panel/Equifax Data

Table A3. Outmigration Rates Presented in Figure 6

| | | 2002 | 2003 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---------------------------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| East Palo Alto, Just Cause | Policy | 15.0 | 17.5 | 15.2 | 19.9 | 18.1 | 17.1 | 18.3 | 12.5 | 19.8 | 13.9 | 11.0 | 12.5 | 11.7 | 10.0 | 14.6 |
| | Control | 16.9 | 19.1 | 17.1 | 18.4 | 17.7 | 15.8 | 13.3 | 14.2 | 11.6 | 12.5 | 12.0 | 12.6 | 12.5 | 12.1 | 14.6 |
| East Palo Alto, Rent Control | Policy | 13.7 | 16.9 | 12.2 | 18.0 | 17.4 | 17.2 | 16.3 | 12.4 | 15.6 | 11.8 | 10.4 | 11.1 | 11.0 | 9.3 | 13.0 |
| | Control | 16.3 | 19.5 | 16.8 | 19.3 | 17.2 | 16.7 | 14.5 | 14.3 | 13.4 | 11.5 | 11.2 | 11.1 | 13.9 | 12.0 | 13.5 |
| Los Gatos, Rent Control | Policy | 18.4 | 21.6 | 14.2 | 19.8 | 18.0 | 14.6 | 13.7 | 16.5 | 16.5 | 11.9 | 14.0 | 12.2 | 12.6 | 12.5 | 13.5 |
| | Control | 16.3 | 18.1 | 15.0 | 18.7 | 16.7 | 14.5 | 16.0 | 13.6 | 15.0 | 11.1 | 11.9 | 12.0 | 11.7 | 12.0 | 12.9 |
| San Jose, Rent Control | Policy | 18.5 | 19.8 | 17.5 | 22.5 | 19.2 | 17.8 | 18.1 | 16.1 | 16.3 | 13.8 | 14.0 | 14.4 | 14.7 | 15.3 | 15.9 |
| | Control | 18.1 | 19.0 | 16.2 | 21.4 | 17.9 | 16.9 | 17.7 | 14.8 | 15.8 | 12.6 | 13.3 | 12.8 | 14.0 | 13.8 | 15.0 |

Source: FRBNY Consumer Credit Panel/Equifax Data

Table A4. Outmigration Rates Presented in Figure 7

| | | 2002 | 2003 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| All Residents | JC | 12.4 | 10.3 | 13.0 | 18.2 | 10.4 | 15.0 | 10.1 | 11.0 | 11.0 | 8.8 | 8.6 | 8.8 | 7.1 | 7.5 | 13.5 |
| | JC & RC | 10.9 | 16.1 | 12.0 | 18.2 | 17.5 | 14.0 | 13.7 | 11.0 | 16.0 | 11.1 | 10.9 | 11.0 | 12.1 | 9.0 | 13.0 |
| Renters | JC | 11.8 | 15.8 | 16.0 | 15.2 | 11.5 | 17.0 | 14.2 | 10.0 | 12.0 | 13.0 | 10.5 | 10.8 | 7.5 | 11.1 | 14.3 |
| | JC & RC | 13.2 | 16.4 | 10.0 | 19.3 | 19.8 | 16.0 | 17.6 | 14.0 | 20.0 | 12.7 | 9.9 | 12.3 | 13.4 | 8.1 | 14.1 |

Source: FRBNY Consumer Credit Panel/Equifax Data