

Recent Findings on Residential Instability in Oakland

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Executive Summary

Safe, stable, and affordable housing is central to ensuring the health, well-being, and long-term resilience of our communities. Amid COVID-19-related economic shocks and a worsening housing crisis, residents in cities across California are struggling to keep up with the rising costs of housing. In this report, we draw from a unique, longitudinal dataset of over 14,000 residents in Oakland, California to examine residential instability—in the form of moving and household crowding—in Oakland over the last 20 years. We found that increases in lower credit score residents moving out of Oakland accelerated in recent years, with Extremely Low Income movers the most likely to leave the Bay Area altogether. In the context of the affordability crisis in Oakland and San Francisco Bay Area, we also report that residents may be making important tradeoffs to stay in their communities as housing price pressures increase: rates of moving out and shifting into crowded in the last 20 years often trended in opposite directions, although since the onset of the pandemic, most groups have seen increases in both crowding and moving. The outcomes also vary by Oakland’s geographic and demographic characteristics. Residents in East Oakland and parts of West Oakland—areas that are home to large populations of people of color and other at-risk groups—faced the greatest instability after most sectors of the economy reopened and pandemic-specific support programs expired in September 2021. These findings provide important insights for policymakers and practitioners as they work to stabilize Oakland’s most vulnerable residents.



Introduction

Safe and stable housing for all sets the foundation for thriving communities, jobs, schools, and health—all important dimensions that enable access to economic participation. Yet amid a worsening housing crisis, exacerbated by decades of housing underproduction in the Bay Area and a legacy of discriminatory housing policies and practices, housing insecurity for low-income renters and people of color persists. In the City of Oakland, policymakers have implemented policies aimed at protecting tenants and mitigating displacement amid rapidly rising housing prices, but stable housing remains out of reach for many.

This report draws on data from the Federal Reserve Bank of New York Consumer Credit Panel/Equifax (CCP) and the decennial Census from 2000 to analyze two main aspects of residential instability in the City of Oakland—moving out and household crowding—over the last 20 years, including trends that are emerging as a result of the COVID-19 pandemic. Using the CCP data, we track more than 14,000 Oakland residents per year up to December 2021, using three-year rolling averages. Because some pandemic-related trends in residential instability may have seen short-term swings as a result of the lockdowns and economic downturn in 2020, we also analyze annual changes between September 2021 and September 2022—after most sectors of the economy reopened and many pandemic-specific support programs expired—to examine recent variations in patterns of instability.¹

After a brief summary of methods used in this analysis, this brief presents findings on moving and crowding by both socioeconomic status of residents and neighborhood characteristics. These data offer insights into the ways in which different types of households and neighborhoods have experienced residential instability and displacement pressures during and after significant economic shocks, surfacing important considerations for policymakers as they seek to stabilize the most vulnerable of Oakland's households.

¹ This analysis builds on previous work, including Hwang, Gupta, and Shrimali 2020. Our past work has leveraged this data to examine financial instability as indicated by households that gain new delinquencies and individuals whose credit scores decline. However, since many creditors, such as mortgage lenders and credit card companies, offered temporary payment relief during the pandemic and did not report missed payments, we focus only on moving and household crowding in this policy brief.



A Note on Methods

For this analysis, we group residents in the CCP sample into four categories based on their credit scores. Categories are defined using Equifax Risk Scores—proprietary credit scores that estimate the likelihood that an individual will pay their debts without defaulting—as a proxy of financial stability. While Equifax Risk Scores are highly correlated with income and wealth,² they reflect a distinct dimension of financial health that has implications for one’s stability in the housing market, where landlords often use credit scores to screen tenants and lenders use credit scores to distribute mortgage products and make lending decisions.³ We proxy income bands (including those relevant to targeting housing assistance and policies) by bounding credit score categories as follows:

- Extremely Low Income (ELI): an Equifax Risk Score < 580 or no score (i.e., too few accounts or new credit)
- Very Low Income (VLI): 580–649
- Low/Moderate: 650–749
- Middle/High: 750 or higher⁴

In the CCP sample, the share of residents in each credit score category shifts over time: while 27.7% of residents fell in the Middle/High category in 2002, that share rose to 47% of residents in 2021. In contrast, the ELI group made up 30.3% of the sample population in 2002 but just over 9% in 2021.⁵ For more detail on the CCP data and credit score categorization, see Appendix C and Appendix D. While we present findings for all groups in this report, we place greater emphasis on outcomes for Oakland’s most vulnerable residents, i.e., ELI and VLI residents, who may be at greatest risk of experiencing residential instability due to rising housing costs.


We consider two main outcomes to study residential instability: moving out and household crowding. To examine moving out, we consider the extent to which

² See Brevoort, Grimm, and Kambara 2016.

³ We describe our data sources in detail in Appendix A.

⁴ Analysis of population distributions using data from the Comprehensive Housing Affordability Strategy (CHAS) for the City of Oakland suggests that our categories are similar to the following HUD AMI categories, respectively: <30% AMI (“extremely low”), between 30% and 50% AMI (“very low”), between 50% and 100% AMI (“low/moderate”), and above 100% AMI (“middle/high”).

⁵ In 2002, 15.4% and 26.6% of the sample population was in the VLI and Low/Moderate groups, respectively. In 2021, these shares were 10.3% and 24.7%, respectively.




residents moved out of their census block groups and where they moved to. As we have limited data on the nature of these moves (e.g., whether by choice or due to financial/housing constraints), we consider higher rates of moving out among ELL and VLI residents to signal greater instability as these groups have fewer resources to access housing alternatives in Oakland and the Bay Area. Higher credit score residents, on the other hand, can generally afford a wider range of options, so their moves may be less financially constrained and represent greater housing choice in better-resourced neighborhoods when looking to move (e.g., in search of new jobs or schools). Lower credit score residents also tend to move to significantly lower-opportunity neighborhoods compared to their higher credit score counterparts, signaling greater vulnerability for lower credit score residents who move.⁶ At the same time, lower rates of moving among lower credit score groups may also imply residents are experiencing other financial and housing constraints before they decide to move. To that end, we also consider household crowding.

For household crowding, we examine the extent to which individuals in households with one to two adults transition into households with at least four adults (including people who move out of their home and people who move into their home) in a given time period. (Refer to Appendix B for more detail on these indicators.)

We also examine variations in residential instability by the ethnoracial composition of Oakland's neighborhoods. To do so, we assign census tracts to one of four categories based on their racial and ethnic composition in 2000: Predominantly Black, Mixed-Black, Multiethnic, and White-Mixed. Predominantly Black refers to census tracts where Black residents made up at least 60% of the population according to the 2000 Census.⁷ Mixed-Black neighborhoods are tracts where at least 20% of the population was Black but less than 20% was White. Multiethnic neighborhoods are those with sizeable populations of each major ethnoracial group or those with at least 40% Hispanic/Latinx or Asian & Pacific Islander population. Finally, White-Mixed neighborhoods are tracts are those with either (a) at least a 60% White population or (b) tracts with a substantial White population that were not Multiethnic. (For more information on these categories, refer to Appendix C.)

⁶ See Hwang, Gupta, and Shrimali 2021.

⁷ "Black" refers to U.S. Census Bureau definitions of Black Alone, non-Hispanic, which includes individuals who do not identify as "Spanish/Hispanic/Latino" and listed only "Black" or "African-American" as their race.



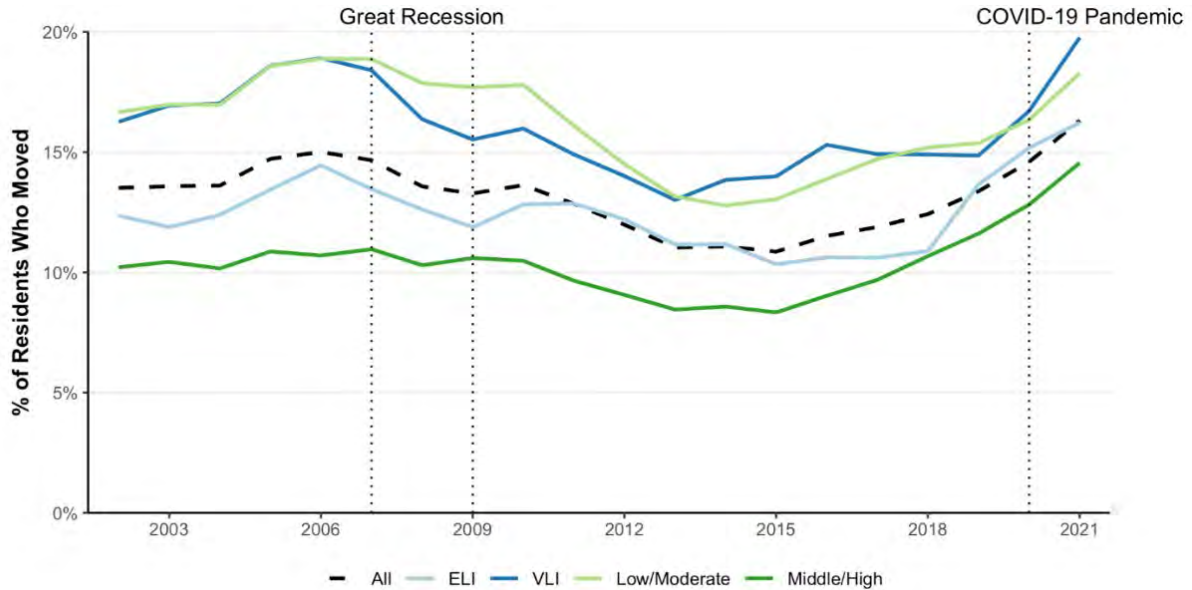
The pandemic accelerated the increase in residents moving out of Oakland, with ELI movers the most likely to leave the Bay Area altogether.

Over the last two decades in Oakland, there has been considerable variation in the rates at which residents moved out of their homes (Figure 1). Apart from a slight rebound in 2010, on the whole, the period following the Great Recession ushered in a relative lull in moves until the mid-2010s when rates began to tick upward again. The onset of the COVID-19 pandemic and the economic shocks that accompanied it saw move-out rates climb even further in years that followed.

Across credit score categories—and throughout the ebbs and flows of the economic cycle—residents with fewer resources tended to move at higher rates than their higher credit score counterparts, suggesting greater exposure to the risk of housing instability: VLI residents in particular moved out of their homes at rates about 4 to 9 percentage points above middle/high residents throughout most of this period.

That the least-resourced group, ELI residents, moved at somewhat lower rates than VLI and low/moderate residents could reflect the role of government assistance programs, such as housing vouchers, in protecting the most vulnerable renters from displacement. At the same time, these lower rates may also suggest that residents are staying in place—despite potentially facing other financial and housing constraints—due to the shortage of affordable alternatives available to them. ELI residents also charted the steepest increase in move rates in the lead up to the pandemic, suggesting that, despite tenant protections, ELI residents may be at growing risk of displacement as a result of rising housing costs and economic shocks in recent years. Residents in the low/moderate credit category also moved out more than the average rate in Oakland throughout the last two decades. While high rates out of moving out for this group may be a result of the wider range of housing options affordable to them, untangling the nature of these moves in future research will be crucial to determining the degree of instability experienced by this group.

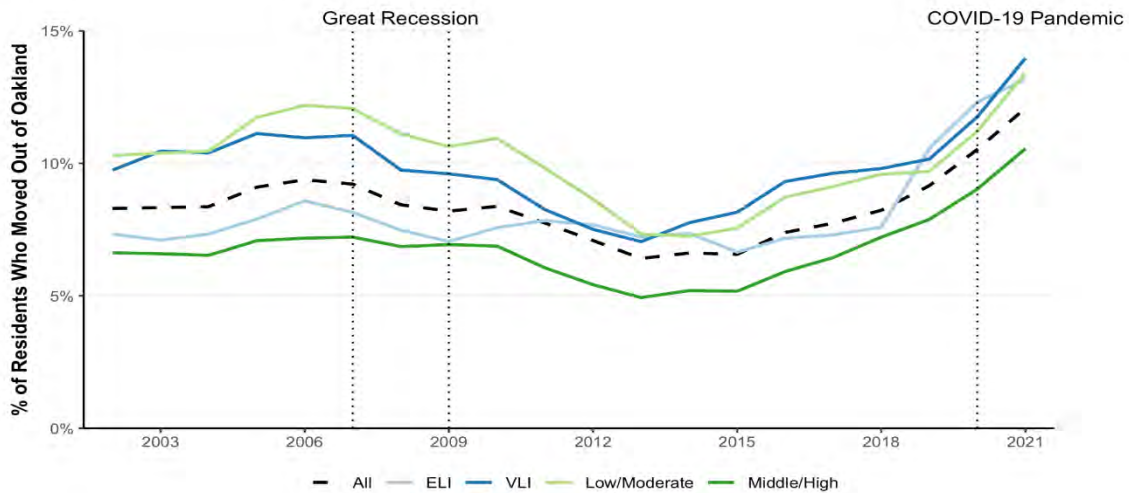
Figure 1. Percentage of residents who moved out of their neighborhood from 2002 to 2021, by socio-economic status category.



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
 Note: Data points reflect 3-year rolling averages.

Focusing in on residents who not only moved but who left Oakland altogether over this period brings these trends into sharper relief (Figure 2). The pandemic period saw rates of residents moving out of Oakland rise to a two-decade high. While that holds true for all groups, the steepest increase in recent years occurred for ELI residents—putting their move-out rates on par with VLI and low/moderate residents following the pandemic. Even before the onset of COVID-19, ELI residents experienced sharp increases in move-outs after 2018 and surpassed other groups in rates of leaving Oakland in 2019 and 2020, adding to concerns about the displacement of the residents with the least means—and not just from Oakland, but from the Bay Area more broadly.

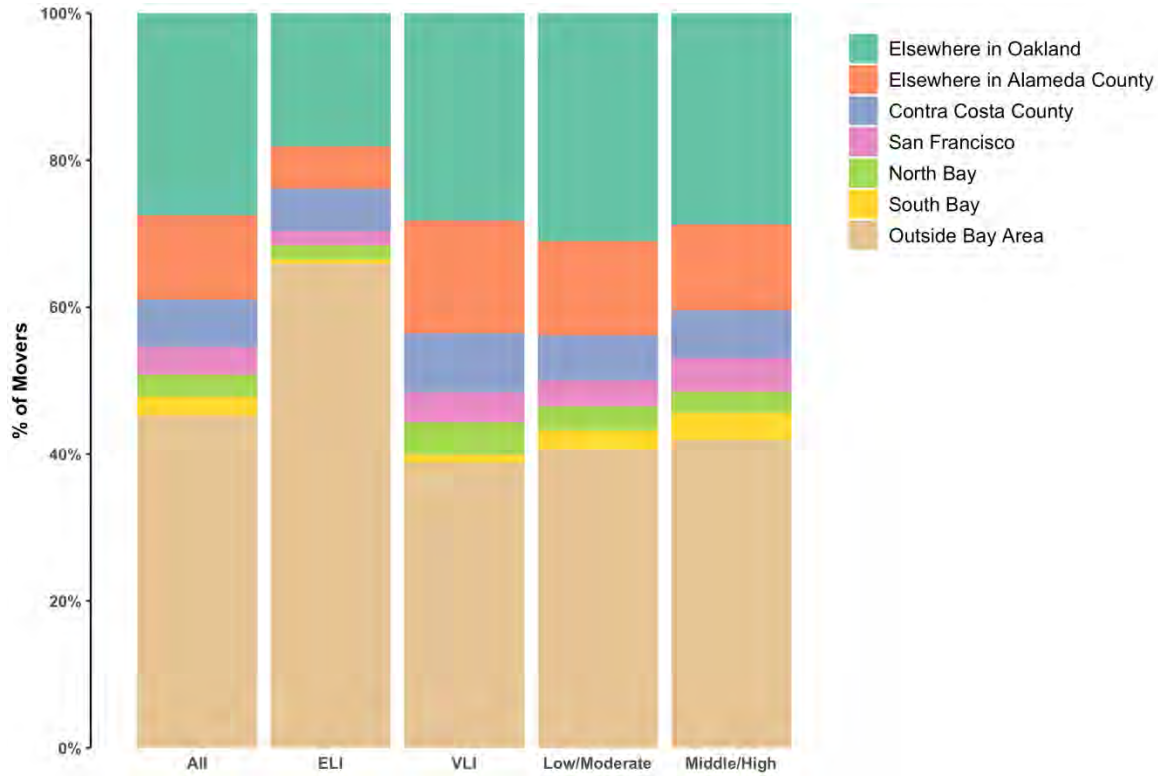
Figure 2. Percentage of residents who moved out of Oakland from 2002 to 2021, by socio-economic status category.



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.

Between September 2021 and 2022, while 4 out of 5 ELI movers ended up leaving Oakland, two-thirds moved out of the Bay Area completely, outstripping other groups' leave rates by 20 percentage points or more (Figure 3). By the same token, ELI residents were also the least likely to remain in Alameda County after moving out of Oakland. Notably, VLI residents were the most likely to remain in the Bay Area after leaving Oakland, with the highest proportion moving within Alameda County and to Contra Costa County compared to other groups. Low/moderate and middle/high movers were the most likely to move within Oakland; these higher credit score residents may have been able to access a wider range of housing alternatives while moving, allowing them to avoid longer-distance moves.

Figure 3. Destinations of Oakland residents who moved out their neighborhood between September 2021 and September 2022.



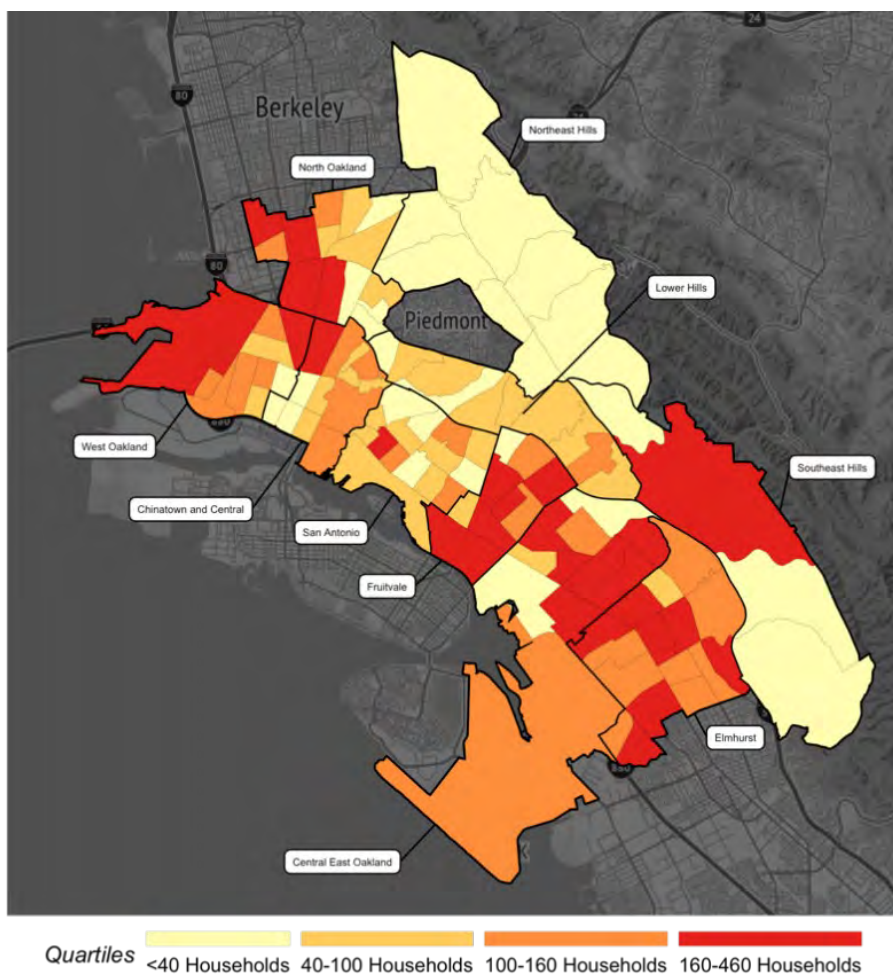
Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.

In recent years, rates of moving out have been highest in vulnerable neighborhoods in East and West Oakland and in Multiethnic and Predominantly Black neighborhoods.

The vulnerability to housing instability ELI and VLI residents is higher in certain parts of the city (Figure 4). Clear patterns emerge in the post-pandemic period: census tracts in East Oakland and parts of West Oakland are home to substantially higher numbers of ELI and VLI residents who moved out of their homes in the most recent year for which we have data. Some, but not all, of these neighborhoods coincide with areas identified as high priority by the City’s Geographic Equity Toolbox (Figure 5, based on populations of people of color, low-income households, and other demographic

factors),⁸ suggesting that Oakland’s most vulnerable residents and communities of color are moving out at disproportionately higher rates. In contrast, residents in the low/moderate credit category who moved recently were generally concentrated in parts of Oakland near Lake Merritt and North Oakland (Appendix Figure 2).

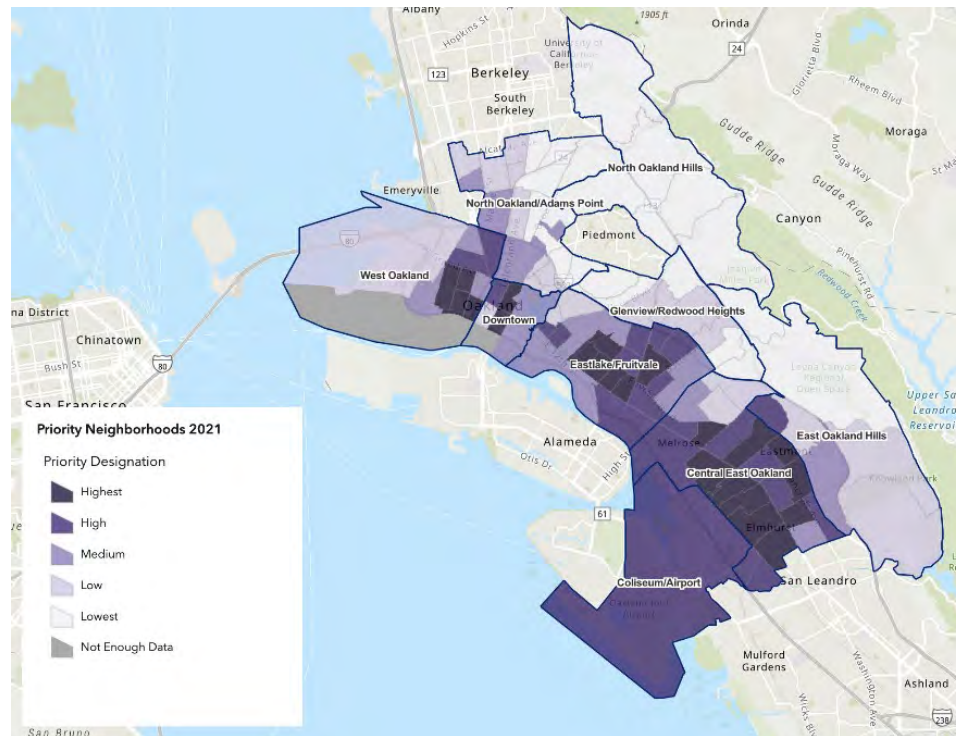
Figure 4. Number of ELI and VLI households who moved out of their neighborhoods between September 2021 and September 2022.



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.

8 This Toolbox uses pre-pandemic American Community Survey data (2015–2019) as 2020 Census data collection was impacted by COVID-19 pandemic. <https://www.oaklandca.gov/resources/oakdot-geographic-equity-toolbox>

Figure 5. Priority Neighborhoods identified by the OakDOT Geographic Equity Toolbox, based on ACS 2015–2019 estimates.

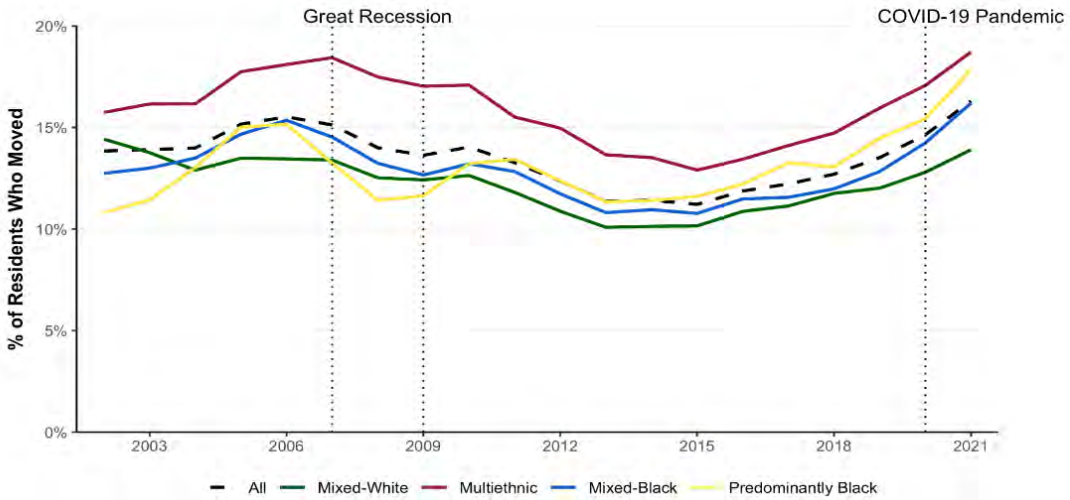


Source: OakDOT Geographic Equity Toolbox.

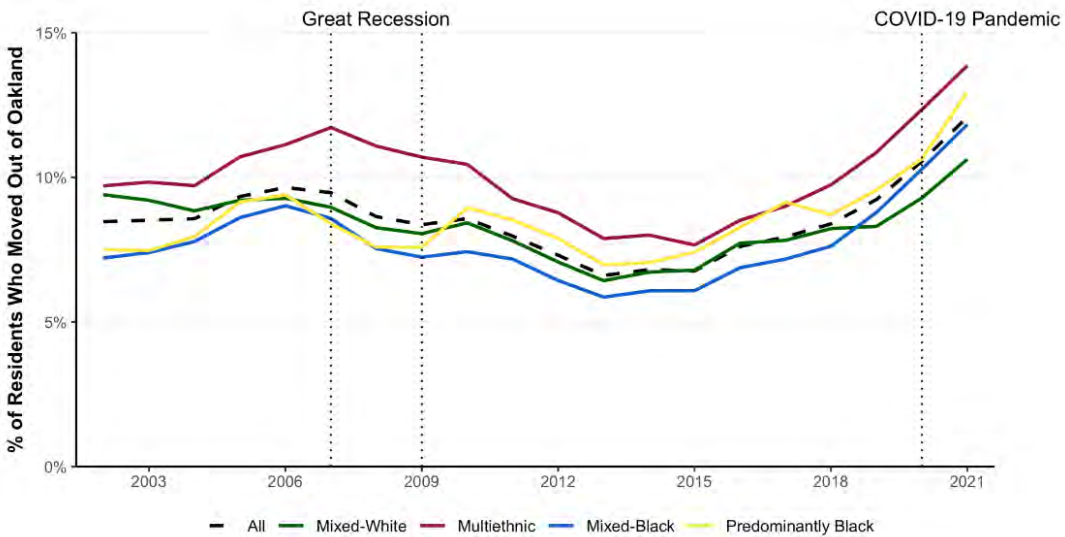
Based on our ethnoracial categorizations of Oakland’s neighborhoods, residents across credit score categories who lived in Multiethnic neighborhoods have moved out of their neighborhoods at the highest rates over the past two decades (Figure 6a). For Predominantly Black neighborhoods, the Great Recession marked an inflection point. Residents in Predominantly Black neighborhoods were the only group to see increases in moving out between 2009 and 2011. While residents in these areas sometimes used to move at lower rates in comparison to White-Mixed and Mixed-Black neighborhoods, after 2010, they have consistently moved at higher rates, and since around 2018, these areas have also experienced sharper increases in rates of moving out of Oakland entirely (Figure 6b).

Figure 6. Percentage of residents who (a) moved out of their neighborhood, and (b) moved out of Oakland from 2002 to 2021, by neighborhood ethnoracial category.

a)



b)



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.

Note: Data points reflect 3-year rolling averages.



Transitions to crowded housing conditions rose for lower credit score households in the wake of both the Great Recession and the pandemic.

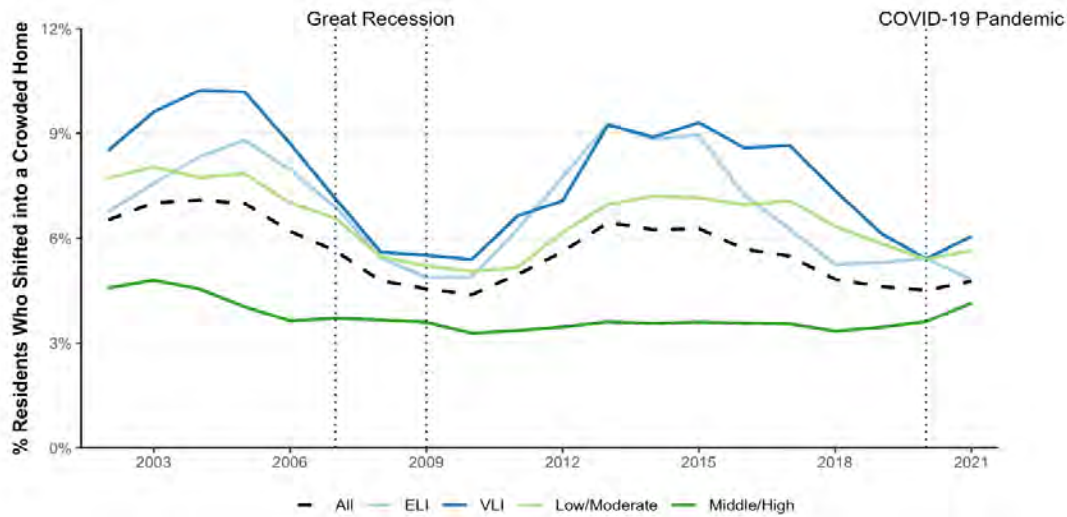
While move-out rates reflect one facet of housing instability, many households experience instability even before they move. As housing becomes increasingly unaffordable, individuals and families may “double up” or share spaces at greater rates, which can have various negative implications for housing, health, and well-being.⁹ Figure 7 shows the extent to which individuals in households with one to two adults transitioned into households with at least four adults in a given period. Almost throughout the last two decades, ELI and VLI residents transitioned into crowded households at the highest rates compared to other groups. These groups also see the largest growth in shifts to crowded households in the years following the Great Recession. This period, from 2010 to 2013, coincides with substantial declines in rates of moving (shown previously in Figure 1). Taken together, these trends suggest that lower credit score residents face difficult tradeoffs: to cope with the lack of affordable housing, they can either move out of the city, or they can resort to strategies like doubling up with others to avoid having to move elsewhere.

High levels of household crowding are especially concerning in the context of the COVID-19 pandemic, putting residents at risk of increased transmission of the virus.¹⁰ Notably, in the period following the onset of the pandemic, crowding appears to have increased alongside moving out (with the exception of ELI households). It is unclear if that near-term trend signals a longer-term shift, or if it is a temporary response to the unprecedented challenges of the pandemic that might, in subsequent years of data, yield patterns more in line with the surge in crowding (and lull in moves) that followed the Great Recession.

⁹ See Hwang and Shrimali 2022.

¹⁰ See Emeruwa et al. 2020, and Hwang and Shrimali 2022.

Figure 7. Percentage of low-density households (1-2 adults) who shifted into high-density households (4+ adults) from 2002 to 2021, by socio-economic status category.



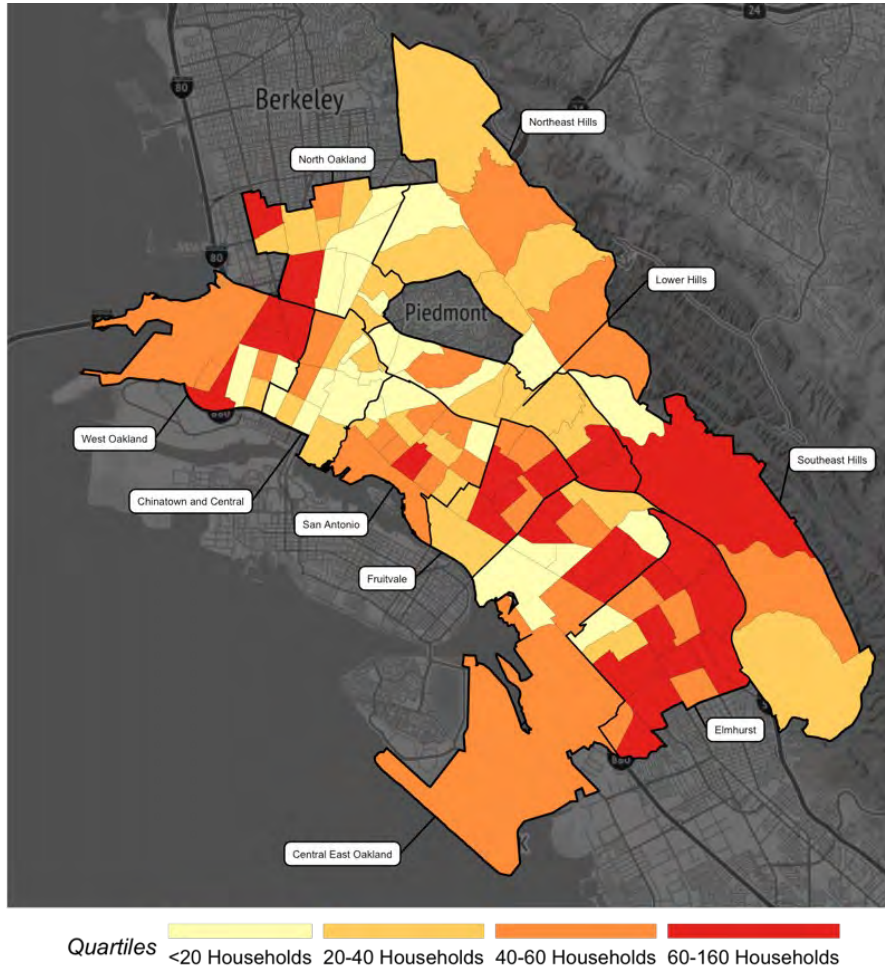
Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.

Note: Data points reflect 3-year rolling averages.

Neighborhoods with larger concentrations of people of color and other at-risk populations have experienced higher rates of transitions to crowded conditions in recent years.

Similar to moving, the extent of shifts to crowded households after the pandemic also varies in different parts of Oakland (Figure 8). Between September 2021 and 2022, large populations of ELI and VLI residents who started experiencing crowded living conditions resided in East Oakland and parts of West Oakland. According to the Geographic Equity Toolbox, these neighborhoods are home to large concentrations of people of color and other at-risk populations, and several of these neighborhoods also saw high rates of moving out during this period. With some exceptions, the geographic spread of low/moderate residents who experienced shifts to crowded households sees similar variation across Oakland, adding to concerns about housing insecurity in the City’s disadvantaged neighborhoods (Appendix Figure 3).

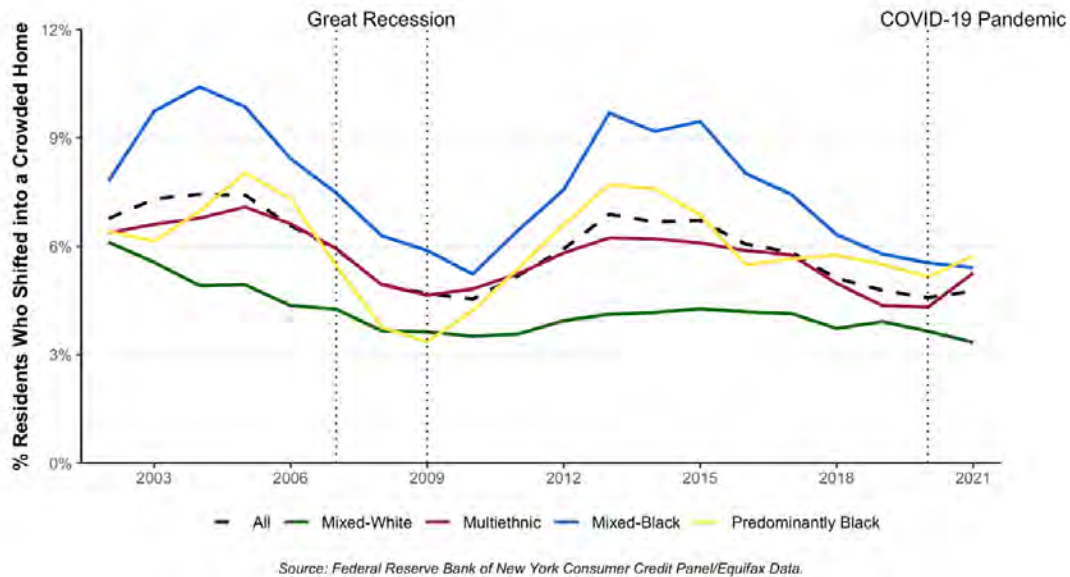
Figure 8. Number of low-density ELI & VLI households (1-2 adults) who started living in high-density households (4+ adults) between September 2021 and September 2022.



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.

Across credit scores, residents living in Mixed-Black neighborhoods transitioned into crowded conditions at the highest rates throughout most of the last two decades (Figure 9). The marked uptick in crowding following the Great Recession is also most pronounced for Mixed-Black and Predominantly Black neighborhoods. However, while Mixed-Black and Mixed-White neighborhoods saw the rate of households transitioning to crowded conditions decline in recent years, Predominantly Black and Multiethnic neighborhoods exhibited a post-pandemic uptick in crowding (similar to patterns observed in Figure 7).

Figure 9. Percentage of low-density households (1-2 adults) who shifted into high-density households (4+ adults) from 2002 to 2021, by neighborhood ethnoracial category.




Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
 Note: Data points reflect 3-year rolling averages.



Conclusion

The COVID-19 pandemic has exacerbated instability and its impacts on marginalized communities. In this report, we used the Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data (CCP) to examine the extent of residential instability—in the form of moving out and household crowding—in Oakland over the last two decades. We found that while moving out declined following the Great Recession, increases in ELI and VLI residents moving out of Oakland accelerated in recent years, with ELI movers the most likely to leave the Bay Area. Compared to other groups, a higher proportion of VLI residents moved to Contra Costa County and the North Bay—the outer edges of the Bay Area. In addition, transitions to crowded housing conditions rose for ELI and VLI residents in the wake of the Great Recession, in effect trending in the opposite direction of move-outs in the last 20 years and suggesting that residents may be doubling up, sharing spaces, and facing other constraints in order to avoid moving elsewhere. In the period following the onset of the pandemic, however, we note some small increases in crowding alongside sharp increases in moving out. It is unclear whether these trends will continue to move in tandem, but they could suggest that lower credit score residents may experience multiple forms of constraints in coming years, i.e., increases in both moving out and household crowding, which would have concerning implications for residential stability in Oakland.

These outcomes also vary by the geography and demographics of Oakland: residents in specific parts of East Oakland and West Oakland and in Predominantly Black, Mixed Black, and Multiethnic neighborhoods faced the greatest instability. Taken together, our findings highlight the vulnerability of lower credit score groups, especially those living in communities of color, and offer important insights for policymakers and practitioners working to stabilize Oakland's most vulnerable residents. At the same time, these findings point to important questions for further research to better untangle these trends and tradeoffs. For instance, the data show relatively high rates of moving among Low/Moderate residents—almost on par with VLI households. While this may be because of their ability to afford a greater number of housing alternatives, we cannot ascertain whether they moved by choice or due to financial and housing constraints. Future research on the nature of their moves would add to our understanding of the region's affordability crisis and its impacts on specific groups. In addition, the CCP data is anonymous, and thus, it does not provide important demographic information, like race and ethnicity, income, or tenancy status



of households experiencing instability. Nor does it offer insights into why residents make the housing and relocation decisions they do. Future research should consider conducting interviews and/or surveys with local residents to understand the housing and financial factors that contribute to or ameliorate their instability. To that end, our forthcoming work in Oakland supplements findings from the CCP data through in-depth, semi-structured interviews with ELI and VLI residents to reveal additional insights into patterns of residential instability and what approaches policymakers and practitioners could consider for addressing the issue.



Appendix A: Data Sources

Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data (CCP)

This restricted longitudinal dataset provides quarterly information on a 5 percent sample of adult consumers from January 2002 to September 2022. It contains census block group–level information on where respondents live, as well as respondents’ age, loans, mortgages, financial issues (e.g., delinquencies, bankruptcy, foreclosure), and Equifax Risk Scores (credit scores that indicate financial stability). These data are used to analyze individuals’ financial health and moving patterns over time for more than 14,000 Oakland residents per year. Adult consumers comprise those with at least one credit account or collection/public record (such as bankruptcy or foreclosure), as well as those with closed or authorized user accounts. We analyze residents aged 18 to 84.¹¹ More details about the dataset and Equifax Risk Scores are in Appendix D.

U.S. Census Bureau

This publicly available dataset provides information for several variables, including demographic (race, ethnicity, nativity, age), socioeconomic (income, poverty, educational attainment), and housing (occupancy, rent, home value) indicators. These data are available at various geographies, with the lowest aggregation at the census block group level, from the decennial Census years from 1970 to 2020. Census variables rely on a one-in-six sample.

We used race and ethnicity data from the 2000 decennial census to develop ethnoracial categories of Oakland’s census tracts. These categories are described in Appendix C.

¹¹ Residents older than 84 years are overrepresented in the data, most likely due to a lag in registered deaths in the data.



Appendix B: Measuring Residential Instability

Constraints on housing costs can entail residential displacement, but they can also involve complex tradeoffs and constrained choices when it comes to housing and neighborhoods for both movers and stayers. We draw on the CCP data to analyze two outcomes described below, which could be considered indicators of residential instability, especially for households with limited financial resources. We present the percentage of residents (and in some cases households) experiencing each outcome. Since the CCP data is a 5% sample (~14,000 Oakland residents), we multiplied the number of households in the dataset based on the scale of Oakland's population to present the magnitude of households experiencing each outcome overall.

Moving Out

- **Extent of moving:** For each year, we examine if residents move from their census block group (which contains an average of 39 blocks and about 600–3,000 people). Residents may certainly move within these block groups, and our data do not capture these short-distance moves.
- **Move Characteristics:** To examine where movers go, we assess whether they moved out of their city or outside of the Bay Area, as well as where they move within the Bay Area. Moving far distances can have implications for access to pre-existing networks, sources of support, and resources and opportunities, such as employment and health care. Moving to different cities or towns can also imply changes in school districts, as well as other resources and public goods that align with municipal boundaries.

Household Crowding

As housing becomes increasingly unaffordable, individuals and families are doubling up and sharing spaces at greater rates, which has various negative health implications (Hwang and Shrimali 2022). For everyone in the CCP sample, the data contain the number of adults with a credit history who live in the individual's household. We examine the extent to which individuals in households with one to two adults transition into households with at least four adults.



Appendix C: Additional Definitions

Credit Score Categories

We present findings using Equifax Risk Scores, proprietary credit scores that estimate the likelihood that an individual will pay their debts without defaulting. Equifax Risk Scores are a proxy of financial stability and reflect a distinct dimension of socioeconomic status (SES) from typical measures, such as income or wealth, that are particularly relevant to the housing market, where landlords often use credit scores to screen tenants and lenders use credit scores to distribute mortgage products and make lending decisions. We define credit score categories in the following way to align with income bands commonly used to determine eligibility for housing assistance:

- Extremely Low Income (ELI): < 580 or no score (too few accounts or new credit)
- Very Low Income (VLI): 580–649
- Low/Moderate: 650–749
- Middle/High: 750 or higher

Separate analysis suggests that the distribution of residents in the Bay Area by these categories is similar to the distribution of adult residents in the following income categories, respectively: < 50% of the U.S. median household income; between 50%–100% of the U.S. median household income; between 100–200% of the U.S. median household income; and over 200% of the U.S. median household income. Because we do not have information on household size (including children) and the CCP data are a sample of individuals, not households, our data are not directly comparable to the U.S. Department of Housing and Urban Development (HUD) Area Median Income (AMI) categorizations, which are based on metropolitan area, family size, and income. Analysis of population distributions using data from the Comprehensive Housing Affordability Strategy (CHAS) for the City of Oakland suggests that our credit score categories are similar to the following HUD AMI categories, respectively: <30% AMI, between 30% and 50% AMI, between 50% and 100% AMI, and above 100% AMI.

Ethnoracial Composition

We separate Oakland’s census tracts into categories by their ethnoracial composition in 2000. We use census tracts as proxies for neighborhoods and use these terms

interchangeably in this report. Census tracts are geographic units containing about 4,000 residents on average and are the smallest standard spatial aggregations for which consistent data are available over time. Census tracts are classified based on their racial and ethnic composition in the year 2000 with categories that recognize the multiethnic nature of cities today: Predominantly Black, Mixed-Black, Multiethnic, and White-Mixed.

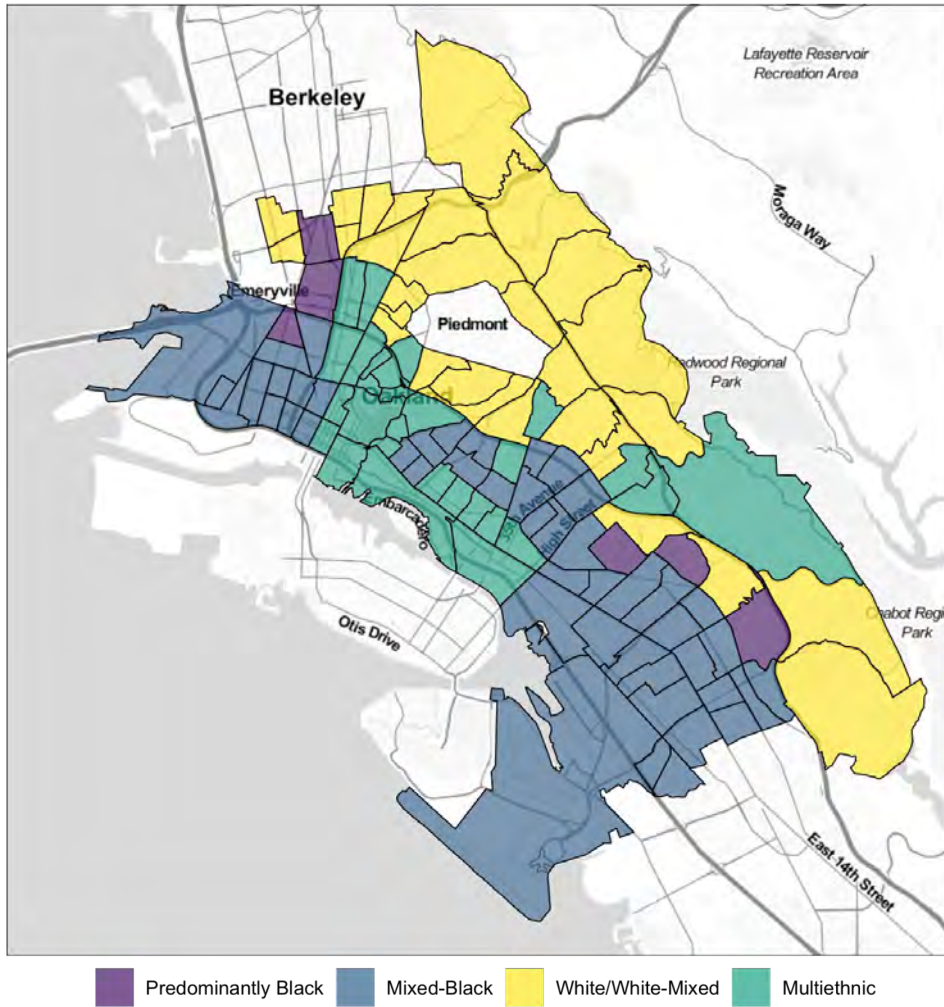
Appendix Table 1. Description of ethnoracial categories.

Ethnoracial Category	Subcategory	Criteria
Predominantly Black	Predominantly Black	Over 60% Black; under 20% White; under 15% Hispanic, under 10% Asian.
Mixed-Black	Mixed-Black & Other Race	Mixed-Black and other-race tract: under 20% White; over 20% Black; over 15% Hispanic; or over 10% Asian.
Multiethnic	Predominantly Other Race	Over 40% Hispanic, or over 40% Asian; under 20% each White, Black.
	Multiethnic	Over 20% each White, Black, and over 15% Hispanic or over 10% Asian.
White/White-Mixed	Predominantly White	Over 60% White; under 20% Black; Under 15% Hispanic, Under 10% Asian.
	Mixed-White & Other Race	Mixed White and other-race tract: over 20% White; between 15% and 40% Hispanic or between 10% and 40% Asian; under 20% Black.
	Mixed Black & White	Mixed White and Black tract: over 20% each White, Black; under 15% Hispanic, under 10% Asian.

Source: Authors' analysis of U.S. Census 2000 data.

Note: In all but one tract, the Black, White, Hispanic, and Asian populations accounted for 96% of the total population. The only exception was tract 9820 (which was classified as Black-Other) in which 18% of the population was not reported as White, Black, Hispanic, or Asian.

Appendix Figure 1. Ethnoracial categorization of census tracts in Oakland.



Source: Authors' analysis of U.S. Census 2000 data.




Appendix D: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data (CCP)

The CCP data consist of an anonymized 5 percent random sample of consumers over 18 years old with Social Security numbers (SSNs) and a credit history, collected quarterly by the credit bureau Equifax. The sample is intended to be a nationally representative sample of consumers in a given quarter. About 1–3 percent of consumers are dropped, and a similar share are added to the panel each quarter to maintain this representativeness. Thus, younger people and new immigrants who become consumers are added, and consumers who die, move out of the United States, or have a prolonged period of inactivity are dropped. The sample includes consumers with at least one credit account or collection/public record (such as bankruptcy or foreclosure), as well as those with closed or authorized user accounts (Lee and van der Klaauw 2010). Although 45 million U.S. adults do not have credit scores (Wherry, Seefeldt, and Alvarez 2019), nearly half of these adults are represented in our data.

The CCP data include information on individuals' age, credit information (including Equifax Risk Scores—credit scores), census block group of address, and payment activity of mortgages and other credit accounts. Similar information is provided for all other adult consumers in the same household, based on their residential address. The CCP data exclude individuals who lack credit or a credit history, which may underrepresent younger individuals, noncitizens or undocumented immigrants, and very low-SES individuals and may overrepresent older individuals and include those who are deceased. Further, our ability to assess mobility among homeless individuals and those who are severely residentially unstable is limited because their residential data are likely misreported.

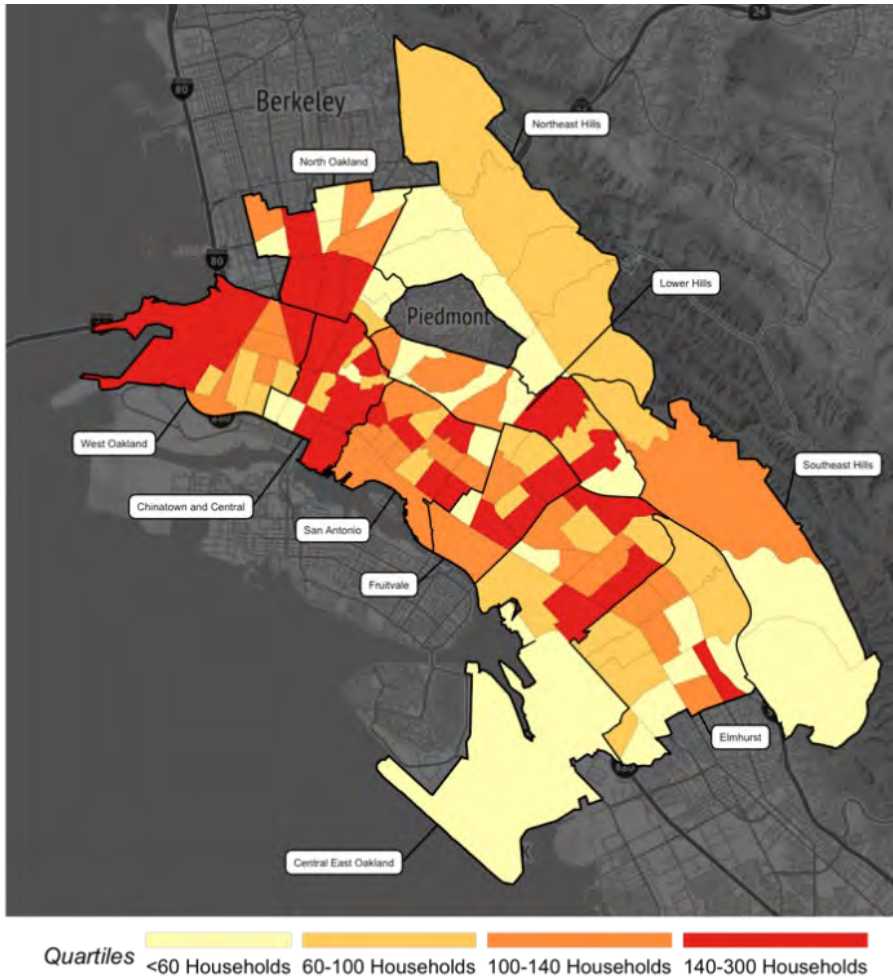
The Equifax Risk Score is a proprietary credit score that estimates the likelihood that an individual will pay his or her debts without defaulting. A variety of factors that relate to loan performance contribute to credit scores, including previous payment history, outstanding debts, length of credit history, new accounts opened, and types of credit used (Federal Reserve Board 2007; Fair Isaac Corporation 2015); delinquency, large increases in one's debt, and events of public record (e.g., bankruptcy or foreclosure) often lead to low credit scores (Anderson 2007). The scores range from 280 to 850, with higher scores representing greater financial health and advantage. Having no score indicates that the consumer has a “thin” file, or too few accounts or



new credit such that there is too little information to estimate a score (Brevoort, Grimm, and Kambara 2016). Because the CCP data contain individuals who have a public record for collection, thin files are disproportionately lower-income, but younger consumers are also more likely to have thin files (Brevoort, Grimm, and Kambara 2016). Credit bureaus do not consider income when calculating credit scores, though credit scores correlate highly with income levels and can reflect individuals across the income and wealth distributions (Bostic, Calem, and Wachter 2005; Brevoort, Grimm, and Kambara 2016).

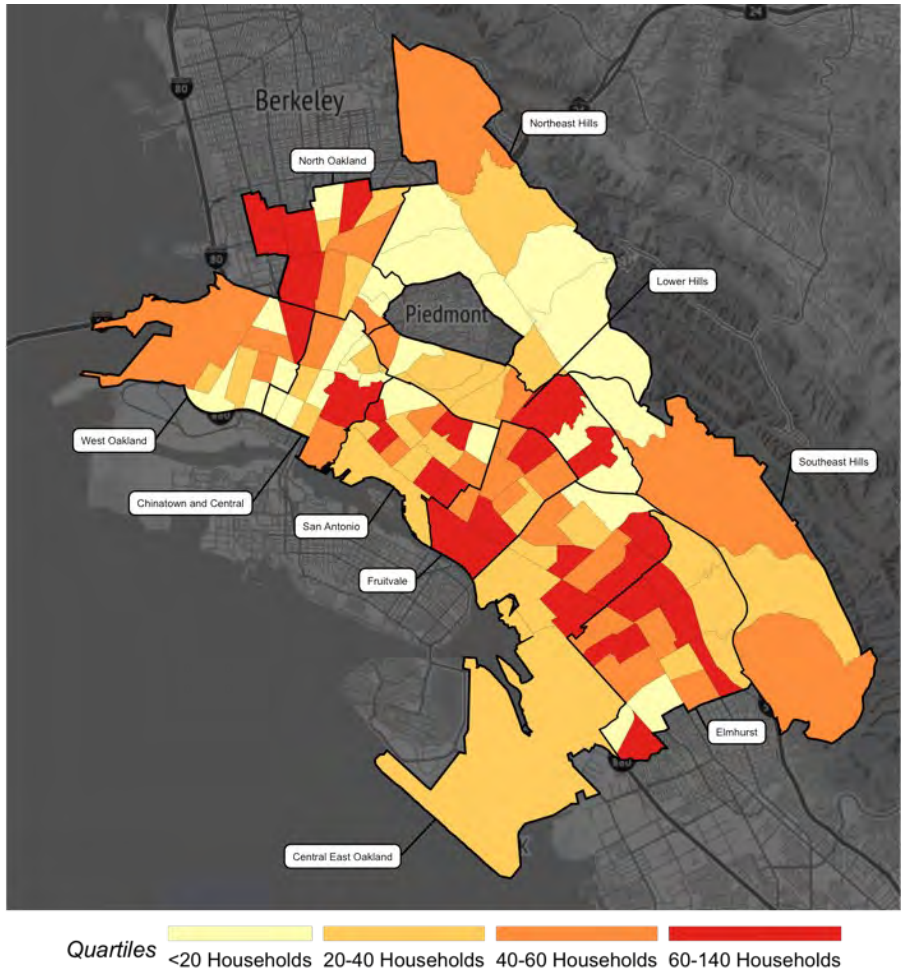
Appendix E: Residential Instability Outcomes for Low/Moderate Residents

Appendix Figure 2. Number of Low/Moderate residents who moved out of their neighborhoods between September 2021 and September 2022.



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.

Appendix Figure 3. Number of low-density Low/Moderate households (1-2 adults) who started living in high-density households (4+ adults) between September 2021 and September 2022.



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.



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