Community Development

Working Paper

FEDERAL RESERVE BANK OF SAN FRANCISCO

Neighborhood Change and Residential Instability in Oakland

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May 2021
Working Paper 2021-01
http://www.frbsf.org/community-development

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Suggested Citation

Hwang, Jackelyn, Vineet Gupta, and Bina P. Shrimali. 2021. "Neighborhood Change and Residential Instability in Oakland." Federal Reserve Bank of San Francisco Community Development Working Paper 2021-1. doi: 10.24148/cdwp2021-01

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[1] The views expressed in this paper are those of the authors and do not necessarily reflect the views of the Federal Reserve Bank of San Francisco or the Federal Reserve System. We would like to thank Matt Alvarez-Nissen, Ruben Anguiano, Julie Fukunaga, Brooke Tran, Alisha Zhao, and Ada Zhou for their excellent research assistance.

EXECUTIVE SUMMARY

This report draws on multiple data sources, including large-scale proprietary data, to describe neighborhood change and residential instability in the City of Oakland over the past two decades. We first describe historical trends. Then, using contemporary data and data during the Great Recession, we identify areas likely to experience more instability as the effects of the COVID-19 pandemic unfold and compare these predictions to data that are available in 2020. These analyses aim to guide strategies to mitigate the negative effects of the pandemic on individuals and their neighborhoods.

KEY FINDINGS

- **Oakland has changed dramatically by race and class over the past 20 years.** Oakland's white and Hispanic populations and share of high-socioeconomic-status (SES) residents grew dramatically, while its Black population declined by over one-third. Nearly all of Oakland's previously lower-income neighborhoods, especially those with substantial Black populations in 2000, showed at least some signs of gentrification and declines in shares of low-SES residents.
- **Oakland's lower-SES residents consistently moved at significantly higher rates than high-SES residents, and lower-SES residents moved and moved to households with more adults at higher rates in Downtown Oakland and parts of North and West Oakland.** Low-, moderate-, and middle-SES residents consistently moved at or above national rates. Residents who were moderate- and middle-SES or living in gentrifying or Multiethnic/Other-Race neighborhoods moved the most.
- **Oakland residents moved much less after the Great Recession than before, but lower-SES residents who moved after the Recession made more constrained moves.** Following the Recession, low-SES residents disproportionately moved out of Oakland and the Bay Area altogether at increasingly high rates, increasingly moved to households with more adults, and increasingly moved to lower-opportunity neighborhoods. Altogether, these constraints reflect the increasingly limited options that lower-SES movers face.
- **Despite having lower rates of moving among lower-SES residents, parts of East Oakland had higher rates of financial instability.** Although financial instability declined after the Great Recession, new delinquencies became more prevalent in parts of East Oakland since 2015. In these areas, lower-SES residents moved at relatively lower rates, suggesting that lower-SES residents in these gentrifying areas may be offsetting other financial needs to afford rising housing costs.
- **Moderate-SES residents may be most vulnerable to displacement.** Compared with other SES groups, they moved at increasingly higher rates and increasingly experienced financial insecurity over time. After 2015, this group moved at the highest rates and gained new delinquencies at higher rates than any other SES group.

- **Disinvestment remains concentrated in Deep East Oakland and parts of West Oakland.** These areas were hit hardest by the foreclosure crisis, and vacancy rates consistently higher and building permits were consistently lower than other parts of the city. Although lower-SES residents who moved within Oakland or to Oakland moved to increasingly fewer places over time, they increasingly concentrated in these areas. Since 2015, these areas experienced increases in households with mortgages and middle-SES residents after 2015, signaling gentrification.
- **Data from 2020 suggest that the effects of the COVID-19 pandemic on residential instability are distinct from the Recession: Low-SES residents moved at substantially lower rates than before but also appear more constrained.** Predictions based on trends from the Great Recession identified moves and constrained moves to be concentrated in the Downtown Oakland and Temascal areas and financial and neighborhood instability to be concentrated in Deep East Oakland. However, recent data spanning 2020 suggest that moves into crowded households and financial instability are more widespread and more frequent than before the pandemic, while low-SES residents moved at substantially lower rates. Moderate-, middle-, and high-SES residents moved more than before. Areas with high financial instability will be important to monitor for residential displacement when housing protections and moratoriums end.

KEY CONSIDERATIONS FOR POLICY AND PRACTICE

- Increase displacement protections for moderate-SES residents and continue to support efforts that mitigate the displacement of low-SES residents.
- Provide housing opportunities targeted for low- *and* moderate-SES residents.
- Develop strategies that support residents who resort to crowded households and residents who experience more financial instability to avoid moving.
- Focus on Deep East Oakland and pockets of West Oakland, which have long histories of disinvestment. Monitor vulnerable areas for displacement and disinvestment, especially in the wake of the pandemic.
- Investigate how residents navigate rising housing costs and limited affordable housing options with a focus on racial disparities.

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I. DATA AND MEASURES

1. Data Sources

The analyses in this report draw on several data sources that we describe in more detail in Appendix A. The data include:

- Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data (CCP): A restricted longitudinal dataset from January 2002 to December 2020 of about 12,500 Oakland residents per year that includes information on the census block group[2] of where residents live, adult household size, and indicators of financial health, including Equifax Risk Scores (credit scores that indicate financial stability).
- U.S. Census and American Community Survey (ACS) Data: Demographic and housing indicators across census tracts from 2000 to 2018.[3]
- U.S. Department of Housing and Urban Development (HUD) and U.S. Postal Service (USPS) Vacancy Data: Vacancies across census tracts from 2008 to 2020.
- Home Mortgage Disclosure Act (HMDA) Data, U.S. Federal Financial Institutions Examination Council: Home loan applicant information from 1997 onward across census tracts.
- Open Oakland Final Foreclosures: Foreclosed properties from January 2007 to October 2011.
- City of Oakland Building Permits, 2000–2020
- DEEP-MAPS Unemployment Estimates, 2020: Inferred monthly labor force statistics across census tracts and race and ethnicity, using data from the Current Population Survey (CPS), Local Area Unemployment Statistics (LAUS), and the ACS.

[2] Census block groups contain approximately 600–3,000 residents and are nested within census tracts. Census tracts contain an average of 4,000 residents.
[3] The ACS data for census tracts are available only as five-year estimates due to the sampling design. We use the last year in the five-year intervals in this report. For example, we refer to the 2014–2018 ACS estimates as 2018.

2. 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 comprehensive set of data sources above to analyze residential instability in multiple ways:

- *Moving Out*: For each year (beginning on June 1st of one year and ending on June 1st of the following year), we examine if residents move from their census block group (which contains an average of 39 blocks and about 600–3,000 people).[4] 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 Oakland 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 preexisting networks, sources of support, and resources and opportunities, such as employment and health care, and moving to different cities or towns can also imply changes in school districts and other resources and public goods that align with municipal boundaries.

- *Crowding*: As housing becomes increasingly unaffordable, individuals and families may be doubling up and sharing spaces at greater rates, which has various negative health implications. 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 and the prevalence of households with at least four adults.

- *Destination Characteristics*: We also examine characteristics of the places to which people move and compare them with the neighborhoods from which they moved. To examine characteristics of where residents move, we assess the California Department of Public Health Healthy Places Index[5]—an indicator that reflects conditions of neighborhoods related to life expectancy at birth; median home values to assess if moves were driven by affordability; and poverty rates and racial and ethnic composition to assess the extent to which residents are re-segregating by class or race. The measures are based on the 2016 ACS five-year estimates.

- *Financial Instability*: Rising housing costs can induce financial burdens onto households, and this is likely to become evident before households move from their homes, as financially burdened households may prioritize paying their rent or mortgage over other bills. We examine the prevalence of new delinquencies on any credit accounts, which includes mortgages, and declines in credit scores using the CCP data.

- *Homeownership Instability*: We examine changes in homeownership across neighborhoods

[4] We rely on annual changes because, although locations are reported quarterly, there is variation in reporting, particularly due to lags when an individual moves.
[5] Source: https://healthyplacesindex.org/

by identifying changes in the shares of individuals in households with mortgages in the CCP data from one year to the next. We also examine the prevalence of households with new delinquencies on mortgages, using the CCP data and the spatial distribution of foreclosures from 2007 to 2011.

- *Neighborhood Demand*: Using the CCP data, we also assess where movers from either within Oakland or moving into Oakland are moving by SES to better understand which populations are growing in which areas. We also examine the prevalence of vacancies, using the Vacancy Data provided by USPS and HUD.

3. Neighborhood Categories

We separate Oakland's census tracts into categories by ethnoracial composition in 2000, socioeconomic status in 2018, and the degree of gentrification it experienced from 2000 to 2016 to compare differences in residential instability across these categories. 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. Appendix C provides more details on how we constructed the ethnoracial and gentrification neighborhood categories.

- *Ethnoracial*: Neighborhoods 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-Other, White/White-Mixed, and Multiethnic/Other. Details are provided in Appendix Table C-1.

- *Income*: Neighborhoods are classified based on their income composition. We classify census tracts into quintiles using the distribution of median household incomes in the 2018 ACS five-year estimates.

- *Gentrification*: Using the following working definition of gentrification—the socioeconomic upgrading of low-income urban neighborhoods characterized by reinvestment, renewal, and the influx of higher-socioeconomic-status (SES) residents, we build on past approaches to measuring gentrification and distinguish between different paces of change. Based on our work on gentrification and displacement in the Bay Area, we employ the following categories for changes from 2000 to 2016: Nongentrifiable (high income in 2000), Intense, Moderate, Weak, People, Price, and Nongentrifying (no substantial increases in housing prices or high-SES residents). These are explicitly defined in Appendix Table C-2.

4. Additional Definitions and Measures

SES: These are defined using Equifax Risk Scores, proprietary credit scores that estimate the likelihood that an individual will pay their debts without defaulting. They are a proxy of financial stability and reflect a distinct dimension of 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 the SES categories in the following way by their Equifax Risk Scores, which range from 280 to 850:

- **Low-SES:** < 580 or no Score (too few accounts or new credit)
- **Moderate-SES:** 580–649
- **Middle-SES:** 650–749
- **High-SES:** 750 or higher

For some analyses, we group low-, moderate-, and middle-SES residents together. We use the term "LMM-SES" to describe this group.

Separate analysis of the distribution of residents in the Bay Area by these SES categories are similar to the distribution of adult residents in the following income categories, respectively: < 50% of the US median household income; between 50%-100% US median household income; between 100-200% of the US median household income; and 200% of the median household income. Because we do not have information on household size (including children) and the CCP data is 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 suggest that our SES categories are similar to the following HUD AMI categories, respectively: <30% AMI ("extremely low", as labeled by the State of California), between 30% and 50% AMI ("very low"), between 50% and 100% AMI ("low" and "moderate"[6]), and above 100% AMI ("high").[7]

Housing Periods: The results are separated by four economic **housing periods** based on market trends from the Standard & Poor's Case-Schiller Home Price Indices for the San Francisco Bay Area (years represent the initial year of each annual sample of the CCP data):

- **Boom:** 2002–2006
- **Bust:** 2007–2009
- **Recovery:** 2010–2014
- **Post-Recovery:** 2015–2017

[6] The State of California categorizes those between 80-120% AMI as "moderate," but data from the CHAS only provides categories for residents up to 100% AMI.

[7] The area median income for a 3-person household in Oakland in 2014 was $84,150 (in 2014 inflation-adjusted dollars). For reference, the ACS 2010-2014 reports the U.S. median income for a 3-person household at $67,919 (in 2014 inflation-adjusted dollars).

II. NEIGHBORHOOD CHANGE IN OAKLAND

This section considers various ways in which Oakland neighborhoods have changed from 2000 to 2018, drawing from the 2000 U.S. Census, 2009 ACS, and 2018 ACS. Specifically, we examine demographic trends in the city overall and by the neighborhood categories and racial and ethnic segregation across the city. The analyses in this report exclude three of Oakland's 113 census tracts, which have populations below 100 and thus may produce unreliable estimates.

SUMMARY: Overall, Oakland's population has changed dramatically over the past two decades. Its population has grown, especially white and Hispanic residents, and its Black population has declined by over one-third since 2000. Hispanic residents are highly segregated in Oakland and became increasingly segregated over time, though white residents remain the most segregated from other groups. While homeownership declined as housing prices increased, the share of high-SES residents has increased dramatically since 2000. Since 2000, most of Oakland's previously lower-income neighborhoods have been gentrifying, defined as substantial increases in both the SES of its residents and in housing prices, and these changes are more prevalent in neighborhoods that had substantial Black populations in 2000. Notably, all previously lower-income neighborhoods in Oakland have shown at least some signs of gentrification according to our thresholds and have experienced increases in higher-SES residents and decreases in low-SES residents.

A. Demographic Change across Oakland

Table 1 provides an overall demographic summary of Oakland from 2000 to 2018. Over the past two decades, there has been a large influx of non-Hispanic white and Hispanic residents in Oakland, while Black residents have declined considerably. The number and shares of college-educated individuals and individuals in professional/managerial roles has also grown substantially. The median household income for white households grew by nearly 30 percent but remained relatively stable for Black, Hispanic, and Asian households. Median home values nearly doubled, but most of this growth occurred during the housing boom prior to the Recession, while median rents increased by over 30 percent since the Recession.

When we examined average changes across neighborhoods (not shown), we found that more neighborhoods have disproportionately high shares of white residents and that more neighborhoods have disproportionately fewer Hispanic residents, suggesting more segregation between these groups. We explore this further in the next section. In addition, the average median household income for Black and Hispanic residents is much higher when averaged by tract than when considered for Oakland overall, which suggests that Black and Hispanic residents have relatively high median household incomes in some neighborhoods.

Table 1: Demographic Change in Oakland, 2000–2018

Demographic Change in Oakland, 2000 - 2018

	2000	2005-2009	2014-2018
Population	399,415	398,725	421,042
Non-Hispanic White	93,964	106,090	118,713
% non-Hispanic White	23.53%	26.61%	28.20%
Black	146,420	113,234	97,053
% Black	36.66%	28.40%	23.05%
Hispanic	87,461	99,069	113,134
% Hispanic	21.90%	24.85%	26.87%
Asian	66,083	64,047	68,120
% Asian	16.54%	16.06%	16.18%
Other	5,487	16,285	24,022
% Other	1.37%	4.08%	5.71%
Foreign-born	106,118	112,108	116,179
% Foreign-born	26.57%	28.12%	27.59%
Recent immigrants	46,803	30,425	54,104
% recent immigrants	11.72%	7.63%	12.85%
Median household income (MHI)	$60,557	$58,303	$68,442
MHI non-Hispanic White	$86,779	$92,252	$110,206
MHI Black	$47,146	$40,010	$41,341
MHI Hispanic	$58,628	$49,779	$55,603
MHI Asian	$50,820	$52,827	$55,912
Population below poverty	76,451	68,890	73,416
% below poverty (BP)	19.14%	17.28%	17.44%
% BP non-Hispanic White	7.52%	7.63%	8.10%
% BP Black	23.68%	23.13%	25.21%
% BP Hispanic	21.37%	22.54%	21.47%
% BP Asian	20.55%	16.19%	17.99%
Bachelor's degree	80,777	99,713	129,751
% bachelor's degree	30.90%	36.26%	42.53%
Professional	68,465	78,763	101,701
% professional	39.18%	41.45%	46.06%
Homeowners	62,489	68,503	65,178
% homeownership	41.44%	43.69%	40.36%
Median rent	$1,018	$913	$1,263
Median home values	$332,367	$630,960	$627,800
% vacancies	4.27%	9.96%	6.02%
% new buildings	9.84%	8.35%	13.38%

All dollar values are adjusted to 2018 dollars. The statistic '% new buildings' is the percentage of buildings built since 1980 for the 2000 column and built since 1990 for the 2005-2009 and 2014-2018 columns. The statistic 'recent immigrants' is the percentage of foreign-born residents migrating since 1990 for the 2000 column and since 2000 for the 2005-2009 and 2014-2018 columns.

Source: 2000 US Census, 2005-2009 ACS, 2012-2016 ACS, and 2014-2018 ACS.

B. Change across Neighborhood Categories

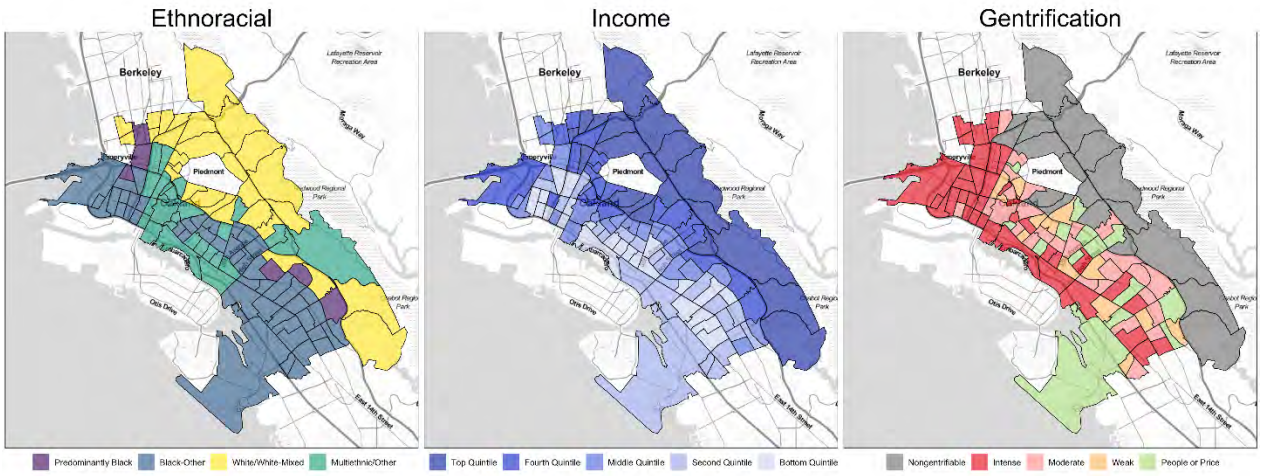
Figure 1 visualizes the ethnoracial, income, and gentrification categories for Oakland census tracts (see above and Appendix C for details on these categories). The maps show a rough division of Oakland into the "hills" and the "flats," with the "hills" being the northern rim of the

city and containing White/White-Mixed neighborhoods, high-income neighborhoods, and nongentrifiable neighborhoods (i.e., the neighborhood's median household income in 2000 was above the East Bay's median household income).

For the remainder of the city, the western, central, and eastern parts of Oakland have more residents in the lower distribution of incomes, though areas south of Piedmont and West Oakland adjacent to the Bay Bridge also have high incomes. Neighborhoods in East and West Oakland are primarily Black-Other, with a cluster of Multiethnic/Other neighborhoods in the middle. Only six census tracts were Predominantly Black in the year 2000, and they are in North Oakland and along highway 580 in East Oakland.

Oakland's gentrification map illustrates that most neighborhoods that qualified as gentrifiable in 2000 were gentrifying according to standard thresholds for socioeconomic changes (intense or moderate), and all neighborhoods in Oakland exhibited some signs of gentrification. Moreover, West Oakland and parts of North Oakland and Downtown Oakland experienced the highest intensities of gentrification. Levels of gentrification are scattered throughout the remainder of Oakland's gentrifiable tracts. Most tracts showing early signs of gentrification (shaded in green) in the eastern parts of Oakland experienced *price* gentrification and not *people* gentrification (i.e., housing prices have substantially increased, but there has not been a substantial influx of high-SES individuals).

Figure 1: Maps of (a) Ethnoracial, (b) Income, and (c) Gentrification Neighborhood Categories



Source: 2000 US Census, 2005-2009 ACS, and 2014-2018 ACS.

Table 2 presents the same variables as Table 1 but separated by the neighborhood categories, with the first panel displaying average changes across all Oakland tracts. The table shows how neighborhoods have changed unevenly across neighborhood categories.

Across the city, median home values increased substantially on average across all tracts, especially between 2000 and 2005–2009, and the share of Black residents substantially decreased. These trends were more pronounced for Predominantly Black and Black-Other categories and in higher-income tracts. The share of Hispanic and white residents increased substantially in Predominantly Black neighborhoods, while the share of white residents increased to a lesser degree in the Black-Other and Multiethnic/Other neighborhoods.

Neighborhoods undergoing the most drastic change (intense gentrification) had the largest share of Black residents on average in 2000 and experienced the greatest declines in shares of Black residents and greatest increases in shares of white residents. Similar trends are evident in lower-income tracts. Neighborhoods experiencing intense gentrification were also the only gentrifiable tracts to experience average increases in homeownership rates. The share of Hispanic residents increased substantially in neighborhoods undergoing moderate, weak, or people/price gentrification.

The highest percentage of new buildings built as of 2014–2018 were also in the bottom income quintile and the intensely gentrifying neighborhoods. Although median home values increased steadily in nongentrifiable and intensely gentrifying tracts, they were lower on average at the end of the period in other neighborhoods (moderate, weak, people/price gentrification), compared with the 2005–2009 estimates but significantly higher than in 2000. In these neighborhoods, the recovery from the Great Recession was likely slower, compared with nongentrifiable and intensely gentrifying tracts. Median rents, however, increased steadily across categories on average. Neighborhoods categorized as people or price gentrifying neighborhoods were more socioeconomically advantaged in the year 2000 than other gentrifiable neighborhoods and experienced less drastic changes.

Table 2: Summary Statistics of Neighborhoods, by Neighborhood Categories

(a) Ethnoracial Composition

	Ethnoracial														
	Overall (110 tracts)			Predominantly Black (6 tracts)			Black-Other (47 tracts)			White/White-Mixed (29 tracts)			Multiethnic/Other (28 tracts)		
	2000	2005-2009	2014-2018	2000	2005-2009	2014-2018	2000	2005-2009	2014-2018	2000	2005-2009	2014-2018	2000	2005-2009	2014-2018
Population:															
Mean population	3630	3623	3821	4115	4159	4344	3786	3636	3959	3324	3541	3551	3581	3571	3757
% Black	37.31	29.22	23.01	70.66	57.72	40.45	48.15	38.26	30.51	23.59	18.06	13.67	26.19	19.49	16.37
% non-Hispanic white	25.25	27.4	30.04	13.17	17.93	29.75	6.39	8.37	12.59	56.49	57.65	56.21	27.15	30.04	32.28
% Hispanic	19.33	22.48	24.19	9.8	11.6	15.07	28.67	34.23	37.05	6.8	7.7	9.33	18.66	20.4	19.94
% Asian	16.7	16.78	16.91	5.1	8.11	6.01	15.58	15.74	15.6	11.61	11.58	13.05	26.36	25.79	25.44
% foreign-born	25.45	27.5	26.82	10.12	13.25	12.67	29.77	33.56	31.68	13.03	13.38	15.98	34.32	35.02	32.93
% recent immigrants	11.21	7.45	12.34	4.22	2.25	5.93	14.04	9.24	15.04	3.94	2.69	6.01	15.47	10.48	15.74
Socioeconomic:															
Median household income	$63,953	$64,715	$75,842	$55,650	$51,181	$70,533	$43,915	$42,288	$49,879	$106,314	$111,518	$129,482	$55,495	$56,787	$65,004
% below poverty	19.4	17.57	17.44	23	19.6	14.76	27.05	23.3	24.27	7.48	7.35	6.34	18.16	18.1	18.04
% bachelor's degree	29.45	34.89	42.42	21.15	25.63	38.84	11.41	15.49	23.39	57.17	64.31	68.98	32.81	38.98	47.63
% professional	35.68	38.97	45.21	31.97	42.37	48.37	20.39	21.27	28.29	58.68	64.26	67.57	38.33	41.76	49.78
Housing:															
% homeownership	41.27	43.71	40.57	47.73	51.98	45.76	35.94	37.98	33.22	63.33	65.69	63.96	25.98	28.78	27.58
% vacancies	4.63	10.31	6.09	5.35	13.99	7.27	6.01	12.65	6.79	2.75	6.2	4.69	4.1	9.84	6.12
Median home value	$328,590	$593,228	$589,019	$280,108	$528,080	$571,117	$218,881	$474,086	$430,309	$541,190	$839,096	$880,776	$302,941	$551,020	$555,904
Median rent	$1,015	$1,155	$1,370	$892	$977	$1,351	$808	$984	$1,135	$1,431	$1,536	$1,833	$957	$1,085	$1,287
% new buildings	5.47	4.25	7.49	1.6	3.88	5.63	5.45	5.54	9.64	7.26	2.51	4.13	4.47	3.99	7.77

All dollar values are adjusted to 2018 dollars. The statistic '% new buildings' is the percentage of buildings built since 1980 for the 2000 column and built since 1990 for the 2005-2009 and 2014-2018 columns. The statistic 'recent immigrants' is the percentage of foreign-born residents migrating since 1990 for the 2000 column and since 2000 for the 2005-2009 and 2014-2018 columns.

Source: 2000 US Census, 2005-2009 ACS, 2012-2016 ACS, and 2014-2018 ACS.

(b) Income

Income															
	Bottom Quintile (23 tracts)			Second Quintile (22 tracts)			Middle Quintile (23 tracts)			Fourth Quintile (22 tracts)			Top Quintile (20 tracts)		
	2000	2005-2009	2014-2018	2000	2005-2009	2014-2018	2000	2005-2009	2014-2018	2000	2005-2009	2014-2018	2000	2005-2009	2014-2018
Population:															
Mean population	3787	3611	3933	4076	3904	4269	3531	3532	3653	3446	3550	3672	3274	3514	3555
% Black	39.99	29.95	26.19	44.1	34.48	27.88	46.2	37.69	28.03	34.47	26.71	19.1	19.66	15.61	12.52
% non-Hispanic white	7.23	9.66	12.08	7.21	7.03	10.8	14.76	20.14	26.63	40.12	42.92	45.92	61.53	61.5	58.31
% Hispanic	29.72	34.92	35.1	33.48	39.98	43.25	16.04	17.51	19.4	10.28	11.99	13.14	5.54	6.19	8.32
% Asian	21.92	23.21	22.27	13.91	14.68	14.43	21.52	20.3	19.39	13.32	13.18	14.77	11.96	11.63	12.96
% foreign-born	37.5	41.85	38.39	31.92	34.32	35.71	26.69	27.32	25.03	17.49	18.33	18.47	11.78	13.8	14.99
% recent immigrants	18.39	12.44	19.39	14.9	8.51	17.24	12.25	7.8	10.99	6.42	5.42	7.97	2.94	2.37	5.19
Socioeconomic:															
Median household income	$37,908	$36,239	$35,732	$45,644	$42,384	$49,529	$49,453	$50,849	$63,264	$67,276	$68,040	$87,618	$127,066	$134,316	$152,421
% below poverty	28.89	25.28	30.06	25.7	22.48	22.76	22.47	20.72	17.77	12.67	12.79	9.94	5.45	4.95	4.95
% bachelor's degree	11.33	16.02	22.05	10.59	14.03	20.63	22.16	28.69	40.11	44.37	49.91	59.87	63.02	70.15	73.28
% professional	20.36	19.43	28.83	19.3	20.69	24.81	30.67	36.24	44.49	47.52	54.38	60.85	64.05	67.75	70.12
Housing:															
% homeownership	25.1	26.55	22.33	37.99	38.78	33.59	34.51	37.32	35.42	38.44	42.45	39.7	74.35	77.59	76.13
% vacancies	6.23	12.16	7.05	4.82	12.52	6.33	5.17	11.67	7.2	4.16	8.83	5.58	2.45	5.8	4
Median home value	$215,312	$463,378	$434,336	$215,053	$464,239	$393,255	$251,581	$517,807	$518,448	$368,120	$626,081	$672,795	$628,827	$928,547	$963,515
Median rent	$746	$906	$995	$846	$1,031	$1,197	$864	$1,024	$1,261	$1,050	$1,135	$1,422	$1,645	$1,751	$2,057
% new buildings	6.13	5.2	10.46	5.4	4.41	9.32	3.61	6.64	8.55	2.72	2	4.41	9.95	2.71	4.26

All dollar values are adjusted to 2018 dollars. The statistic '% new buildings' is the percentage of buildings built since 1980 for the 2000 column and built since 1990 for the 2005-2009 and 2014-2018 columns. The statistic 'recent immigrants' is the percentage of foreign-born residents migrating since 1990 for the 2000 column and since 2000 for the 2005-2009 and 2014-2018 columns.

Source: 2000 US Census, 2005-2009 ACS, 2012-2016 ACS, and 2014-2018 ACS.

(c) Gentrification

Gentrification															
	Nongentrifiable (18 tracts)			Intense (38 tracts)			Moderate (27 tracts)			Weak (13 tracts)			People or Price (14 tracts)		
	2000	2005-2009	2014-2018	2000	2005-2009	2014-2018	2000	2005-2009	2014-2018	2000	2005-2009	2014-2018	2000	2005-2009	2014-2018
Population:															
Mean population	3524	3734	3837	3282	3221	3569	3822	3806	3910	4266	4076	4321	3749	3799	3848
% Black	17.12	14.29	12.3	44.83	33.98	26.04	38.68	30.27	24.03	38.37	29.25	26.01	39.23	33.43	23.81
% non-Hispanic white	63.92	62.35	58.21	14.43	19.54	26.75	20.72	21.92	24	19.37	22.4	22.81	19.12	19.04	21.11
% Hispanic	5.36	6.36	7.97	21.71	23.9	24.28	21.36	25.48	28.09	23.81	28.42	30.51	22.73	28.05	31.38
% Asian	12.35	12.18	13.89	17.46	18.66	17.79	17.91	18.37	18.25	17.02	15.02	15.11	17.64	16.22	17.46
% foreign-born	12.91	14.53	15.77	28.63	31.73	28.35	26.46	29.39	28.76	28.68	28.68	30.03	27.97	27.97	30.19
% recent immigrants	3.27	2.46	5.46	14.23	10.35	13.8	11.33	6.92	13.01	12.07	6.82	14.96	12.16	7.58	13.47
Socioeconomic:															
Median household income	$134,943	$142,704	$154,539	$42,807	$42,084	$60,495	$54,179	$55,051	$62,101	$53,049	$55,663	$60,495	$59,055	$52,917	$57,064
% below poverty	4.47	4.1	4.32	26.33	23.98	21.87	19.93	16.33	17.72	20.29	17.05	19.15	17.96	20.35	20.16
% bachelor's degree	64.69	69.84	72.52	19.08	28.3	39.89	25.68	28.84	36.53	25.27	29.13	34.69	23.48	24.87	29.13
% professional	64.5	68.67	69.07	27.55	31.95	44.17	32.46	34.75	39.66	31.86	35.03	39.08	30.46	31.63	33.77
Housing:															
% homeownership	79.43	81.38	80.86	27.44	30.84	28.86	36.77	39.33	34.75	35.91	39.63	33.69	43.4	42.44	38.21
% vacancies	2.25	6.17	3.89	6.95	13.69	7.28	3.85	9.62	6.01	3.94	9.59	5.36	3.48	8.45	6.53
Median home value	$648,955	$948,443	$983,239	$252,103	$510,403	$539,513	$280,797	$544,650	$519,200	$256,133	$508,063	$458,831	$283,755	$530,632	$467,093
Median rent	$1,710	$1,792	$2,108	$802	$992	$1,236	$928	$1,039	$1,263	$932	$1,110	$1,145	$941	$1,042	$1,195
% new buildings	11.13	3.11	4.67	5.88	7.6	12.29	3.48	2.15	4.27	2.02	2.23	6.1	4.12	2.58	5.62

All dollar values are adjusted to 2018 dollars. The statistic '% new buildings' is the percentage of buildings built since 1980 for the 2000 column and built since 1990 for the 2005-2009 and 2014-2018 columns. The statistic 'recent immigrants' is the percentage of foreign-born residents migrating since 1990 for the 2000 column and since 2000 for the 2005-2009 and 2014-2018 columns.

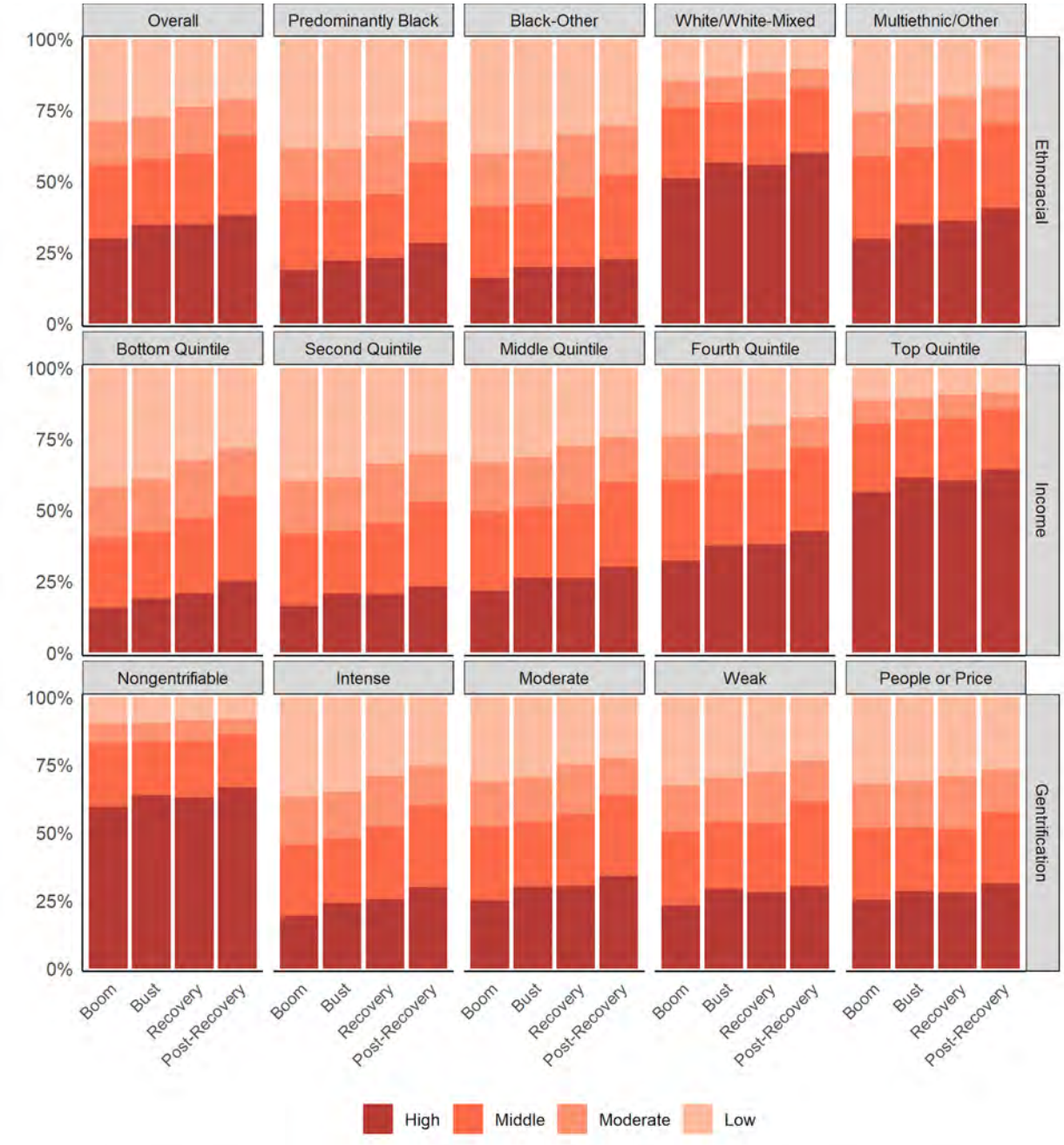
Source: 2000 US Census, 2005-2009 ACS, 2012-2016 ACS, and 2014-2018 ACS.

Figure 2 displays the socioeconomic composition (based on Equifax Risk Scores) of the sample in the CCP data over time in Oakland neighborhoods by neighborhood categories across the housing periods that span our data: housing boom (2002–2006), housing bust (2007–2009), recovery (2010–2014), and post-recovery (2015–2017).

Neighborhoods with larger proportions of white populations have larger proportions of high-SES residents than other neighborhoods, whereas neighborhoods with larger proportions of Black populations have lower proportions of high-SES residents than other neighborhoods. Across all categories, there has been an increase in the proportion of high- and middle-SES residents and a decrease in the proportion of low- and moderate-SES residents. The increases in high-SES residents and declines in low-SES residents was steeper in lower-income quintile neighborhoods.

Nongentrifiable neighborhoods have significantly higher proportions of high-SES residents, compared with gentrifiable neighborhoods. Across all neighborhoods, there have been increases in the proportion of high-SES residents, and these increases were greatest in neighborhoods undergoing intense and moderate gentrification. The share of middle-SES residents grew the most over time in neighborhoods undergoing weak gentrification. Across all gentrification categories, the proportion of low-SES residents declined, and these declines have been steeper in neighborhoods undergoing intense, moderate, and weak gentrification.

Figure 2: Socioeconomic Composition Change by Housing Period in Oakland, by Neighborhood Categories



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data and 2000 US Census, 2005-2009 ACS, and 2012-2016 ACS.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

C. Segregation in Oakland

This section considers segregation measures to track changes in residential patterns between racial/ethnic groups in Oakland over time. Table 3 presents several segregation measures (dissimilarity, isolation, exposure, and Theil) for various combinations of racial/ethnic groups in Oakland over time to assess how segregation is has changed across Oakland from 2000 to 2018. Values range from 0 to 1. The three primary measures of segregation—the dissimilarity index, the isolation index, and the exposure index—underscore the high levels and growing segregation of Hispanic residents, and the Theil index (diversity) highlights Oakland's declining diversity.

The dissimilarity index is a measure of the extent to which two groups tend to live in different neighborhoods across a city. The higher the value, the more segregated that group is from the other group. Having the highest dissimilarity index, white and Hispanic residents are the most unevenly distributed pair of racial and ethnic groups across Oakland. However, the dissimilarity index for all group pairs decreased over time. Across the largest 200 cities in the United States, Oakland ranked 1st in the White-Hispanic dissimilarity index, 13th in the White-Asian dissimilarity index, and 59th in the White-Black dissimilarity index in 2010.[8]

The isolation index is a measure of the extent to which a group is exposed to only itself rather than other groups in neighborhoods across a city. The higher the value, the more segregated that group is from all other groups. The isolation index decreased for white, Black, and Asian residents but increased for Hispanic residents. In other words, Hispanic residents became more isolated over time, while other groups became less isolated. White residents, having the highest isolation index, are the most segregated group, but, compared with other major U.S. cities, Oakland ranked 151st in the isolation index for white residents and also had a low rank for Black and Hispanic residents. Oakland, however, ranked 17th among the largest 200 U.S. cities for the Asian isolation index.

However, the exposure index—a measure of the extent to which a group is exposed to another group in neighborhoods across a city—shows that white residents increasingly live in neighborhoods with Asian and Hispanic residents but decreasingly live among Black residents. For this measure, higher values indicate more integration between the two groups. All groups decreasingly lived among Black residents over time, which may reflect the declining Black population in Oakland more broadly. Across the 200 largest cities in the United States, in 2010, Oakland ranked 164th in the White-Black exposure index (with lower values indicating more segregation and higher ranks) and 183rd in the White-Asian exposure index, but 35th for the Black-White exposure index and 27th in the Asian-White exposure index. Although white residents in Oakland are exposed to Black and Asian people more than in other cities, Black and Asian people have relatively less exposure to whites, compared with other places. Oakland ranked 87th in the White-Hispanic index, compared with 13th in the Hispanic-White exposure index, confirming the higher degree of segregation between these two groups.

[8] Source: Rankings described in this section from Brown University Diversity and Disparities: https://s4.ad.brown.edu/Projects/Diversity/SegCitySorting/Default.aspx/

Finally, the Theil Index—a measure of diversity, the extent to which multiple racial and ethnic groups live in the same neighborhoods across a city—indicates that the representation of multiple racial and ethnic groups across neighborhoods declined over time, most likely reflecting the broader Black population decline. Unlike the other indices, it allows one to compare across multiple racial and ethnic groups, rather than only two.

Table 3: Segregation Measures for Oakland Racial/Ethnic Groups over Time

	2000	2005-09	2014-18
Dissimilarity			
White-Black	0.572	0.568	0.484
White-Asian	0.510	0.477	0.415
White-Hispanic	0.699	0.692	0.632
Black-Asian	0.503	0.497	0.472
Black-Hispanic	0.352	0.362	0.337
Asian-Hispanic	0.481	0.517	0.488
Isolation			
White	0.482	0.491	0.453
Black	0.484	0.396	0.309
Asian	0.288	0.281	0.260
Hispanic	0.359	0.414	0.426
Exposure			
White to Black	0.246	0.195	0.177
Black to White	0.158	0.183	0.215
White to Asian	0.152	0.152	0.159
Asian to White	0.216	0.251	0.278
White to Hispanic	0.104	0.113	0.143
Hispanic to White	0.112	0.121	0.150
Black to Asian	0.127	0.125	0.131
Asian to Black	0.281	0.220	0.186
Black to Hispanic	0.218	0.257	0.288
Hispanic to Black	0.365	0.294	0.247
Asian to Hispanic	0.200	0.210	0.221
Hispanic to Asian	0.152	0.136	0.132
Thiel			
Overall	0.222	0.234	0.193

Source: 2000 US Census, 2005-2009 ACS, and 2014-2018 ACS.

III. HISTORICAL TRENDS IN RESIDENTIAL INSTABILITY

Although the demographic changes suggest that residential displacement, particularly of lower-income and especially Black residents, is taking place in Oakland, the changes may reflect the increased influx of higher-SES residents, coupled with natural levels of movement out of Oakland among lower-SES residents. In other words, rather than low-SES residents being *displaced,* high-SES residents are *replacing* low-SES residents when they move. Individual-level, longitudinal data allow for a more detailed analysis of these demographic changes, including when residents are moving, where residents are moving from, and where residents are moving to. In addition, our data provide additional information on adult household size and financial stability that allows us to examine additional aspects of residential instability besides moving.

This part of the report considers various ways in which Oakland residents experienced residential instability over time and place as gentrification spread and affordable housing became increasingly out of reach for many. First, we assess moving patterns from 2002 to 2018 of Oakland residents by SES (based on Equifax Risk Scores from the CCP data) and neighborhood categories. These patterns include how frequently residents move and where they move. Second, we assess moves into crowded housing (based on adult household size). Third, we examine the extent to which residents make downward moves to lower-opportunity neighborhoods. Fourth, we examine financial instability to capture the extent to which residents do not move but struggle to maintain household costs. Finally, we assess other indicators of neighborhood decline, such as foreclosures and vacancies.

A. MOVING

This section examines moving patterns among Oakland residents. Following most research on gentrification and displacement, we first examine the extent to which residents move from their neighborhoods and where they move (e.g., out of the Bay Area, within Oakland). Some studies exclusively examine formal forms of displacement, like evictions and foreclosures, but informal forms of displacement are far more prevalent. Our dataset, like most, does not contain information on whether moves are involuntary. Although this information is valuable, moves that are reported as voluntary may still be constrained and in response to gentrification and affordability concerns.

SUMMARY: Except for high-SES residents, residents in Oakland moved at high rates at or above national levels. Except for low-SES residents, residents across SES levels were much more likely to move and to move out of Oakland prior to and during the Recession. Although low-SES residents moved less after the Recession and less than moderate- and middle-SES residents, they moved out of Oakland at similar or higher rates after the Recession and disproportionately moved out of the Bay Area, compared with other SES groups. Comparing across neighborhood categories shows that lower-SES residents living in Multiethnic/Other-Race neighborhoods and in neighborhoods with greater intensities of gentrification moved more, compared with other neighborhoods. Nonetheless, lower-SES movers disproportionately moved out of Oakland from historically wealthier and whiter neighborhoods and Downtown and parts of North Oakland.

1. Moving, by SES and Housing Period

This section considers the extent to which Oakland residents move out of their census block group each year.

Figure 3 displays the percentage of Oakland residents who moved out of their census block group and the percentage who moved out of Oakland by housing period and SES category (based on Equifax Risk Scores). The latter figure examines if there are substantial differences in trends of movers who leave Oakland.

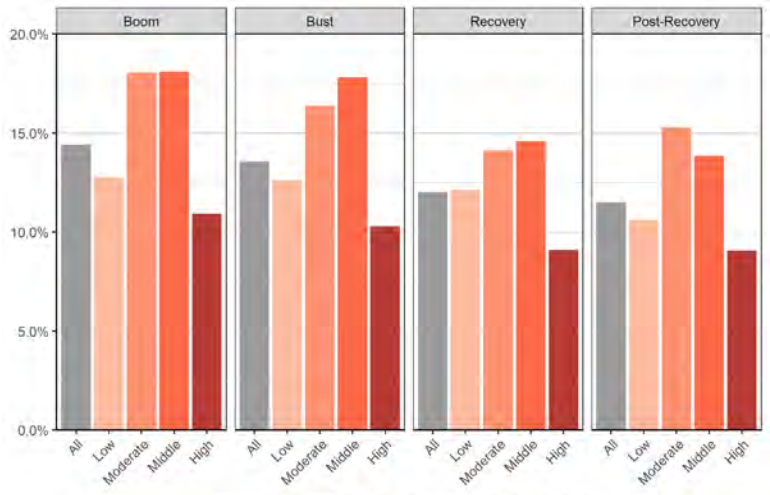
Oakland residents across all SES groups moved more frequently during the housing boom and bust. The high rates of moving before and during the Recession may be due to forces that pushed residents to new places, such as the proliferation of subprime lending, as well as foreclosures and financial insecurity brought on by the economic fallout. This may have resulted in high rates of replacement by high-SES residents after the Recession.

Moderate- and middle-SES residents move the most, while high-SES residents move the least across all periods. From the recovery to the post-recovery period, moderate-SES residents moved more, while all other SES groups moved less. Although low-SES residents move less than moderate- and middle-SES residents, they still moved at or above national averages across all periods. The lower rates of moving among low-SES residents may reflect the effectiveness of housing policies that protect residents from forced moves or adapting strategies to avoid moving, such as falling behind on other financial payments or living in crowded housing, due to the lack of affordable housing in the region.

Overall, about two-thirds of movers leave Oakland, but trends by SES and housing period are similar for movers in general as those moving out of Oakland, with one exception. Although Oakland residents across moderate-, middle-, and high-SES groups moved out of Oakland more frequently during the housing boom and bust, this share increased slightly for low-SES residents. From the recovery to the post-recovery period, the percentage of low-SES residents who moved out of Oakland decreased, while the percentage for all other SES groups increased.

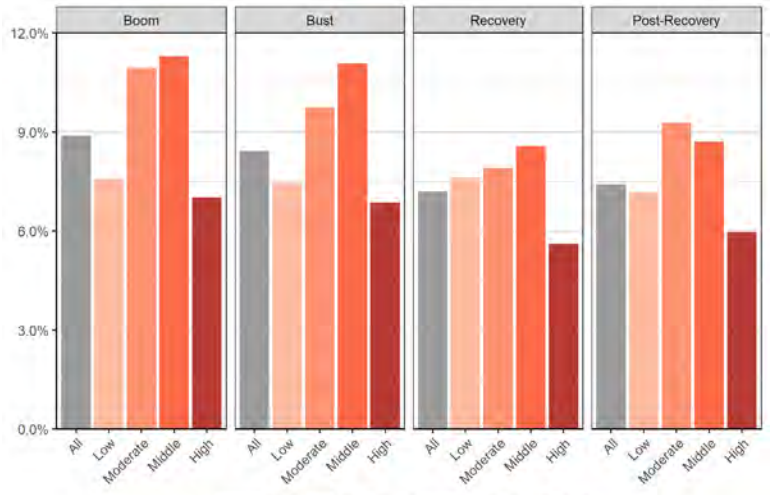
Figure 3: Percentage of Oakland Residents Who (a) Move and (b) Move Out of Oakland, by SES and Housing Period

(a) Movers



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

(b) Movers Out of Oakland



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
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Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

2. Moving, by Neighborhood Category

Figure 4 extends Figure 3 and details the moving patterns of low-, moderate-, and middle-SES (LMM-SES, hereafter) Oakland residents by the neighborhood categories. We present results for LMM-SES residents together here because the prior analysis suggests that these groups exhibit distinct patterns from high-SES residents and that middle-SES and moderate-SES residents exhibit similar patterns to each other. This is consistent with prior research on socioeconomic

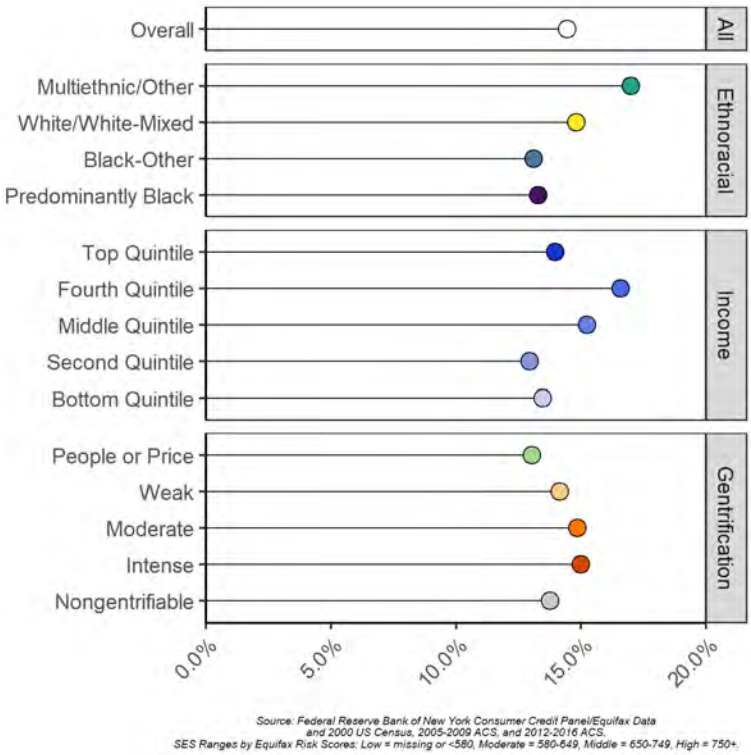
inequality, which finds that the growth in inequality in recent decades is largely due to the growing divide between the top and the middle.

The figure shows that moving rates among these residents are generally higher with higher intensities of gentrification and in Multiethnic/Other tracts, compared with other neighborhoods. Moving rates were generally higher with higher-income quintiles, though residents in the top quintile moved at average rates and lower than those living in the fourth and middle income quintiles.

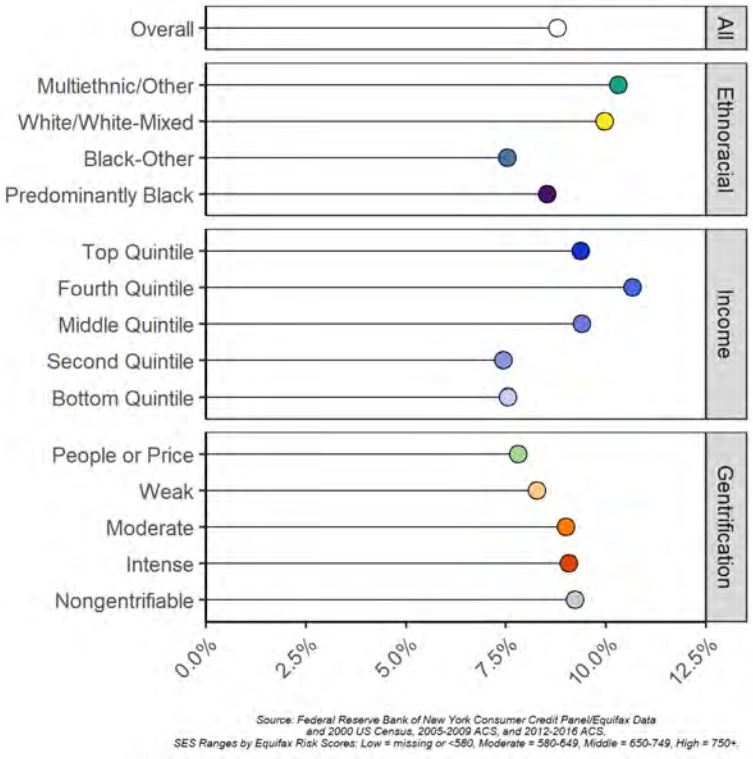
Movers who leave Oakland, however, yield slightly different patterns. Out-of-Oakland moving rates are generally higher with higher intensities of gentrification. However, residents in nongentrifiable tracts moved out of Oakland more. This is consistent with the other difference, that the percentage of residents from White/White-Mixed tracts who move out of Oakland is also relatively high and close to the rates from Multiethnic/Other neighborhoods.

Figure 4: Percentage of Low-, Moderate-, and Middle-SES Oakland Residents Who (a) Move and (b) Move Out of Oakland, by Neighborhood Category

(a) Movers



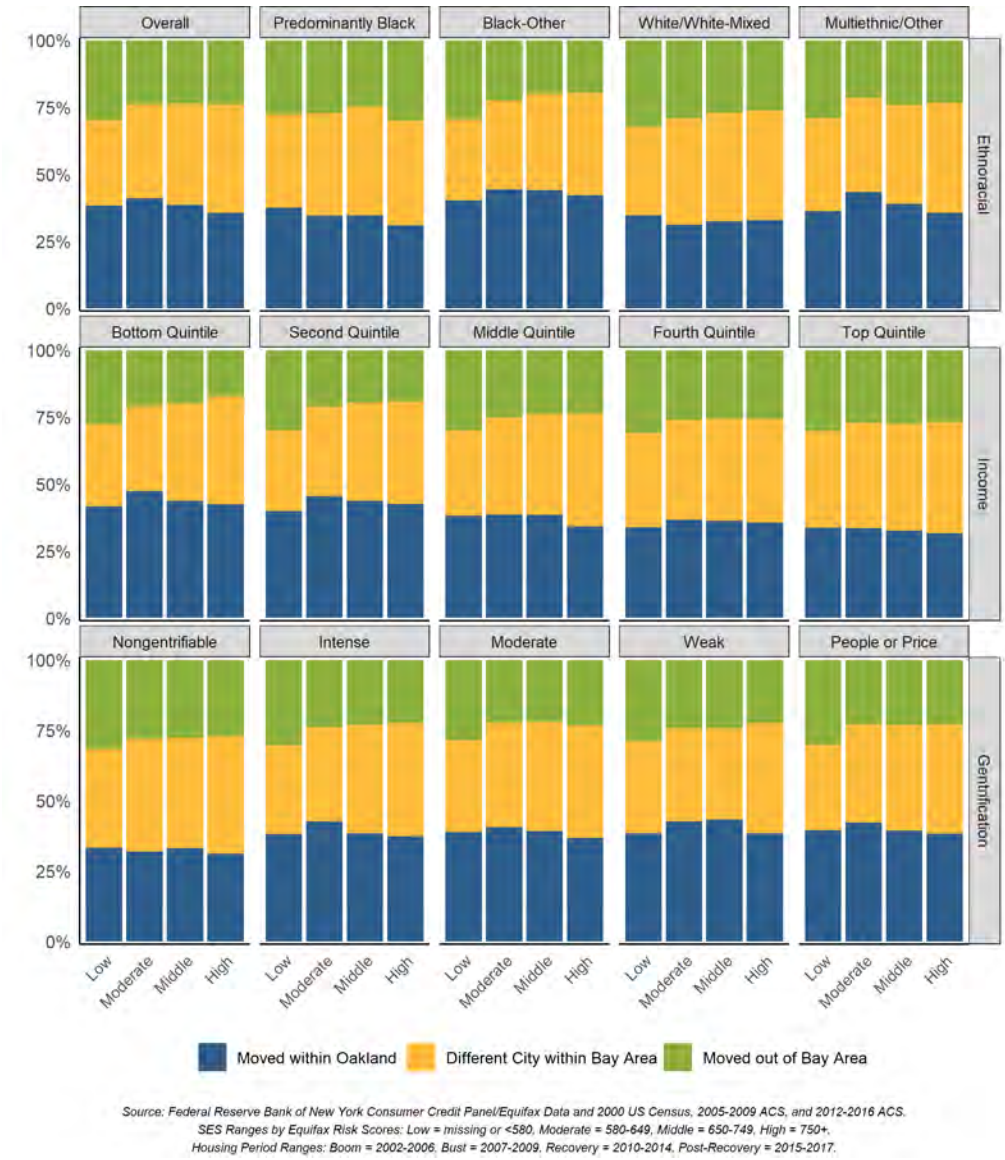
(b) <u>Movers Out of Oakland</u>



The distinct trends between movers and movers from Oakland suggest that a disproportionate share of LMM-SES movers in nongentrifiable and White/White-Mixed neighborhoods moved out of Oakland. We examine this trend further in Figure 5, which breaks down whether movers stay within Oakland, move elsewhere within the Bay Area, or move outside the Bay Area, separated by SES and neighborhood categories.

Overall, low-SES movers were more likely to move out of the Bay Area, compared with other SES categories across all neighborhood categories. Further, comparing the distribution of moves by SES in the first panel to the other distributions, the figure confirms the trend that residents from nongentrifiable and White/White-Mixed tracts disproportionately moved out of Oakland. Comparing across categories, higher proportions of movers from Predominantly Black and White/White-Mixed tracts moved out of Oakland across SES groups. Conversely, higher proportions of movers from Black-Other and Multiethnic/Other tracts stayed within Oakland. Low- and moderate-SES residents from Black-Other neighborhoods were more likely to stay in Oakland, compared with low-SES residents in other neighborhoods. Movers from nongentrifiable tracts and higher income quintiles tended to move out of Oakland at higher proportions, compared with movers from other neighborhoods, but middle- and high-SES movers from neighborhoods in the bottom income quintile tended to move out of the Bay Area less than in other income quintiles. Notably, movers across gentrifiable neighborhoods show little difference in their moving patterns.

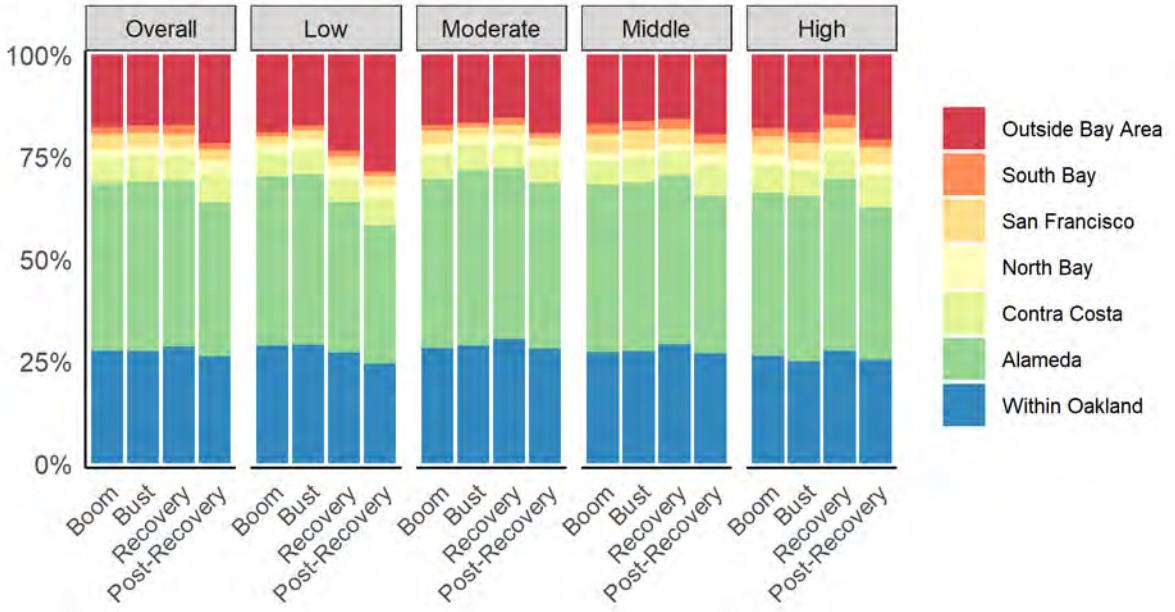
Figure 5: Moving Patterns of Oakland Movers, by SES and Neighborhood Category



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data and 2000 US Census, 2005-2009 ACS, and 2012-2016 ACS.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

Although most residents who move leave Oakland, the top destinations for lower-SES residents are generally nearby major cities, such as San Francisco, San Leandro, and Hayward. Figure 6 provides a more detailed breakdown of where Oakland movers who leave the city go, separated by SES and housing period. Across all periods and SES groups, most movers move to another part of Alameda County. The next most popular destination for those who stay within the Bay Area is Contra Costa County, followed by San Francisco and North Bay. However, in the post-recovery period, a smaller share of low-SES residents who leave Oakland move within the county, as much larger shares leave the Bay Area. All other SES groups follow a similar, but weaker, trend. Although a greater share of high-SES movers end up in San Francisco, compared with the North Bay, this is not true for low-SES residents since the housing boom or for moderate- and middle-SES residents in the post-recovery period.

Figure 6: Destination Breakdown of Oakland Movers, by SES and Housing Period



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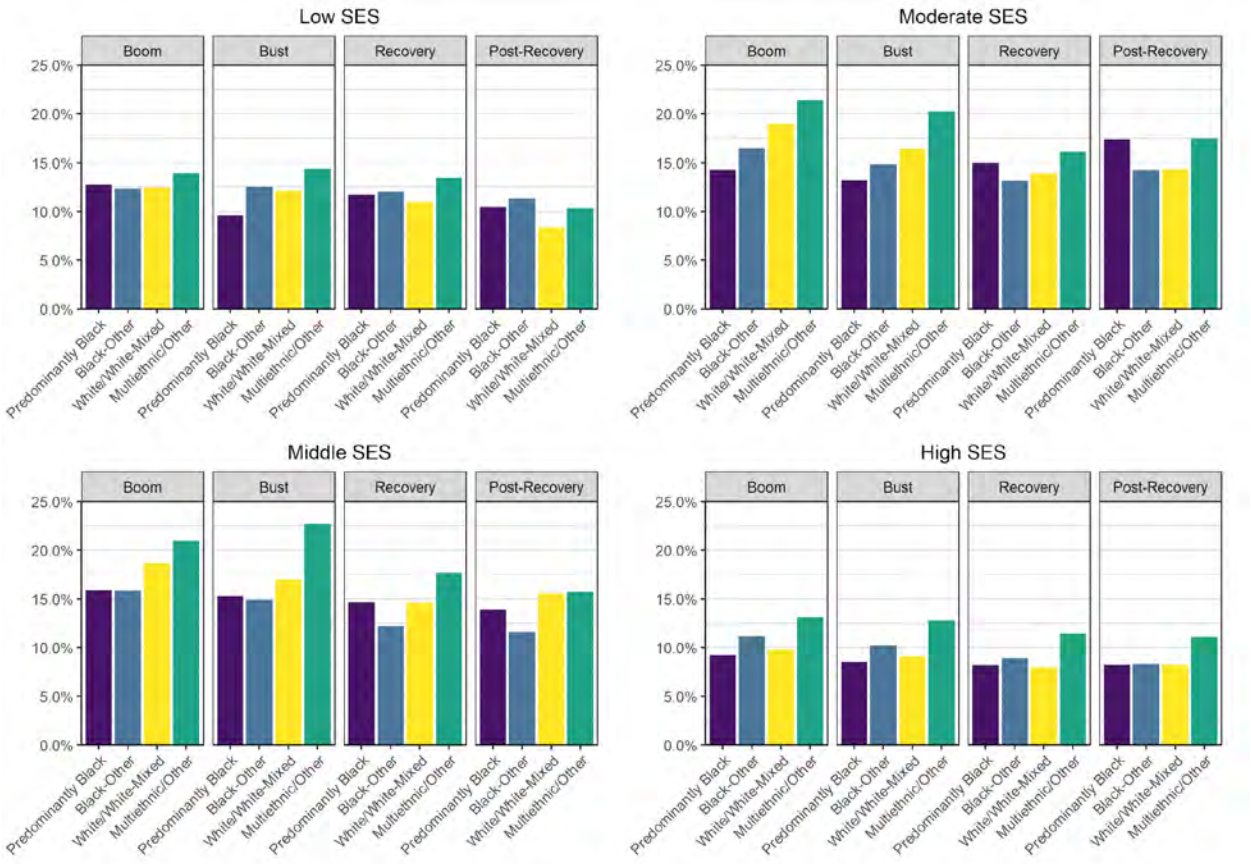
Next, we examined if there are distinct trends over time by SES across neighborhood categories.

Figure 7 details the moving rates of Oakland residents by SES and ethnoracial and gentrification categories over time. Trends for income categories were similar to the overall trends by SES and period, so we do not present them. Across ethnoracial categories, trends were generally similar over time as the trends presented earlier by SES, except moving rates declined substantially in Predominantly Black neighborhoods during the housing bust; for moderate-SES residents, the increases in moving between the recovery and post-recovery period were steeper in Predominantly Black and Multiethnic/Other neighborhoods. Further, low- and moderate-SES residents in Predominantly Black neighborhoods moved as much as those in Multiethnic/Other neighborhoods after the Recession. While moving rates declined over time for middle-SES residents overall, they increased during the housing bust in Multiethnic/Other neighborhoods and during the post-recovery period in White/White-Mixed neighborhoods.

While moving rates were generally higher with higher intensities of gentrification, these differences were most pronounced among middle- and high-SES residents. These differences do not hold for low-SES residents during the housing boom and post-recovery period, when the housing market was strong. During the recovery, gentrification was associated with higher rates of moving for low-SES residents, compared with other neighborhoods. Differences by gentrification categories hold only for moderate-SES residents during the post-recovery period.

Figure 7: Moving Rates of Oakland Residents over Time, by Selected Neighborhood Categories

(a) Ethnoracial



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data and 2000 US Census, 2005-2009 ACS, and 2012-2016 ACS.
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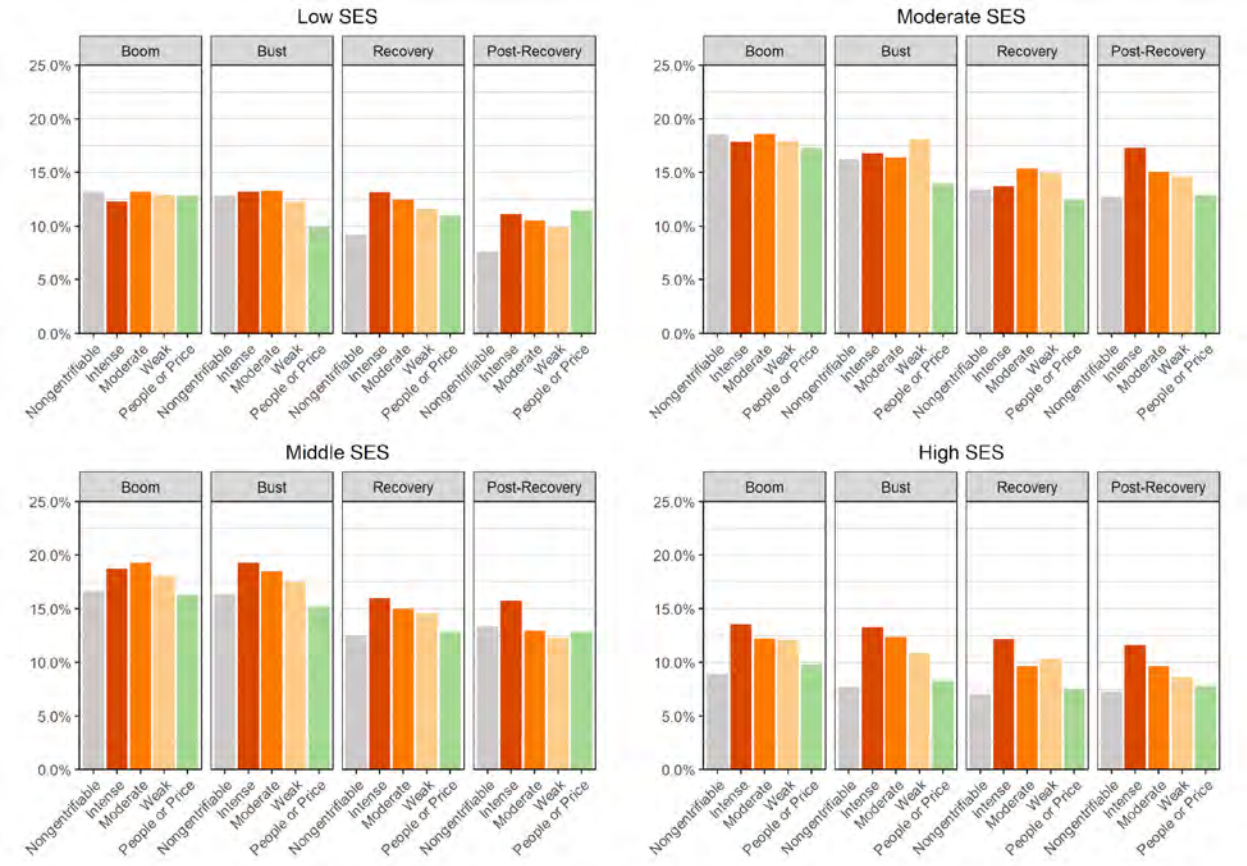
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

(b) <u>Gentrification</u>



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SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

3. The Geography of Moving Out

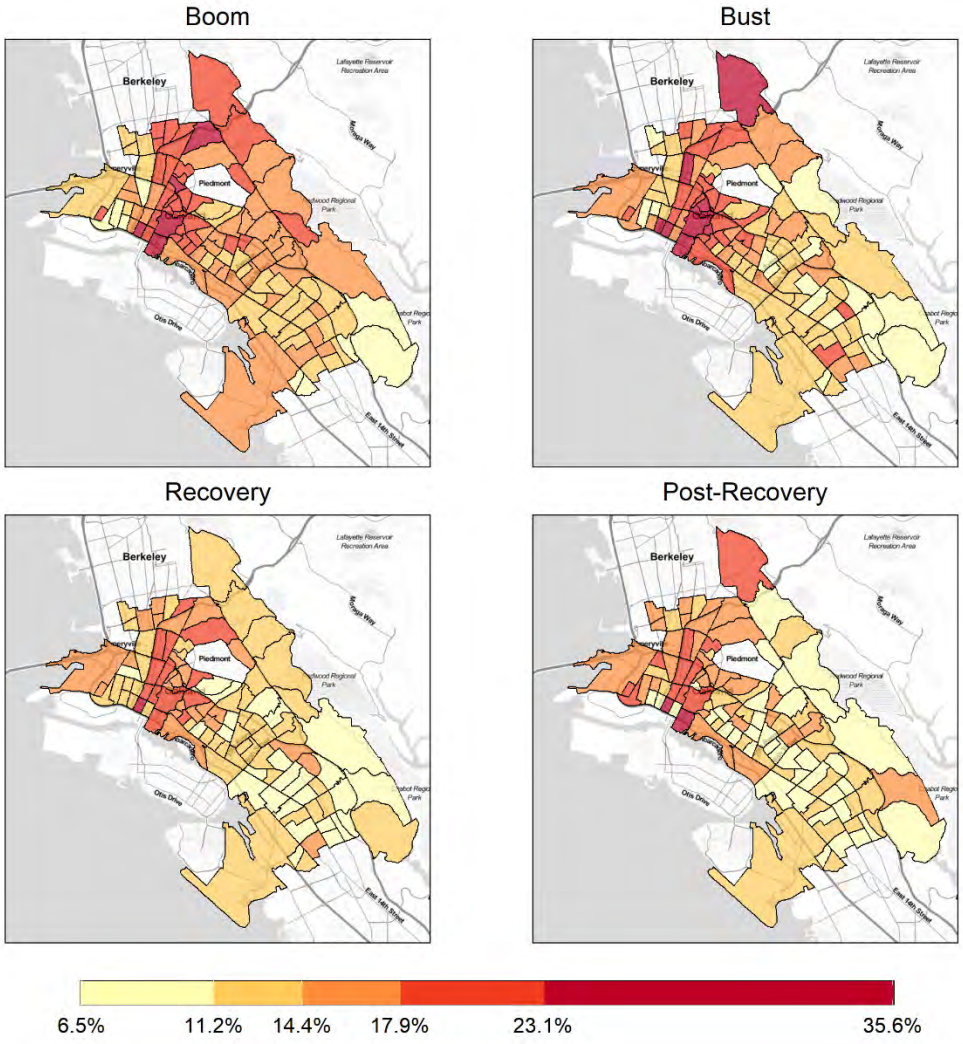
Figure 8 displays maps of moving rates and moving rates out of Oakland by housing periods for LMM-SES populations across Oakland census tracts. The color schemes for these maps and subsequent maps are based on Jenks natural breaks,[9] and darker colors reflect relatively higher rates of moving. Areas in Downtown Oakland and North Oakland consistently show higher rates of moving and moving out of Oakland for LMM-SES residents, compared with East Oakland and most of the Oakland Hills area. These residents moved more often during the housing boom and bust, as noted earlier, and there is a decreasing prevalence of neighborhoods with high moving rates across all of Oakland. However, moving rates in Downtown Oakland and parts of North Oakland remained consistently in the top two quintiles, and rates of moving out of

[9] This is a technique that minimizes each category's average deviation from its mean, while maximizing each category's deviation from the means of the other categories.

Oakland increased in these areas from the recovery to the post-recovery period. This suggests that lower-SES residents who may have been displaced from these areas increasingly moved out of Oakland in the post-recovery period as housing options became increasingly limited in the city.

Figure 8: Maps of Percentage of Low-, Moderate-, and Middle-SES Oakland Residents Who (a) Move and (b) Move Out of Oakland, by Housing Period[10]

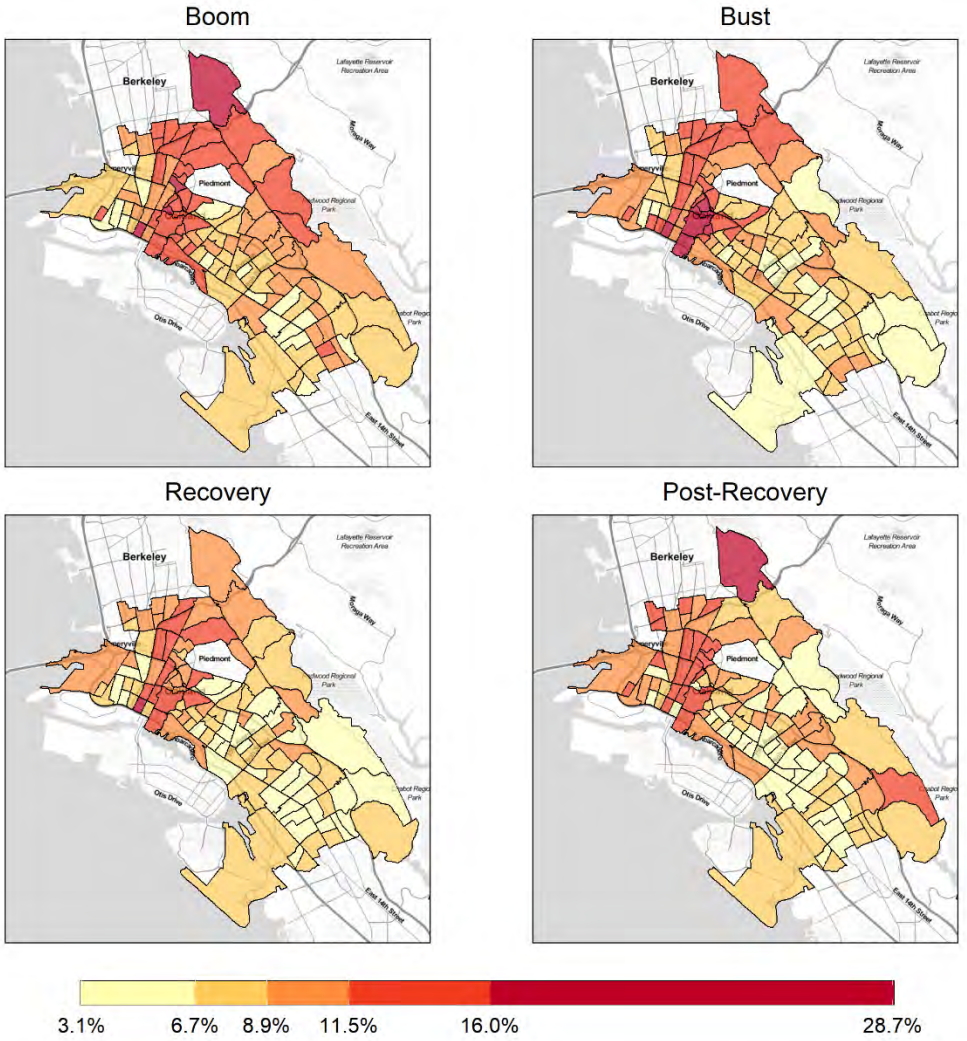
(a) Movers



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

[10] To capture the nuance lost by map legends, we provide tables in Appendix E that list all key mapped variables at the level of census tracts.

(b) Movers Out of Oakland



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

B. CROWDING

The extent to which residents move and move out of Oakland highlights an important facet of residential instability, but other indicators also shed light on the extent to which residents experience constraints in housing. This section considers the extent to which residents live and move into more crowded households, which may reflect efforts to reduce housing costs and has additional implications during the pandemic.[11] Specifically, this section examines the percentage of Oakland residents who live in high-density households, which we define as households with at least four adults, and shifts from low-density households, which we define as one to two adults per household, to high-density households.

SUMMARY: Moves from low-density to high-density households were more prevalent among moderate- and middle-SES residents, compared with others, and were highest during the housing boom, reflecting the overall declines in moves after the Recession. However, nearly one-third of movers made this shift, and LMM-SES residents made this shift more than high-SES residents. Further, the prevalence of these kinds of moves among movers increased over time, suggesting that declining affordability is increasingly pushing residents into crowded living situations. The share of LMM-SES residents moving to high-density households occurred more frequently in Multiethnic/Other neighborhoods and in neighborhoods with more intense levels of gentrification. Overall, high-density households among LMM-SES residents were more prevalent in parts of West and East Oakland.

1. Shifts to High-Density Households, by SES and Housing Period

Figure 9 displays the percentage of all individuals in Oakland who moved from households with 1–2 adults to a household with 4+ adults by SES and housing period, as well as the percentage of movers who made such moves. Although the percentages in the top panel are relatively low, the bottom panel shows that this shift comprises a substantial portion of movers.

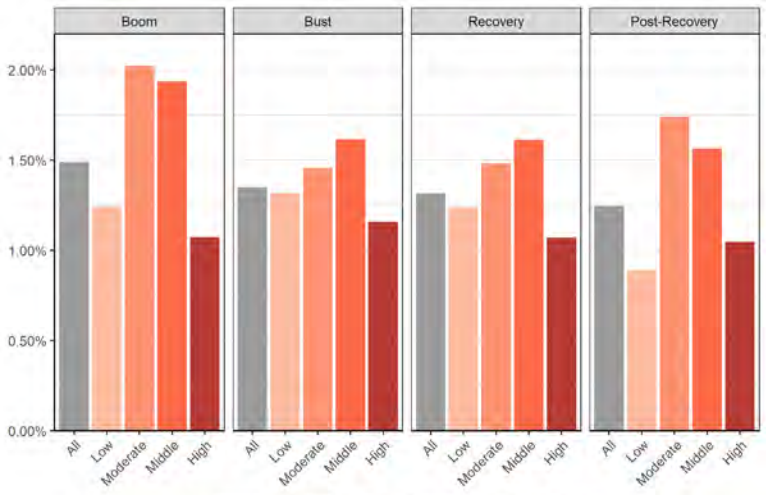
Moderate-SES and middle-SES residents, who moved more often than other groups, also shifted more often from low-density to high-density households across all housing periods (Figure 9a). From the boom to the bust period, low-SES and high-SES residents increasingly shifted to higher-density housing, while moderate-SES and middle-SES residents decreasingly made this shift. From the recovery to the post-recovery period, moderate-SES residents increasingly made this shift, but there was a decrease for all other SES groups. However, the shares of movers who made this shift, displayed in Figure 9b, increased across SES groups since the housing bust, with the largest percentage increases taking place in the post-recovery period, perhaps reflecting the increasingly unaffordable housing market. Moreover, even though low-SES residents moved into crowded housing substantially less than moderate- and middle-SES residents overall, similar or

[11] Shrimali, Bina P., and Jackelyn Hwang. (June 30, 2020). "Overcrowding in the Bay Area: Where the Housing Crisis meets COVID-19." *Federal Reserve Bank of San Francisco Community Development Blog*. Retrieved from https://www.frbsf.org/community-development/blog/overcrowding-in-the-bay-area-where-the-housing-crisis-meets-covid-19/.

greater shares of low-SES movers made such moves into high-density housing throughout the periods, while high-SES movers made this shift less than other SES groups, except during the housing bust.

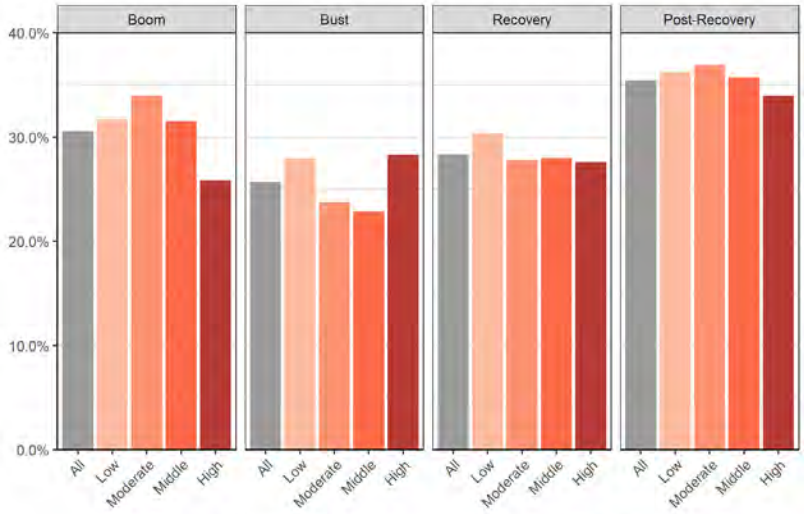
Figure 9: Percentage of Oakland (a) Residents and (b) Movers Who Moved from Low-Density to High-Density Households, by SES and Housing Period

(a) Percentage of Residents



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

(b) Percentage of Movers

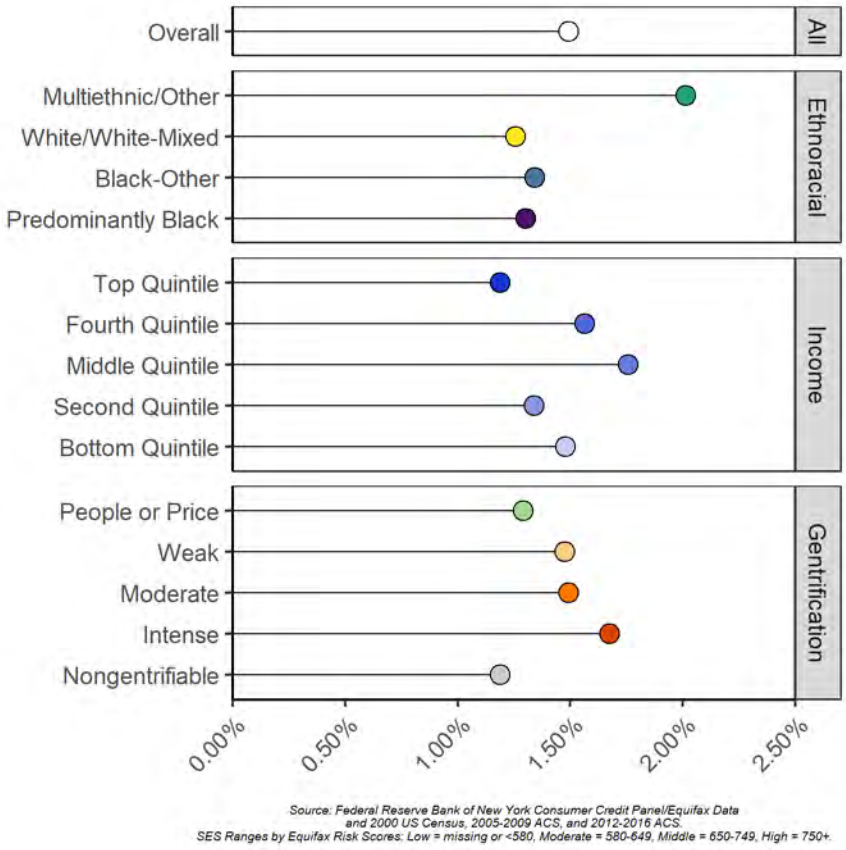


Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores, Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

2. Shifts to High-Density Households, by Neighborhood Category

Figure 10 displays the percentage of LMM-SES individuals who moved and moved from households with 1–2 adults to a household with 4+ adults in Oakland, separated by neighborhood categories. Shifts from low-density to high-density households were higher with higher intensities of gentrification and among residents in Multiethnic/Other tracts. Shifts to higher-density housing was also more prevalent among residents in middle-income and very low-income neighborhoods. These findings suggest that constrained moves were more prevalent among LMM-SES residents in these neighborhoods.

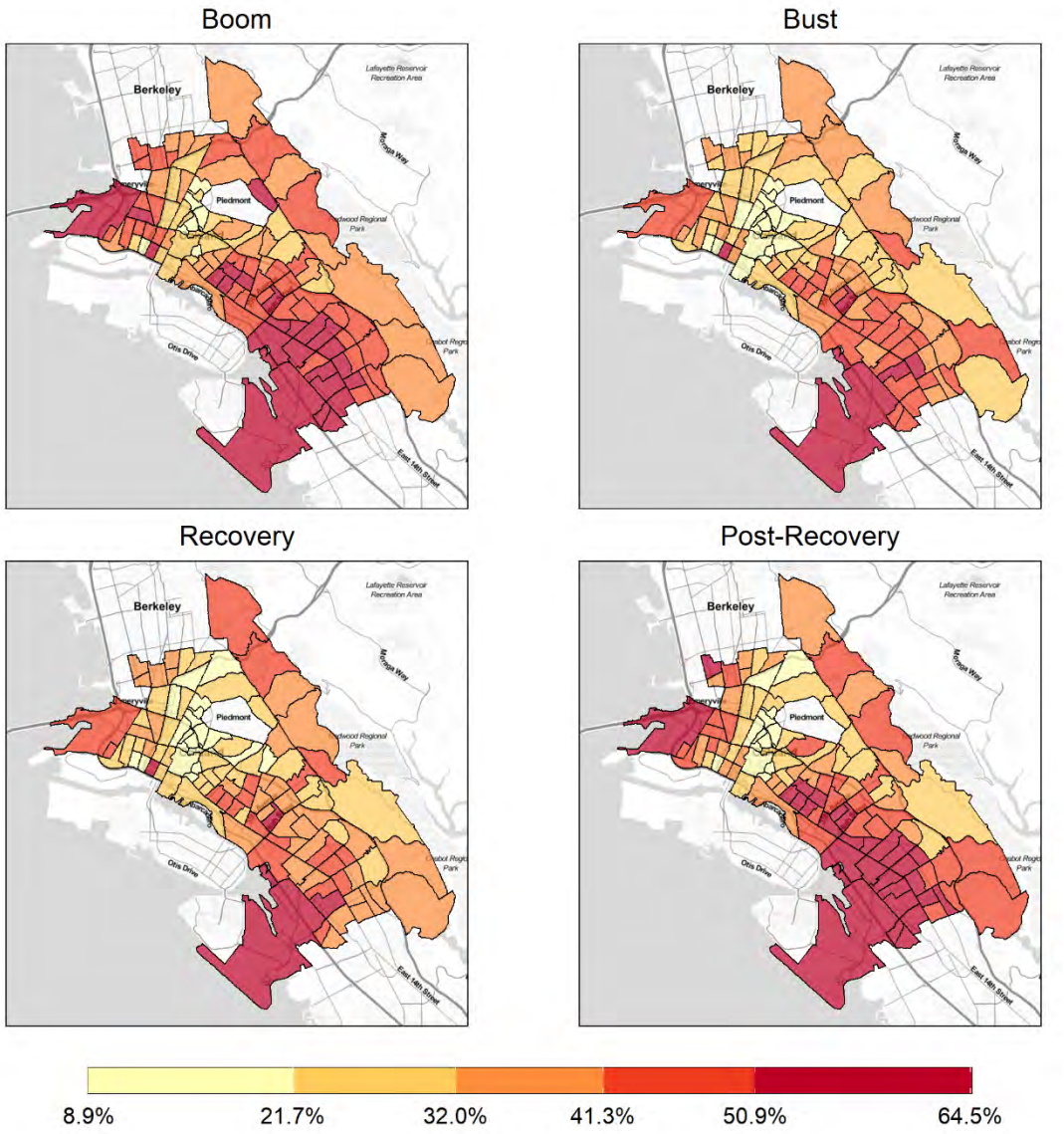
Figure 10: Percentage of Low-, Moderate-, and Middle-SES Oakland Residents Who Shifted from Low-Density to High-Density Households, by Neighborhood Category



3. The Geography of Crowding

Figure 11 displays maps of the percentage of LMM-SES individuals living in high-density households in each period across Oakland. There are substantially higher proportions of high-density households in the boom and post-recovery periods, when housing prices were rapidly rising. The prevalence of high-density households is consistently higher in West Oakland and East Oakland.

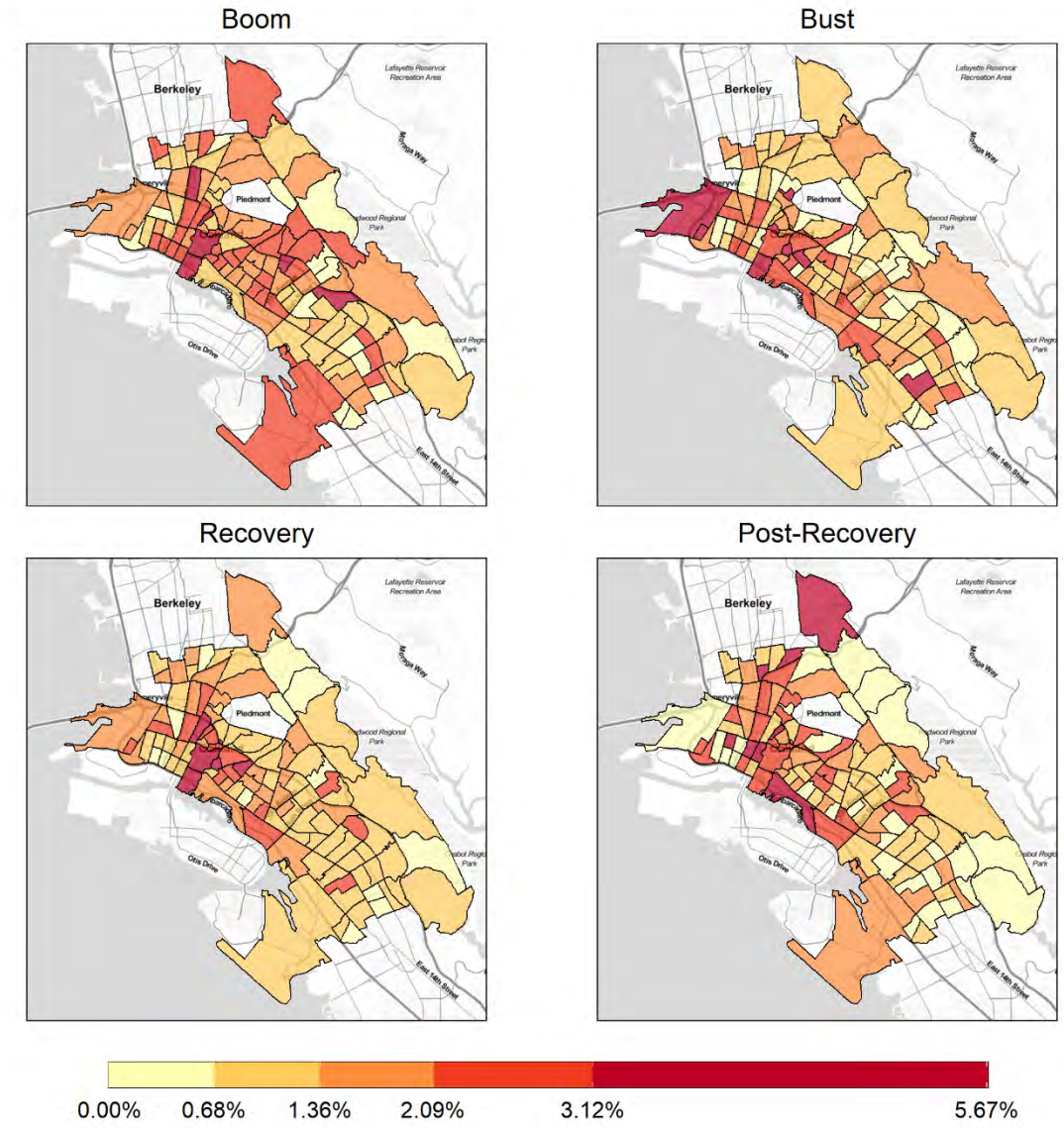
Figure 11: Maps of Percentage of Low-, Moderate-, and Middle-SES Oakland Residents in High-Density Households, by Housing Period



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

Figure 12 displays maps of the percentage of LMM-SES residents who move and shift from households with 1–2 adults to a household with 4+ adults in each period, based on where they are moving from. Across all housing periods, Downtown Oakland had a greater proportion of residents move and shift to higher-density households. During the housing bust, this shift was also prevalent in West Oakland, and, during the recovery and post-recovery periods, the shift to high-density households also occurred more among movers from North Oakland and parts of West Oakland.

Figure 12: Maps of the Percentage of Low-, Moderate-, and Middle-SES Oakland Residents Who Shifted from Low-Density to High-Density Households, by Housing Period



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

C. DOWNWARD DISPLACEMENT

While moving in general and moving to increasingly crowded households demonstrate one set of measures that reflect residential instability, the extent to which residents make downward moves reflects another facet of residential instability. Some residents make planned moves, which are more likely to be to higher-opportunity neighborhoods, while others make forced moves and/or face limited options when moving, leading them to end up in lower-opportunity neighborhoods. This section considers the destinations of movers to assess trends in "downward displacement," or the out-migration of residents to a lower-opportunity neighborhood than their origin (by census tract). We evaluate the poverty rates, median home values, and Healthy Places Index (HPI) of movers' destinations, based on 2016 ACS data, to capture different aspects of neighborhood characteristics.

SUMMARY: Overall, moderate- and middle-SES residents made downward moves more than low- and high-SES residents, and most of these downward moves occurred during the housing boom and bust. Further, downward moves were more likely to take place for movers from wealthier and white/white-mixed neighborhoods that were not undergoing gentrification. The low prevalence of downward moves among low-SES residents and in socioeconomically disadvantaged neighborhoods and communities of color reflects the relatively lower starting point of these movers and movers from these neighborhoods. Nonetheless, low-SES residents and residents from these neighborhoods tended to end up in significantly lower-opportunity neighborhoods than higher-SES residents and moved to neighborhoods with increasingly lower opportunity levels over time, reflecting the increasingly limited options for lower-SES residents.

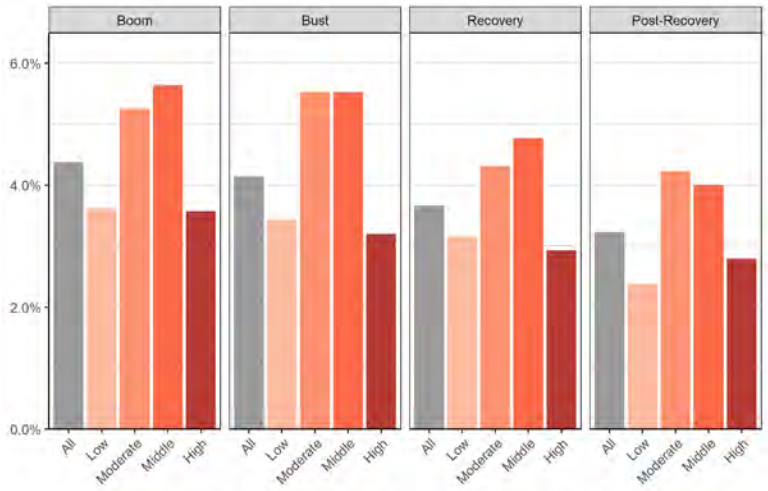
1. Destination Characteristics, by SES and Housing Period

This section considers the percentage of residents who move to neighborhoods with higher poverty rates, lower median home values, or lower HPI scores than their origin neighborhood for those who move within the Bay Area. Figure 13 visualizes the percentage of residents who made such downward moves, separated by SES and housing period.

Across all three outcomes, for each SES group, the share of residents moving to lower-opportunity neighborhoods has declined over time since the housing bust, and this share has been consistently and substantially higher for moderate- and middle-SES than for low- and high-SES residents across each time period. These trends are consistent with the overall moving rates. Although the share of moderate-SES residents who moved to neighborhoods with higher poverty rates and the share of middle-SES residents who moved to neighborhoods with lower median home values and lower HPI scores increased between the housing boom and bust, these shares declined consistently over time for low- and high-SES residents. Low-SES residents, however, tend to start off in lower-opportunity neighborhoods; thus, it is not surprising that downward moves would be less prevalent among low-SES residents. High-SES residents, on the other hand, tend to start off in higher-opportunity neighborhoods but still have a low prevalence of downward moves.

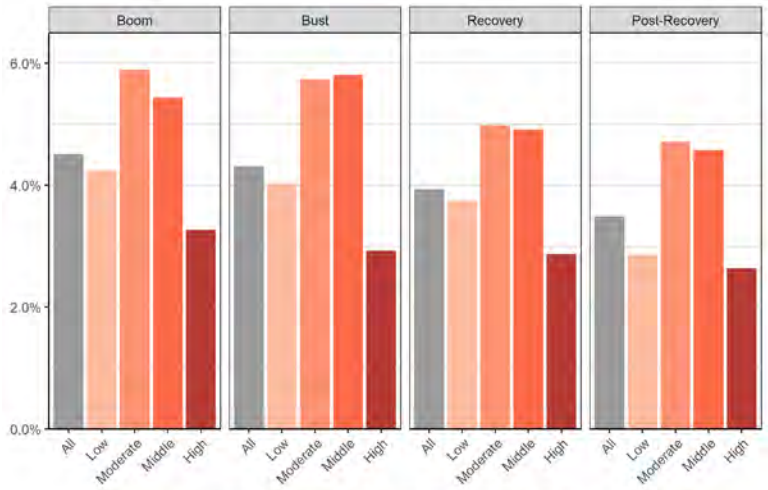
Figure 13: Percentage of Oakland Residents Who Move to Neighborhoods with (a) Higher Poverty Rates, (b) Lower Median Home Values, and (c) Lower Healthy Places Index Scores, by SES and Housing Period

(a) Higher Poverty Rates



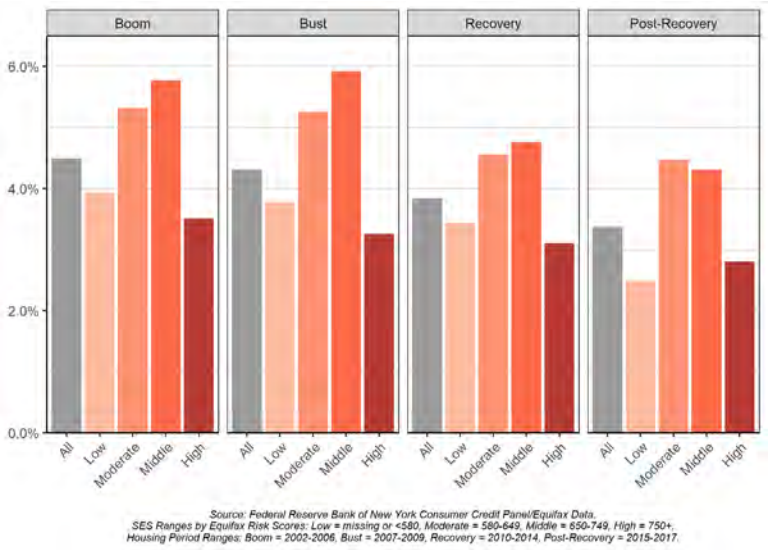
Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

(b) Lower Median Home Values



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

(c) Lower Healthy Places Index Scores



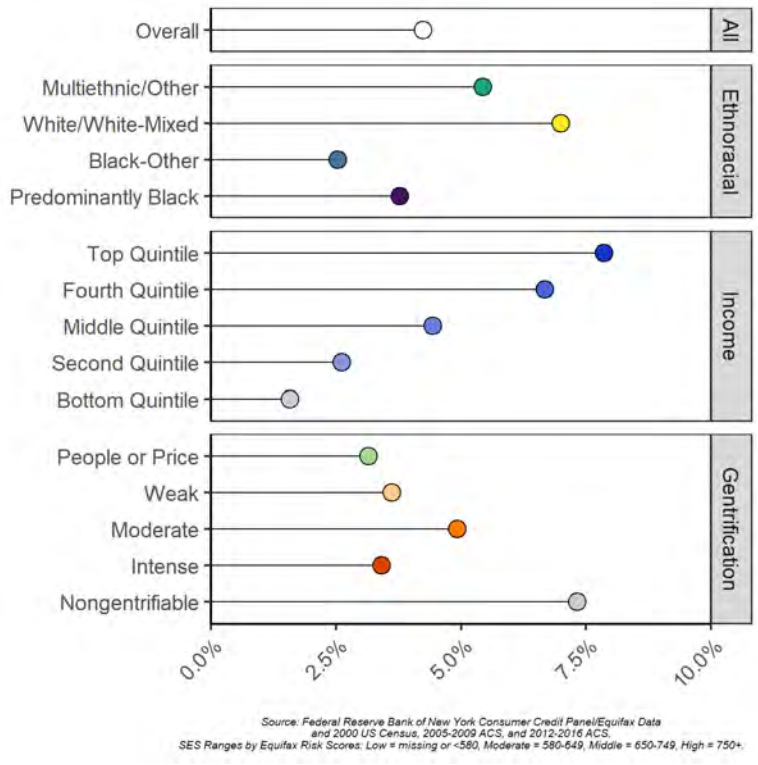
Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

2. Destination Characteristics, by Neighborhood Category

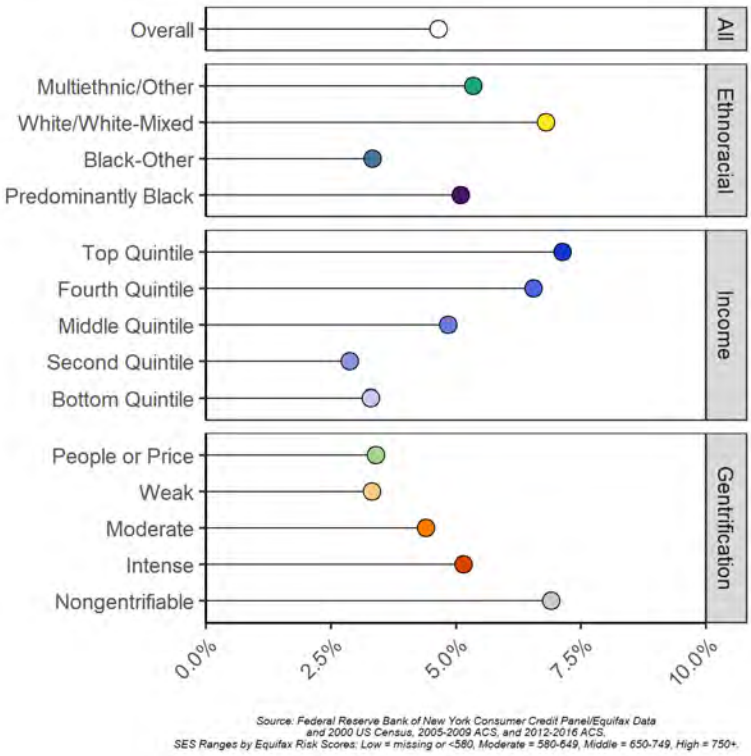
Figure 14 visualizes the percentage of LMM-SES residents from Oakland who moved to lower-opportunity neighborhoods relative to their origins, separated by neighborhood categories. Across all three outcomes, neighborhoods with the highest shares of LMM-SES residents moving into lower-opportunity neighborhoods were Nongentrifiable and White/White-Mixed neighborhoods and neighborhoods in the highest income quintiles. This is unsurprising simply because these tracts tend to have lower poverty rates and higher median home values and HPI scores to begin with. However, there are also relatively high percentages of residents moving to lower-opportunity neighborhoods from Moderate and Multiethnic/Other tracts, compared with other neighborhood categories. Neighborhoods undergoing intense gentrification and predominantly Black neighborhoods also have similarly high shares of residents moving to lower-value neighborhoods.

Figure 14: Percentage of Low-, Moderate-, and Middle-SES Oakland Residents Who Move to Destinations with (a) Higher Poverty Rates, (b) Lower Median Home Values, and (c) Lower Healthy Places Index Scores, by Neighborhood Category

(a) Higher Poverty Rates

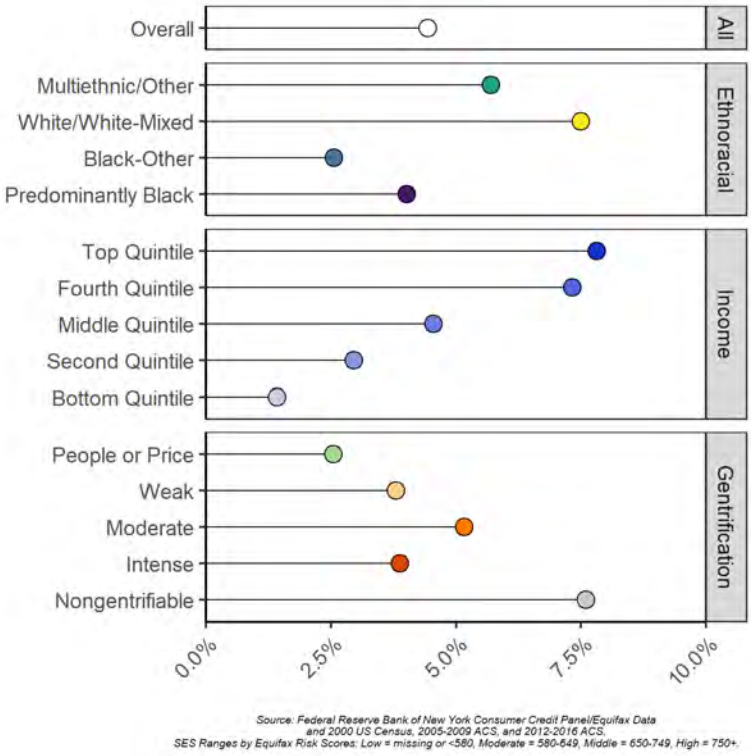


(b) <u>Lower Median Home Values</u>



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data and 2000 US Census, 2005-2009 ACS, and 2012-2016 ACS.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.

(c) <u>Lower Healthy Places Index Scores</u>



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data and 2000 US Census, 2005-2009 ACS, and 2012-2016 ACS.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.

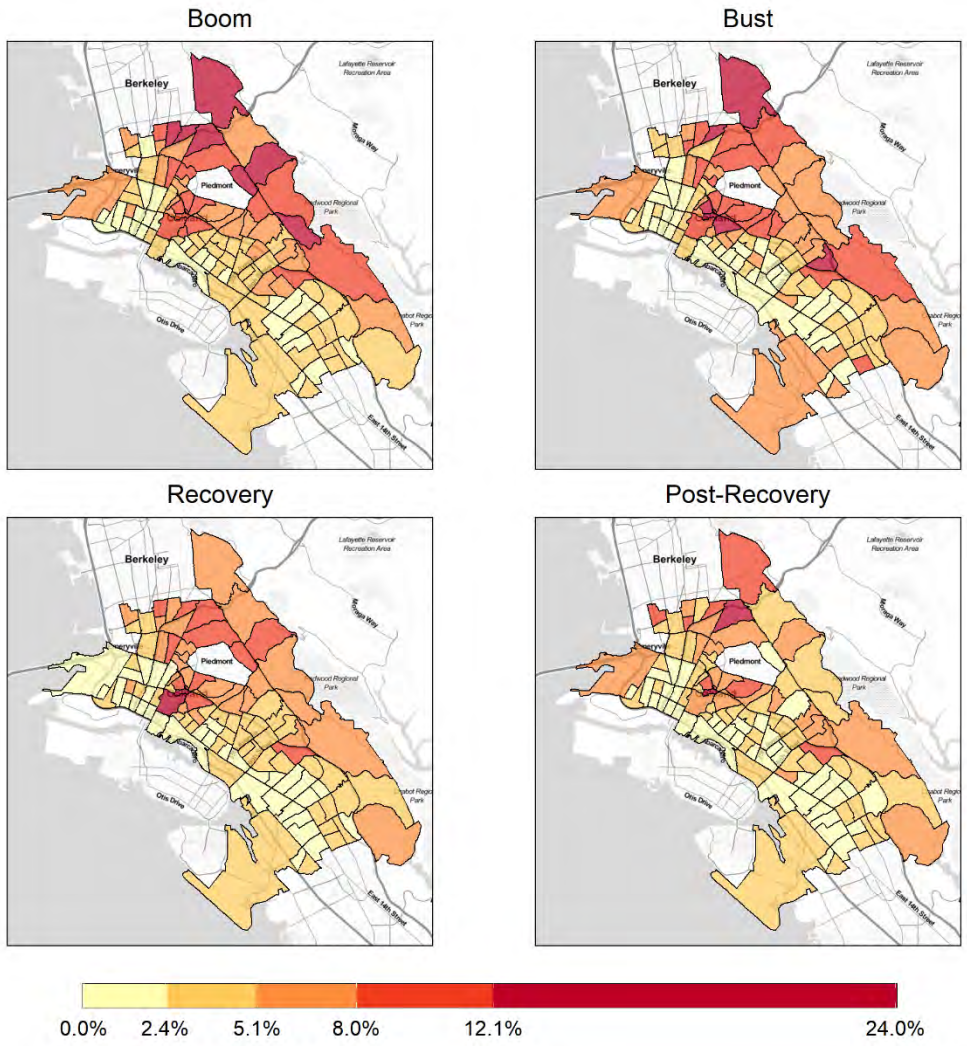
3. The Geography of Downward Displacement

Figure 15 displays Oakland census tracts by the percentage of LMM-SES residents who moved from these neighborhoods to lower-opportunity neighborhoods than their origins by housing period. Consistent with Figure 13, the maps reflect the overall decrease over time in the percentage of residents moving to lower-opportunity neighborhoods, but the geographic trends from the housing boom and bust periods were consistent in the recovery and post-recovery periods. Across all three outcomes, during the boom and bust periods, the tracts with the highest percentage of residents moving to lower-opportunity neighborhoods were in West Oakland (along the border with Berkeley) and in the Oakland Hills. A few tracts in Oakland's eastern neighborhoods during the bust also had relatively high shares of downward moves, and the tracts south of Piedmont also had a higher prevalence of downward moves throughout the periods.

In addition, some areas of West Oakland had relatively higher shares of residents moving to neighborhoods with lower home values. In the post-recovery period, the shares of residents moving to neighborhoods with lower home values increased in areas along the Berkeley border and in tracts adjacent to the Bay Bridge in West Oakland and decreased in the areas south of Piedmont. Further, while the percentage of residents moving to neighborhoods with lower HPI scores decreased overall, tracts surrounding Piedmont continued to have relatively high percentages. In the post-recovery period, the prevalence of moves to neighborhoods with lower HPI scores increased along the Berkeley border and in tracts in West Oakland adjacent to the Bay Bridge.

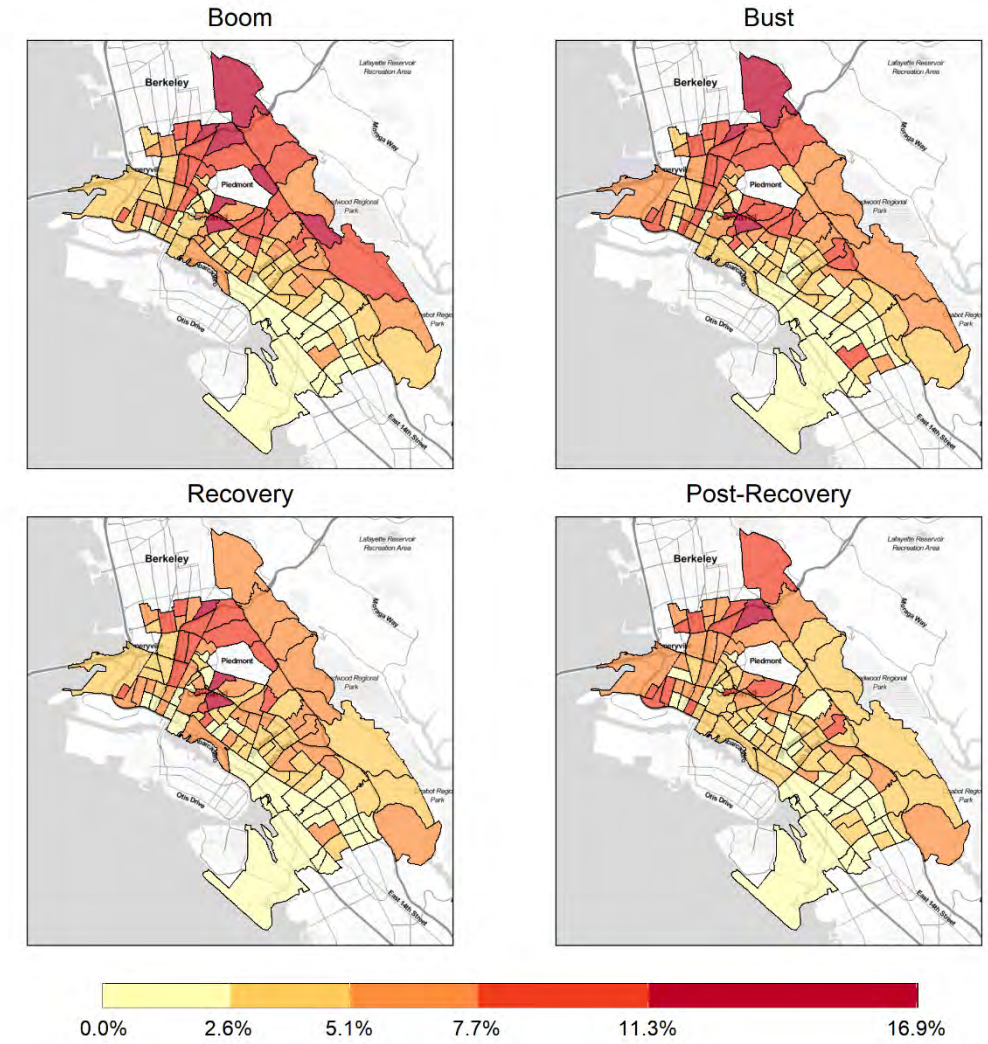
Figure 15: Maps of Percentage of Low-, Moderate-, and Middle-SES Oakland Residents Who Move to Destinations with (a) Higher Poverty Rates, (b) Lower Median Home Values, and (c) Lower Healthy Places Index Scores, by Housing Period

(a) Higher Poverty Rates



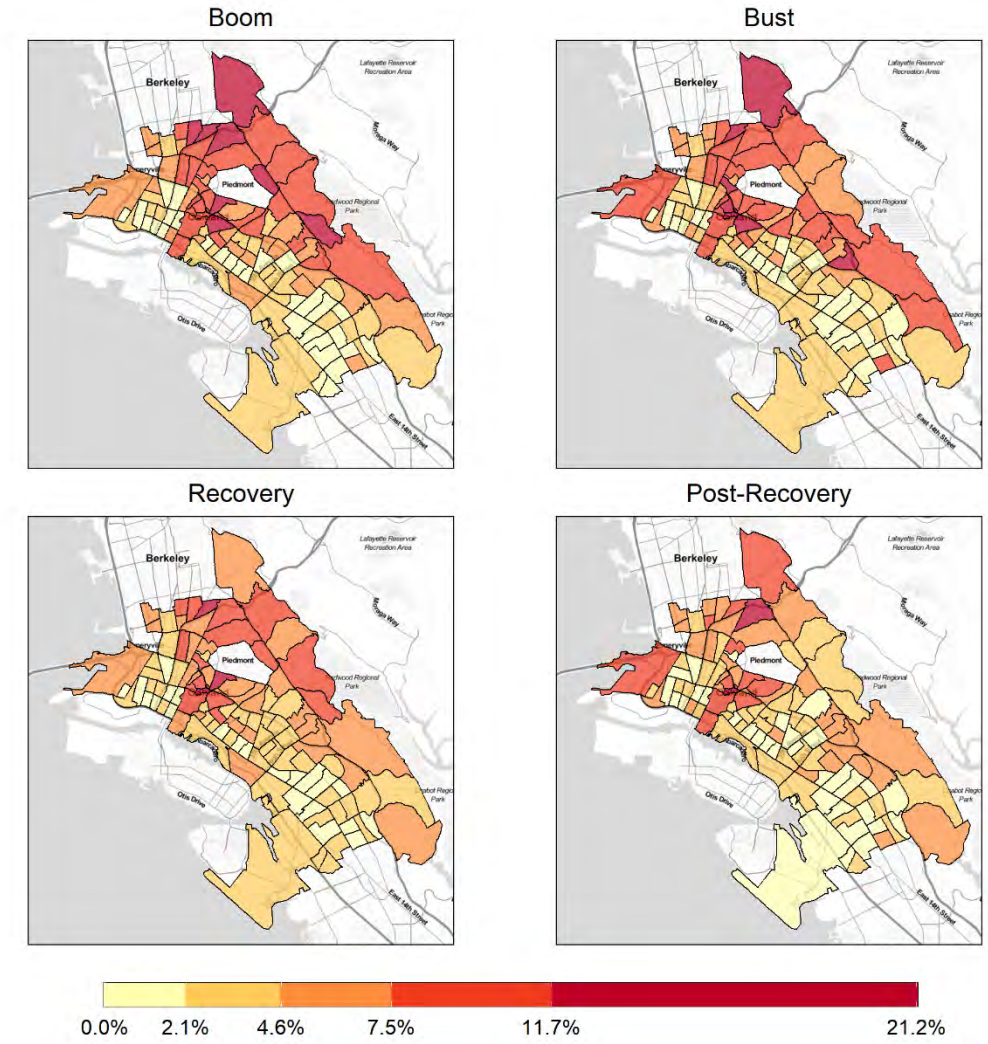
Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

(b) Lower Median Home Values



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

(c) Lower Healthy Places Index Scores



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

4. Neighborhood Destinations of Oakland Movers

Although downward displacement was less prevalent among low- and high-SES residents and less prevalent in socioeconomically disadvantaged neighborhoods and communities of color, this section analyzes the neighborhood characteristics of where movers who start off in Oakland ended up and the actual changes in values for residents who remained in Oakland.

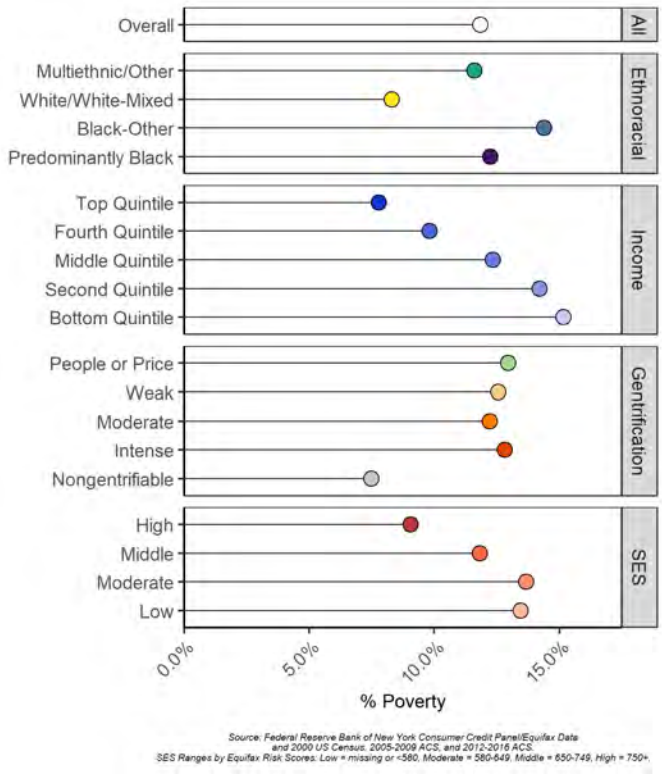
Figure 16 shows the average characteristics of movers' destinations, separated by SES and neighborhood categories. Movers from nongentrifiable, White/White-Mixed, and from neighborhoods in the top income quintiles ended up in higher-opportunity neighborhoods. This is unsurprising because those tracts tend to have more high-SES residents to begin with. Additionally, across all three outcomes, movers from Multiethnic/Other neighborhoods ended up in higher-opportunity neighborhoods, compared with movers from Predominantly Black and Black-Other tracts, and movers from Black-Other tracts ended up in the lowest-opportunity neighborhoods, compared with the other neighborhoods. These results suggest that movers from the bottom income quintile and Black-Other tracts move to the lowest-opportunity neighborhoods on average.

Movers from gentrifiable tracts had similar median home value and poverty rate outcomes. However, among movers in gentrifiable tracts, movers from people or price gentrification tracts ended up in tracts with lower HPI scores, while movers from moderately gentrifying tracts ended up in places with higher HPI scores. The substantial heterogeneity among movers from gentrifying neighborhoods (e.g., high-SES residents cashing out on the increased values of their homes and lower-SES residents experiencing displacement) explains these trends. The destinations of movers by neighborhood income quintile generally exhibited a hierarchical trend.

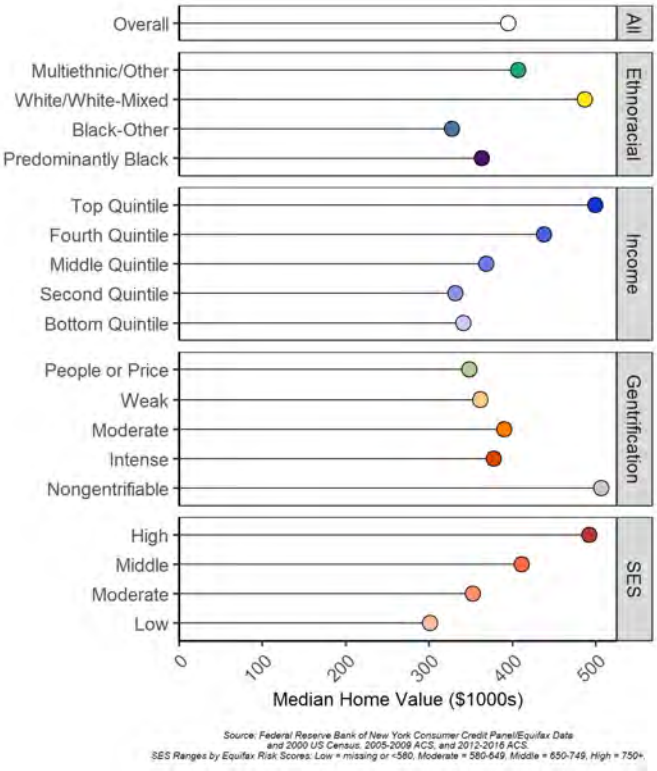
Finally, across all three outcomes, high-SES movers ended up in higher-opportunity neighborhoods—in neighborhoods with the lowest poverty rates and highest median home values and HPI scores, compared with other SES groups. Low-SES movers more often ended up in neighborhoods having the lowest median home values and HPI scores. They ended up in neighborhoods with higher poverty rates than middle- and high-SES residents but in neighborhoods with similar poverty rates as moderate-SES residents on average.

Figure 16: Destination (a) Poverty Rate, (b) Median Home Value, and (c) Healthy Places Index Score, by Neighborhood Category and SES

(a) Poverty Rate



(b) <u>Median Home Value</u>



(c) <u>Healthy Places Index</u>

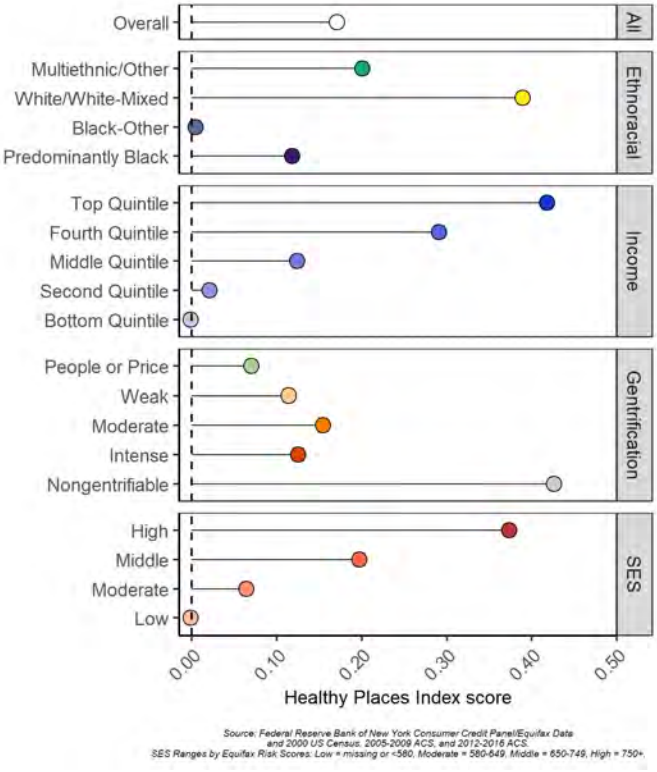
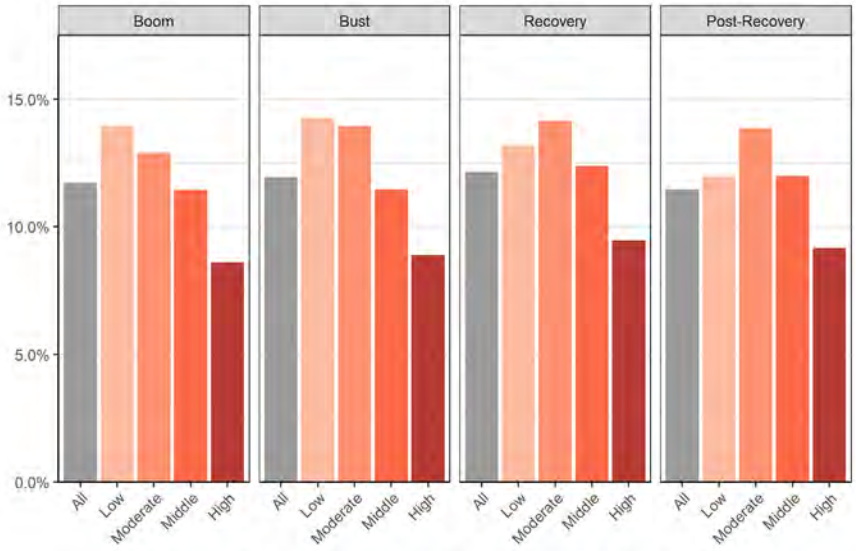


Figure 17 shows the average characteristics of movers' destinations over time for each SES group. Across all three outcomes, high-SES residents consistently moved to higher-opportunity neighborhoods more often than movers in other SES categories. During the boom and bust periods, low-SES movers ended up in tracts with higher poverty rates than moderate-SES movers. However, in the recovery and post-recovery periods, moderate-SES movers ended up in tracts with higher poverty rates than low-SES movers. Low-SES movers' destinations had decreasing average poverty rates over time for those who stayed within the Bay Area, but they also experienced average decreases in median home values and HPI scores. While low-SES movers saw improvements in the average poverty rates of their destinations, moderate- and middle-SES residents moved to neighborhoods with higher poverty rates over time, which reflects the increasingly constrained choices that moderate- and middle-SES movers faced as affordability became even more constrained.

Since the bust, LMM-SES residents have ended up in tracts with declining median home values and HPI scores, which suggests that their moves became increasingly constrained over time. High-SES movers, on the other hand, ended up in tracts with substantially higher median home values and higher HPI scores during the recovery period, compared with the other periods. These residents may have also faced more constraints in moving during the post-recovery period. Across all SES groups, the average HPI scores of residents' destinations declined over time.

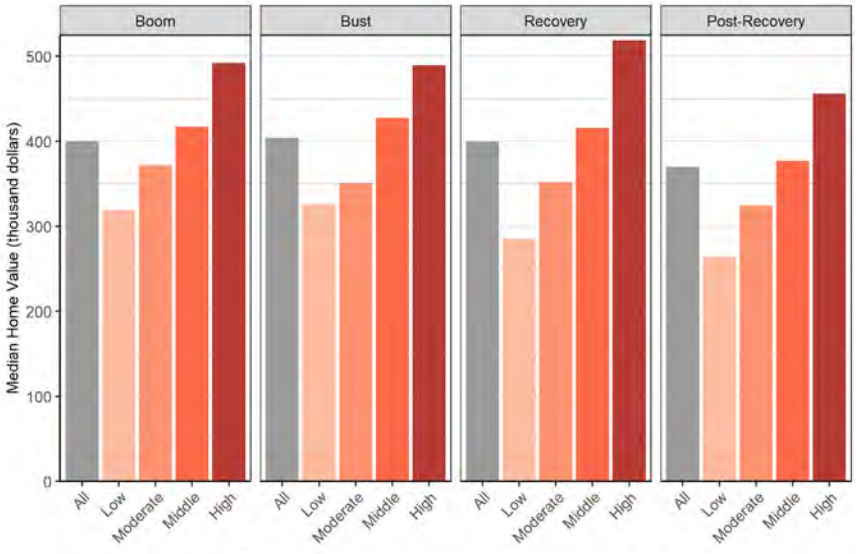
Figure 17: Destination (a) Poverty Rate, (b) Median Home Value, and (c) Healthy Places Index Score for Movers, by SES and Housing Period

(a) Poverty Rate



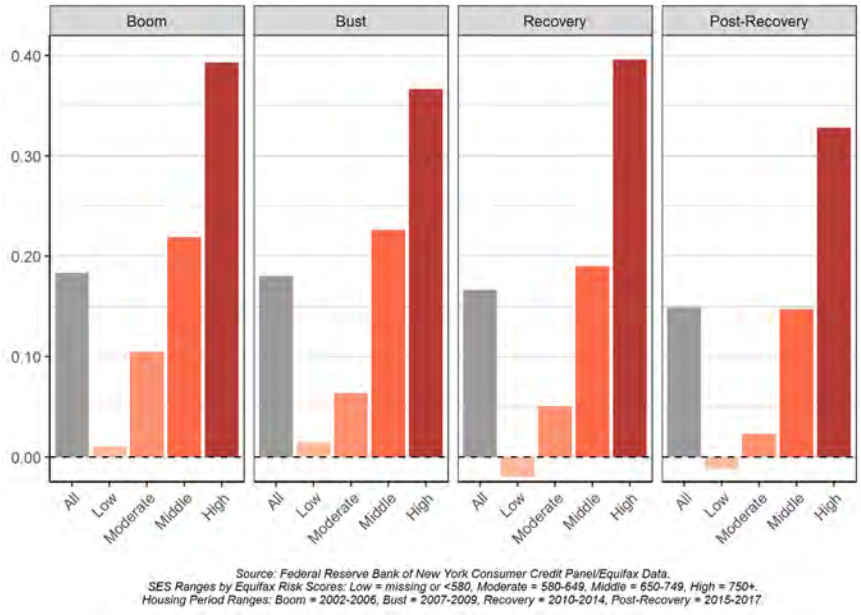
Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

(b) Median Home Value ($1,000s)



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

(c) Healthy Places Index

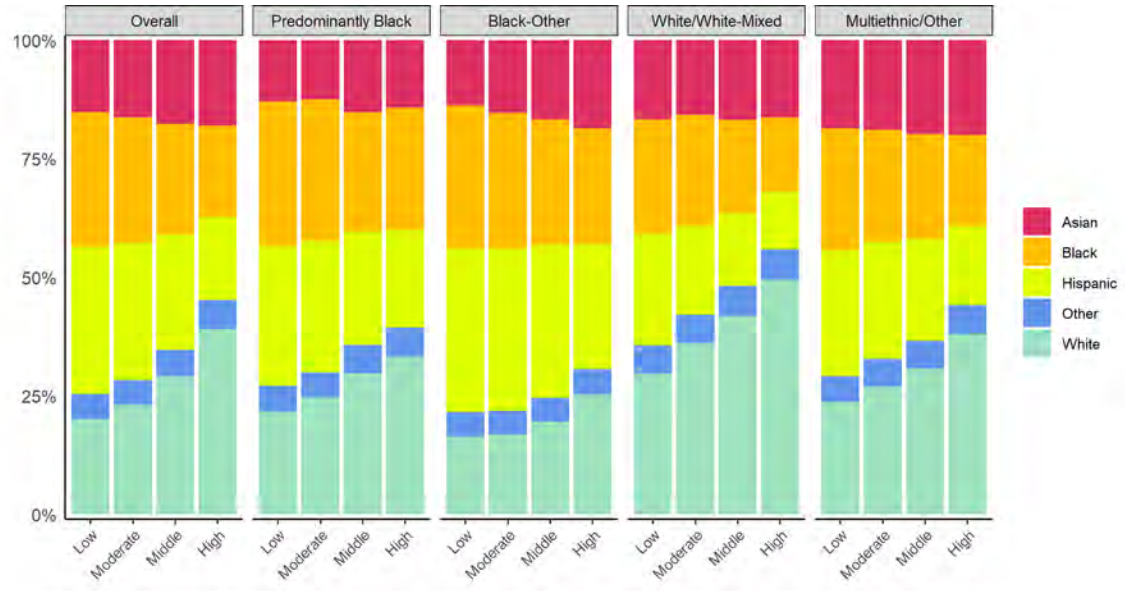


Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

Next, we examine movers who stay within Oakland. First, we examine the ethnoracial compositions of movers' destinations to see if patterns of segregation are reproduced when residents move. Figure 18 displays the ethnoracial composition of movers' destinations for those who stayed within Oakland by SES and ethnoracial composition and gentrification categories. The ethnoracial composition and gentrification categories are based on movers' origin neighborhood. Across ethnoracial and gentrification categories, higher-SES residents tend to move to neighborhoods with higher proportions of white residents and lower proportions of Black and Latinx residents, compared with lower-SES residents. The shares of Asians are generally consistent across movers' SES, except for movers from Black-Other neighborhoods. Higher-SES movers from these neighborhoods move to neighborhoods with higher shares of Asians, compared with others. With Oakland's White population comprising 28 percent of its overall population and Black and Latinx populations comprising 23 percent and 27 percent, respectively, residents moving from White/White-Mixed and nongentrifiable neighborhoods and high-SES residents from all neighborhoods move to neighborhoods with disproportionately more White residents and disproportionately fewer Black and Latinx residents. Altogether, these results suggest that the movement patterns reinforce racial and class segregation.

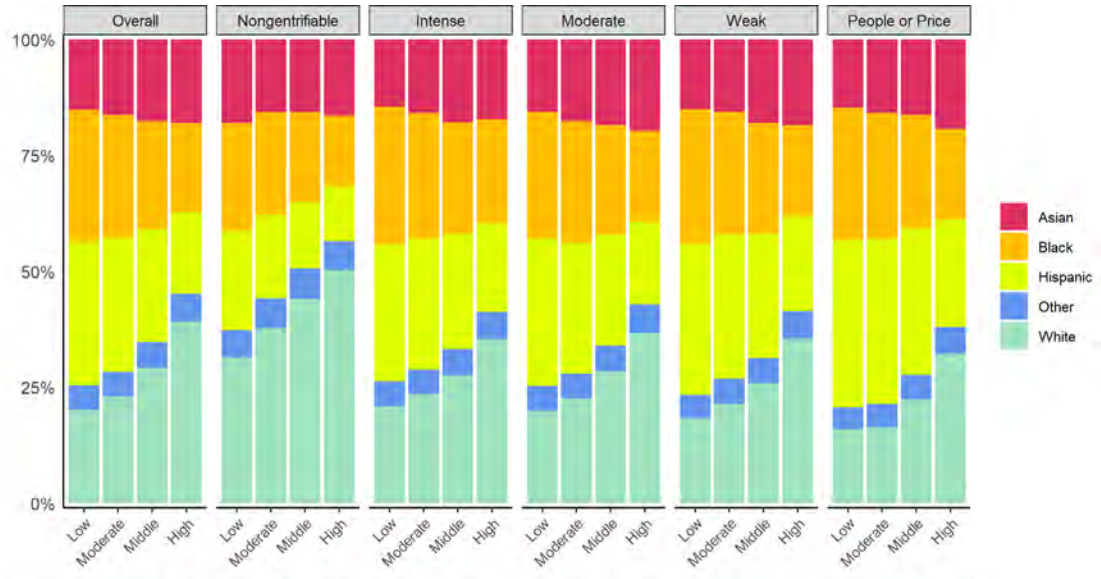
Figure 18: Average Ethnoracial Composition of Destinations for Movers within Oakland, by SES and Selected Neighborhood Categories

(a) Ethnoracial Composition



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data and 2000 US Census, 2005-2009 ACS, and 2012-2016 ACS.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.

(b) Gentrification Category



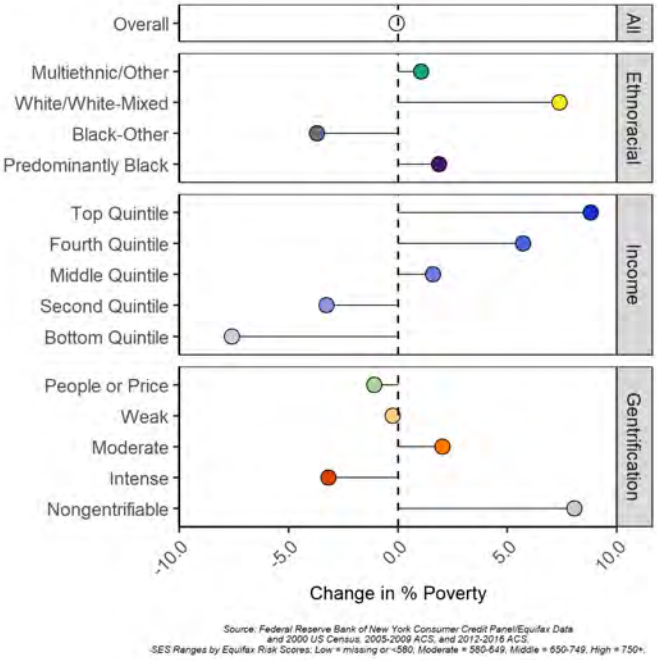
Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data and 2000 US Census, 2005-2009 ACS, and 2012-2016 ACS.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.

Figure 19 shows the average *change* in poverty rates, median home values, and HPI scores between the destinations and origins of LMM-SES Oakland residents who moved within Oakland. This figure is separated by neighborhood categories. Overall, LMM-SES movers experienced a decrease in poverty rates, median home values, and HPI scores on average. However, there is considerable variation by neighborhood category that reflects trends similar to those noted in Figure 14.

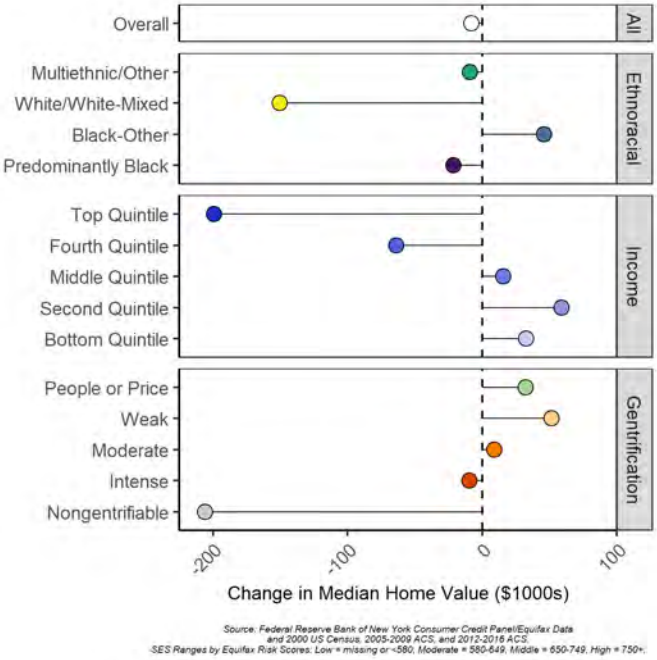
As expected, residents moving from socioeconomically advantaged neighborhoods and neighborhoods with fewer minority residents tended to move downward, reflecting their higher starting points. LMM-SES residents moving from intensely gentrifying neighborhoods and Black-Other neighborhoods, which are the most socioeconomically disadvantaged gentrification and ethnoracial categories, respectively, experienced average improvements in poverty rates and HPI scores, while neighborhoods undergoing moderate levels of gentrification and predominantly Black neighborhoods tended to move to neighborhoods with higher poverty rates and lower HPI scores. Among gentrifiable neighborhoods, residents moving from intensely gentrifying neighborhoods experienced an average decline in median home values, while others moved to slightly more expensive neighborhoods.

Figure 19: Change in (a) Poverty Rate, (b) Median Home Value, and (c) Healthy Places Index Score for Low-, Moderate-, and Middle-SES Movers Who Moved within Oakland, by Neighborhood Category

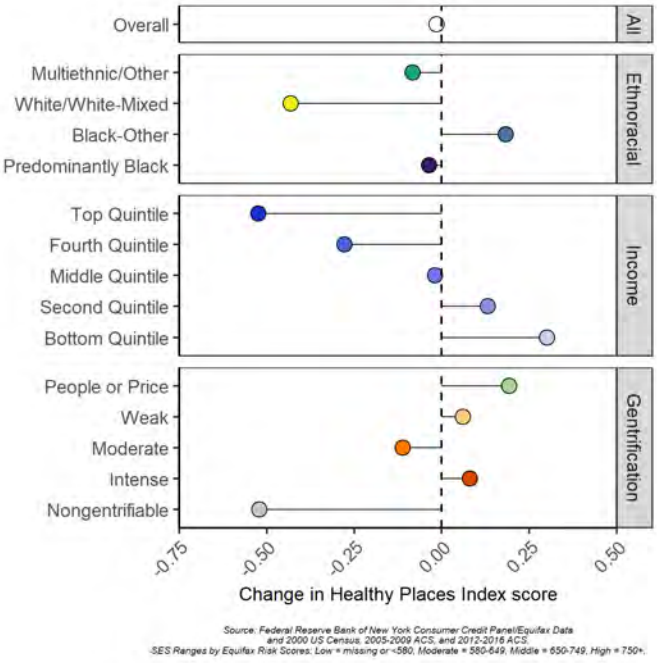
(a) Poverty Rate



(b) Median Home Value



(c) Healthy Places Index



D. FINANCIAL INSTABILITY

Although many residents move because of increased housing prices, others may stay in place and offset housing costs by forgoing payments on other household and living expenses. This financial instability reflects another facet of residential instability and may eventually lead to forced or constrained moves. This section considers the financial health of residents in neighborhoods (by census tract) to identify which neighborhoods experienced more financial instability. We evaluate overall shifts in credit scores and credit score categories and households without delinquencies that become delinquent on any credit accounts across Oakland neighborhoods.

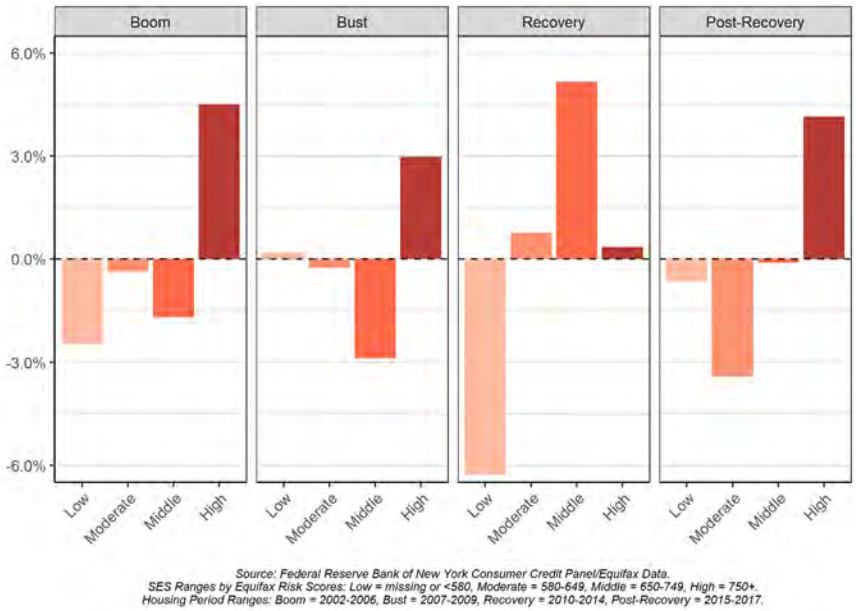
SUMMARY: Overall, the socioeconomic composition and financial stability, based on credit records, of Oakland's residents changed over time and unevenly across neighborhoods. Oakland experienced increases in the share of low-SES residents during the housing bust but decreases in all other periods. The analysis suggests that the increases were due to increased financial instability associated with the Great Recession, rather than the in-migration of low-SES residents. Moreover, the large declines in the share of low-SES residents following the bust period, especially in lower-income and minority neighborhoods, are associated with credit improvements, while increases in the low-SES residents in a handful of neighborhoods in Oakland reflect increasing financial instability among residents who stay. New delinquencies and increases in low-SES residents during the post-recovery period were most prevalent in East Oakland, including in places showing early signs of gentrification, and parts of Downtown and West Oakland.

1. Financial Health and (In)stability, by Housing Period

Figure 20 displays the overall change in the percentage of residents in Oakland neighborhoods for each SES category, separated by housing period. There were decreases in the percentage of low-SES residents during the boom, recovery, and post-recovery periods, with the recovery period having the largest decrease, at about 6 percent. During the housing bust period, there was a slight increase. These changes may reflect an influx of lower-SES residents into Oakland but more likely reflect shifts among residents to low-SES status during this period of economic insecurity.

By contrast, the share of high-SES residents increased across all periods and the most during the housing boom and post-recovery periods, when housing prices have been rising the most. The percentages of moderate- and middle-SES residents declined during all periods except the recovery period, when housing was likely more accessible to these groups. During this period, the percentage of middle-SES residents in Oakland neighborhoods increased significantly. Further, the percentage of moderate-SES residents in Oakland neighborhoods declined substantially during the post-recovery period, reflecting greater displacement—either directly or indirectly—of this SES group, compared with others.

Figure 20: Overall Change in Percentage of Residents, by SES and Housing Period



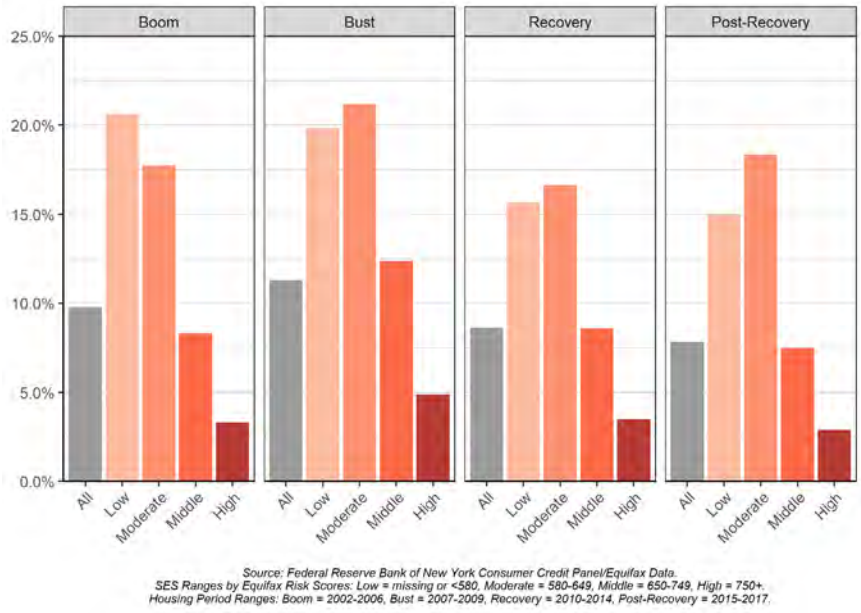
Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

To assess whether these shifts reflect changes in individuals' financial stability, we examine the extent to which residents lived in households without any delinquencies where someone became delinquent on any credit account over each year, which we refer to as a new delinquency, and the extent to which residents who are not in the low-SES category shifted to it over the year.

Figure 21 visualizes the percentage of households with new delinquencies, separated by SES (based on the beginning of each year) and housing period. The increase between the boom and bust periods among moderate-, middle-, and high-SES residents suggests that households became more financially insecure during the Recession. The share of residents in these SES groups that shifted to low-SES status by the end of each year exhibited similar trends over the housing periods (not shown). This explains the increase in low-SES residents in Oakland during the housing bust, shown in Figure 20.

There is also a decrease in the percentage of households with new delinquencies from the boom to post-recovery periods for all SES groups, except for moderate-SES residents, who saw an increase between the recovery and post-recovery periods. These trends suggest that moderate-SES residents in Oakland may be experiencing more financial instability as affordable housing became increasingly limited. In addition, low- and moderate-SES residents consistently have the highest percentages of households with new delinquencies (~15–21 percent), while high-SES residents have the lowest (<5 percent).

Figure 21: Percentage of Oakland Residents with New Delinquencies, by SES and Housing Period



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

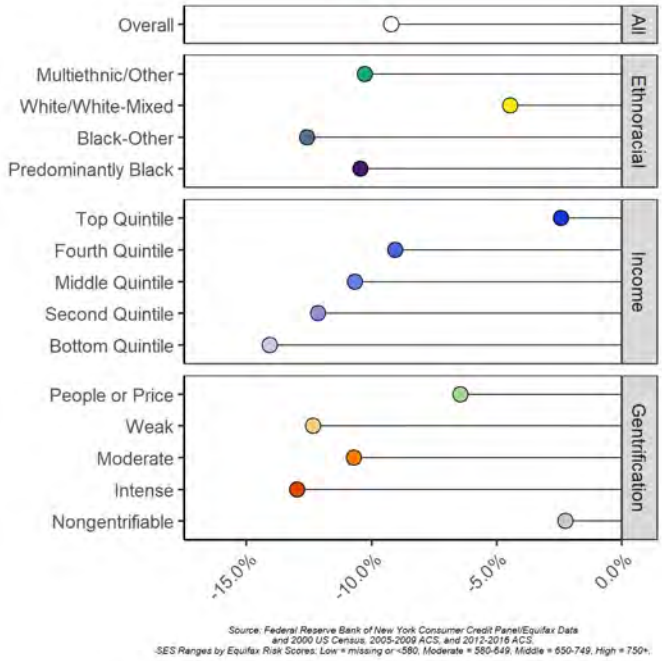
2. Financial Health and (In)stability, by Neighborhood Category

Figure 22 visualizes the overall changes in percentage of low-SES residents in neighborhoods and the percentage of new delinquencies among LMM-SES residents, separated by neighborhood categories. Across all neighborhood categories, the percentage of low-SES residents decreased by nearly 10 percent on average. Neighborhoods undergoing weak, moderate, and intense gentrification saw the largest decreases relative to other neighborhoods, while people/price gentrifying neighborhoods had slightly higher shares of residents with new delinquencies, compared with these gentrifying neighborhoods. Among the ethnoracial categories, Multiethnic/Other, Black-Other, and Predominantly Black neighborhoods saw the largest decreases in the share of low-SES residents, while Black-Other and Predominantly Black neighborhoods had relatively higher shares of new delinquencies. Finally, neighborhoods in the lower-income quintiles saw larger decreases in their shares of low-SES residents but also larger shares of residents with new delinquencies, compared with higher-income neighborhoods.

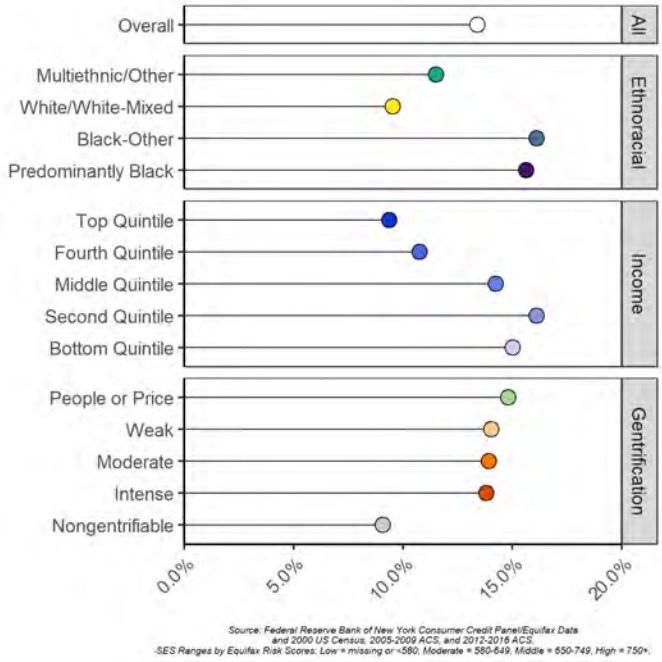
The large decreases in shares of low-SES residents in lower-income and minority neighborhoods may reflect the direct and indirect displacement of low-SES residents taking place in these neighborhoods, but the higher shares of new delinquencies in these neighborhoods suggest that it reflects the increased financial instability among those who stay, rather than improvements in individuals' credit.

Figure 22: (a) Change in Low-SES Percentage and (b) New Delinquencies for Low-, Moderate-, and Middle-SES Residents, by Neighborhood Category

(a) Change in Low-SES Percentage



(b) Percentage of New Delinquencies



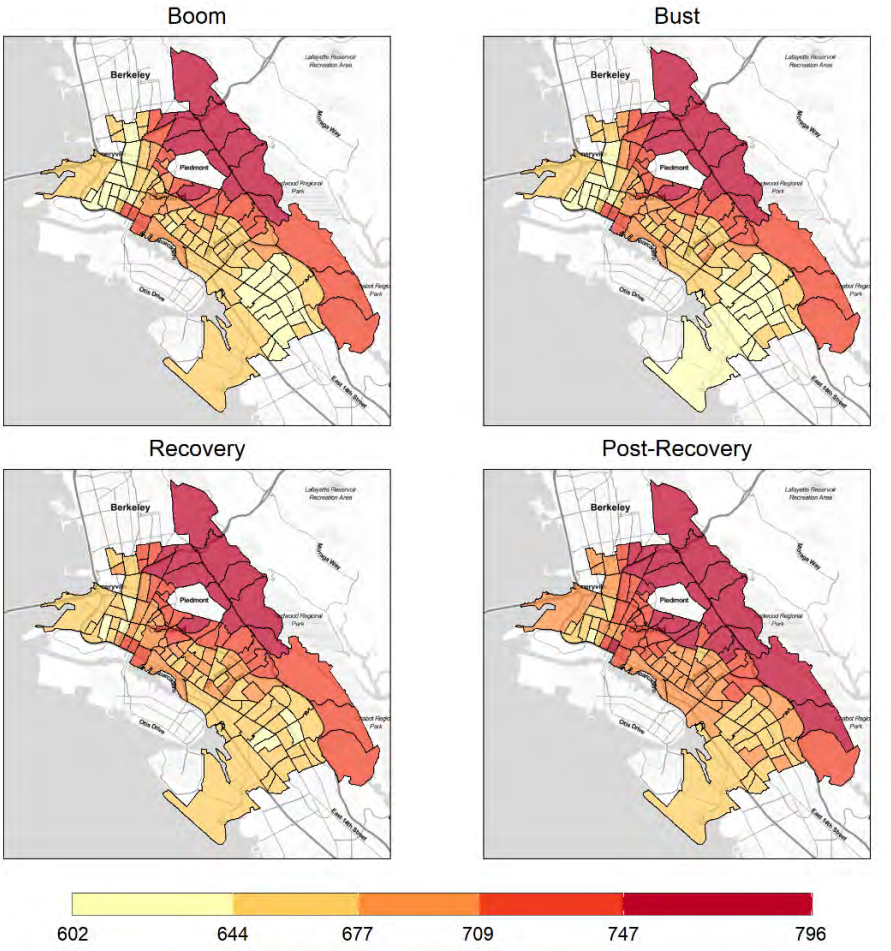
3. The Geography of Financial Instability

Figure 23 displays maps of the average credit scores and average annual changes in credit scores in each period across Oakland. In the second map, as well as all subsequent maps visualizing changes, red reflects positive changes, while blue reflects negative changes. The maps exclude individuals with missing credit scores, all of whom are categorized as low-SES in the rest of the report; consequently, the overall averages are biased upward, particularly in neighborhoods with many low-SES individuals.

As expected, neighborhoods in the Oakland Hills, which consist primarily of nongentrifiable and White/White-Mixed neighborhoods, have much higher mean credit scores than the other parts of Oakland. These areas, however, experienced more decreases in credit scores through the bust. The spatial distribution of average credit scores remained relatively stable across the housing boom, bust, and recovery periods, with most areas experiencing increases during the recovery and post-recovery periods. Downtown and Central Oakland experienced large increases during the recovery period, while East and West Oakland experienced the largest increases in the post-recovery period, reflecting the slower recovery from the Recession in these parts of Oakland.

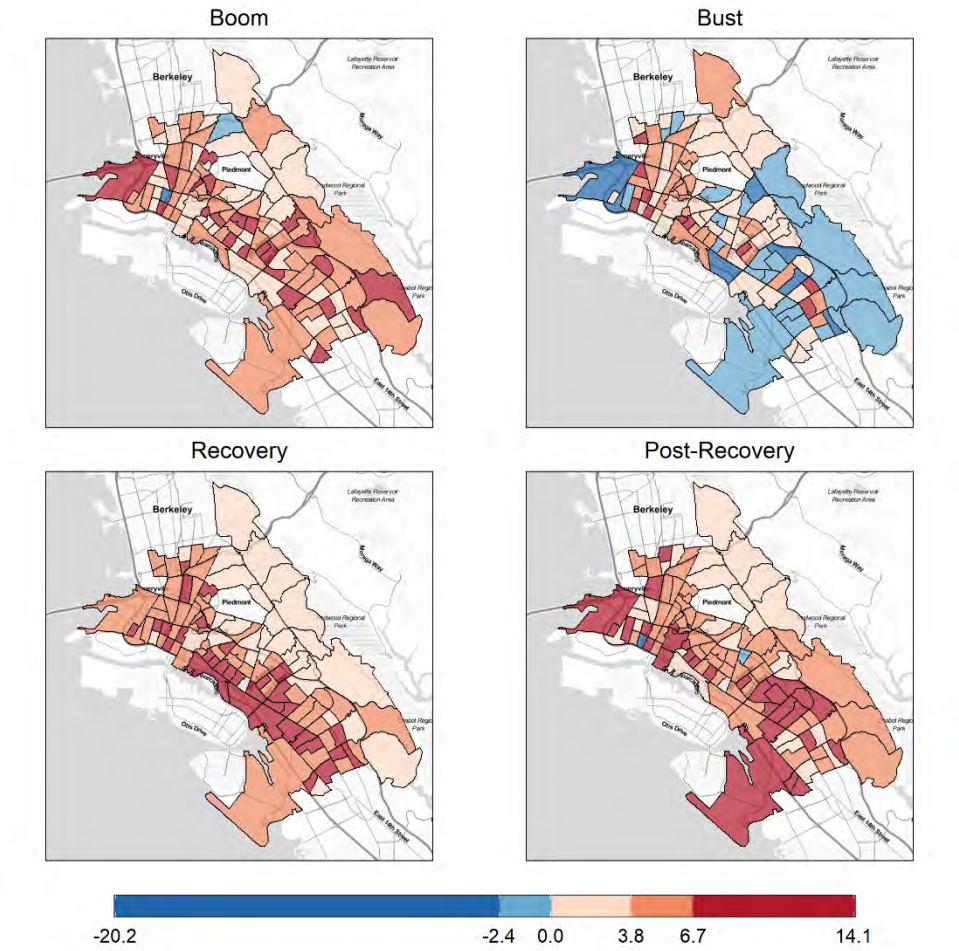
Figure 23: Maps of (a) Average Credit Scores and (b) Average Changes in Credit Scores, by Housing Period

(a) Average Credit Scores



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

(b) <u>Changes in Credit Scores</u>



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

Figure 24 maps the percentage change in low-SES residents over time and the percentage of new delinquencies among LMM-SES residents, separated by housing period. During the housing boom period, most Oakland neighborhoods appear to have slight decreases in their shares of low-SES residents, with a scattered number of neighborhoods showing increases. Most Oakland tracts—except for those in the Oakland Hills—appear to have relatively high percentages of new delinquencies. In the bust period this pattern changed, as many neighborhoods in East Oakland, as well as Downtown Oakland and in West Oakland adjacent to the Bay Bridge, saw increases in the shares of low-SES residents. The map of new delinquencies during the bust period exhibited similar trends. Residents' financial stability in these neighborhoods appears harder hit by the Recession.

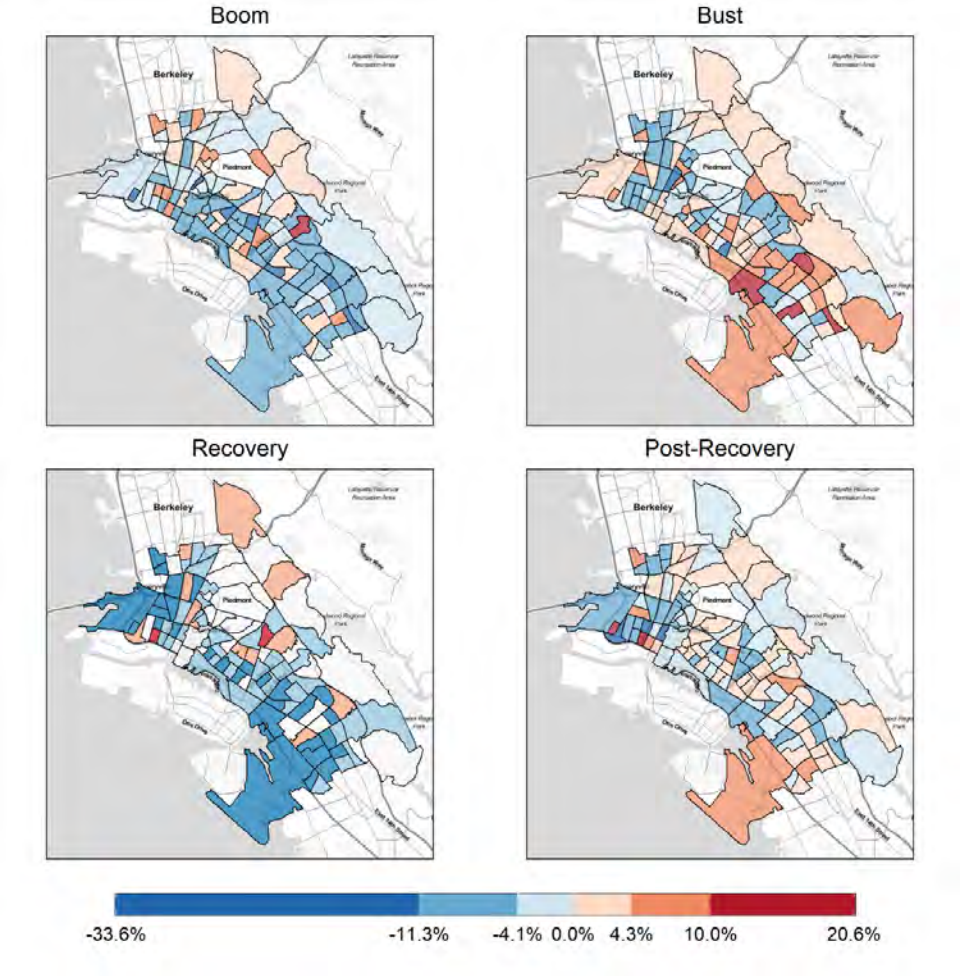
The trend shifted again after the Recession, and the shares of low-SES residents decreased in most tracts, with several tracts in the same areas that saw large increases during the housing bust experiencing significantly higher decreases. While the prevalence of new delinquencies declined from the bust to the recovery period, these same neighborhoods had higher shares of new

delinquencies during the recovery period, compared with other neighborhoods. These trends are more likely to reflect both the influx of higher-SES residents and/or the lower in-migration of low-SES residents as these neighborhoods gentrify, as well as the subsequent increase in financial instability for those who stay.

In the post-recovery period, an equal share of neighborhoods experience decreases and increases in the shares of low-SES residents. Areas with increases in shares of low-SES residents during this period—parts of East Oakland and Downtown Oakland—also had greater shares of new delinquencies. Together, these maps highlight the areas where there is increasing financial instability as housing affordability became increasingly limited. Shifts in the share of residents in moderate-, middle-, and high-SES categories that switch to low-SES by the end of the year (not shown) yield similar trends to the spatial distribution of new delinquencies.

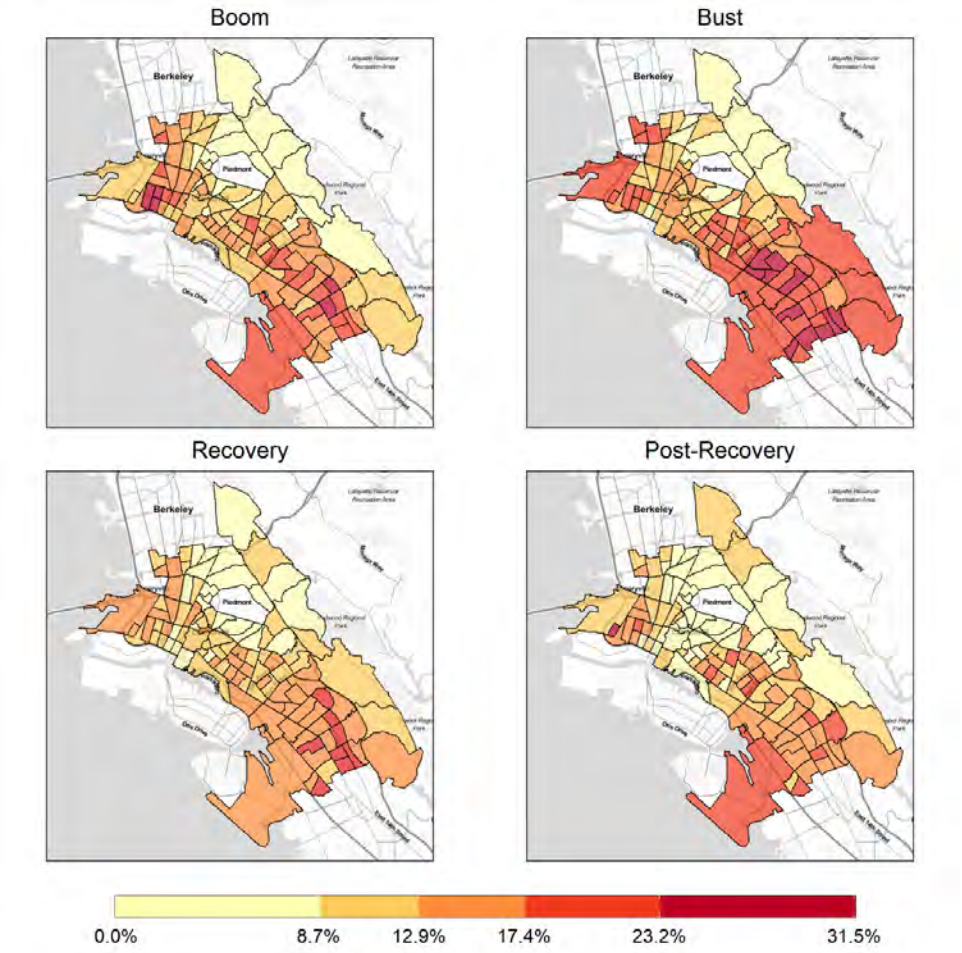
Figure 24: Maps of (a) Change in Low-SES Percentage and (b) New Delinquencies for Low-, Moderate-, and Middle-SES Residents, by Housing Period

(a) Change in Low-SES Percentage



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

(b) <u>Percentage of New Delinquencies</u>



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

E. NEIGHBORHOOD INSTABILITY

The analysis thus far has focused on aspects of residential instability that *individuals* face—moving, moving into crowded households, moving into lower-opportunity neighborhoods, and becoming financially unstable—which have implications for their neighborhoods' trajectories. This section assesses indicators of the broader conditions of Oakland's neighborhoods. Specifically, we draw on the CCP data and additional data sources to examine changes in homeownership, including delinquent mortgages and foreclosures, and neighborhood demand by examining where residents across SES groups are moving in Oakland over time, as well as vacancies. In the last section, we examine supplementary data indicating neighborhood (dis)investment, drawing on building permits.

SUMMARY: Overall, homeownership declines were prevalent throughout Oakland during the period following the Recession. Although the declines in homeownership were largest in neighborhoods with substantial white populations and those experiencing people or price gentrification overall, new mortgage delinquencies were more prevalent in gentrifiable neighborhoods during the housing bust and recovery periods, especially in East Oakland, Downtown Oakland, and parts of West Oakland, suggesting that the Recession had a longer-term impact on the financial stability of homeowners in these areas. Foreclosure and vacancy rates were highest in Deep East Oakland and parts of West Oakland. Although lower-SES residents moved to increasingly fewer places over time, they increasingly concentrated in areas hit hard by the foreclosure crisis. Nonetheless, many of these areas started experiencing increases in households with mortgages and middle-SES residents during the post-recovery period, signaling gentrification. Most investment, proxied by the number and value of building permits, occurred in areas where high-SES residents moved in greater concentrations—the wealthier, whiter neighborhoods of the Oakland Hills.

1. Homeownership (In)stability

In this section, we analyze changes in the share of households with mortgages, as a proxy for homeownership, delinquent mortgage, and foreclosures during the Recession. Figure 25 visualizes the overall changes in the percentage of individuals in households with mortgages, separated by neighborhood categories. Across all categories, the percentage of individuals in households with mortgages decreased by nearly 8 percent on average. Neighborhoods that were nongentrifiable, undergoing people or price gentrification, White/White-Mixed, and in the top income quintile experienced the largest decrease in the percentage of individuals in households with mortgages. Among gentrifiable neighborhoods, neighborhoods undergoing people or price gentrification saw the largest average decrease in the percentage of individuals in households with mortgages, followed by neighborhoods undergoing moderate gentrification.

Figure 25: Overall Change in Percentage of Individuals in Households with Mortgages, by Neighborhood Category

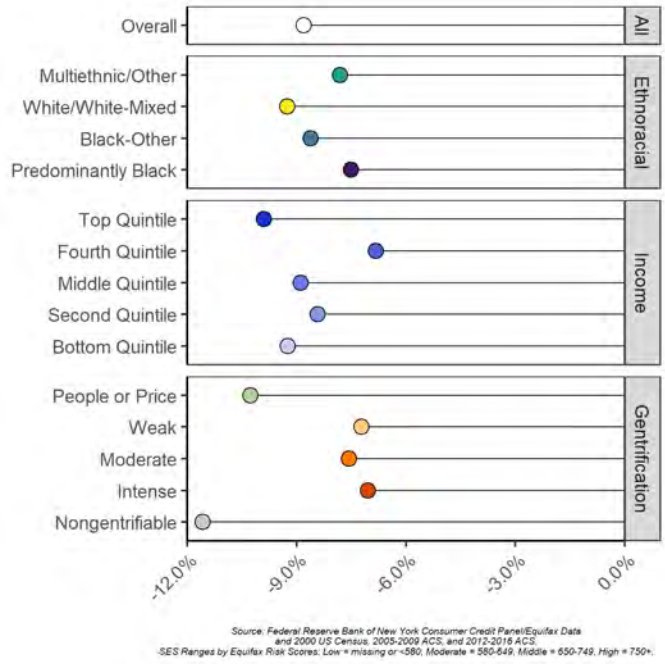
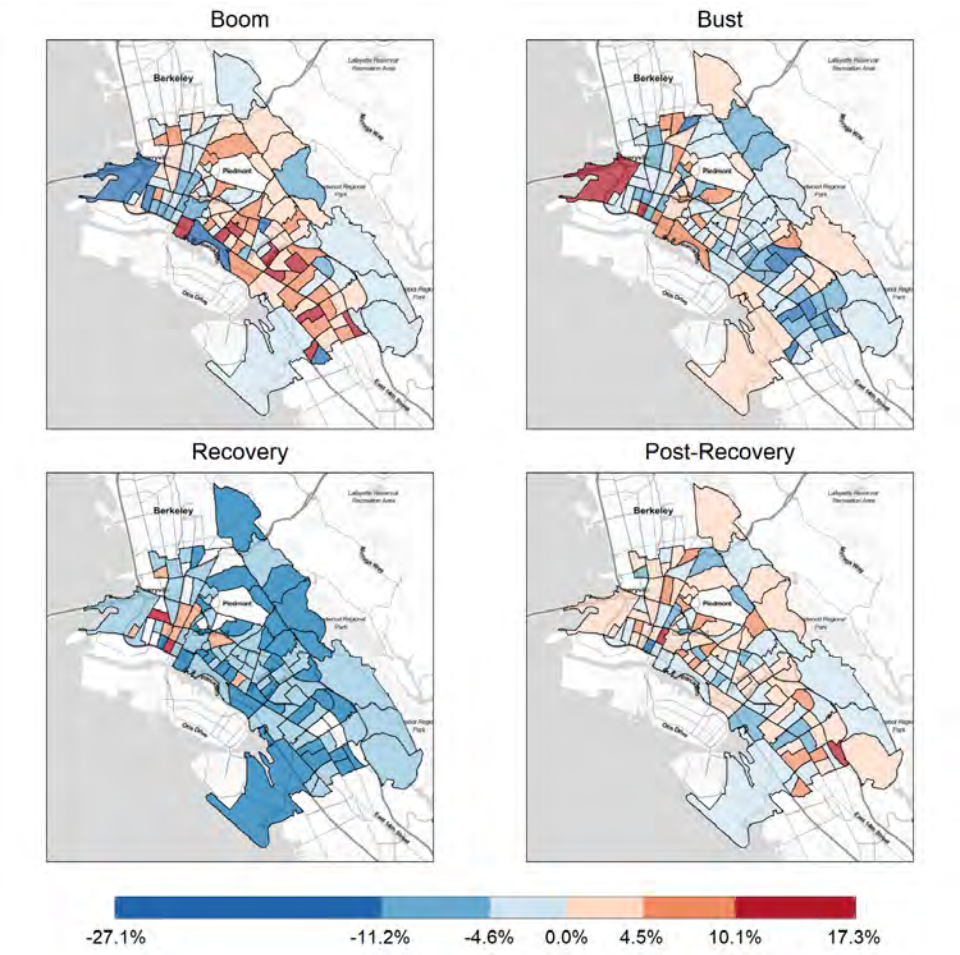


Figure 26 displays maps of the overall change in the percentage of individuals in households with mortgages by housing period across Oakland census tracts. During the housing boom, the percentage of individuals in households with mortgages increased throughout most parts of Oakland, with some pockets experiencing decreases or no relative change. These declines occurred in the areas surrounding West Oakland adjacent to the Bay Bridge and in parts of the Oakland Hills and East Oakland. During the bust period, areas with the largest increases in homeowners were in parts of Downtown Oakland and West Oakland adjacent to the Bay Bridge. As expected, throughout Oakland during the recovery period, the percentage of individuals in households with mortgages decreased in most places. However, some tracts in West Oakland experienced a slight increase. Households with mortgages increased throughout many parts of Oakland during the post-recovery period without being concentrated in any particular areas.

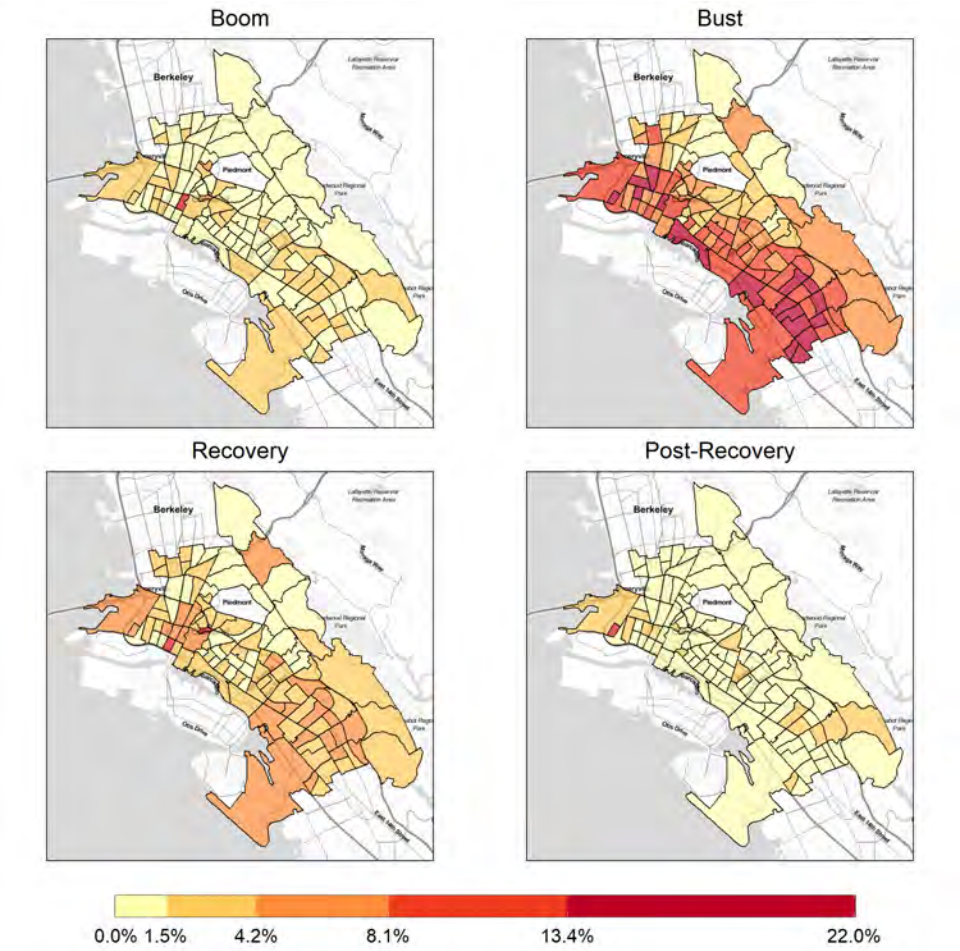
Figure 26: Maps of Changes in Percentage of Households with Mortgages, by Housing Period



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

To examine the contributors to these declines in homeownership, we examine trends in the extent to which households with mortgages became delinquent on their mortgages and foreclosures. Figure 27 displays maps of the percentage of individuals in households with mortgages who had new delinquencies on their mortgages, by housing period across Oakland census tracts. The prevalence of new mortgage delinquencies was substantially higher during the housing bust, consistent with the high rates of defaults and foreclosures that occurred during the Recession. While this was true across all neighborhoods, East Oakland, Downtown Oakland, and parts of West Oakland had more new mortgage delinquencies. These percentages were also relatively higher during the recovery period in these neighborhoods, suggesting that the Recession had a longer-term impact on the financial stability of homeowners in these areas.

Figure 27: Maps of New Mortgage Delinquencies, by Housing Period



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

Figure 28 visualizes the overall foreclosure rate from 2007 to 2010 in neighborhoods separated by neighborhood categories, based on the Open Oakland foreclosure records. During this period, there were 8,804 foreclosures in Oakland, with the most foreclosures (3,023) occurring in 2008. Across all neighborhood categories, White/White-Mixed, Multiethnic/Other, nongentrifiable, and top income quintile neighborhoods experienced the lowest foreclosure rates. Black-Other neighborhoods, neighborhoods in the second income quintile, and neighborhoods experiencing people or price gentrification had the highest foreclosure rates. Neighborhoods classified as Predominantly Black neighborhoods also had high rates, which were just slightly lower than Black-Other tracts.

Figure 28: Foreclosure Rates, by Neighborhood Category

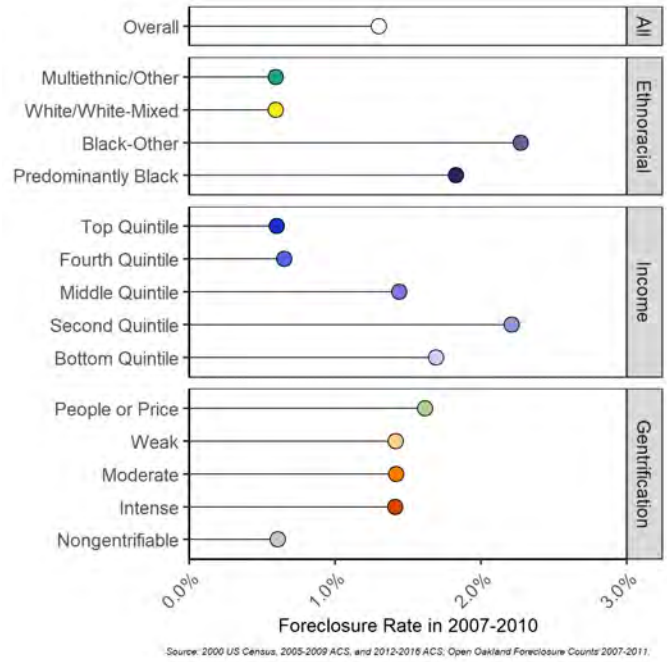
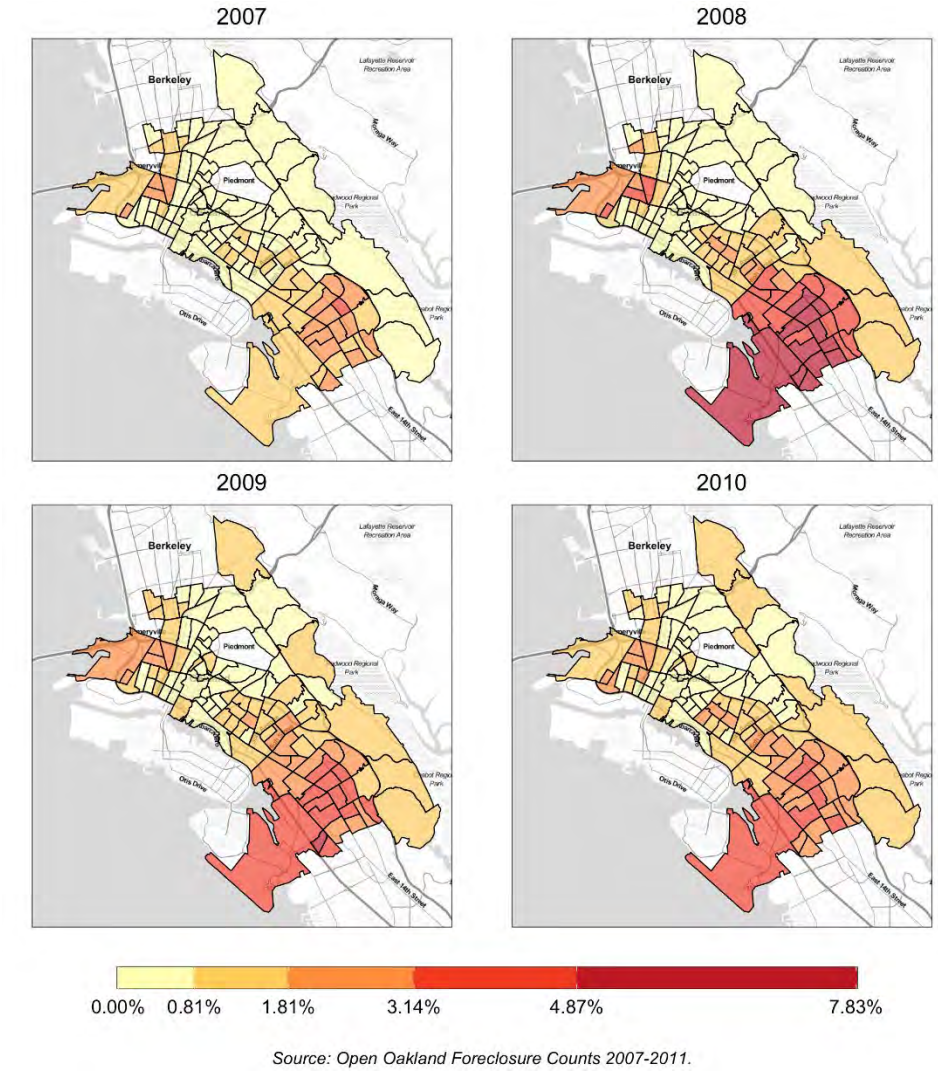


Figure 29 displays maps of the foreclosure rate (foreclosures per 1,000 housing units) by year from 2007 to 2010. Throughout the Recession, the highest foreclosure rates are consistently in West Oakland and Deep East Oakland, peaking in 2008. In contrast, the Oakland Hills and the areas surrounding Lake Merritt and Piedmont consistently had low rates of foreclosure.

Figure 29: Maps of Foreclosure Rates, by Year



Source: Open Oakland Foreclosure Counts 2007-2011.

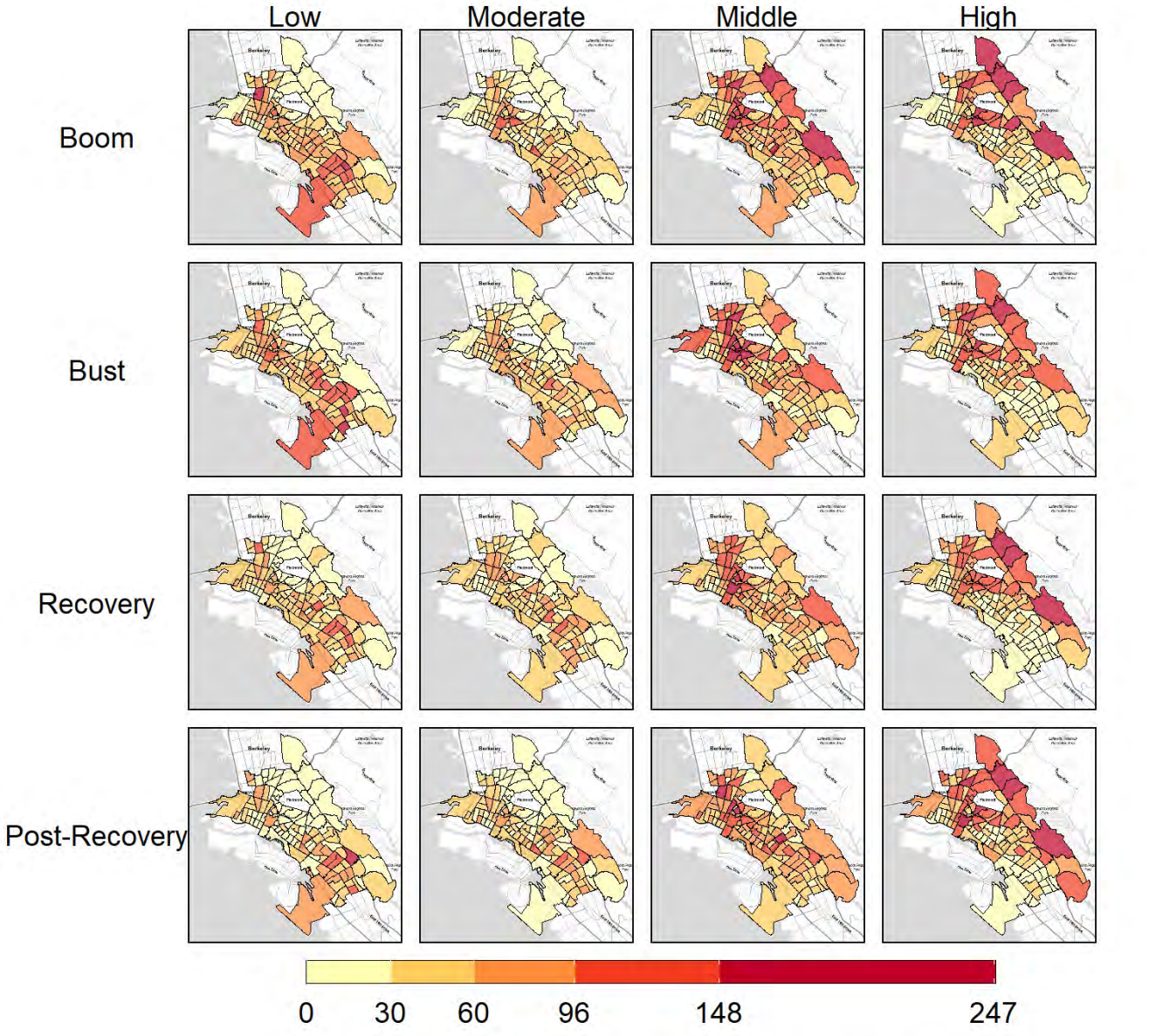
2. Neighborhood Demand

In this subsection, we analyze demand for neighborhoods based on where residents who move within or into Oakland are moving by SES and vacancy rates. Figure 30 displays maps of Oakland census tracts of estimates of the average number of residents per year moving into Oakland by SES and housing period based on the CCP data. These maps consider both residents who move from within Oakland, as well as those moving from outside of Oakland.

Over time, fewer low- and moderate-SES residents moved into Oakland and moved to fewer places, concentrating in areas hit hard by foreclosures, and the number of middle-SES residents moving into Oakland decreased slightly from the recovery to the post-recovery period. In-migration of high-SES residents has remained relatively stable and was especially high during the housing boom and recovery. For most periods, more low- and moderate-SES residents moved into parts of East Oakland and North Oakland, but they moved to far fewer places in the post-recovery period, as far fewer moved into Oakland. High-SES residents, on the other hand,

moved at higher levels into the Oakland Hills, reinforcing patterns of segregation, but large numbers of high-SES residents also moved into Downtown Oakland and a few other gentrifying areas. Middle-SES residents were more equally distributed across the city, entering many of the gentrifying neighborhoods. Overall, these trends suggest that many parts of Oakland became less accessible to lower-SES residents over time, while higher-SES residents moved to more parts of Oakland, especially after the Recession.

Figure 30: Maps of Destinations for People Who Move into Oakland per Year, by SES and Housing Period

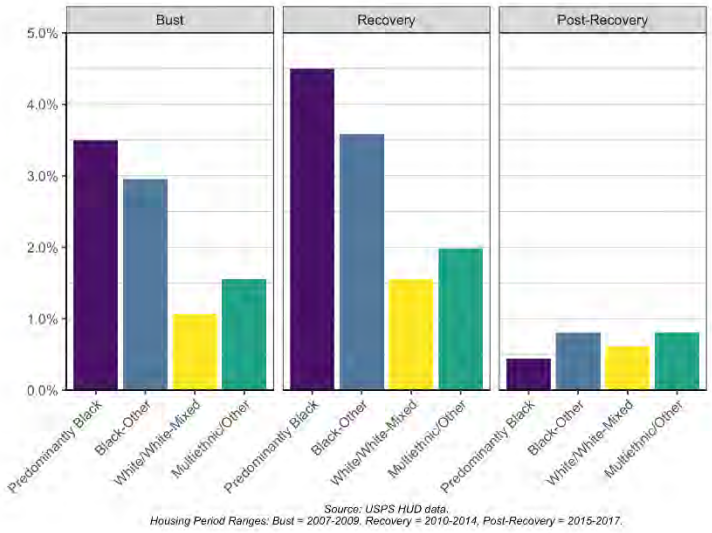


Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data.
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

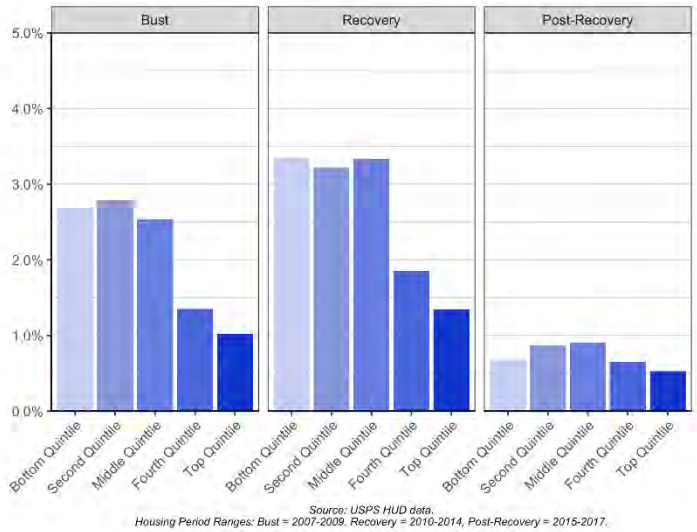
Figure 31 displays the average residential vacancy rates by period, separated by neighborhood categories, based on the USPS and HUD vacancy data for June for each year. Because data are not available prior to 2008, we do not include a figure for the boom period. Due to changes in the way the data were collected across the period, comparisons should be made across categories within the same time periods rather than across them. For all three categories, White/White-Mixed, nongentrifiable, and neighborhoods in the top quintiles had the lowest vacancy rates, while Black-Other, Predominantly Black, intensely gentrifying, and lower-income neighborhoods had the highest vacancy rates during the bust and recovery. In the post-recovery period, gaps between neighborhoods decrease. For example, moderately gentrifying neighborhoods had the highest vacancy rates, while those experiencing people or price gentrification and Predominantly Black neighborhoods had the lowest vacancy rates.

Figure 31: Residential Vacancies by Housing Period and (a) Ethnoracial, (b) Income, and (c) Gentrification Neighborhood Categories

(a) Ethnoracial

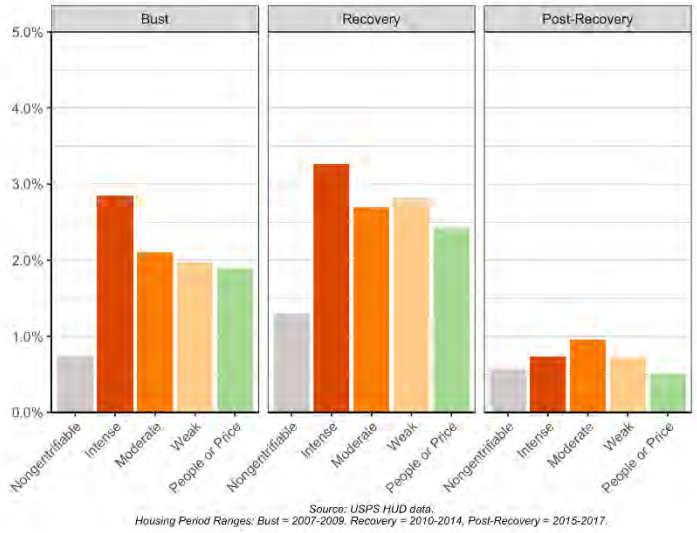


(b) Income



Source: USPS HUD data.
Housing Period Ranges: Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

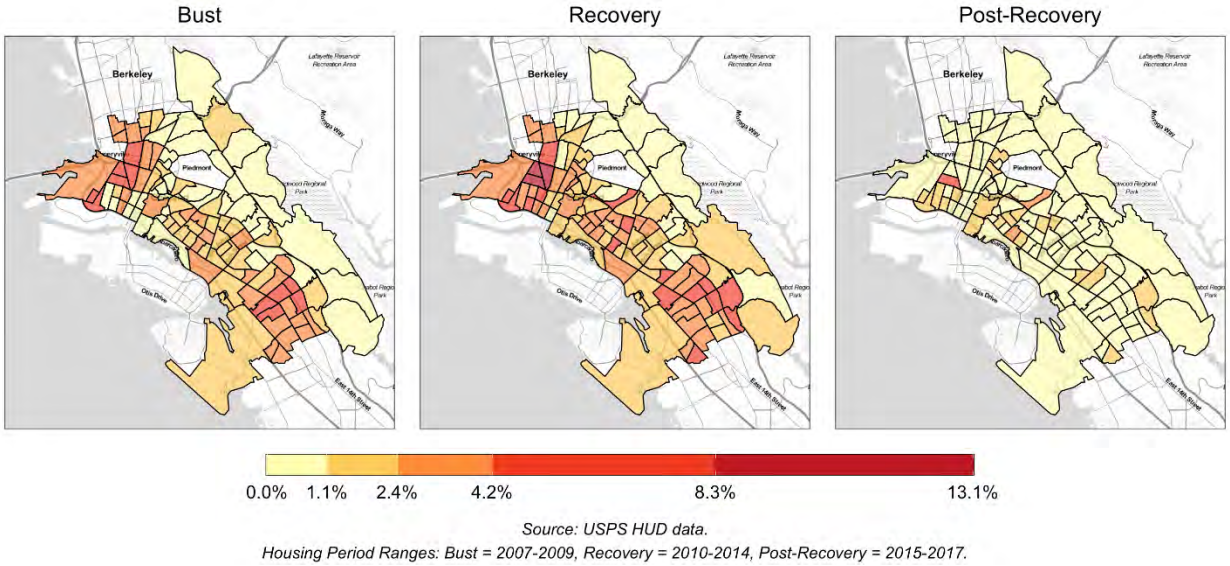
(c) Gentrification



Source: USPS HUD data.
Housing Period Ranges: Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

Figure 32 displays maps of residential vacancy rates in Oakland by housing periods. Neighborhoods should be compared only within the same time period. Relative to the rest of the city, the Oakland Hills had very low vacancy rates throughout all periods, while vacancies were higher in West Oakland and parts of Deep East Oakland during the bust and recovery periods—areas where foreclosures concentrated. By the post-recovery period, only pockets, especially in Downtown Oakland and around Lake Merritt, had relatively higher vacancy rates.

Figure 32: Maps of Residential Vacancy Rates, by Housing Period



Source: USPS HUD data.
Housing Period Ranges: Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

3. Neighborhood (Dis)investment

In this section, we examine building permits for new construction, rehabilitation, and major additions as a proxy for building investment in neighborhoods.

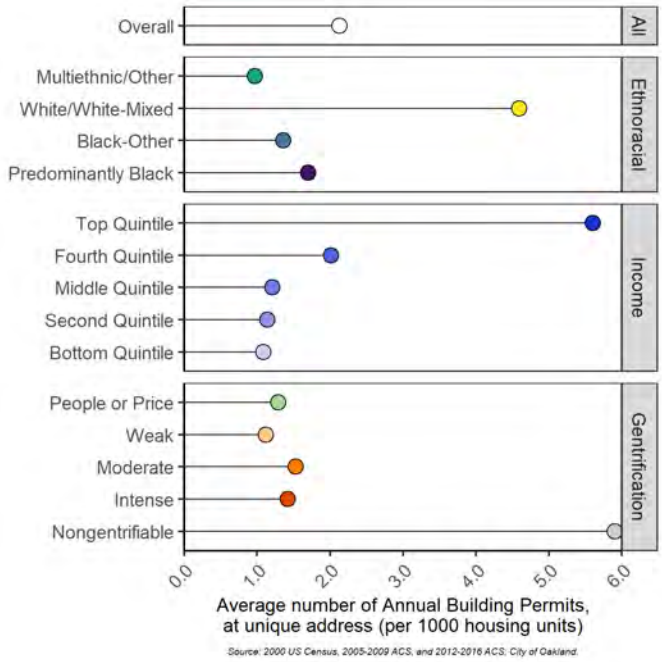
Figure 33 shows the average annual number of unique addresses per 1,000 housing units with building permits for new construction, rehabilitation, or additions totaling more than $60,000 for a given year, as well as the average annual total value of these permits across census tracts in each category. These values are separated by neighborhood categories. We used this threshold to exclude permits for minor repairs and focus on new construction and substantial rehabilitation. See Appendix A for details on the data.

Across all three categories, White/White-Mixed, neighborhoods in the top income quintile, and nongentrifiable neighborhoods have substantially higher rates of new building permits over the period, compared with other categories. These categories also have the highest values in building costs, though the gap between these neighborhoods and the others is much lower than the number of properties with permits. Nonetheless, these two figures show that building investment is largely concentrated in the wealthier, whiter neighborhoods of Oakland.

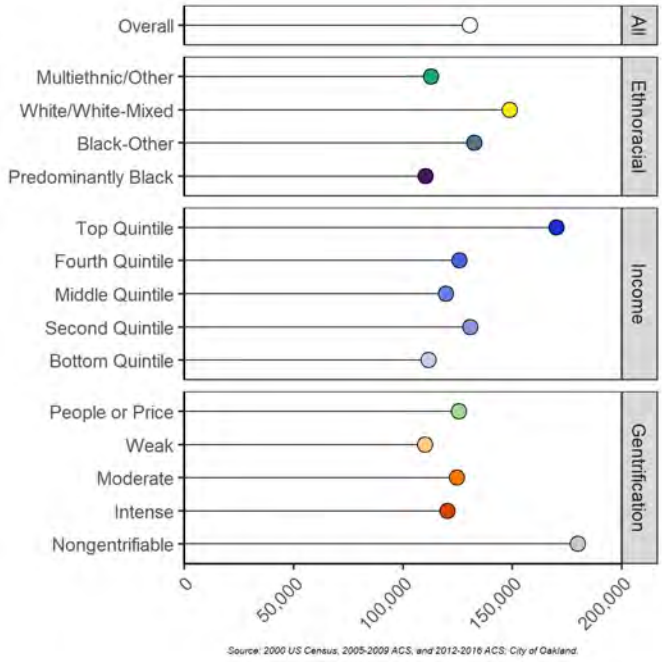
While the number of building permits per housing units is similar among the other ethnoracial categories, the average total value of building permits in Black-Other neighborhoods is greater than those in Predominantly Black and Multiethnic/Other neighborhoods. Neighborhoods with more moderate and intense levels of gentrification have more properties with building permits and higher values of building permits than those with weak levels of gentrification, consistent with the gentrification process. Finally, while the number of building permits increases with higher-income-level neighborhoods, the value of all building permits in neighborhoods in the second quintile is larger than all neighborhoods except the top income quintile. This trend likely reflects the different levels of gentrification that neighborhoods are experiencing across income quintiles.

Figure 33: Average Annual Rates of (a) Addresses with Large Building Permits and (b) Total Value of Large Building Permits, by Neighborhood Category

(a) Number of Addresses



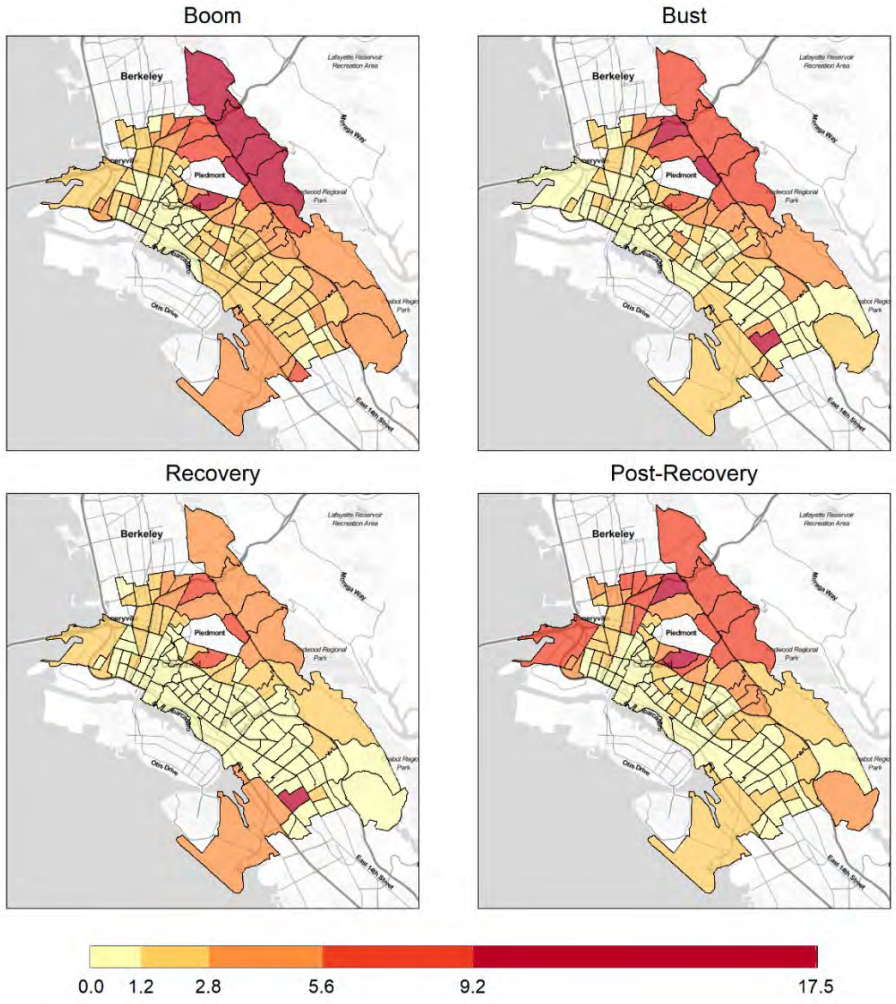
(b) Total Value



We analyze the geography of building investment over time in Figure 34, which shows the average annual number of unique addresses with large building permits per 1,000 housing units and the average annual total value of large building permits by housing period. Across all periods, the Oakland Hills and the neighborhoods surrounding Piedmont had the highest rate of properties with large permits. Based on the total values of large permits, the highest values are concentrated in the Oakland Hills but are also prevalent in pockets throughout the remainder of Oakland. Parts of North and East Oakland also had high rates of properties with permits during the boom period. Investment declined throughout the nongentrifiable areas of the city during the bust period and reached its lowest levels during the recovery period. However, during the post-recovery period, the area in West Oakland adjacent to the Bay Bridge had high rates of properties with permits, as well as other areas throughout the rest of Oakland. The value of building permits during this period was also high in West and North Oakland.

Figure 34: Maps of (a) Average Annual Rates of Number of Addresses with Large Building Permits and (b) Average Annual Total Value of Large Building Permits, by Period

(a) Number of Addresses



Source: City of Oakland.

(b) <u>Total Value ($1,000s)</u>

Source: City of Oakland.

IV. PREDICTING RESIDENTIAL INSTABILITY

This section draws from analyses of trends during the housing bust and recent data to identify which areas may be more likely to experience different kinds of residential instability in the fallout of the current crisis. As protections against evictions and foreclosures are lifted and unemployment benefits dwindle, residential instability may ensue in many areas.

A. APPROACH

To identify where residential instability may be more or less likely, we use two approaches. We first constructed indices of each form of residential instability analyzed in this report—moving out (including to another city and more crowded households), moving downward, financial instability, and neighborhood instability—based on 2006–2007 CCP data, prior to the Recession. We built linear regression models identifying predictors—from 2009 ACS demographic and housing data, 2006 HMDA home mortgage data, and 2006–2007 CCP data—of these indices during the housing bust that maximized explaining the variation in the models while minimizing multicollinearity. Based on these results, we used 2018 ACS demographic data, 2018 HMDA home mortgage data, and 2018–2019 CCP data to predict which neighborhoods would experience similar outcomes in the coming years. Appendix D provides more details on the results from these predictions.

There are a few important limitations of the first approach. First, the existing data limit the precision of the predictions. Demographic, tract-level data are available only in the year 2000 and then five-year intervals beginning in 2005–2009 up to 2014–2018.[12] The 2009 ACS estimates have larger margins of error due to smaller samples and represent the approximate state of census tracts any time during that period. The demographic data represent both *before and during* the modeled outcomes, but we base our predictions on demographic data on 2018 ACS estimates—a period *before* the predicted outcomes.[13] Further, the amount of variation in the outcomes across neighborhoods that the existing data explain during the housing bust is relatively high (adjusted R-squared values range from .47 to .73) but far from perfect. This means that there are unobserved variables that explain differences in what happened in neighborhoods during the housing bust. If we had information on these additional variables, the predictions would be more reliable.

Second, there are important differences between the Great Recession and current conditions to consider in assessing the accuracy of these predictions. For example, the collapse of the housing market was a major component of the Great Recession that set off consequences affecting the rest of the economy. In the current crisis, the labor market effects, particularly massive unemployment and joblessness, are key components that affect residential stability. In contrast to

[12] The 2015–2019 ACS data are released at the beginning of December 2020 and can be incorporated into future analyses, though estimates should be similar due to the overlapping years with the 2014–2018 interval.

[13] An alternative would have been to model predictors from the 2000 U.S. Census, but neighborhoods changed substantially between the year 2000 and 2006, especially given the housing boom that took place. Models using the data from the year 2000 explained much less variation in the outcomes, and thus we are less confident in predictions based on those data.

the past Recession, several policies and protections have been enacted to mitigate some of the consequences that occurred during the Recession. With these different contexts, these outcomes may play out differently. Thus, we compare these predictions to indices constructed using the 2019–2020 CCP data.

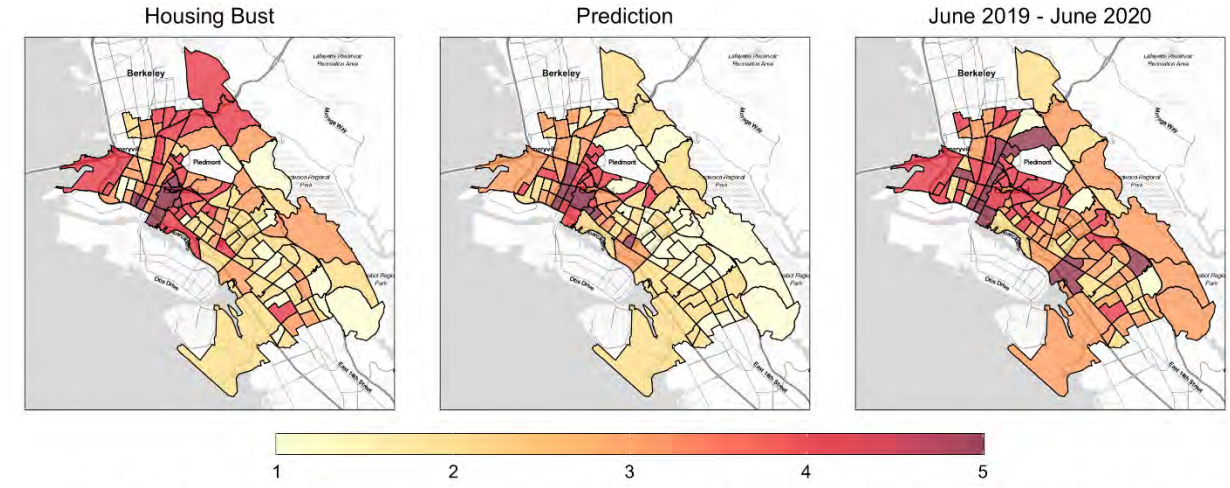
B. PREDICTIONS FOR MOVING AND CONSTRAINED MOVES

SUMMARY: Moving in general and moving to crowded housing during the housing bust was more prevalent in gentrifying areas and areas with high shares of Asian residents and new immigrants, while downward moves among LMM-SES residents were more prevalent in wealthy and whiter neighborhoods. These indices are positively correlated with each other but only by .44 during the housing bust, suggesting that they capture distinct characteristics of mobility. The trends over the past year suggest that the pandemic may be affecting moving patterns from more places than expected. Areas in West Oakland may be experiencing more displacement than anticipated as the gentrification in this area continues to intensify. Although residents who have managed to remain in wealthy neighborhoods make downward moves more often than other places, Downtown Oakland and parts of North Oakland are also prime areas of moving, moving to crowded housing, and downward movement among LMM-SES residents.

The first index captures moving more generally and comprises the percentage of LMM-SES residents moving out of their census block group, the percentage of LMM-SES residents moving out of the City of Oakland, and the percentage of LMM-SES residents who move and move from a household with one to two adults to one with at least four adults. Figure 35 displays maps of the distribution of the moving index during the housing bust, the predicted moving index, and the moving index based on data from June 2019 to June 2020. Higher index values indicate more moving.

Neighborhoods where LMM-SES residents moved the most during the housing bust were primarily located in areas undergoing intense gentrification in Downtown and West Oakland, including Chinatown, as well as parts of North Oakland and the Oakland Hills adjacent to Berkeley. The model predicted similar areas to experience high rates of moving, but the 2019–2020 results show high rates of moving and moves to crowded housing to be more concentrated in Downtown Oakland and Temascal. Over the past year, however, moving among LMM-SES has been more widespread through the pandemic, including throughout West and North Oakland, the areas around Piedmont, and a few areas in East Oakland.

Figure 35: Maps of (a) the Moving Index during the Recession; (b) the Predicted Moving Index; and (c) the Moving Index from 2019 to 2020

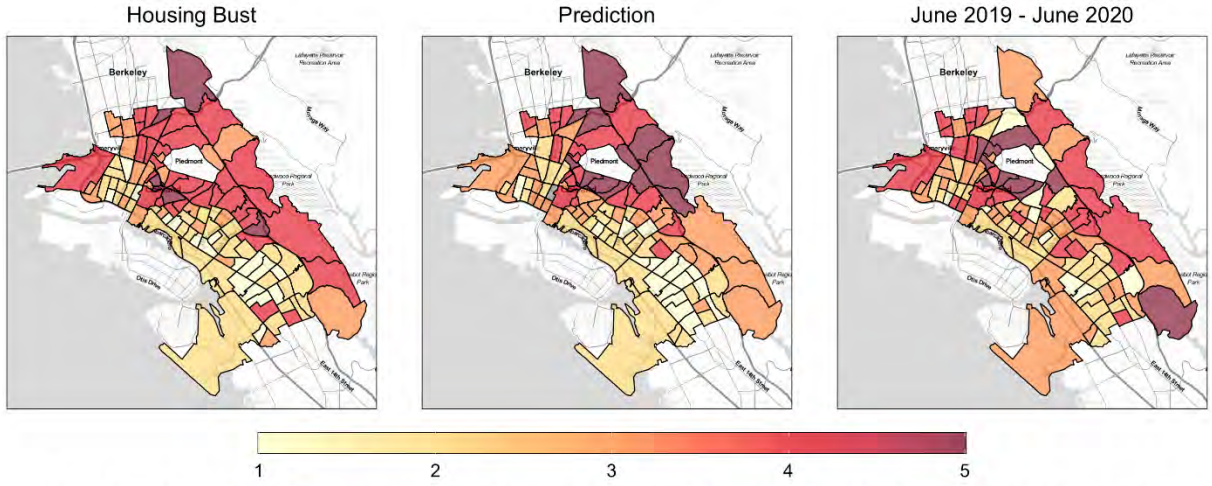


Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data, 2009 ACS, 2018 ACS, HMDA loan data, and USPS HUD Vacancy Data
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

The next index captures downward moves and comprises the percentage of LMM-SES residents moving out of their census block group to higher-poverty neighborhoods, to neighborhoods with lower median home values, and to neighborhoods with higher Healthy Places Index scores, compared with their origin neighborhoods. Figure 36 displays maps of the distribution of the downward displacement index during the housing bust, the predicted index, and the index based on data from June 2019 to June 2020. Higher index values indicate more downward moving.

Downward moves among LMM-SES residents were more prevalent during the housing boom in the higher-income, nongentrifiable neighborhoods primarily in the Oakland Hills. Residents in areas in North Oakland and surrounding Piedmont, as well as in West Oakland adjacent to the Bay Bridge, moved downward at higher rates than in other parts of the city. The model results show that the neighborhoods surrounding Piedmont have high predicted levels of downward moves. Trends of movers who stay within the Bay Area over the past year show that downward moves are also geographically more widespread than predicted. This trend is still high in the areas surrounding Piedmont but is also high in parts of West and North Oakland, as well as East Oakland and the eastern part of the Oakland Hills.

Figure 36: Maps of (a) the Moving Downward Index during the Recession; (b) the Predicted Moving Downward Index; and (c) the Moving Downward Index from June 2019 to June 2020



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data, 2009 ACS, 2018 ACS, HMDA loan data, and USPS HUD Vacancy Data
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

C. PREDICTIONS FOR FINANCIAL AND NEIGHBORHOOD INSTABILITY

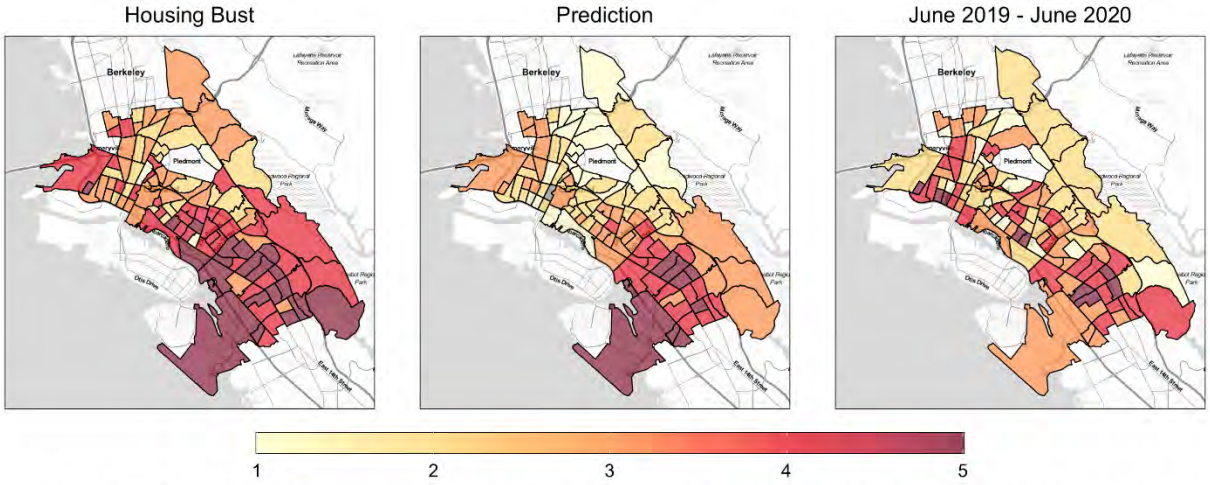
SUMMARY: Financial and neighborhood instability during the housing bust, on the other hand, was prevalent in West Oakland and Deep East Oakland with high shares of Black and Latinx residents and primarily Black-Other neighborhoods. Financial instability was also relatively high during the housing bust in a wider expanse of East Oakland, but predicted instability for both measures were concentrated in Deep East Oakland. Data on financial instability over the past year indicate that financial instability has been much more widespread throughout Oakland, suggesting that the effects of the pandemic on financial security are distinct from the Great Recession. Given the increasing financial instability occurring in these areas over the past year, these areas are important to monitor for residential displacement when housing protections and moratoriums end.

The next two indices capture financial instability and neighborhood instability. The first index captures financial instability and comprises the percentage of LMM-SES residents in households without delinquencies who gain a delinquency on any credit account over a given year and the change in the percentage of low-SES residents in a neighborhood. The second index captures neighborhood instability more generally and comprises foreclosure rates and vacancy rates. Both indices have a positive correlation with each other of .53 during the housing bust and are negatively correlated with mobility characteristics. Both indices have correlations of –.30 with the moving index and have correlations of –.39 and –.48, respectively, with downward mobility.

Figure 37 displays maps of the distribution of the financial instability index during the housing bust, the predicted index, and the index based on data from June 2019 to June 2020. Higher index values indicate more financial instability. During the housing bust, nearly all parts of East Oakland had more financial instability based on the index, compared with the rest of the city.

Financial instability was also high in parts of West Oakland. The model predictions point to similar general areas as likely to experience more financial instability but concentrated in fewer areas. Specifically, the results based on our model predict higher levels of financial instability in Deep East Oakland. Data on financial instability over the past year, however, indicate that financial instability has been much more widespread beyond Deep East Oakland, suggesting that the effects of the pandemic on financial security are distinct from the Great Recession. Areas in West Oakland and pockets of East Oakland, including Fruitvale, had higher levels of financial instability in the past year.

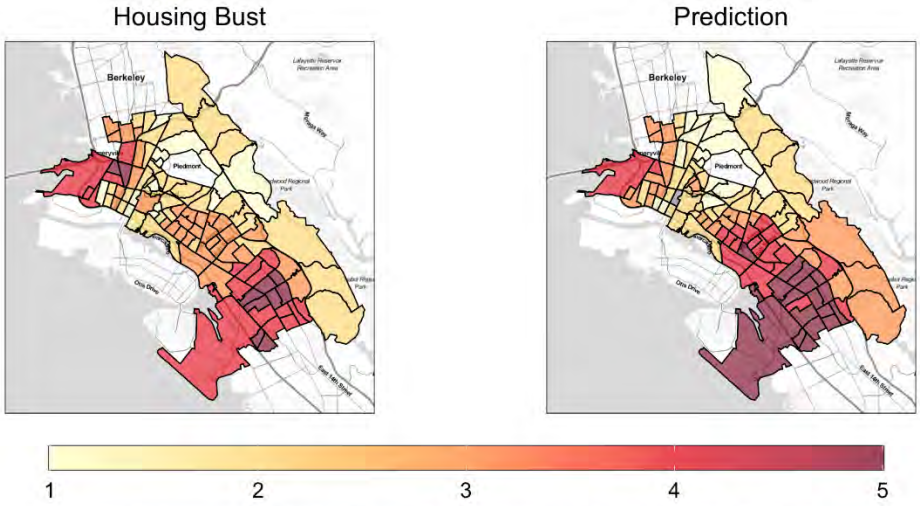
Figure 37: Maps of the (a) Financial Instability Index during the Recession; (b) Predicted Financial Instability Index; and (c) Financial Instability Index from June 2019 to June 2020



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data, 2009 ACS, 2018 ACS, HMDA loan data, and USPS HUD Vacancy Data
SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.
Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

Figure 38 displays maps of the distribution of the neighborhood instability index during the housing bust and the predicted neighborhood instability index. Higher index values indicate more neighborhood decline. We do not include a map of the most recent year because the foreclosure dataset that we use in the analysis lists foreclosures only up to the year 2011. Foreclosure rates following the housing market collapse, however, constituted a particular context, and high rates would be unlikely to be evident yet, given the temporary protections in place. During the housing bust, neighborhood instability was squarely concentrated in West Oakland and Deep East Oakland. The predictions identify nearly identical tracts as experiencing declines based on our models, though North Oakland may be less vulnerable to decline, compared with what it experienced during the bust.

Figure 38: Maps of (a) the Neighborhood Instability Index during the Recession; and (b) the Predicted Neighborhood Instability Index



Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data, 2009 ACS, 2018 ACS, HMDA loan data, and USPS HUD Vacancy Data

SES Ranges by Equifax Risk Scores: Low = missing or <580, Moderate = 580-649, Middle = 650-749, High = 750+.

Housing Period Ranges: Boom = 2002-2006, Bust = 2007-2009, Recovery = 2010-2014, Post-Recovery = 2015-2017.

V. RESIDENTIAL INSTABILITY IN 2020

The COVID-19 pandemic has disrupted the economy in numerous ways, leading to unprecedented levels of unemployment and instability. As a final analysis, this section draws on new monthly data from the CCP and geographic unemployment estimates for the year 2020. We analyze estimates of unemployment in Oakland neighborhoods, based on the DEEP-MAPS Model of the Labor Force projected labor statistics, from January to October 2020. See Appendix A for details on the data. We compare trends with quarterly CCP data from 2018 and 2019 to examine how the COVID-19 pandemic has affected residential instability in Oakland over 2020. While the prior analyses in this report using the CCP data draw on historical data in Oakland to shed light on the context of changes occurring in Oakland over the past two decades, the predictions analysis compared with trends from last year suggests that COVID-19's effects are distinct from the Great Recession. Although the COVID-19 pandemic is still ongoing at the time of this publication, the analysis provides insight into the pandemic's shorter-term effects that can help guide short-term strategies and solutions.

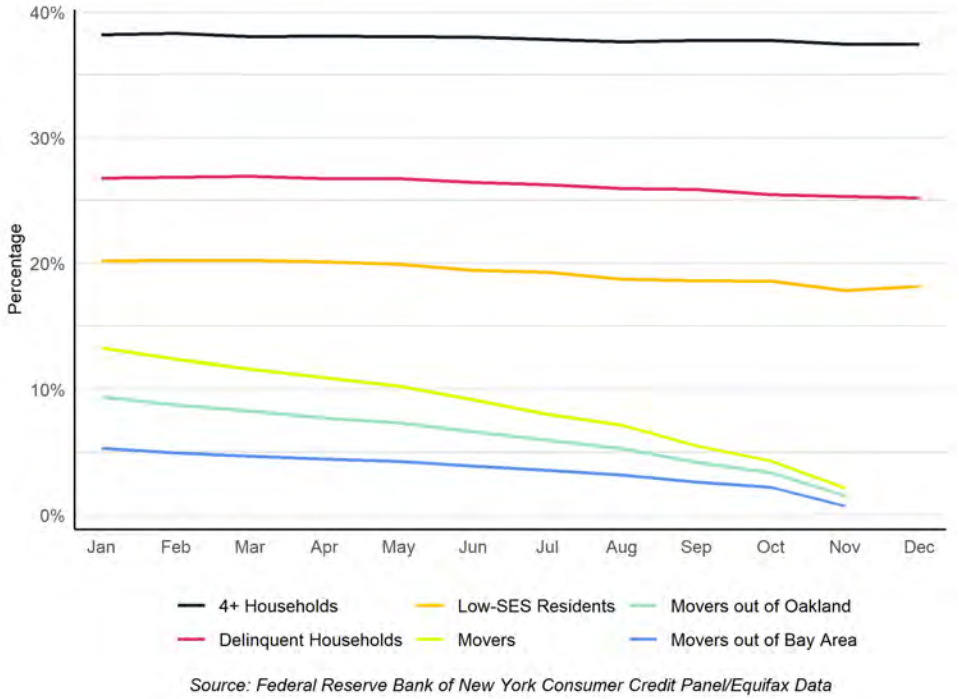
SUMMARY: More families moved into crowded households and experienced declines in their credit since the pandemic started, compared with before. At the same time, low-SES residents moved at substantially lower rates, especially in the fall, while moderate-, middle-, and high-SES residents moved more than before. Crowded and delinquent households and low-SES residents continue to be concentrated in Deep East and West Oakland in 2020, while higher rates of moving among LMM-SES residents continued to be concentrated in Downtown and North Oakland. However, more residents have shifted into crowded households and gained new delinquencies in more parts of Oakland, where unemployment estimates were higher after the summer.

A. Monthly Trends in 2020

Figure 39 presents a line graph of monthly trends across Oakland for several outcomes examined above, including the shares of high-density households (4+ adults), households with delinquent financial accounts, low-SES residents, residents who move, residents who move out of Oakland, and residents who move out of the Bay Area altogether. Figure 40 illustrates the share of residents by SES categories who move, move out of Oakland, and move out of the Bay Area. The figures do not show moving data for December because residential location data for January 2021 are needed to compare with residents' December locations.

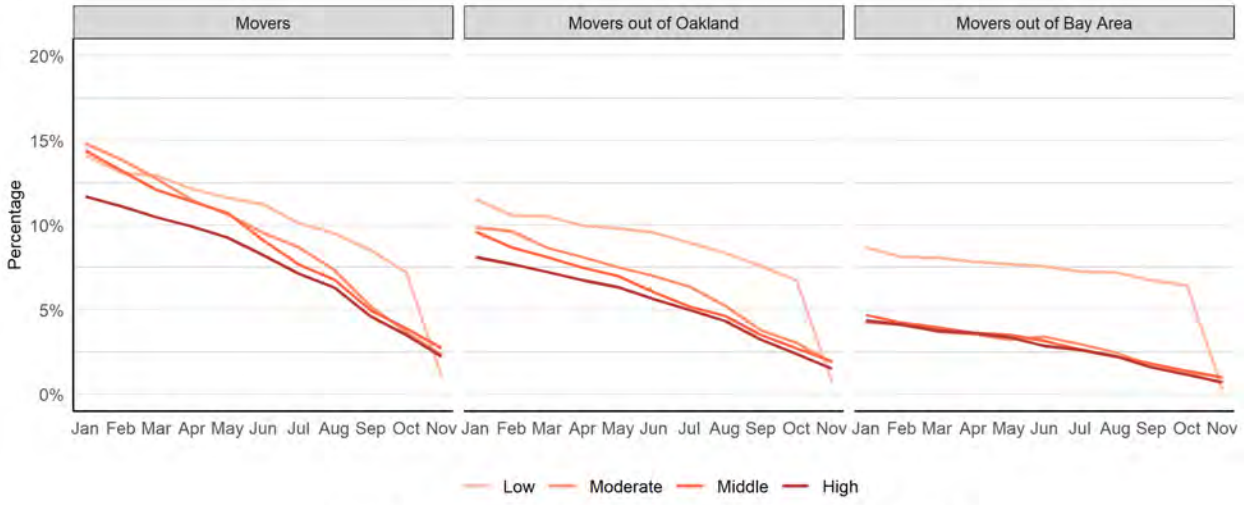
Counter to expectations, the first three outcomes declined slightly. Although aid and relief programs may be helping families who are experiencing financial instability and crowding, the high but declining rates of moving out of Oakland for the early part of 2020 for low-SES residents suggest that these changes reflect declines in the low-SES population. The declines in moving are evident across SES groups, but low-SES residents experienced large drops in November, which may reflect the effectiveness of relief programs issued in response to the pandemic.

Figure 39: Monthly Trends of Residential Instability in 2020



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

Figure 40: Monthly Moving Trends by SES in 2020



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

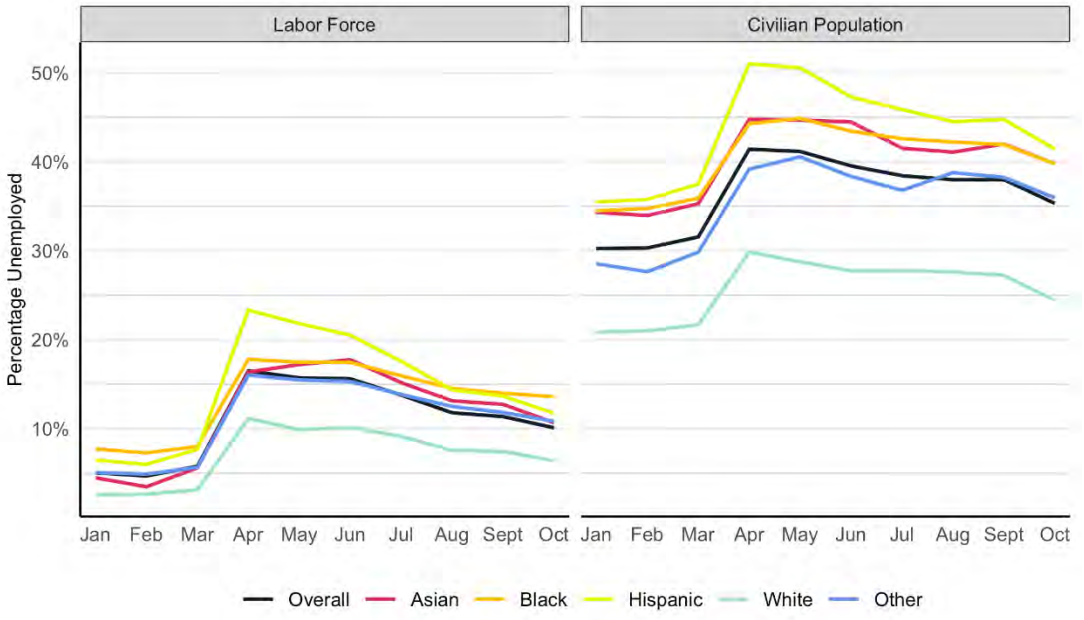
Figure 41 displays unemployment trends by race and ethnicity and by neighborhoods separated by the neighborhood categories. The figures on the left of each panel illustrate percentages of unemployed people in the labor force—those who report actively searching for a job, and the figures on the right of each panel illustrate the percentages of the total civilian population aged 16 to 64. Across all ethnoracial and neighborhood categories, unemployment rates rose in March,

peaked in April, and decreased since then at relatively similar rates. Across all categories, gaps within categories were present pre-COVID, but widened during the pandemic and have persisted. Among individual racial and ethnic categories, Hispanic, Black, and Asian populations experienced disproportionately higher unemployment rates throughout the year. Unemployment rates for Hispanic people increased the most out of all racial and ethnic groups, reaching nearly 23 percent of the labor force and over 50 percent of the civilian working age population in April. The Hispanic labor force unemployment rate decreased at a faster rate, dropping below the Black population's unemployment rate by the end of the period. Unemployment levels in October remained much higher across all groups, compared with March.

Across neighborhood categories, nongentrifiable, high income quintiles, and White/White-Mixed neighborhoods experienced the lowest increase and lowest levels of unemployment and have recovered steadily. Black-Other neighborhoods and neighborhoods in lower income quintiles experienced the steepest increases and highest levels of unemployment rates throughout the year. Gentrifiable neighborhoods experienced similar labor force unemployment rates across categories and were much higher than nongentrifiable neighborhoods. When we compare unemployment among the civilian working age population, however, unemployment rates were highest in weak and people or price gentrification neighborhoods throughout the year, likely reflecting the greater shares of lower-SES residents in these less gentrified areas.

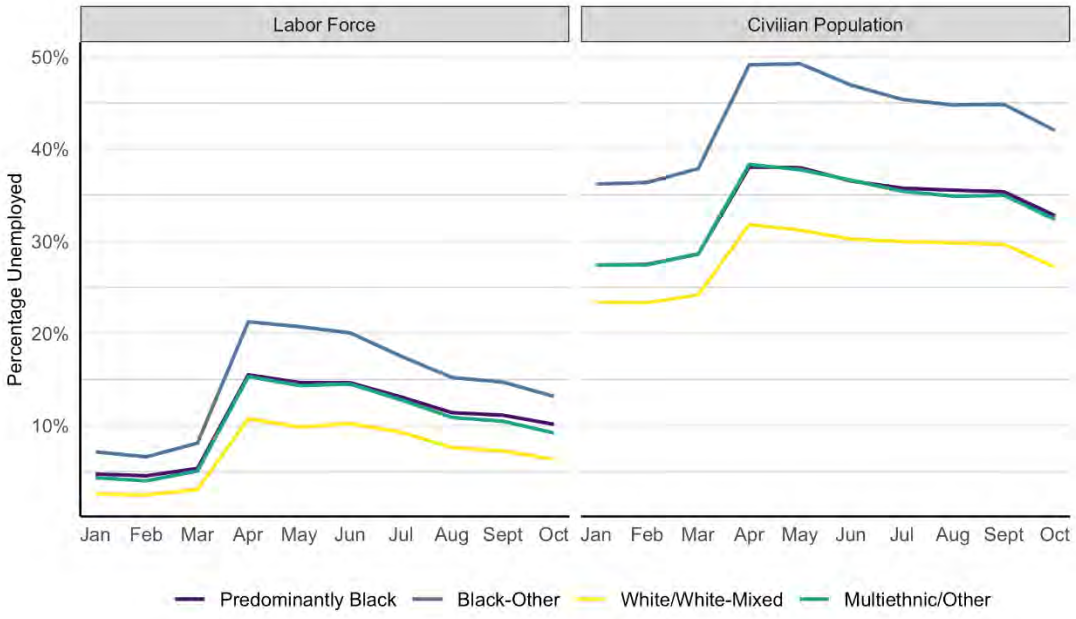
Figure 41: Unemployment Rates over Time by (a) Race/Ethnicity and by (b) Ethnoracial, (c) Income, and (d) Gentrification Neighborhood Categories

(a) Race/Ethnicity



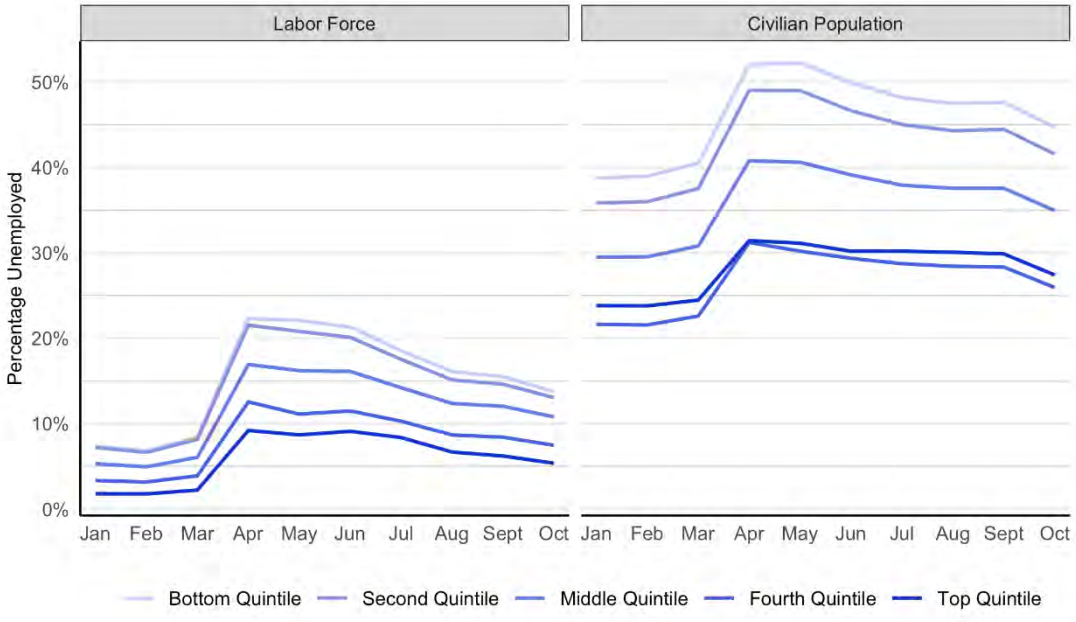
Source: 2000 U.S. Census, 2005-2009 ACS, and 2012-2016 ACS; Catalist DEEP-MAPS Unemployment Estimates.

(b) Ethnoracial Neighborhood Categories



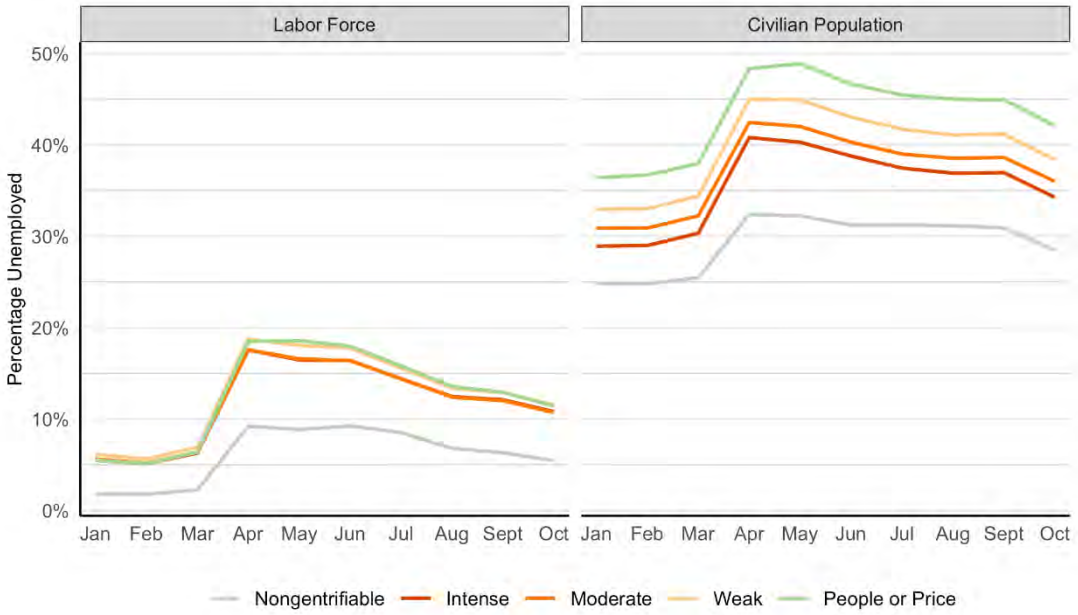
Source: 2000 U.S. Census, 2005-2009 ACS, and 2012-2016 ACS; Catalist DEEP-MAPS Unemployment Estimates.

(c) Income Neighborhood Categories



Source: 2000 U.S. Census, 2005-2009 ACS, and 2012-2016 ACS; Catalist DEEP-MAPS Unemployment Estimates.

(d) <u>Gentrification Neighborhood Categories</u>



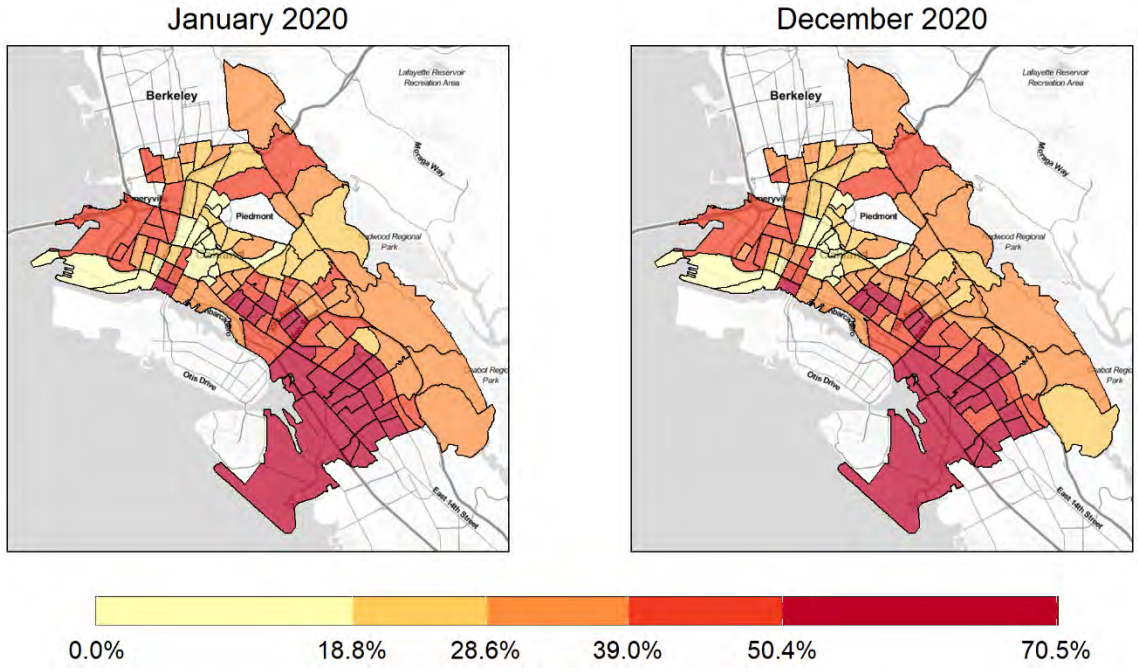
Source: 2000 U.S. Census, 2005-2009 ACS, and 2012-2016 ACS; Catalist DEEP-MAPS Unemployment Estimates.

B. The Geography of Residential Instability in 2020

Figure 42 displays maps of snapshots in January and December 2020 of where crowded households, delinquent households, low-SES residents, and LMM-SES movers are concentrated. Like trends from earlier years, Deep East Oakland and parts of West Oakland continue to have high shares of the first three outcomes, and this remains persistent through 2020. However, there are notable differences in moving rates between January and December for LMM-SES residents. While moving rates were highest in January in Downtown and North Oakland, they were much lower throughout Oakland in December, except for a handful of places.

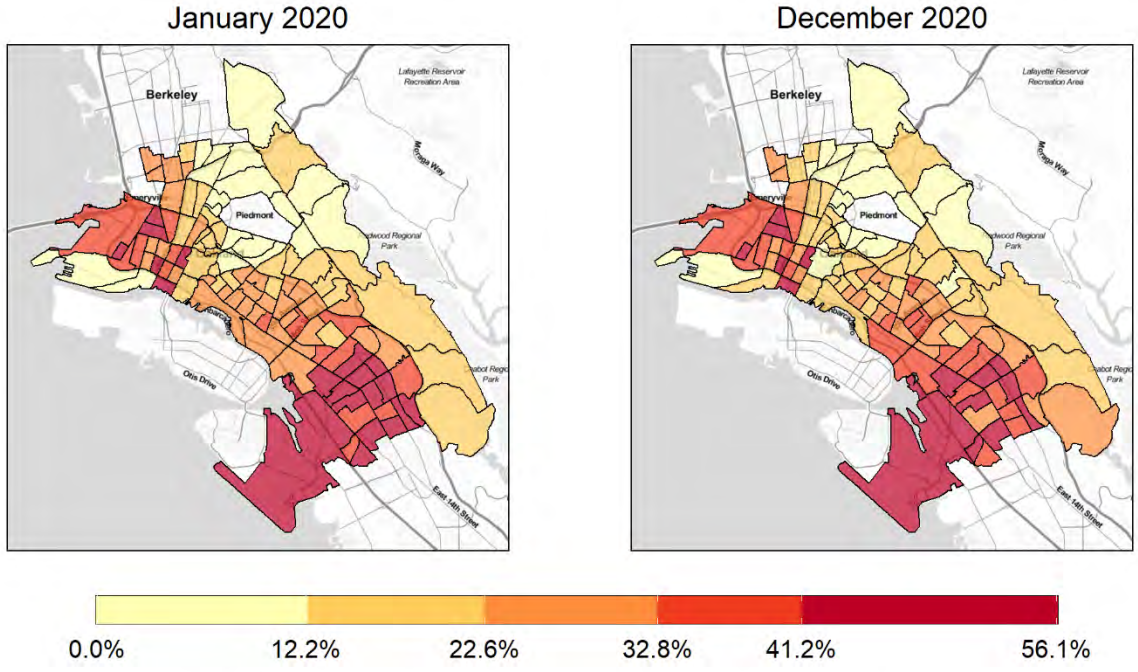
Figure 42: Map(s) of (a) Shares of 4+ Households, (b) Shares of Households with Delinquent Accounts, (c) Shares of Low-SES Residents, and (d) Shares of Low-, Moderate-, and Middle-SES Movers

(a) 4+ Households



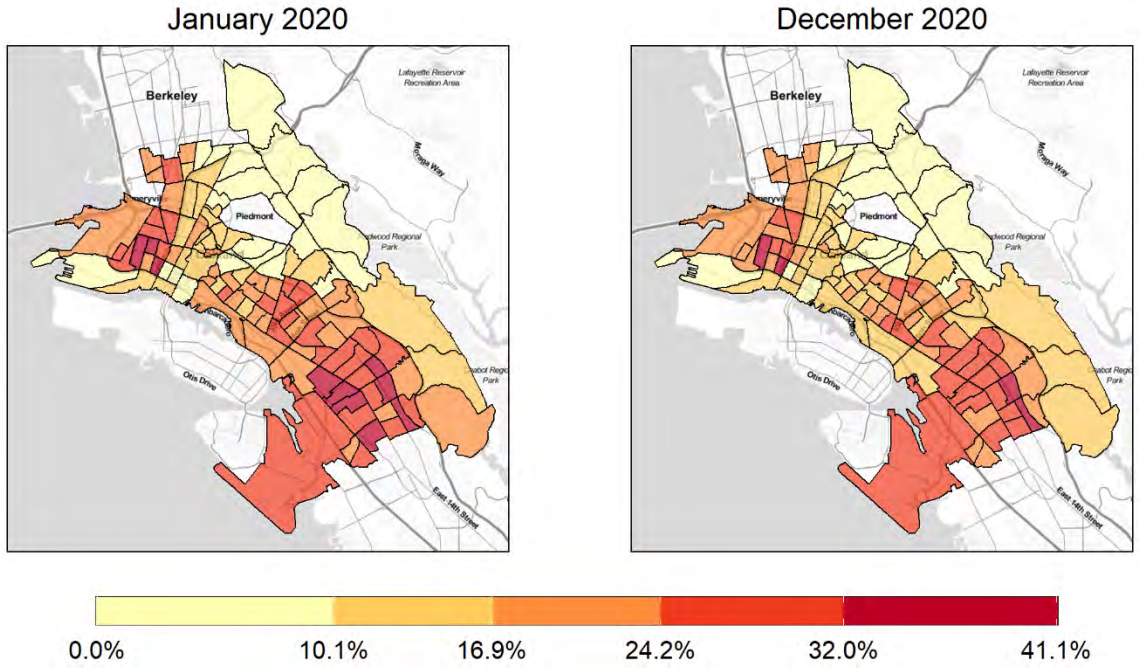
Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data

(b) Households with Delinquent Accounts



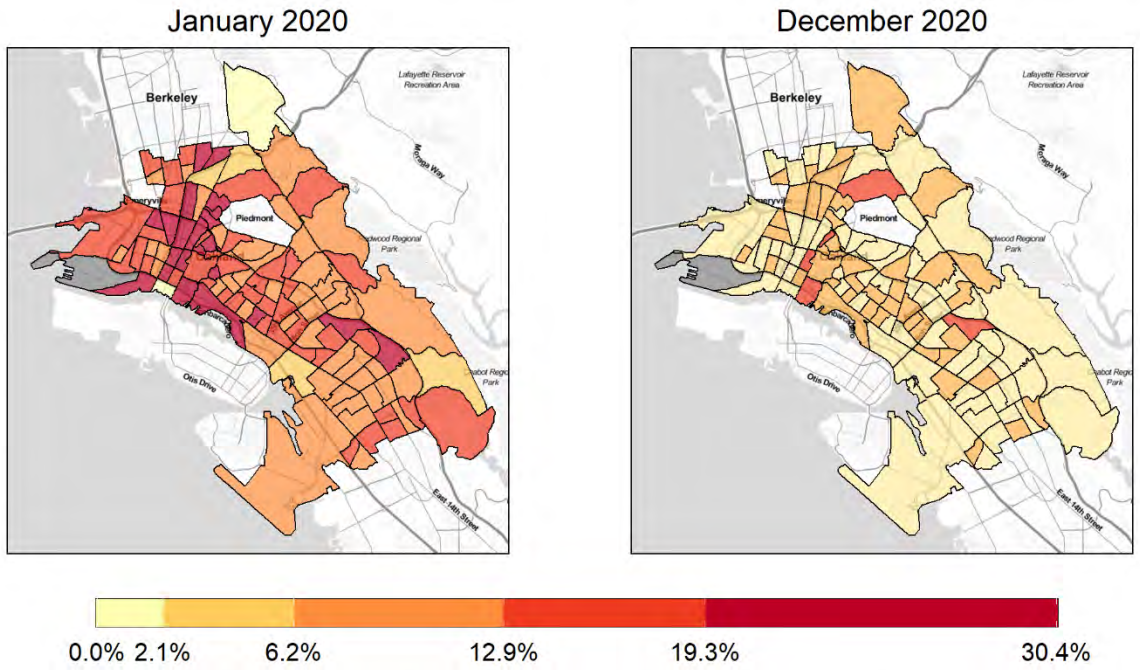
Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data

(c) Low-SES Residents



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

(d) LMM-SES Movers

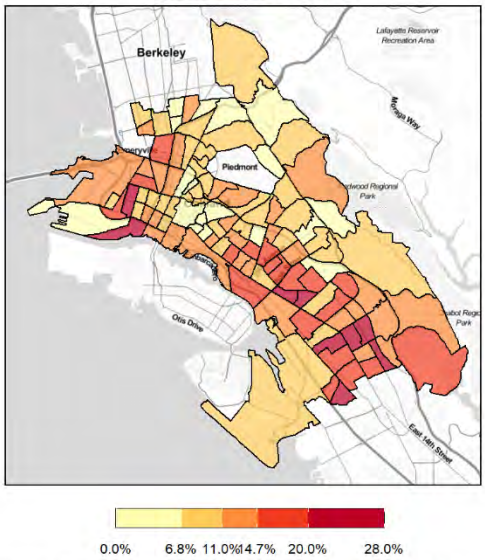


Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data

While these snapshots are useful, it is also important to look at where shifts to residential instability are occurring. Figure 43 maps the percentage of unique households that shifted into 4+ households from smaller ones, households that did not have a delinquency and became delinquent on a credit account, households that became low-SES from a higher-SES category, and LMM residents who moved during 2020. These maps show an overlap between areas where more people are moving to crowded households and gaining new delinquencies. These areas are not only where crowded and delinquent households have been concentrated. At the same time, areas in which more residents are experiencing shifts to the low-SES category are concentrated in areas where crowding, delinquent households, and low-SES residents have been historically concentrated. Together, these findings suggest that financial struggles are more widespread than the historically socioeconomically disadvantaged areas. Lastly, most outmigration of LMM-SES movers over the entire period was concentrated in Downtown, North, and West Oakland, as it has been in the past.

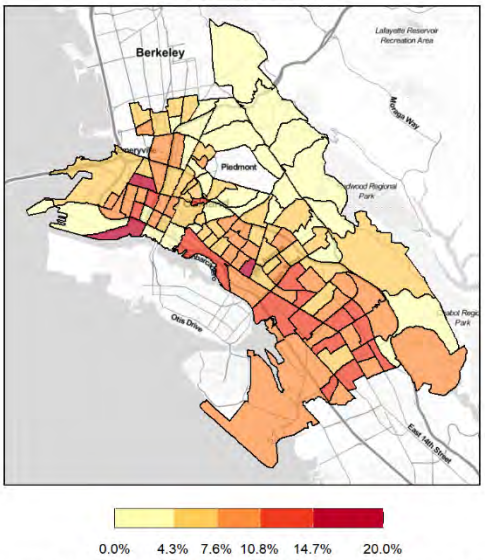
Figure 43: Maps of Shifts to 4+ Households, New Delinquency Gains, Shifts to Low-SES, and Low-, Moderate-, and Middle-SES Moves during 2020

Shifts to 4+ Households



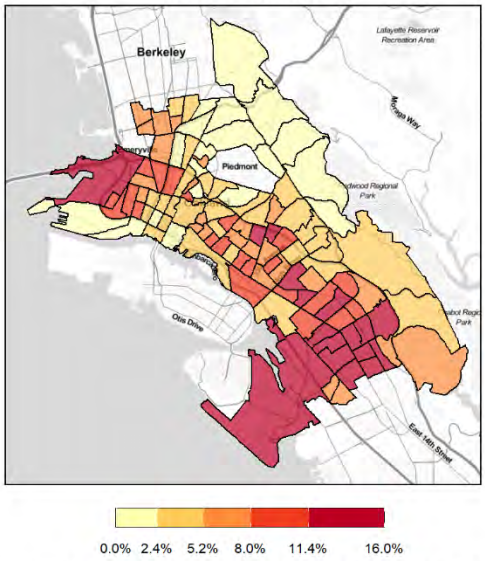
Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data

New Delinquencies



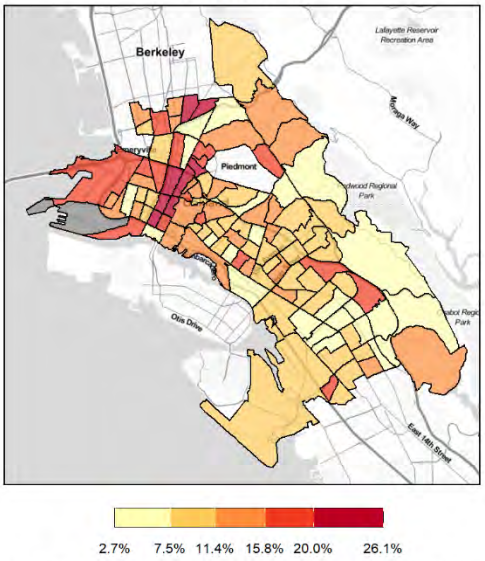
Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data

Shifts to Low-SES



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

LMM Movers

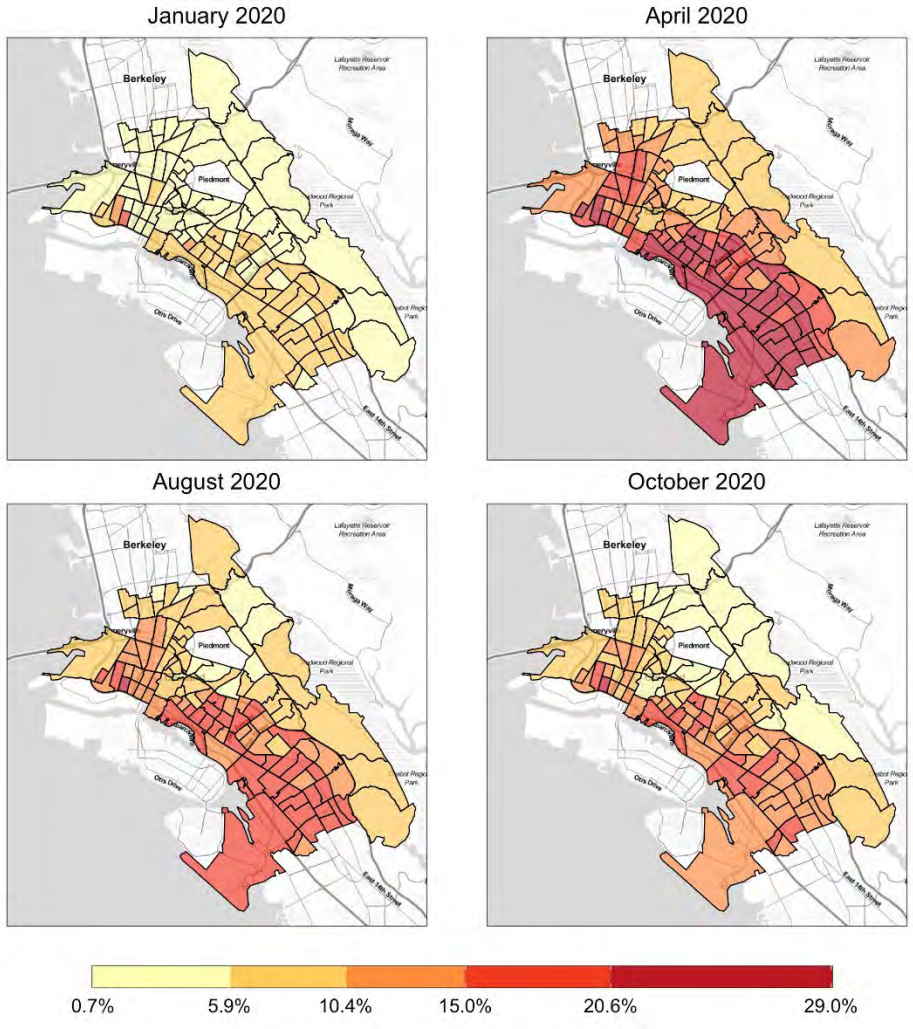


Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data

Figure 44 displays maps of the estimated unemployment rates for the labor force and civilian population in Oakland at different points in 2020. The labor force and civilian population unemployment rates drastically increased in East Oakland and parts of West Oakland. Although these areas had slightly higher levels in January 2020, and unemployment among the labor force increased everywhere in April, unemployment levels were much higher in these areas. Since its peak in April, the unemployment rate decreased throughout the city but remained high in October in certain parts of East and West Oakland, while unemployment rates for the Oakland Hills and areas surrounding Piedmont returned to pre-COVID levels. These areas are similar to where there is high financial instability in the fall and highlight where the pandemic has been affecting residents beyond historically disadvantaged areas.

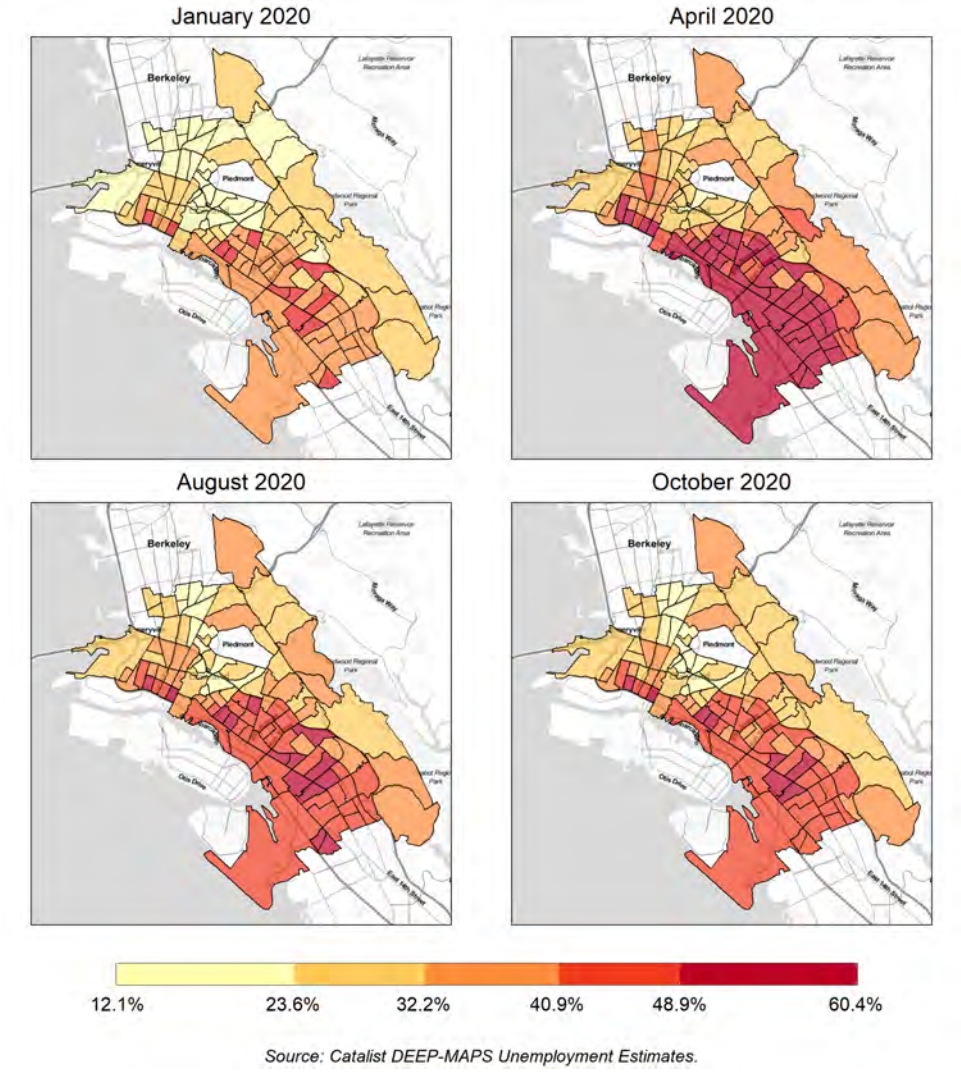
Figure 44: Maps of Percentage of (a) Unemployed Labor Force and (b) Unemployed Noninstitutionalized Civilian Population in 2020

(a) Labor Force



Source: Catalist DEEP-MAPS Unemployment Estimates.

(b) <u>Working Age Civilian Population</u>



Source: Catalist DEEP-MAPS Unemployment Estimates.

C. Comparing 2020 to Past Trends

Last, we compare changes and trends in 2020 to prior years. Figure 45 compares the rate of shifts to crowded households, new delinquencies, and shifts to the low-SES category from March 1, 2020–December 1, 2020 to changes from June 1, 2019–March 1, 2020. These are nine-month periods for comparability. Figure 46 displays a comparison of moving rates, including moves out of Oakland and the Bay Area, by SES, from September 1, 2019–September 1, 2020 to September 1, 2018–September 1, 2019. Following prior research and recommendations with these data, we use annual moving rates for this analysis to account for seasonal differences and other variations in address reporting.

The results show that during the pandemic, significantly more people have moved into crowded households and more moderate-, middle-, and high-SES residents have become low-SES residents, compared with before the pandemic. At the same time, there has been a decrease in the percentage of households that have gained new delinquencies. Residents may not be gaining new

delinquencies on credit accounts per se, but the increases in the other measures suggest that families are experiencing financial constraints in other ways. For example, they may be moving to crowded households to lower housing costs, and the declines in credit scores can reflect more borrowing while making minimum payments.

Comparing moving rates over time shows large declines among low-SES residents, even before the sharp drop observed earlier in October, which is not included in these data. Although low-SES residents had the highest moving rates from 2018–2019, they were much less likely to move or move out of Oakland than moderate- and middle-SES residents in 2019–2020. Low-SES residents still moved out of the Bay Area at rates similar to moderate- and middle-SES residents in 2019–2020, but at far lower rates than the prior year. By contrast, moderate-, middle-, and high-SES residents exhibited slight increases in their moving rates in general, as well as out of Oakland and the Bay Area.

Figure 45: Shifts to 4+ Households, New Delinquency Gains, and Shifts to Low-SES

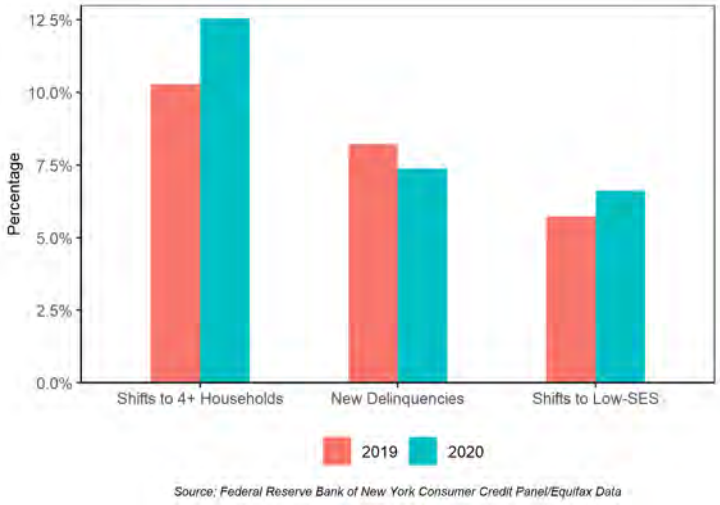
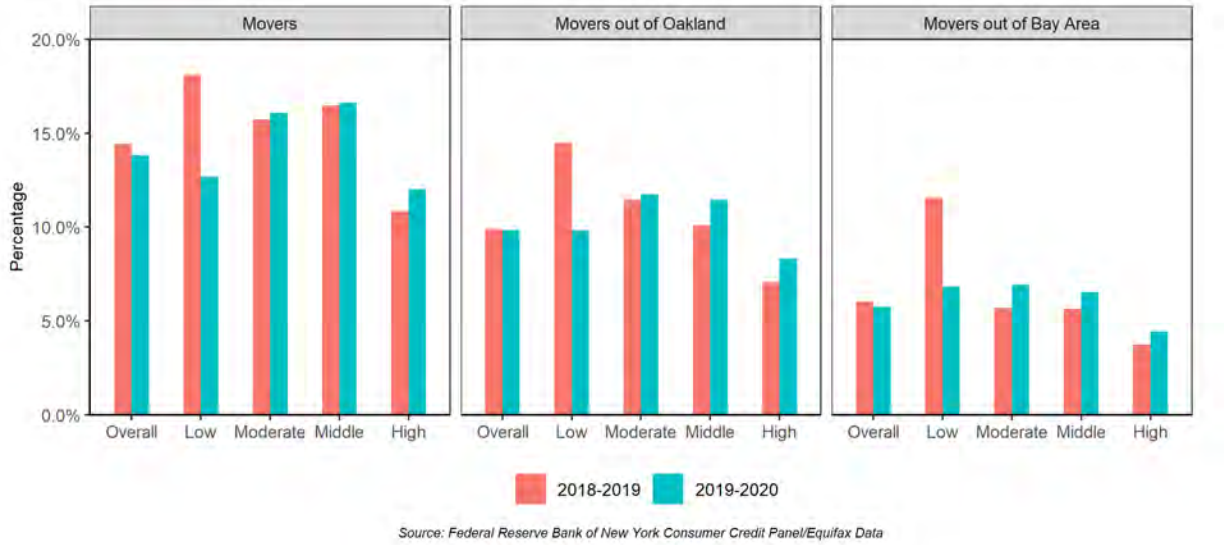


Figure 46: Moving Rates Overall, Out of Oakland, and Out of the Bay Area, by SES



VI. KEY CONSIDERATIONS FOR POLICY AND PRACTICE

- **Increase displacement protections for moderate-SES residents and continue to support efforts that mitigate the displacement of low-SES residents.** Although displacement protections are often geared toward low-SES residents, moderate-SES residents are also considerably disadvantaged in the housing market and move at among the highest rates. Along with low- and middle-SES residents, and especially since the COVID-19 pandemic began, moderate-SES residents have increasingly shifted to crowded living situations and experienced declines in their credit. Overall, this suggests that moderate-SES residents may be a relatively neglected population that have experienced widespread displacement and other forms of instability and will continue to do so.

- **Provide housing opportunities targeted for low-** ***and*** **moderate-SES residents.** Following the Recession, low-SES residents disproportionately moved out of the Bay Area at increasingly high rates, increasingly moved to households with more adults, and increasingly moved to lower-opportunity neighborhoods. Over time, fewer low- and moderate-SES residents moved into Oakland, and they concentrated in areas hit hard by foreclosures and continued disinvestment. In contrast, in-migration of middle- and high-SES residents remained relatively stable over the past two decades, with the former moving across the city and the latter moving to wealthier neighborhoods. Altogether, these trends suggest that many parts of Oakland became less accessible to low- and moderate-SES residents over time, reflecting the increasingly limited housing options for lower-SES movers in Oakland.

- **Develop strategies that support residents who resort to crowded households and residents who experience more financial instability to avoid moving.** Although crowding and financial instability have both increased across Oakland, especially since the COVID-19 pandemic began and among lower-SES residents, they tend to be concentrated in distinct regions and appear to reflect distinct strategies that residents employ rather than undergoing displacement. Moving and moves into households with more adults are more concentrated in Downtown Oakland and parts of North and West Oakland, as well as in more intensely gentrifying areas, while financial instability, proxied by increased delinquencies and declines in credit, is most concentrated in East Oakland and places with greater poverty and disinvestment. Policies should be designed to address the specific strategies that people in different geographies are employing to avoid moving.

- **Focus on Deep East Oakland and pockets of West Oakland, which have long histories of disinvestment.** These historically Black areas were hit hardest by the foreclosure crisis and continue to have the highest concentration of financial instability, crowding, and unemployment, and the fewest new building permits. Without intervention, these areas are likely to undergo continued disinvestment with the pandemic fallout.

- **Monitor vulnerable areas for displacement and disinvestment, especially in the wake of the pandemic.** Particularly as the effects of the COVID-19 pandemic continue to unfold, there is an urgent need to implement mechanisms to monitor and evaluate residential instability and neighborhood decline in Oakland. Tracking the geographies of financial instability, increased crowding, and increased moving, as well as identifying where movers are going, will help the city design and improve policies that protect residents from

displacement under limited resources. Tracking indicators of foreclosures, blight, and property sales can help the city target acquisitions and take preventative measures against neighborhood decline.

- **Investigate how residents navigate rising housing costs and limited affordable housing options with a focus on racial disparities.** To understand how residents are strategizing their responses to rising housing costs and limited affordable housing options, especially after the moratorium lifts in the wake of the pandemic, policymakers could pursue surveys and interviews to understand residents' circumstances and how they are considering their housing and financial options amid the pandemic. Structuring these analyses around understanding racial inequities is crucial for identifying mechanisms that produce racial disparities in residential instability and developing targeted strategies that can mitigate these differences.

VII. APPENDIX

A. Information on Data Sources

Federal Reserve Bank of New York Consumer Credit Panel/Equifax Data (CCP): This restricted longitudinal dataset from the Federal Reserve Bank provides quarterly information on a 5% sample of adult consumers from January 2002 to December 2019 and monthly information from January 2020 to December 2020, with 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 an average of 12,500 Oakland resident 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[14] aged 25 to 84.[15] More details about the dataset and Equifax Risk Scores are in Appendix B.

U.S. Census and American Community Survey (ACS) Data: These publicly available datasets provide 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 2000 and from five-year estimates from the American Community Survey, which began collecting data in 2005. The most recent available ACS data are the 2014–2018 five-year period. Census variables rely on a one-in-six sample, and ACS variables rely on samples that are pooled across five years and are half as large as the Census samples.[16]

U.S. Department of Housing and Urban Development (HUD) and U.S. Postal Service (USPS) Vacancy Data: This USPS dataset is aggregated by HUD and consists of quarterly tract-level data on vacant properties. It provides counts of total addresses, total vacancies, and vacancies by type of residence (business/residential) and length of vacancy from June 2008 to June 2020. Although the Census and ACS also collect data on vacant properties, these data are

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[14] We do not include 2004 Bay Area residents in our analysis because the geographic data are inconsistent across that particular year due to changes in the geocoding procedures by the data vendor in that year.

[15] Residents younger than 25 years are underrepresented in the data and can have inaccurate address reporting due to moving for reasons related to higher education during this period; residents older than 84 years are overrepresented in the data, most likely due to a lag in registered deaths in the data.

[16] Sampling variation in the estimates can introduce error and is higher in the ACS, especially when it comes to reporting dollar values, like income and home values. Although there is no systematic bias in the measures, measures about individual tracts are subject to error, particularly those with smaller populations.

collected on the universe of all addresses and are collected quarterly, providing more accurate counts of vacant properties. The data were used to compare residential vacancy rates across housing periods and neighborhood categories.

Home Mortgage Disclosure Act (HMDA) Data, U.S. Federal Financial Institutions Examination Council: This publicly available dataset provides tract-level housing loan data from lending institutions. Data are available from 1997 onward, including demographic and financial information on the loan applicant, including race and ethnicity, and, in some cases, reasons for loan denial. The data were used with ACS demographic data and CCP data to predict residential instability outcomes.

Open Oakland Final Foreclosures, 2007–2011: This publicly available dataset provides a full list of final foreclosures in Oakland from January 2007 to October 2011 that were scraped from the Clerk Recorder's office website. Our analysis focuses on foreclosures in 2007–2010, omitting 2011 to focus only on years with all 12 months of data. During this period, 8,804 properties went into foreclosure. This dataset was used to compare foreclosure rates across neighborhoods and neighborhood categories.

City of Oakland Building Permits, 2000–2020: This dataset contains all rehab, construction, and demolition building permits issued in Oakland from 2000 to 2020. The dataset provides information on the permit location, job description, estimated job value, permit type, permit status, and ownership information for each building permit issued by the city. A building permit does not necessarily mean completion of the proposed job description. To analyze investment, we use data on properties with permits for new construction, rehabilitation, or an addition totaling more than $60,000 per year. We set this threshold based on the distribution of building permit job values to identify substantial new construction, rehabilitation, or addition and exclude permits for minor repairs. The data are used to examine building investment across neighborhoods and housing periods.

DEEP-MAPS Unemployment Estimates, 2020: This dataset draws on the DEEP-MAPS Model of the Labor Force,[17] which infers monthly labor force statistics at the census-tract-by-demographic level for the year 2020. The model uses the Current Population Survey (CPS), Local Area Unemployment Statistics (LAUS), and the ACS to project labor force participation rate, unemployment rate, and employment-population ratio matching definitions used by the U.S. Bureau of Labor Statistics. It is important to note that these estimates suggest what neighborhoods are likely to look like, based on the similarity of their demographics, employment history, industries, and occupations; they are not reported data. These data were used to compare the unemployment rate of the labor force and non-institutionalized civilian population by race during the year 2020.

[17] Source: https://deepmaps.io/

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

The CCP data consist of an anonymized 5% 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% 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 et al. 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—a credit score), 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.[18] 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 et al. 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 et al. 2016). Credit bureaus do not factor income into calculating credit scores, though credit scores correlate highly with income levels; however, credit scores can reflect individuals across the income and wealth distributions (Bostic, Calem, and Wachter 2005; Brevoort, Grimm, and Kambara 2016).

[18] TransUnion and Experian, the other two major credit bureaus, produce scores with similar scoring models but slightly different scales.

C. Detailed Description of Neighborhood Categories

Appendix Table C-1: Description of Ethnoracial Composition Categories

Ethnoracial Category	Subcategory	Criteria
Predominantly Black	Predominantly Black	• over 60% black; under 20% white, under 15% Hispanic, under 10% Asian.
White or 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.
Black-Other	Mixed Black-Other Race	• mixed black and other-race tract: under 20% white, over 20% black, over 15% Hispanic or over 10% Asian.
Multiethnic or Other	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.

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 were not reported as White, Black, Hispanic, or Asian.

Source: 2000 U.S. Census and 2012–2016 ACS.

Appendix Table C-2: Description of Gentrification Categories

Gentrification Categories		Description
Nongentrifiable		• Median household income in 2000 > subregion's median household income.
Gentrifiable		• Median household income in 2000 < subregion's median household income.
Gentrifying	Intense	• % increase in either median rent or home value > subregion's 75th percentile of % increases in either median rent or home values. • % increase in either the population of college-educated residents or median household incomes > subregion's 75th percentile of % increases in either the population of college-educated residents or median household incomes.
	Moderate	• % increase in either median rent or home value > subregion's 50th percentile of % increase in either median rent or home values. • % increase in either the population of college-educated residents or median household incomes > subregion's 50th percentile of % increases in either the population of college-educated residents or median household incomes • does not qualify as intense gentrification.
Early Gentrification	Weak	• % increase in either median rent or home value > subregion's 25th percentile of % increase in either median rent or home values. • % increase in either the population of college-educated residents or median household incomes > subregion's 25th percentile of % increases in either the population of college-educated residents or median household incomes. • does not qualify as intense or moderate gentrification.
	People	• % increase in either median rent or home value < subregion's 25th percentile of % increase in either median rent or home values. • % increase in either the population of college-educated residents or median household incomes > subregion's 25th percentile of % increases in either the population of college-educated residents or median household incomes.
	Price	• % increase in either median rent or home value > subregion's 25th percentile of % increase in either median rent or home values. • % increase in either the population of college-educated residents or median household incomes < subregion's 25th percentile of % increases in either the population of college-educated residents or median household incomes.
Nongentrifying		• % increase in either median rent or home value < subregion's 25th percentile of % increase in either median rent or home values. • % increase in either the population of college-educated residents or median household incomes < subregion's 25th percentile of % increases in either the population of college-educated residents or median household incomes

Source: 2000 U.S. Census and 2012–2016 ACS. The subregion for Oakland comprises Alameda and Contra Costa Counties.

D. Details on Residential Instability Indices Results

Moving Index: The neighborhoods with the highest scores had much larger average shares of Asian residents and new immigrants and much lower shares of Hispanic residents and homeowners. These neighborhoods also had relatively lower median home values and rents on average and declining shares of low-SES residents and high rates of outmigration at the beginning of the Recession. Predictors included in the models include population, ethnic and racial composition (% Black, % Hispanic, and % Asian), the share of recent immigrants, poverty rate, median rent, ownership rate, share of new housing units, as well as the racial and ethnic composition of home mortgages, outmigration rates, crowded households, and changes in the share of low-SES residents. These variables explained about 55% of the variation in the outcome.

Moving Downward Index: Neighborhoods with high scores on downward displacement had higher shares of white residents on average, higher median household incomes, median home values and rents, and high shares of property ownership, compared with neighborhoods with lower scores during the housing bust. Most neighborhoods were nongentrifiable and were in the White/White-Mixed and Multiethnic/Other-Race categories. Predictors included in the models include population, ethnic and racial composition (% Black, % Hispanic, and % Asian), the share of recent immigrants, median household income, median home value, ownership rate, and percentage of LMM-SES residents moving to higher-poverty neighborhoods. These variables explained about 67% of the variation in the downward displacement index during the bust.

Financial Instability Index: On average, tracts with the highest scores had much larger shares of Black and Latinx residents and lower shares of white and Asian residents, as well as college-educated and professional residents, compared with areas with lower scores during the bust. Neighborhoods with the highest scores also had lower median incomes, rents, and home values and higher vacancy rates than those with low scores, but they also had higher homeownership rates. Most of the areas with the highest scores were experiencing intense or moderate gentrification over the period and were primarily categorized as Black-Other tracts. Predictors included in the models include population, ethnic and racial composition (% Black, % Hispanic, and % Asian), poverty rate, median home values, vacancy rates, as well as crowded households and changes in the share of low-SES residents. These variables explained about 47% of the variation in the financial instability index during the bust.

Neighborhood Instability Index: On average, tracts with the highest scores on the neighborhood instability index had higher shares of Black and Latinx residents and lower shares of white and Asian residents, compared with neighborhoods with low neighborhood decline scores during the bust. These neighborhoods also had higher shares of foreign-born residents, but not necessarily higher shares of new immigrants. These neighborhoods had lower median household incomes, higher vacancy rates, and lower median home values but not the lowest median rents. Most of these neighborhoods were experiencing intense or moderate gentrification, but 30% of tracts in the highest level exhibited early signs of gentrification, and most were Black-Other tracts. Predictors included in the models were population, ethnic and racial composition (% Black, % Hispanic, and % Asian), poverty rate, median home value, ownership rate, vacancy rate, as well as crowded households and changes in the share of low-SES residents. These variables explained about 73% of the variation in the neighborhood instability index during the bust.

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