

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Social Science Research

journal homepage: www.elsevier.com/locate/ssresearch

Foreclosure migration and neighborhood outcomes: Moving toward segregation and disadvantage[☆]

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ARTICLE INFO

Keywords:

Foreclosure
Racial inequality
Neighborhood
Migration
Segregation

ABSTRACT

The US housing crisis during the late 2000s was arguably the most devastating residential disaster of the last century, sending millions of families into foreclosure and destroying billions in household wealth. An understudied aspect of the crisis was the spike in local migration that followed the foreclosure surge. In this paper, we assess the residential consequences of these moves, by exploring how foreclosure-induced migration affected the racial and socioeconomic composition of affected families' neighborhoods. To do so, we use the Panel Study of Income Dynamics to track foreclosure, migration, and neighborhood outcomes for samples of white, black, and Hispanic homeowners. Findings from our analysis show clearly that foreclosure was linked to migration to less white and more residentially disadvantaged neighborhoods, with foreclosed Hispanic householders, in particular, tending to move to poorer and more racially isolated neighborhoods.

The foreclosure crisis that struck the US during the second half of the last decade had profound economic and social consequences on family and community well-being. The impacts of the crisis on economic insecurity, mental and physical well-being, civic engagement and social capital within communities, and local tax revenues have been devastating (see [Arcaya et al., 2013](#); [Currie and Tekin, 2015](#); [Houle, 2014](#); [Libman et al., 2012](#); [Pfeffer et al., 2013](#)). Less known, however, are the residential repercussions of the crisis despite the surge in foreclosures producing one of the largest waves of residential migration in the last century ([Hall et al., 2015a](#); [Stoll, 2013](#)). The growth in local moves spawned by the rising number of foreclosures is likely to not only have altered social relations within neighborhoods and communities, but also to change the neighborhood environments of families who were forced to move as a result of foreclosure. The implications of this migration surge are potentially considerable, given decades of social science research detailing the variety of ways that neighborhood conditions structure opportunities and affect well-being (see [Brooks-Gunn et al., 1997](#); [Chetty et al., 2015](#); [Sampson, 2012](#); [Wodtke et al., 2011](#)).

These residential impacts of foreclosure are potentially especially large for ethn racial minorities who were hit hardest by the housing crisis. Extensive reporting and empirical work has shown that their vulnerable economic position, together with lender targeting of minority communities, legacies of racial discrimination, and risky borrowing, combined to produce rates of foreclosure among black and Latino homeowners that were dramatically higher than those for whites ([Engel and McCoy, 2011](#); [Hall et al., 2015b](#); [Immergluck, 2011](#); [Rugh, 2015](#)). Given these conditions, along with underlying migration tendencies, the foreclosure crisis likely meant that racial/ethnic minorities were especially prone to experience neighborhood change following foreclosure.

[☆] We are grateful to David Reed, Ingrid Ellen, and George Galster for comments on previous versions of this paper.

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<https://doi.org/10.1016/j.ssresearch.2017.11.006>

Received 4 January 2017; Received in revised form 31 October 2017; Accepted 26 November 2017

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Yet, foreclosure-induced migration may bring about unique forms of stratification, given that foreclosure nearly always corresponds with economic hardship. This financial and, often, familial insecurity – the loss of a job or a marital dissolution – means that households (or household members) are likely to move to less-advantaged neighborhoods following foreclosure. Residential moves toward lower-status neighborhoods are likely compounded by the change in tenure – from owning to renting – brought about by foreclosure. These tendencies are also likely to have implications for neighborhood racial contexts; leading blacks and Hispanics to not just poorer, but more racially isolated areas. If this patterns holds, foreclosure migration will heighten racial inequality in residential domains simply by the fact that black and Latino households have higher risks of foreclosure. Yet, this stratification may be further intensified by underlying racial differences in neighborhood mobility, which make black and Latino households more likely than whites to move into poor, segregated neighborhoods (South and Crowder, 1997, 1998; South et al., 2005).

In this analysis, we seek to explore these issues by assessing the racial variation in the neighborhood dynamics of post-foreclosure migration. To do so, we use household-level data from the Panel Study of Income Dynamics linked to Census data on neighborhood socioeconomic conditions and racial compositions to assess how migration events following (or during) foreclosure impact the context of households' neighborhoods in racially-selective ways. More specifically, we test whether changes in neighborhood conditions (i.e., between origin and destination neighborhoods) among foreclosed households – namely in terms of co-ethnic concentrations, poverty levels, and ownership rates – are patterned racially. To assess whether any racial differentiation in the neighborhood consequences of foreclosure migration simply reflects underlying racial differences in migration, we compare changes in neighborhood conditions for foreclosed households to similar households making residential moves without experiencing foreclosure.

1. Background

The recent housing crisis was one of the most profound residential disasters in the nation's history, pushing millions of families into foreclosure, many more into financial distress, and destroying generations of wealth. It was precipitated by a potent combination of unsustainable lending practices, irresponsible borrowing, and faulty valuations of home prices (see Immergluck, 2011). In the run up to the crisis, housing prices rose steadily in most markets reflecting not only general economic prosperity during the last years of the twentieth century, but the assumption by homeowners, speculators, and lenders that housing prices would continue to rise. This expectation of ever-increasing equity helped to justify the increasing use of risky financing strategies, all enabled by years of federal deregulation of the banking industry. With the growing popularity of zero-down mortgages, loan-to-value ratios soared and an increasing share of homeowners had little or no equity even at the origination of their loans. These problems were exacerbated by the proliferation of predatory lending practices that left millions of homeowners vulnerable to the financial burden of large balloon payments and unsustainably high interest rates. Moreover, even owners who had been in their homes for years were tempted by low interest rates and rising prices to borrow against the value of their homes. The end result was that by 2007, more than one in five homeowners had negative equity in their homes, owing more than the value of the property (CoreLogic, 2010). These housing dynamics were combined with a sharp economic recession that led to job and income loss. This period was unprecedented in combining high rates of unemployment with mortgage distress and residents in markets that faced both forms of precarity were especially vulnerable to foreclosure (Dwyer and Lassus, 2015). Ultimately, the crisis is estimated to have resulted in more than 16.2 million homes entering foreclosure since 2006 (RealtyTrac, 2015).

The loss of housing and destruction to equity has rightly been the focus of work on the consequences of the foreclosure crisis. Yet because a great number of families who entered foreclosure ultimately had to leave their homes, the foreclosure crisis also had substantial consequences for patterns of residential migration. While migration rates have been in steady decline for the last several decades, there was an observable uptick in migration during the recession that was driven entirely by increases in local (within county) moves, particularly in markets with the highest foreclosure rates (see Stoll, 2013; Hall et al. 2015a,b).

The housing crisis – and its outcomes – were patterned strongly along racial lines (Bocian et al., 2010; Rugh and Massey, 2010; Rugh, 2015). African American and Hispanic families were not only the most susceptible to layoff during the recession (Hoynes et al., 2012) but they also fell victim to explicit targeting campaigns by subprime lenders to sign unfavorable mortgage terms (see Engel and McCoy, 2011). This combination of vulnerable loan agreements and job loss put minority owners in a weaker position to sustain mortgage payments and, consequently, the surge in foreclosures was shouldered largely by minority homeowners (see Bocian et al., 2010).

Severe racial/ethnic stratification in the dynamics of the crisis not only made minority homeowners especially likely to fall into foreclosure, but there is reason to believe that the moves they were compelled to make following foreclosure slowed gains in broader patterns of racial integration in US neighborhoods. Racial segregation – especially between whites and blacks – has been in steady decline for the last several decades, but changes in neighborhood racial composition tied to local foreclosure rates were found to have slowed further declines during the 2000–2010 period. Specifically, Hall et al. (2015a,b) find that neighborhoods with high foreclosure rates, especially initially racially-mixed ones, experienced relative increases in nonwhite populations and reductions in white populations, which intensified segregation by accelerating processes of racial succession. Unanswered in this work is the role that underlying migration behaviors played in this process. In particular, it is unclear whether this process of neighborhood change was a result of foreclosed households making segregating moves or other households reacting to concentrations of foreclosures and their associated social ills (e.g., crime, vacancy, deterioration). Also unanswered in prior work is how residential moves induced by foreclosure led to changes in the socioeconomic mix of households' neighborhoods. Economic insecurity combined with limited credit opportunities may have forced foreclosed households to search for affordable housing in less-advantaged neighborhoods, ultimately amplifying disparities in residential contexts between groups.

Theoretically, there are strong reasons to anticipate foreclosure to not only affect mobility, but to do so in ways that alter households' neighborhood locations. As noted earlier, the vast majority of foreclosed households will have to make a residential move. Even households in default that are not ultimately foreclosed on may be compelled to move following the sale or auctioning of the property or as part of negotiation with the bank. Using credit report data during the early years of the crisis, [Molloy and Shan \(2012\)](#) report that about half of households move within two years of a foreclosure start. Individual foreclosure is synonymous with major reductions in financial capacity not just because economic insecurity predicts foreclosure but also because the foreclosure process can be costly. Not surprisingly, credit scores are typically decimated following foreclosure and are very slow to recover ([Brevoort and Cooper, 2013](#)).

The combination of economic vulnerability and lack of access to credit means that households are very likely to rent following foreclosure. Indeed, [Molloy and Shan \(2012\)](#) find that less than 6 percent of individuals have a mortgage following foreclosure and only about one-in-five are living in a home that is owned by any member of the household. This almost-certain transition from owning to renting means that post-foreclosure migration is likely to be associated with search behaviors that lead households into neighborhoods with larger supplies of rental housing. These same search processes are also likely to be associated with changes in other features of neighborhoods given that rental housing is more likely to be located in lower-SES neighborhoods. According to the 2006–2010 ACS, for example, census tracts where less than a majority of housing units are owner-occupied had average poverty rates of 23.9% compared to 10.5% for tracts where at least a majority of units were owner-occupied. Thus, economic constraints combined with the spatial concentration of affordable rentals lead to the expectation that foreclosed households will embark on “downward” moves that places them in neighborhoods with fewer socioeconomic resources than the ones they exited.

Foreclosure migration may also be associated with changes in the racial/ethnic makeup of households' neighborhoods. Because segregation along race and class tend to coincide, residential moves to lower-SES neighborhoods are also likely to correspond with moves to neighborhoods with larger minority concentrations. Yet, racial differentiation in underlying migration behaviors – that push black and Hispanic movers into racially-similar neighborhoods – are also likely to shape mobility outcomes. Financial insecurity may also induce foreclosed households to move back to neighborhoods near family and friends (or in some cases, directly into the family members' homes) where racially-homophilous social networks can provide economic and social support. These economic and network mechanisms suggest that foreclosed migration among blacks and Hispanics should result into movement to neighborhoods with larger concentrations of their own-racial group members. Such a pattern is consistent with macro-level research finding that the foreclosure crisis increased racial segregation between these groups ([Hall et al., 2015a,b](#)).

Our objective in this paper is to shed light on these arguments by documenting the neighborhood consequences of foreclosure-induced mobility. Not only does this inform broader questions about emerging patterns of racial/ethnic segregation, but also, more generally, describes how the foreclosure crisis altered the context of homeowners' neighborhoods, which are widely known to be related to health and well-being, economic opportunities, and child development (see [Roux and Mair, 2010](#); [Sampson et al., 2008](#); [VonLockette and Dickerson, 2010](#)).

2. Data and methods

Our main source of data for this analysis is the Panel Study of Income Dynamics (PSID), a longitudinal survey of US residents and their families that began in 1968 with a sample of about 5000 families. Panel members were interviewed annually until 1997 and have been interviewed biennially since, and new families have been folded into the panel as children and other members of the original sample form new households. In addition to containing a wealth of information on household economic and social well-being, the PSID is advantageous because it has, since 2009, included a series of questions on recent and past experience with mortgage distress and foreclosure. We focus our analysis on PSID respondents present in the 2009, 2011, and/or 2013 waves, but utilize information back to 2001 to construct longer foreclosure histories for these respondents. By limiting the sample to the heads of households (householders) we prevent the possibility that foreclosures and/or moves occurring within the same household are counted multiple times. We limit our analysis to non-Hispanic white, non-Hispanic black, and Hispanic householders who owned their home at the start of each interval (i.e., the period between subsequent interviews). We segment these records into a series of person-period observations defined by the two-year interval between interviews. The effective sample for this analysis consists of 5437 non-Hispanic white, 2280 non-Hispanic black, and 563 Hispanic PSID heads who are present in at least consecutive interviews.

As described below, we use PSID's Geocode Match files to link PSID householders to neighborhood-level data on the demographic and socioeconomic contexts of their neighborhoods of residence. We define neighborhoods here as census tracts, a census-based geographic unit that averages about 4000 persons and approximates residential neighborhoods. To handle census tracts that change boundaries between 2000 and 2010, we use normalized Census data produced by [Geolytics \(2012\)](#), and interpolate intercensal tract characteristics linearly.

Our analysis is organized around two main questions: (1) what is the size and source of racial differences in the likelihood of experiencing foreclosure; and (2) how do neighborhood conditions change following foreclosure? Our measure of household foreclosure is assessed by special modules on household mortgage distress and foreclosure first collected by the PSID beginning with the 2009 interview. Specifically, in 2009, 2011, and 2013, homeowners with an existing mortgage were asked if a bank has begun the foreclosure process on their current home. Importantly, both homeowners and nonowners alike were also asked if a foreclosure had been initiated on any other residential property since 2001, allowing us to construct foreclosures histories over the entire 2001 to 2013 period, which covers both the years preceding, during, and following the housing crisis. We use this information, along with the self-reported date of the foreclosure and the interview date to determine whether a household was ever in foreclosure during each of the two-year observation periods since 2003 (e.g., a foreclosure occurring between the 2001 and 2003 interviews is assigned to that

interval). Estimates of the two-year incidence rates of foreclosure starts derived from this approach are comparable to estimates based on county records. For example, the PSID-based approach finds that between the 2007 and 2009 interviews, 3.7% of homeowners had experienced foreclosure. Estimates from RealtyTrac – the largest vendor of public foreclosure data – indicate 4.2% of all mortgages were in foreclosure sometime during the same period.

In the second stage of our analysis we analyze how characteristics of residential neighborhoods change before and after foreclosure. Specifically, using the normalized tract data derived from the 2000 Census and the 2006–2010 American Community Survey, we generate measures describing the racial composition of PSID respondents' neighborhoods (e.g., percent non-Hispanic white, percent non-Hispanic black, and percent Hispanic), the percent of the population at or below the federal poverty level, and the percent of housing units that are owner-occupied.¹

Our models also include several additional characteristics of households and their neighborhoods expected to be correlated with foreclosure and neighborhood outcomes. Demographic traits of householders include age (in years), gender (female householder = 1), marital status (married or permanent cohabiting = 1), and the presence of children (any children in home = 1). As foreclosure and neighborhood outcomes may both result from household economic insecurity, we include measures of earned income, non-housing wealth holdings, and employment status. We also include a measure of educational attainment (in years of completed schooling). To ensure proper temporal order, each of these covariates are measured at the start of each two-year interval.

Analytically, we use basic regression tools to assess racial differences in foreclosure and in neighborhood outcomes. We express the foreclosure model as a logistic regression model that is a function of householder race/ethnicity, demographic traits, and socioeconomic characteristics. All models include dummies for survey year and we incorporate state fixed effects to test the argument that the elevated rates of foreclosure for some groups reflect their geographic concentration in states that were hardest hit by the crisis. To ease interpretation, we report average marginal effects from the logit models.

In the main part of our analysis, we assess how neighborhood conditions changed for households as a result of a foreclosure. We show these changes descriptively by comparing means in the difference in neighborhood characteristics at origin (i.e., where the foreclosure occurred) and destination (i.e., where the household moved following foreclosure). To provide a stronger test of whether foreclosure-induced moves led to different neighborhood outcomes than other types of moves, we compare changes in neighborhood outcomes for foreclosed households to those of other mobile households who were homeowners at the start of the interval (i.e., owners who changed tracts between interviews). More specifically, we estimate the following general model:

$$(NH_{kt} - NH_{k(t-1)}) = \beta_0 + \gamma_1 Foreclose_{t-1 \text{ to } t} + \beta_1 \mathbf{Demographic}_{t-1} + \beta_2 \mathbf{SES}_{t-1} + U$$

, where the dependent variable is the change in neighborhood outcome k over an interval (between interviews t and $t - 1$); *Foreclose* is an indicator of whether a homeowner at time t experienced a foreclosure start over the interval; and **Demographic** and **SES** are vectors of observed sociodemographic characteristics of PSID homeowners at the start of the interval. To account for the non-independence of intervals within respondents, we estimate robust standard errors.

3. Results

3.1. Racial differences in foreclosure

We start by describing the baseline racial differences in the likelihood of experiencing a foreclosure start between PSID interviews. Because the sample is restricted to households who were homeowners at the start of each interval, the values in [Table 1](#) can be interpreted as the probability of having a bank initiate the foreclosure process as a homeowner during a two-year stretch. Over the 2001–2013 period, PSID homeowners experienced an average foreclosure rate of 1.9%, but growth in the trend over time is clearly evident with foreclosure rates slowly increasing through the mid-2000s and exploding during the 2007–2011 period. Our main interest lies in the racial differences in foreclosure experiences and [Table 1](#) points to considerable disparities by race/ethnicity. Relative to white owners, rates of foreclosure were substantially higher for blacks and Hispanics. During the first years of the crisis (2007–2009), for example, the black foreclosure rate was 2.5 times higher than that for whites. As has been described elsewhere ([Hall et al., 2015b](#); [Rugh, 2015](#)), rates of foreclosure for Hispanics were sharper and most intensely concentrated in the crisis years, with 8.2% of Hispanic homeowners in 2009 experiencing foreclosure by 2011. The sum of these figures provides us with a rough estimate of the cumulative rate of foreclosure between 2001 and 2013, suggesting that about one-in-five black and Hispanic homeowners fell into foreclosure during this period, while about one-in-ten white homeowners did.

To assess whether racial disparities in foreclosure starts can be accounted for by demographic and socioeconomic differences between racial groups, we fit basic multivariate models of the probability of foreclosure. The purpose here is largely descriptive; to evaluate how robust the racial gaps in foreclosure are to basic sociodemographic controls. For the sake of simplicity, the coefficient estimates for the statistical controls are suppressed from [Table 2](#), but are available upon request.² The first model adjusts the racial differences in foreclosure only for the time trend and indicates that the average probability of experiencing a foreclosure start during an interval is 1.4 percentage points higher for black owners, and 1.6 points higher for Hispanic owners, than white ones. The black

¹ In supplemental models, we considered additional measures of neighborhood change, including median family income, educational attainment (percent of adults with college degrees), and family structure (percent of households headed by a single mother). None of the changes in these outcomes were statistically significant (at 10% level) for any racial group.

² Coefficients for demographic controls all operate in expected directions, with age, marriage, and children reducing the likelihood of foreclosure, and socioeconomic position (in terms of income, education, and wealth) also decreasing the risk of foreclosure.

Table 1

Foreclosure start rates by interval for PSID homeowners, by interval and race, 2001–2013.

Year Intervals	All Owners	White Owners	Black Owners	Hispanic Owners
2001–2003	0.004	0.003	0.006	0.006
2003–2005	0.009	0.006	0.016	0.013
2005–2007	0.016	0.013	0.026	0.010
2007–2009	0.036	0.024	0.060	0.071
2009–2011	0.036	0.030	0.040	0.082
2011–2013	0.027	0.021	0.045	0.023

Table 2

Average marginal effects from logits of foreclosure start for PSID homeowners, 2001–2013.

	(1)	(2)	(3)	(4)
Race (white = ref)				
Black	0.014*** (0.002)	0.010*** (0.002)	0.004* (0.002)	0.010** (0.003)
Hispanic	0.016*** (0.004)	0.010** (0.004)	0.004* (0.002)	0.000 (0.003)
Demographic controls	–	Yes	Yes	Yes
SES controls	–	–	Yes	Yes
Year fixed Effects	Yes	Yes	Yes	Yes
State fixed effects	–	–	–	Yes
White foreclosure rate	0.014	0.014	0.014	0.014
Pseudo R-squared	0.077	0.110	0.134	0.158
N of persons	8165	8165	8165	8165

Note: *p < 0.05; **p < 0.01; ***p < 0.001; robust standard errors in parentheses.

and Hispanic rates of foreclosure are equal to the white foreclosure rate (0.014) plus the additional black (0.014) or Hispanic (0.016) coefficients. These estimates translate into effect sizes (relative to whites) of 1.00 and 1.14 indicating that blacks were twice as likely, and Hispanics more than twice as likely, as whites to experience foreclosure during this period.

The second and third models in [Table 2](#) incorporate controls for demographic traits (age, gender, marital status, presence of children) and socioeconomic characteristics, including total family income, employment change, and non-housing wealth, at the start of the interval. Racial differences in these characteristics partly attenuate the racial gaps in foreclosure (the black coefficient is reduced by about 71%, and the Hispanic coefficient is reduced by 75% with the full set of individual-level controls). Nevertheless, even when income, non-housing wealth, and demographic characteristics are held constant, African American and Hispanic homeowners were at substantially higher risk of foreclosure.

The final model in [Table 2](#) incorporates state fixed effects to test the possibility that part of the reason why nonwhites experienced such high levels of foreclosure during the crisis was because they were geographically concentrated in areas with runaway housing price change, rampant speculation, and state-level regulatory features, or other contextual features that accelerated foreclosure. The estimates in column 4 suggest that this geographic clustering in high-risk states is part of the reason why Hispanic foreclosures were so high: with the state fixed effects included, the remaining Hispanic difference is estimated to be null. The black coefficient, by contrast, actually increases suggesting that their geographic locations actually suppress a large disadvantage. In the final model, blacks remain nearly twice as likely to foreclose as whites living in the same states with similar sociodemographic profiles.

3.2. Foreclosure migration and neighborhood outcomes

The impacts of foreclosure for broader patterns of neighborhood inequality are determined by both the extent to which going through foreclosure leads to out-migration and, in turn, to changes in neighborhood conditions. The remainder of our analysis focuses on these questions. The upper part of [Table 3](#) summarizes the likelihood that a household experiencing foreclosure will make a residential move away from the neighborhood in which the foreclosed unit is located. In total, about 48% of homeowners undergoing foreclosure during an interval also change census tracts. The racial differences in mobility suggest that black and Hispanic owners in foreclosure are less likely to change neighborhoods than are whites in foreclosure. Nevertheless, the product of the probabilities of foreclosure shown in [Table 1](#) and the conditional probabilities of migration given foreclosure shown here provides a rough estimate of racial variation in the magnitude of the residential moves spurred by the foreclosure crisis. Even despite their relatively lower conditional mobility rates, the high rates of foreclosure among black and Hispanic homeowners mean that they were especially likely to have to made foreclosure-induced residential moves during the crisis period (e.g., the overall rate of foreclosure migration for blacks is $0.028 \times .446 = .012$; for Hispanics is $0.024 \times .377 = .009$; and for whites is $0.014 \times .526 = .007$).

Table 3
Changes in neighborhood characteristics among foreclosed homeowners, 2001–2013.

	Whites	Blacks	Hispanics
Made residential move during interval	0.526	0.446	0.377
Foreclosed Movers			
Δ % NH White	-3.607 ^a	-5.384 ^a	-1.559
Δ % NH Black	1.945	4.855 ^a	-0.466
Δ % Hispanic	0.689	0.577	5.079 ^a
Δ % Poverty	-0.314	2.439 ^a	3.976
Δ % Owned Homes	-4.327 ^a	-7.435 ^a	-7.987 ^a

^a Δ is significantly different from 0 (at 5% level).

The potential for enhanced residential segregation ultimately depends on the kinds of moves undertaken by these households. The lower portion of Table 3 summarizes changes in neighborhood conditions for the sample of householders who experienced foreclosure and made a residential move. The descriptive results point to sharp changes in the neighborhood context of foreclosed movers. In terms of neighborhood racial composition, whites, blacks, and Hispanics who experienced foreclosure tended to move to neighborhoods with lower white shares than the ones they left. Foreclosed whites, for example, moved to neighborhoods that were 3.6 percentage points less white; while foreclosed blacks moved to neighborhoods that were 5.4 percentage points less white. The neighborhoods where white movers went were also, on average, slightly more black and Hispanic. For foreclosed blacks and Hispanics, their typical moves corresponded with increases in the relative size of their own-group shares. Blacks who experienced foreclosure moved, on average, to neighborhoods where black shares were about 4.9 points higher than the neighborhoods they left; and Hispanics moved to neighborhoods where Hispanic shares were about 5.1 points higher.

Neighborhood socioeconomic conditions also appear to be affected as a result of foreclosure migration. For blacks and Hispanics, the typical post-foreclosure neighborhood had poverty rates that were marginally higher (2.5 points and 4.0 points for blacks and Hispanics, respectively) than the neighborhoods they left. The share of neighborhood homes that are owner-occupied is, unsurprisingly, reduced following foreclosure, with all groups moving to neighborhoods with lower ownership rates.

To provide a stronger test of the connection between foreclosure and neighborhood conditions, we enter these neighborhood changes into a series of regression models that assess the extent to which the changes in neighborhood outcomes experienced by those moving in the face of foreclosure were different from the kinds of neighborhood changes made by other homeowners (i.e., householders who started the interval as homeowners) who moved but who did not experience foreclosure. The main coefficients reported here are thus the difference in changes in neighborhood characteristics associated with a move between homeowners who entered foreclosure and homeowners who did not enter foreclosure. To simplify the presentation of the results, we assess changes in racial composition only as changes in same-race population shares.

The first set of results in Table 4 for changes in same-race shares indicates that foreclosed migrants made moves with repercussions for neighborhood racial composition that differed from those of non-foreclosed migrants. Among whites, the difference in white shares between origin and destination neighborhoods for those experiencing foreclosure was about 4.4 points lower than changes in tract white shares for movers who did not experience foreclosure. Foreclosed black owners, by contrast, moved to blacker neighborhoods than similar black owners who also moved, but the difference between them is nonsignificant. The implication is that mobility outcomes in terms of black concentrations were not fundamentally distinct for black owners who foreclosed vs. those who did not, but because these moves tended to lead migrants into blacker neighborhoods, the foreclosure crisis may have contributed to segregation simply by increasing the number of moves that blacks made. For Hispanic owners, the foreclosure crisis not only spurred migration, but foreclosed Hispanics moved, on average, to considerably more Hispanic neighborhoods than demographically-similar

Table 4
OLS models of changes in neighborhood outcomes for mobile homeowners, by race.

	Change in Percent Same Race			Change in Percent in Poverty			Change in Percent Owner-Occupied Homes		
	Whites	Blacks	Hispanics	Whites	Blacks	Hispanics	Whites	Blacks	Hispanics
Experienced Foreclosure	-4.361* (1.799)	3.666 (3.186)	8.273* (4.129)	-0.597 (0.943)	4.365** (1.582)	5.854 (3.272)	-6.171** (1.824)	-12.172*** (2.800)	-11.880* (5.498)
Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SES controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RMSE	18.300	32.316	24.620	9.606	14.173	14.933	22.761	25.345	25.714
R-squared	0.011	0.010	0.042	0.009	0.034	0.052	0.029	0.102	0.087
N of person-intervals	3410	1182	348	3410	1182	348	3410	1182	348

Note: *p < 0.05; **p < 0.01; ***p < 0.001; robust standard errors in parentheses.

Hispanic homeowners who were not foreclosed on. Specifically, foreclosed Hispanics made moves that corresponded with an average increase in Hispanic shares of 8.3 points, relative to similar Hispanic owners who also moved. Thus, for the Hispanic population, the housing crisis not only generated additional mobility, but the moves made in response to foreclosure were particularly segregating in nature.

In terms of changes in neighborhood socioeconomic composition, the results in Table 4 indicate that whites who faced foreclosure migrated to neighborhoods with largely similar poverty levels to other white movers. Among minority movers, however, foreclosure was associated with increases in poverty shares. Specifically, neighborhood poverty was 4.4 points higher for foreclosed blacks relative to poverty levels for their non-foreclosed counterparts. For Hispanics, the estimated effect of 5.9 percentage points is substantial but fails to reach significance at the 5% level ($p = .075$). Overall, the results point to a tendency for minority owners who faced foreclosure to not only move to more racially-isolated neighborhoods, but also to poorer ones, than otherwise similar movers. Foreclosure migration was also related to considerable changes in neighborhood homeownership rates. For white, black, and Hispanic owners who faced foreclosure, the neighborhoods they moved into had substantially lower ownership rates than other movers with similar sociodemographic profiles. Movement into neighborhoods with lower densities of owned housing is unsurprising given that the overwhelming majority of households making a move after foreclosure will be renters of their new homes.³

4. Conclusion

The consequences of the recent housing crisis for economic and social well-being have been severe: destroying years of wealth accumulation, inflicting damage on the mental and physical health of household members, and unraveling the social fabric of affected communities. Yet the crisis also prompted a mass migration that otherwise would not have occurred. Because foreclosure generally corresponds with the loss of housing, migration to a new home nearly always follows. To the extent that these moves correspond with broader changes in the residential environments of foreclosed households, the potential for changes in neighborhood inequality is substantial. Moreover, given sharp racial stratification in the foreclosure process, these moves – and their neighborhood consequences – that foreclosed households embarked on are likely to have been patterned along racial lines. To illuminate this issue, we sought in this analysis to assess changes in neighborhood conditions following foreclosure using longitudinal data from the Panel Study of Income Dynamics (2001–2013) linked to Census information describing neighborhood conditions for householders.

The results of our analysis confirm past work in finding strong racial/ethnic divisions in the foreclosure process, but also show that the moves prompted by foreclosure were racially differentiated. More specifically, we find that black and Hispanic homeowners had pronounced rates of foreclosure in the years preceding, during, and following the crisis. Our estimates suggest that, on average, over the 2001–2013 period, black owners were twice as likely, and Hispanic owners two-and-a-half times as likely to enter foreclosure compared to white owners. Using descriptive multivariate tools, we assessed whether these differences are attributable to racial differences in sociodemographic, economic, and locational characteristics of households. We find that even in comparison to demographically-similar homeowners, rates of foreclosure for minority owners were more than 50% higher than for white owners. For Hispanics, nearly all of this residual difference is explained by their geographic concentration in Western and Southern states with especially high foreclosure levels. For black owners, however, the high rates of foreclosure persist even after accounting for these locational differences.

Our main analysis demonstrates important neighborhood consequences of foreclosure. Descriptively we find that households tended to move to less-advantaged neighborhoods following foreclosure. For whites, blacks, and Hispanics, their new neighborhoods had much lower concentrations of owner-occupied housing which has implications for local civic engagement and community social capital. Black and Hispanic owners who experienced foreclosure also tended to make residential moves that left them in neighborhoods with higher poverty, and thus greater exposure to the ills of neighborhood disadvantage. On average, the neighborhoods that blacks moved to following a foreclosure had poverty rates that were 2.4 points (~13%) higher than those they left, while the neighborhoods that foreclosed Hispanics moved to were about 4.0 points (~27%) higher. By contrast, whites who moved following foreclosure saw little change in the socioeconomic mix of their neighborhoods, with poverty rates in their destination neighborhoods being statistically indistinguishable from those in their origin neighborhoods.

We also find evidence that is consistent with arguments that the foreclosure crisis bolstered residential segregation (see Hall et al., 2015a). In particular, our results indicate that post-foreclosure migration is associated, on average, with moves toward less white neighborhoods. For white households that experience foreclosure, their new neighborhoods have white shares that are about 3.6 points lower than the neighborhoods where the housing unit in foreclosure was located. These reductions in white shares are offset by modest increases in black and Hispanic shares, suggesting that whites who foreclosed moved to slightly more integrated neighborhoods. Black and Hispanic householders, by contrast, appear much more likely to make racially-segregating moves. More specifically, following foreclosure, black households tend to migrate to neighborhoods that are considerably blacker, and Hispanic households to neighborhoods that are more Hispanic than the ones they exited.

To test whether these changes in neighborhood conditions simply reflect underlying mobility patterns, we compared these changes in neighborhood outcomes to those experienced by other mobile homeowners who did not experience foreclosure. For whites, the tendency to move toward less-white neighborhoods following foreclosure is not explained by socioeconomic differences

³ In the PSID data, only 21.7% of households who experienced foreclosure and subsequently moved were living in owner-occupied homes by the end of the interval. This figure includes foreclosed families living in the homes owned by other people (e.g., living in a parent's house) as well those families who were able to successfully purchase a home following foreclosure.

between households that foreclosed and those that did not. For black homeowners, we could reject the possibility that the (adjusted) increase in neighborhood co-racial shares was indistinguishable from zero. The implication is not necessarily that the foreclosure crisis had limited influence on blacks' neighborhood racial contexts, but that underlying mobility dynamics – regardless of foreclosure – tend to push black movers into blacker neighborhoods and that the foreclosure crisis was consequential simply because it increased the number of moves being made. The results for Hispanics are clearer, with a strong and positive net effect of foreclosure on Hispanic concentrations, indicating that Hispanic foreclosers were especially likely to migrate to more racially-isolating neighborhoods. Overall, results from this analysis suggest that housing foreclosure had the joint effects of shifting whites toward more integrated neighborhoods, while moving blacks and Hispanics to more isolated areas. As a rough approximation of the combined impact of these dynamics on broader processes of segregation, we back out the total effect of foreclosure on neighborhood racial change for each group by taking the product of each group's foreclosure rate, mobility rate, and estimated net change in co-racial shares. Doing so indicates that while foreclosure was associated with an average decrease in whites' racial isolation of about 0.03 percentage points, the corresponding increases in blacks' and Hispanics' isolation (0.04 and 0.09 percentage points, respectively) were larger due not only to the segregating-nature of their post-foreclosure moves but also because foreclosure was much more common among minority homeowners. The implication of these calculations is thus that the post-foreclosure moves led, on balance, to a more residentially segregated landscape that pushed black and Hispanic households into racially isolated (and more disadvantaged) neighborhoods. Whether these households are able to regain not just their financial losses, but also their residential positions, is an important topic of continued observation.

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