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Foreclosures and Neighborhoods: The Shape and Impacts of the U.S. Mortgage Crisis

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Land and the City

Edited by

*George W. McCarthy, Gregory K. Ingram,
and Samuel A. Moody*

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Foreclosures and Neighborhoods: The Shape and Impacts of the U.S. Mortgage Crisis

Dan Immergluck

The U.S. mortgage crisis beginning in 2007 resulted in very high levels of foreclosures in many neighborhoods around the country. In addition to harming individual households, foreclosures had negative spillover effects on nearby properties and households, including lower property values and higher crime rates. To understand the effects of foreclosures on households and neighborhoods, it is important first to understand the demographic and geographic distributions of foreclosures and how they may have changed during the foreclosure crisis, which persisted for more than five years, from 2007 to beyond 2012. Spurred in part by the crisis, dozens of studies have been published on the effects of foreclosures on neighborhoods; somewhat fewer studies have systematically examined the intrametropolitan morphology of the crisis, including how this morphology varied across metropolitan areas and over time. This chapter first reviews the geographic incidence and concentrations of foreclosures, and then reviews evidence of the impacts of foreclosures on households and neighborhoods.

The Racial and Spatial Dynamics of Subprime Lending and Foreclosures

LENDING PATTERNS BY RACE AND SPACE

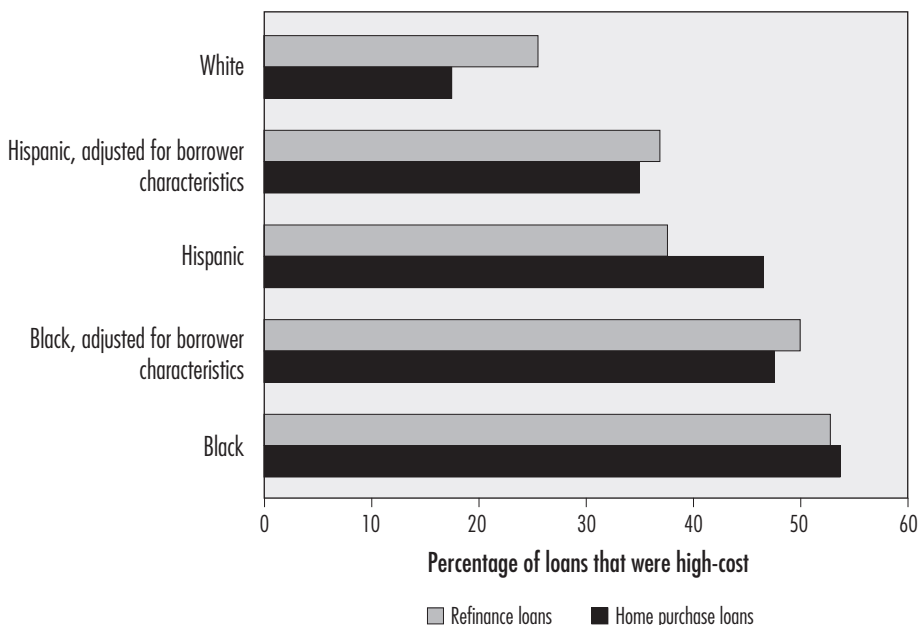
With the rise of the subprime mortgages in the 1990s, the problems of discrimination and redlining in mortgage markets evolved into a new shape and scale. While basic access to institutional mortgage credit remained an issue, the rise of high-risk subprime lenders created wider problems in the pricing and terms of

mortgages. Some of the earliest work documenting the segmentation of the mortgage market across race and space came from Chicago, the birthplace of Community Reinvestment Act activism. This research showed that the number of refinance loans made in predominantly black neighborhoods grew almost thirty-fold from 1993 to 1998, while subprime refinance loans in predominantly white neighborhoods grew by about twofold (Immergluck and Wiles 1999). By 1998, the largest lenders in predominantly black neighborhoods were specialized subprime firms, while the top originators in predominantly white neighborhoods were prime lenders. Shortly thereafter, the U.S. Department of Housing and Urban Development (HUD) analyzed lending patterns in the United States, paying special attention to five large cities, and found that subprime lenders dominated black neighborhoods (U.S. Department of Housing and Urban Development 2000). Later analyses continued to document segmented home loan markets in cities throughout the country, finding that subprime lending was disproportionately concentrated in minority neighborhoods (Bradford 2002; Scheessele 2002). Scheessele (2002) and Immergluck (2004) both found that the racial composition of a neighborhood was strongly associated with the concentration of subprime lending, even after they accounted for other neighborhood housing and economic characteristics.

In the aftermath of the 1990s subprime boom, researchers also found that the race of the borrower had a significant effect on the likelihood of him or her receiving a subprime versus a prime loan, even after they controlled for credit history and other variables. For example, a study of home loans conducted by an affiliate of the Mortgage Bankers Association found that the probability of a borrower receiving a subprime loan increased by approximately one-third when the borrower was black, even when controlling for credit history, location, and other variables (Pennington-Cross, Yezer, and Nichols 2000).

Additional research has documented the relationship between race and subprime lending during the 2000s. Based on calculations of researchers at the Federal Reserve Board, figure 7.1 shows the differences among whites, Hispanics, and blacks in their likelihood of receiving subprime loans in 2006, at the height of the subprime boom (Avery, Brevoort, and Canner 2007). For the United States as a whole, more than 53 percent of black home buyers and more than 52 percent of blacks refinancing their homes received subprime loans. Moreover, black home buyers were three times more likely to receive a subprime loan than white home buyers. Even when researchers adjusted for variations in subprime incidence due to differences in income, loan size, metropolitan statistical area, gender, and the presence of a co-applicant, they found that most of this differential persisted, with the adjusted rate for blacks still being about 2.7 times the rate for whites. Almost half of Hispanic home buyers in 2006 also received subprime loans. While the difference between Hispanics and whites declined somewhat after researchers controlled for these factors, the adjusted differential remained sizable, at approximately 2 to 1.

Figure 7.1
High-Cost (Subprime) Lending Incidence by Race of Borrower, 2006 (%)



Note: Adjusted for income, loan size, presence of co-applicant, metropolitan statistical area, and gender.
 Source: Data from Avery, Brevoort, and Conner (2007).

Similarly, Wyly and Ponder (2011) reported large disparities in the likelihood of different racial and ethnic groups receiving subprime loans. For example, they found that in 2006, single black women were more than four times as likely to receive subprime loans as white couples and more than three times as likely to receive subprime loans as single white women.

Faber (2013) examined home purchase loans that originated nationally in 2006, controlling for borrower income, neighborhood racial and income composition, regional and metropolitan location, and the presence of a co-applicant. He found that blacks and Hispanics were 2.4 times more likely to receive subprime loans than whites. Moreover, Faber determined that higher-income blacks and Hispanics were more likely to receive subprime loans than lower-income minorities, while higher-income whites were less likely to receive subprime loans than lower-income whites. Some of this difference may have been due to higher property values associated with higher-income versus lower-income minority homeowners.

Moreover, higher-income whites may have been better served by prime financial institutions than higher-income minorities, leaving them less vulnerable to aggressive subprime lenders.

The racial patterns of subprime lending were also present at a spatial level, as predominantly minority neighborhoods were much more likely to see high levels of subprime loans than other neighborhoods. Kingsley and Pettit (2009) found that the density of subprime loans at a neighborhood level was highest in black and Hispanic neighborhoods during the subprime boom period, from 2004 to 2006. They also found that the highest subprime densities were in relatively low-poverty, high-minority neighborhoods. This finding might be related to the relatively higher-value housing stock in lower-poverty census tracts.

Mayer and Pence (2008) focused on the spatial distribution of subprime lending in 2005. Using loan data from Loan Performance (now known as CoreLogic), they found that subprime lending in predominantly black and Hispanic zip codes was much higher than in other areas, even after controlling for credit scores and other economic characteristics of the zip codes. Similarly, Calem, Hershaff, and Wachter (2010), analyzing home loans in seven major cities in 1997 and 2002, found that blacks were more likely than whites to receive subprime loans, even after controlling for borrower income and a variety of neighborhood characteristics, including educational level and average credit score.

Gruenstein-Bocian, Ernst, and Li (2008) were among the first to combine publicly available Home Mortgage Disclosure Act (HMDA) data (including data on borrowers' race and income) with private data from a major loan data vendor (including information on loan terms and credit quality). They found that African American home buyers were 31 percent more likely to receive a high-rate fixed-rate mortgage with a prepayment penalty than white borrowers with similar loan and personal characteristics, including similar credit scores.

Gruenstein-Bocian et al. (2011) found that racial disparities in receiving subprime loans during the peak of the subprime boom were actually greater among borrowers with higher credit scores. This was consistent with an earlier, well-publicized analysis by the *Wall Street Journal* suggesting that many subprime borrowers could have qualified for prime loans based on their credit scores (Brooks and Simon 2007). These studies added to concerns that there had been systematic—and perhaps intentional—steering of minorities toward higher-cost and riskier subprime loans.¹ In particular, Apgar, Bendimerad, and Essene (2007) found that the probability of receiving a subprime loan was heavily dependent on the particular lending channel through which the borrower received the loan.

1. Consumer advocates argued that yield-spread premiums, in particular, encouraged mortgage brokers to steer borrowers toward high-cost loans. A disproportionate level of mortgage broker activity in minority communities and/or a higher vulnerability to such steering among minority borrowers could have contributed to the prevalence of minorities who had good credit receiving subprime loans.

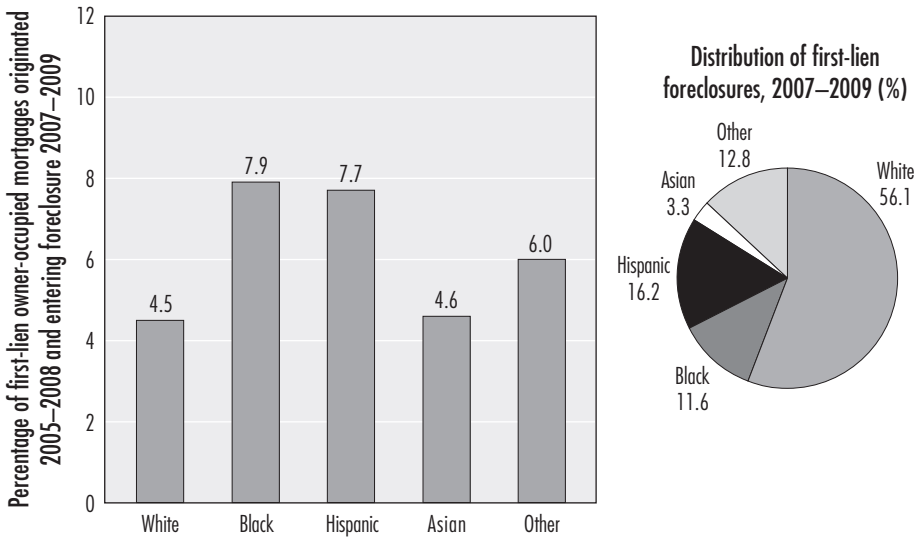
For example, in comparing the customers of a traditional prime lending unit and a specialized subprime lending unit owned by the same financial firm, they found that a borrower receiving a loan through the subprime channel was much more likely to receive a subprime loan (even if he or she could qualify for a prime loan—a loan that the lender could make or could help the borrower obtain) than a similar borrower obtaining a loan via the prime lending channel. The channel that the borrower happens to enter the parent firm through (often due to marketing from one unit or the other) determines the pricing and terms of credit, rather than the qualifications of the borrower.

Researchers at the Federal Reserve Bank of Philadelphia combined HMDA data with information from a national proprietary data set on loan and borrower characteristics for three states (Pennsylvania, New Jersey, and Delaware) from 1999 to 2007 (Smith and Hevener 2014). As in the work of Gruenstein-Bocian and associates (Gruenstein-Bocian, Ernst, and Li 2008; Gruenstein-Bocian et al. 2011), combining HMDA data with loan-level data on borrower credit scores and loan terms provided a rich, multivariate, loan-level analysis. Smith and Hevener (2014) found that blacks had a high probability of receiving subprime versus prime loans during all years studied. They also estimated the difference in the likelihood of whites and blacks receiving subprime loans due to factors other than race, including income, credit score, neighborhood characteristics, and loan characteristics, among others. At most, these factors explained only two-thirds of the higher likelihood of blacks receiving subprime loans in 2005. This left one-third of the difference due solely to race, suggesting the likelihood of discriminatory forces in determining who received subprime loans. Researchers in other locations using data sets containing information on loan terms and credit scores found similar results (Courchane 2007; Reid and Laderman 2009).

FORECLOSURE PATTERNS BY RACE AND SPACE

Minority homeowners were disproportionately impacted by foreclosures, especially in the earlier years of the crisis, when subprime loans accounted for the bulk of the problem. Gruenstein-Bocian, Li, and Ernst (2010) analyzed foreclosures between 2007 and 2009, at the height of the initial, subprime phase of the foreclosure crisis. They estimated that owner-occupied homes accounted for approximately 80 percent of all foreclosures and that black and Hispanic homeowners were disproportionately impacted. Figure 7.2 presents some of the findings from their study. Almost 8 percent of first mortgages to black homeowners that originated between 2005 and 2008—the height of the subprime lending boom—went into foreclosure between 2007 and 2009, compared with only 4.5 percent for whites. That means the black foreclosure rate was 76 percent greater than the white rate. Similarly, the foreclosure rate for Hispanic homeowners was 7.7 percent, or 71 percent greater than the white rate. Even so, because whites accounted for a majority of borrowers during that time, they also accounted for more than half of all foreclosures. Blacks and Hispanics together accounted for about 28 percent of foreclosures, with Asians and other ethnicities accounting

Figure 7.2
Foreclosure Rates for Owner-Occupied Homes by Race and Ethnicity, 2007–2009



Note: Data are for first-lien owner-occupied mortgages originated in 2005–2008 and entering foreclosure in 2007–2009.

Source: Gruenstein-Bocian, Li, and Ernst (2010).

for the remaining portion. Yet while the subprime crisis disproportionately affected black and Hispanic homeowners, it was not confined to people of color, even in the early stages. Later, as foreclosures spread to the prime market and consequently to a broader set of middle-income and majority-white communities, whites accounted for an even larger portion of foreclosures in most regions.

During the foreclosure crisis, media reports fluctuated between describing foreclosures as primarily affecting central city neighborhoods (Whitehouse 2007) and describing them as being concentrated in newer suburban or exurban areas (Farrell 2008). The evidence on the intrametropolitan distribution of the crisis is somewhat more complicated than either of these simplistic narratives would suggest, with many inner-city neighborhoods and many newly developed suburban areas both being hit hard. This dichotomy was driven in large part by the opportunistic nature of the subprime mortgage boom. High-risk credit flowed disproportionately both into vulnerable inner-city neighborhoods, where mortgage brokers aggressively marketed home loans, especially refinance loans, and into newly developing suburban and exurban communities, where home ownership was attainable but perhaps not always sustainable, especially in the event of economic hardships.

Due to differences in the geography of housing, income, and race among metropolitan areas, as well as to differences in the penetration of the subprime lending industry from city to city, the neighborhood distribution of foreclosures varied a good deal across metropolitan areas. Which neighborhoods were hit hardest by the crisis depended on the particular economic and housing geography of the metropolitan area. More specifically, the incidence and concentration of foreclosures depended not only on the spatial determinants of default and foreclosure but also on the geographic distribution of subprime and high-risk loans. Immergluck (2010a) showed that in many older industrial metropolitan areas with traditionally weaker economies and housing markets, such as Detroit and Cleveland (but also some cities with stronger regional economies, including Atlanta and Chicago), subprime delinquencies and foreclosures had been increasing well before 2007. By the first quarter of 2006, subprime delinquency rates had already exceeded 12 percent not only in states with more troubled economies, such as Pennsylvania, Michigan, Ohio, and Indiana, but also in states such as Georgia and Tennessee. Until late 2006, regions with very hot housing markets experienced low delinquency rates, with California, Arizona, and Nevada having subprime delinquency below 6 percent. This was partly due to the fact that borrowers struggling with their mortgages in hot markets could avoid default or foreclosure by quickly refinancing or selling their homes. By the summer of 2007, however, after appreciation had stalled in most places, delinquency and foreclosure rates were accelerating in most large metropolitan areas, with the steepest increases in markets where housing values were also rapidly declining.

As discussed earlier, subprime lending was disproportionately concentrated among minority homeowners, so higher levels of subprime foreclosures could be expected to occur in predominantly minority neighborhoods, which comprise many inner-city communities. At the same time, subprime and high-risk lending also helped fuel rapid growth in newer suburban and exurban communities, especially in parts of the Southwest, California, and Florida (Ong and Pfeiffer 2008; Schafran and Wegman 2012; Schildt et al. 2013). Some media reports and commentary, however, portrayed the crisis as one exclusively centered in a new “slumburb” and ignored the fact that it was also heavily concentrated in many older urban neighborhoods (Leinberger 2008).

One of the few studies of neighborhood-level foreclosure patterns across a wide variety of metropolitan areas examined changes in the prevalence of foreclosed properties at the zip code level in 75 large metropolitan areas (Immergluck 2010b). This study analyzed the share of single-family properties (including townhomes and condominiums) that had been foreclosed on and reposessed by lending institutions, instead of measuring foreclosures by comparing foreclosures with housing units. Many other estimates of foreclosure prevalence have effectively assumed that each housing unit equates to a “mortgageable” property, a grossly inaccurate assumption in neighborhoods with many multifamily rental units.

Based on an earlier study (Immergluck 2010a), U.S. metropolitan statistical areas (MSAs) were classified into three categories of foreclosure activity. Type 1

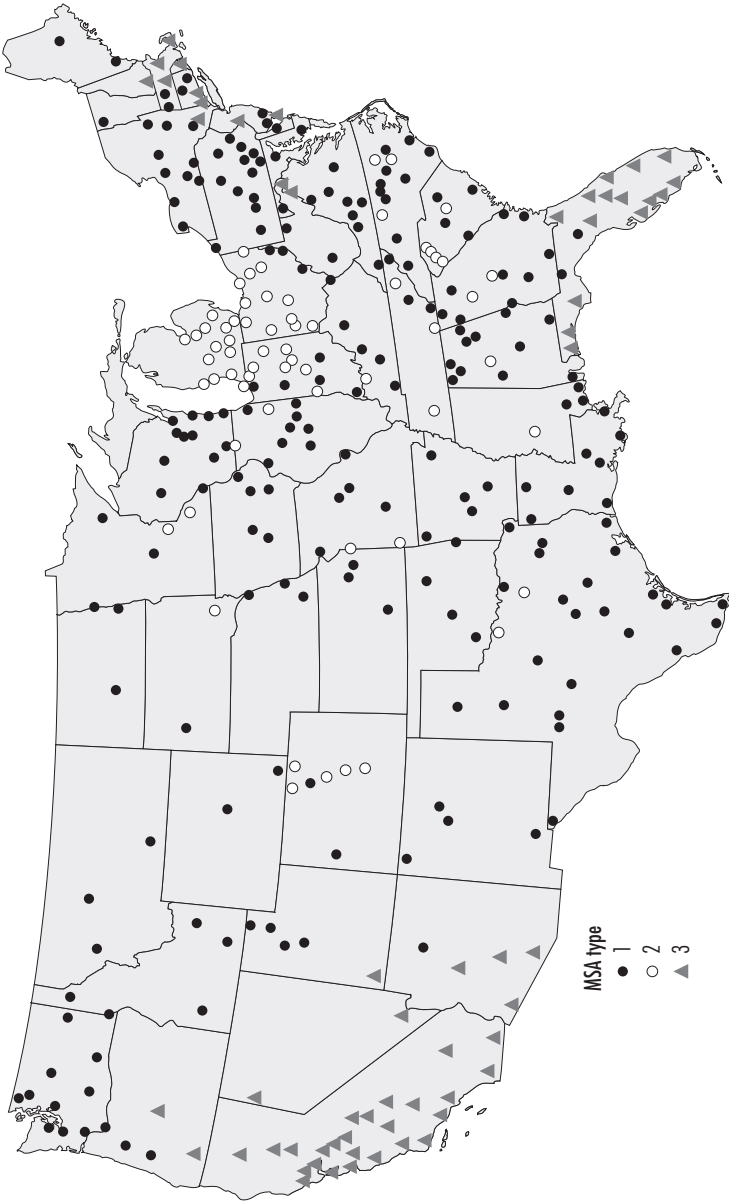
metros were those in which housing prices had remained relatively stable and foreclosure levels had not been large prior to the advent of the crisis in 2007. Type 2 metros were mostly older metropolitan areas where foreclosures had already reached relatively high levels before the crisis. Type 3 metros were the “boom-bust” areas that had very low foreclosure rates before 2007 but began experiencing sharp declines in housing prices after 2006. Figure 7.3 shows the locations of the three types of metros. Type 1 metros were scattered across the country and included most smaller metropolitan areas and many areas in the Great Plains and Rocky Mountain regions, where the crisis tended to be less severe. Type 2 metros included most larger metropolitan areas in the upper Midwest, as well as some (mostly larger) metros in Colorado and the Southeast. Type 3 metros were clustered in California, Florida, and Nevada (including Las Vegas) and Arizona (including Phoenix), as well as along the East Coast.

Regression results showed that from 2006 to 2008, zip codes in MSAs with falling median home values experienced substantial increases in foreclosed properties, even after controlling for a wide variety of other differences in housing market conditions and local foreclosure processes. Greater increases in unemployment also resulted in greater increases in foreclosures.

The prevalence of outstanding subprime mortgages in 2006 was a strong predictor of increases in foreclosure rates. For every 1 percent increase in the share of subprime mortgages, the number of foreclosed properties increased by 4 percent on average over the following two years. The number of junior—or subordinate—mortgages outstanding at the end of 2006 was also positively associated with the growth in the number of foreclosures from 2006 to 2008. Another key finding was that, other things being equal, zip codes with large numbers of recently constructed homes experienced greater increases in foreclosures. This may be due to the fact that large shares of homes in such areas were financed during the peak of the subprime boom. At the same time, zip codes with higher poverty rates experienced more foreclosures. In sum, the findings confirmed that the subprime foreclosure crisis was concentrated both in higher-poverty (often inner-city) neighborhoods and in many newer, sprawling communities.

Further analysis showed that neighborhood-level foreclosure patterns varied across the two types of metropolitan areas that experienced the brunt of the crisis—Type 2 and Type 3 metros. In general, Type 3 metros tended to see more suburbanized foreclosure patterns, especially when central city neighborhoods were relatively affluent, such as in San Diego and San Francisco. In addition, unemployment was a bigger driver of increased foreclosures in Type 2 versus Type 3 cities, which is consistent with the notion that foreclosures in many Type 2 communities may have been driven more by weaknesses in the broader economy than was the case in Type 3 areas, where overheated housing markets fueled by subprime credit were rapidly deflating. Finally, and important, the results showed that neighborhoods with newer housing in Type 3 metros were particularly vulnerable to increased foreclosures, which is consistent with the idea that areas that experienced high levels of subprime lending near the peak of the boom also

Figure 7.3
U.S. Metropolitan Statistical Areas by Foreclosure Market Type



Source: Immergluck (2010a).

experienced particularly high levels of foreclosures. This occurred in Type 2 metros as well, but not to the same degree.

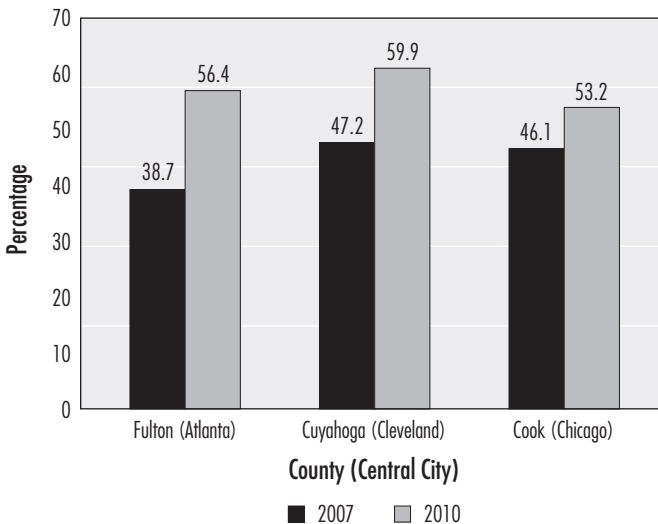
Schildt et al. (2013) examined the extent of the foreclosure crisis in suburban areas of the 100 largest U.S. metros. Their findings were generally consistent with those of Immergluck (2010b): suburban mortgage distress was highest in boom-bust metros, especially in inland California and Florida, while suburban areas in older industrial cities were not hit as hard. This reflects the distribution of subprime lending in 2004–2008, as these loans were also likely to be more available in suburban and exurban areas of boom-bust metros.

THE SUBURBANIZATION OF THE FORECLOSURE CRISIS OVER TIME

As the subprime foreclosure crisis triggered the Great Recession, and as the mortgage and housing markets became weaker, many homeowners with well-priced, well-structured prime home loans began to find themselves in mortgage distress. Many lost their jobs due to the recession, especially those working in industries and regions that were vulnerable to the crash of the real estate market and, later, the broader economy. By 2010, with housing prices having declined significantly in most major metropolitan areas and many homeowners' equity having been eroded by mounting declines in home values, millions of prime borrowers found

Figure 7.4

The Suburban Share of Foreclosure Filings for Three Major Metropolitan Counties, 2007 and 2010



Sources: Hexter and Schnoke (2011); Woodstock Institute (2008, 2011); author's calculations based on Fulton County foreclosure notices.

themselves underwater on their mortgages (that is, their homes were worth less than they owed on their mortgages). As a result, any substantial economic shock, such as a job loss or health issue, could lead to foreclosure. In the meantime, an increasing share of subprime borrowers had already lost their homes, so that the share of foreclosures associated with subprime loans began to decrease over time.

Figure 7.4 demonstrates that in three major urban counties—Fulton (Atlanta), Cuyahoga (Cleveland), and Cook (Chicago)—the number of foreclosure filings (or notices) that occurred in the suburban parts of the counties grew significantly over a relatively short period of time, from 2007 to 2010. The suburban share grew the most, from 39 percent to just over 56 percent, in Fulton County, where there are many working-class suburbs to the south of Atlanta. Over the same period, the suburban share grew from 47 percent to 60 percent in Cuyahoga County and from 46 percent to 53 percent in Cook County.

The Impacts and Costs of Foreclosure and the Foreclosure Crisis

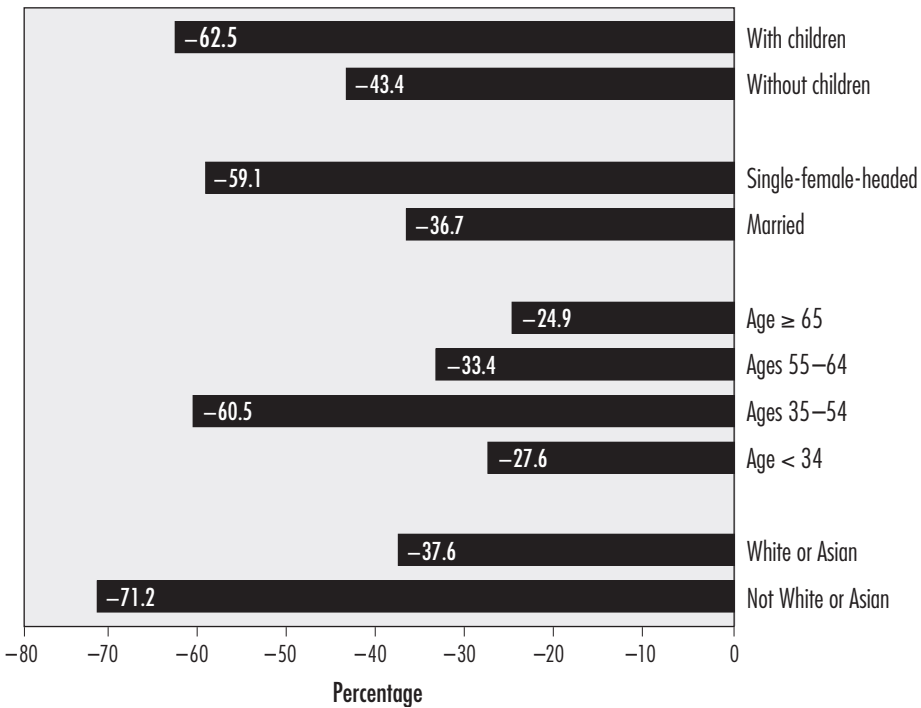
The mortgage crisis brought financial pain to millions of American households. It uprooted families from neighborhoods and social networks, forced kids to change schools in the middle of the year, and created strains on mental and physical health, which in some cases triggered additional financial hardships. The costs of the crisis went well beyond impacts on borrowers, significantly affecting local property values and causing vacancy and blight, as well as the crime that often follows. As property values deteriorated, neighbors saw the equity in their homes decline, which made them more susceptible to foreclosure, as homes became harder to sell or refinance. This section describes the literature on the harms that arose due to mortgage distress and foreclosure. Not addressed are the wider macroeconomic effects of the foreclosure crisis, which catalyzed the Great Recession and the global financial crisis.

DIRECT HARMS TO FORECLOSED HOUSEHOLDS

Foreclosure has direct effects on households and individuals. Perhaps most obvious is the loss of the home itself and the need to relocate, often quickly and under far-from-optimal conditions. Of course, beyond this is the potential loss of wealth if the family had built up significant equity in the home. As suggested earlier in this chapter, the foreclosure crisis especially spurred losses in home equity and decreased home ownership rates among people and communities of color.

Figure 7.5 shows that the net worth of households declined substantially from 2007 to 2011 and that the loss of wealth varied significantly across demographic groups. This was due to variations in decreases in home values and to the fact that the stock market, which generally constitutes a larger share of the household wealth of higher-income, older, and nonminority households, recovered significantly from 2008 to 2011, while home values in many places did not.

Figure 7.5
Changes in Real Net Worth by Demographic Group, 2007–2011 (%)



Source: Based on estimates in Pfeiffer, Danziger, and Schoeni (2013).

As figure 7.5 indicates, whereas white and Asian households lost 38 percent of their net worth from 2007 to 2011, households that were not white or Asian lost 71 percent of their net worth. This difference reflects the disproportionate concentration of subprime loans among black and Hispanic homeowners. Households in the 35- to 54-year-old range also lost far greater shares of their wealth than older households—61 percent of their net worth compared with 25 percent for those age 65 or older. Some of this difference is likely due to the geography and timing of home buying among the younger age group, especially those purchasing homes in boom-bust areas, where values were temporarily boosted by the surge in subprime and high-risk lending.

The foreclosure crisis forced many families out of home ownership and into the rental market. Certainly, home ownership is not the best form of tenure for all families at all times. However, in many places in the United States and especially for families with children, home ownership—if responsibly financed—can bring

significant benefits compared with renting. It can provide a sense of stability and control, allowing for predictable and relatively fixed housing costs (especially assuming access to a long-term, fixed-rate mortgage), and it can give families more neighborhood options, including those with strong schools. Moreover, rapid declines in home ownership rates could have negative impacts on neighborhoods in which it may have helped provide more stability to the area.

While home ownership rates overall declined somewhat moderately from its peak in late 2004 and early 2005, the decline among certain demographic groups was significantly greater. From 2005 to 2012, the home ownership rate for blacks declined more than 5.5 percentage points, whereas it dropped only 2.5 percentage points for whites (Joint Center for Housing Studies 2013). Consistent with the loss-of-wealth figures cited earlier, the home ownership rate of households ages 25–44 fell almost 8.5 percentage points, while it stayed essentially flat for those age 65 and older. Finally, as with the wealth figures, families with children were hit particularly hard: married couples with children saw home ownership decline 7 percentage points, compared with married couples without children, who saw a decline of less than 2 percentage points.

Foreclosure has a direct impact on creditworthiness. Brevoort and Cooper (2010) found that the credit scores of prime and near-prime borrowers who had gone through foreclosure during the early years of the crisis dropped by 170–200 points compared with their predelinquency scores. They moved rapidly into becoming subprime borrowers. Moreover, it generally takes many years for credit scores to rebound. Even seven years after a foreclosure, scores tend to remain 50–75 points below where they were before foreclosure, despite the fact that the foreclosure can no longer be considered in calculating scores.

Lower credit scores have critical implications in an age when they are used by employers in evaluating job applicants, landlords in assessing potential tenants, and insurance companies in underwriting and pricing automobile insurance. According to the Fair Credit Reporting Act (FCRA), any firm that delivers a good or service prior to receiving payment is effectively acting as a creditor and is allowed access to credit reports and scores. Utilities providing electricity, water, gas, phone, or cable TV often use credit bureau data. As early as 2002, TransUnion, one of the three large credit bureaus, reported that banks and credit unions had been overtaken as the largest users of credit data in the Philadelphia region by nonbank entities such as hospitals, telecommunication firms, and utilities (Furletti 2002).

A substantial drop in credit scores, such as that caused by a foreclosure, has the potential to create a web of barriers to employment, quality housing, and basic goods and services. For example, the bulk of auto insurers use credit scores in underwriting and pricing new policies, although some states prohibit this practice (Hartwig and Wilkinson 2003). In many lower-income neighborhoods, auto insurance rates are already high, so a lower credit score may make use of an automobile prohibitively expensive, which in turn could limit employment opportunities. As landlords have increasingly relied on credit scores, postforeclosure

households needing rental housing may have been excluded from the full array of housing choices. Given the scarcity of affordable, decent rental housing in many metropolitan areas, this could make quality housing even more difficult to obtain. Compounding the damage of a lower credit score is the fact that employers have increasingly turned to credit data in screening job applicants. In a survey of more than 500 human resource managers, the Society for Human Resource Management (2012) found that 47 percent of employers used credit background checks in making hiring decisions.

Beyond direct financial and economic harm, the foreclosure crisis forced some children to change schools. Especially when this happens in the middle of the school year, it can stunt academic achievement, an effect that can last for years. In a study of Minneapolis during 2006–2007, Allen (2013) found that more than 90 percent of households moved after a foreclosure, with most changing neighborhoods and almost a third leaving the Minneapolis Public Schools district entirely. In a similar study of students in New York City, Been et al. (2011) found that students living in properties that went through a foreclosure were likely to move to a different, lower-performing school. And in a study of the San Diego school system during 2001–2010, Dastrup and Betts (2012) found that the math test scores and attendance rates of children in owner-occupied homes declined in the year following a mortgage default and that these effects persisted after they controlled for a wide variety of student and school characteristics.

While direct evidence on the effects of foreclosure on children continues to emerge, there is already a large body of literature on the effects of residential instability that can help us understand the costs that foreclosure imposes on families. Sandstrum and Huerta (2013) reviewed much of the literature and found that “the experience of abrupt or frequent residential moves is stressful for children since it requires them to detach themselves from what they know and adapt to new surroundings” (29). They documented the considerable evidence that chaotic environments can have negative effects on children, including their scholastic outcomes. One longitudinal study of children from birth through age nine, which controlled for a large number of demographic characteristics, found that moving two or more times during the first two years of life increased the incidence of problems such as anxiety, sadness, and withdrawal at age nine (Rumbold et al. 2012). Another study found that moving before age four led to increased problem behaviors at that age, even after controlling for child and family characteristics (Taylor and Edwards 2012).

In a longitudinal study of almost 5,000 children born in 20 large cities between 1998 and 2000, Ziol-Guest and McKenna (2013) found that children who moved three or more times in the first five years of life had greater attention problems than those who did not move; this difference remained significant after they controlled for a large number of demographic and household characteristics. High levels of mobility also resulted in negative behavioral problems, and the magnitude of the effect was larger than that for any other independent variable, including race, ethnicity, parental education, and family structure, among others.

In particular, residential instability has been shown to affect school performance adversely. Taylor and Edwards (2012) found that five-year-olds who had moved five or more times since birth had vocabulary scores 41 percent of a standard deviation below average. Other studies have demonstrated that residential instability tends to result in lower grades, lower high school graduation rates, and lower adult educational attainment (Adams and Chase-Lansdale 2002; Coulton, Theodos, and Turner 2009; Sell et al. 2010; Ziol-Guest and Kalil 2013).

Studies in two different cities (Chicago and Baltimore) found similar effects of school transfers on academic achievement (Alexander, Entwisle, and Dauber 1996; Temple and Reynolds 1999). For each school transfer, achievement scores declined by approximately one month of school, even after the researchers controlled for other factors. In a meta-analysis of the literature, Reynolds, Chen, and Herbers (2009), controlling for demographic and family characteristics, found that school mobility reduced reading and math achievement, as well as high school dropout rates. They also found that the negative effects of mobility increased with each additional move, with effects during the early elementary and high school years having the largest negative impacts on learning outcomes.

In some of the earliest research on the relationship between foreclosure and health, Fields et al. (2007) studied 88 families going through foreclosure in five cities around the country. They found that those families incurred a wide range of attendant hardships and emotional difficulties, including harm to children's physical and mental health and trouble with their finances and credit histories. Many respondents felt shame, which sometimes discouraged them from seeking support services or even assistance from friends and family. According to Fields et al. (2007), foreclosure harmed family stability and made it difficult for families to make long-term plans. In some cases, foreclosure represented a "cascading series of economic and emotional losses that interfere with people's day-to-day lives." Many respondents took on additional employment to try to resolve delinquencies. More broadly, foreclosure sometimes led to increases in "fear, tension, and stress" among family members.

Foreclosure has been found to be closely associated with poor health among all family members. Because foreclosure can be both the result of poor health (and its associated expenses and loss of employment) and a potential cause, it is often difficult to determine the causal role it might play. A study in Philadelphia found that clients of a mortgage counseling agency who were undergoing foreclosure had high rates of depression, hypertension, and heart disease (Pollack and Lynch 2009). Overall, almost 37 percent of these clients suffered from major depression. In a study of hospital visits and foreclosures in four states, Currie and Tekin (2011) found that a spike in neighborhood foreclosures was associated with significant increases in unscheduled hospital visits, even after controlling for changes in unemployment, housing prices, migration, and other factors.

Longitudinal data allow for more precise measurement of the causal effects of foreclosure on physical and mental health. Alley et al. (2011) examined the results of a national longitudinal survey of adults over age 50 during the 2006–2008

period. Even after controlling for a wide variety of demographic, financial, and health variables, they found that mortgage delinquency was a strong predictor of negative changes in physical and mental health. Delinquent borrowers were almost eight times as likely to develop elevated depression compared with non-delinquent borrowers. They were also almost eight times as likely to develop food insecurity and almost nine times as likely to develop cost-related medication nonadherence.

Foreclosure and residential instability may be particularly hard on the elderly or near-elderly. The elderly can be especially adversely affected by forced relocations (Danermark and Ekstrom 1990; Smith and Ferryman 2006). Seniors may be particularly dependent on social networks and relationships for their day-to-day living circumstances and may be emotionally and psychologically less resilient to involuntary stressors and changes.

COSTS TO NEIGHBORHOODS AND COMMUNITIES

Foreclosures can impose economic and social costs on surrounding neighborhoods and larger communities. Because housing is such a large part of the economy, home values have a direct effect on household wealth and expenditures, and mortgage market problems can—especially in less regulated environments—spread rapidly to broader credit and capital markets. High levels of foreclosures across the country can also trigger major problems in national and international financial and employment markets (Levitin and Wachter 2013). The focus here, however, is on neighborhood and local effects.

Foreclosure might lower not only the value of the foreclosed home but also the value of nearby homes, which in turn can result in lower property tax collections and attendant fiscal stress. The mechanisms through which this can happen have generally been disaggregated into three types. First, foreclosures represent an increase in housing supply, and especially if they increase quickly, they can effectively create a “supply shock” in a neighborhood housing submarket, putting downward pressure on prices.

Second, the discounted prices at which foreclosed homes tend to sell may change the nature of comparable sales used by home buyers and appraisers to determine the value of available homes. If foreclosures become a sizable share of home sales, as they often did in hard-hit neighborhoods during the foreclosure crisis, and there are few traditional “arms-length” sales in an area not involving banks or servicers, appraisers may be effectively forced to consider real estate owned (REO) sales in the appraisal process (especially if the most comparable sales available over the past few months were those of foreclosed properties). In many distressed neighborhoods during the peak of the crisis, there were few comparable sales that did not involve at least one foreclosed property.

Finally, foreclosed homes are often vacant and may be dilapidated. Both vacancy and dilapidation can act as disamenities that deter buyers (Hartley 2011). Especially during times when home buyer demand is already weak, having one or two (or more) vacant, and sometimes boarded-up, properties on a block may

discourage the scarce buyers active in a market from purchasing in that neighborhood. Research has shown that foreclosed homes tend to be in worse condition than owner-occupied properties. In a study of property complaints in the city of Boston from 2008 to 2012, Lambie-Hanson (2013) found that the typical single-family property was more than nine times as likely to receive a complaint from the public while in bank ownership (after foreclosure) as when the previous owner was current on his or her mortgage. Moreover, merely the presence of a vacant home nearby can increase owners' (and potential buyers') uncertainty about the trajectory of home values on the block.

In comments on an earlier version of this chapter, Jim Follain (2014) wisely pointed out a fourth mechanism for the effect on nearby homes that has received less attention in the literature. If higher foreclosure rates in a neighborhood trigger high-risk premiums among mortgage lenders, these higher premiums might lower the price buyers are willing or able to pay for homes in the area. Of course, this mechanism depends on the extent of pricing differentials triggered by perceived risks due to foreclosures. In lending environments in which risk-based pricing is more common, more severe, and more geographically specific, the proximate impacts of foreclosures on nondistressed home values would be expected to be greater.

The disamenity mechanism has been the most widely suggested of the mechanisms outlined here. Foreclosures that lead to vacant properties may become havens for criminal activity, which in turn can depress property values even more. As values decline in a neighborhood, more and more homeowners become underwater, making it difficult or impossible to sell their properties and forcing more homeowners into foreclosure, thus creating a vicious cycle of foreclosures and declines in value. Foreclosures can also spur rapid neighborhood change by forcing out longtime residents and in some cases allowing irresponsible investors or speculators to move in.

Immergluck and Smith (2006a) were the first to measure the impact of foreclosures on nearby property values. Using hedonic regression and data from Chicago in the late 1990s, they found that foreclosures were associated with lower property values of nearby homes, even after controlling for a wide variety of other demographic and property characteristics, including home values in the larger surrounding neighborhood. Each additional foreclosure within an eighth of a mile of a property was associated with a decline in value of 1–1.5 percent. This study was widely cited in efforts to develop policies to respond to the foreclosure crisis and demonstrates the spillover effects of foreclosures on neighbors.

In the wake of the crisis, many researchers expanded on the methods and data of this study to examine foreclosure's effects on nearby property values, especially beginning in the mid-2000s. For example, Hartley (2011) examined foreclosures in Chicago over a longer period, from 1999 to 2008, and found that in high-vacancy census tracts, the effect of a foreclosure on property values within 250 feet was approximately –2 percent, while the effect in low-vacancy tracts was smaller. These findings were roughly consistent with those of Immergluck and Smith (2006a).

In another study, based on data from 1987 to 2008 in the state of Massachusetts, Campbell, Giglio, and Pathak (2011) found that a foreclosure within 0.05 mile lowered the price of a house by approximately 1 percent. Mikelbank (2008) found negative effects of foreclosures on housing values in his analysis of 2006 sales in Columbus, Ohio, but he also found that vacant homes had an even stronger negative effect on prices than nonvacant foreclosures. Harding, Rosenblatt, and Yao (2009) analyzed foreclosures and property sales in seven metropolitan areas from 1989 to 2007 using a repeat sales analysis, which controls for neighborhood conditions. They found that each foreclosure within 300 feet of a property had a -1 percent effect on the property's value and that the effect reached its peak at the time of the foreclosure sale.

In New York City, using data from 2000 to 2005, Schuetz, Been, and Ellen (2008) found that the effect of foreclosures on home prices was nonlinear, meaning that there was little or no effect until a certain threshold number of foreclosures was reached, after which the effect became more sizable. This finding suggests a sort of quadratic relationship between foreclosures and values, where additional foreclosures result in increasingly large (in magnitude) negative spillovers. (It should be noted that there was not really a foreclosure crisis in New York City during this period.)

Some studies, including Daneshvary, Clauretje, and Kader (2011), have found nonlinearities in the other direction, meaning that saturation is reached at some point, after which additional foreclosures appear to have little impact on the magnitude of the (negative) spillover. More particularly, in that study, which looked at data from 2008 and 2009 in Las Vegas, the authors found that the first couple of foreclosures within one-half mile of a property had no impact on its value. After that, the effect increased, up to about 20 foreclosures, after which it stayed relatively flat or even declined slightly. The authors identified a linear rate of increase up to a cumulative effect of about an 8 percent negative spillover (within three months of the foreclosure). After 20 foreclosures, a saturation point was reached.

Other researchers also have identified saturation points. For example, in a study of home sales in the Nashville area from 2001 to 2012, Huang et al. (2014) found steep reductions in values as neighborhood foreclosure rates increased. Such increases reached an inflection point as the foreclosure rate reached 1 percent, at which the cumulative negative spillover effect reached a maximum magnitude of approximately \$12,000. It may be that the study by Schuetz, Been, and Ellen (2008) did not detect a saturation point because foreclosures did not reach high levels in the city during the study period, which predated the peak of the foreclosure problem there.

An exhaustive catalog of the dozens of studies measuring the effects of foreclosures on home values is beyond the scope of this chapter. Moreover, any effort to definitively summarize the magnitude of these effects would be extremely difficult because the studies varied widely across a number of parameters, such as those outlined in the following list.

1. The locations and conditions of the housing markets varied greatly. Variations in housing markets would be expected to affect the severity of foreclosure effects on values. Most of the studies, due largely to data availability, focused on just one city or metropolitan area. Some studies attempted to analyze data in several metropolitan areas, but this was further complicated by varying legal definitions of foreclosure from state to state and even sometimes across county or local boundaries.

2. The morphology and density of the cities studied varied greatly. For example, Chicago is four times as dense as Atlanta (with *density* defined as housing units per acre). A buffer of a half mile around a house in Chicago, therefore, would be likely to capture many more adjacent homes, and potential foreclosures, as the same buffer would in Atlanta.

3. Foreclosure can mean many things, and the detectable events involved in the default and foreclosure process depend on state legal prescriptions and how data are reported or collected. In some states, formal foreclosure filings are required at the beginning of the process, while in other states a simple newspaper notice suffices. Some of the studies focused on foreclosure notices or filings, while others examined properties sold at foreclosure auctions or those either entering or already in REO status. Some studies attempted to disentangle the effects of different stages of the foreclosure process, and some even attempted to measure the effects of foreclosure alternatives, especially short sales.

4. The studies used different geographic buffers in calculating the incidence of nearby foreclosure activity. Most of them employed simple circular radial buffers, but some used other techniques, including the face-block concept, which essentially means examining the effects of foreclosures on the same street or across the street, but not on nearby streets.

5. Some studies measured both distance- and time-based decays in effects, and the trigger points for measuring time decays varied.

6. Some studies measured nonlinearities in the cumulative effects of multiple foreclosures, while others did not.

7. The studies used different models, econometric techniques, and sources of data. Among the models used were standard hedonic ordinary least squares, repeat-sales, and panel models. Some of the studies controlled for spatial autocorrelation, and others did not. Data sources varied, including local public records, Multiple Listing Service (MLS) data, and vendor-provided data, which might in turn be based on public records, loan servicing data, or other sources. Although research in mortgage and housing markets increasingly has relied on vendor-provided data, the quality of such data is largely unexplored.

Despite the heterogeneity of the data and methods, the literature as a whole is remarkably consistent in one finding: foreclosures have a statistically significant and economically meaningful negative effect on nearby property values. In his review of an early subset of the literature, Frame (2010) concluded that foreclosures do indeed have a negative impact on nearby property values, with the effect declining over time and space.

The magnitude of all these effects varies widely, as do the metrics used in the studies. Moreover, it is very difficult to tell whether this variation is due to measuring effects—in different cities, at different points in time (e.g., before or after 2007–2008), at different points in the foreclosure process, or using fundamentally different econometric specifications or techniques—or to some other difference among the studies.

A closely related set of studies have focused on the issue of *foreclosure contagion*—that is, do more foreclosures in an area, independent of other housing market forces, lead homeowners in that area or in nearby areas to default and/or enter foreclosure? If foreclosures lead to lower nearby home values, one might expect the answer to be yes, especially since declining home values can make households more vulnerable to foreclosure (if they encounter financial hardships, they will find it more difficult to sell or refinance their homes). While fewer studies have addressed this issue than the price impact issue, those that have done so have generally found evidence of foreclosure contagion.

Munroe and Wilse-Samson (2013) examined Chicago real estate records for 2002–2011 and found that a completed foreclosure, compared with the dismissal of a foreclosure case, raised the probability of a new foreclosure filing within 0.1 mile by 10 percent per year. This amounted to about 0.5 new filings per year. Moreover, they found that this effect lasted three to four years. They also found that contagion led to more completed foreclosures in nearby areas. Li (2013) used MLS data from 2005–2009 for the city of Milwaukee and found that, other things being equal, nearby foreclosure activity positively affected the probability that a homeowner would enter foreclosure. Moreover, Li showed that the magnitude of this contagion declined over time and distance. For example, a foreclosure occurring within the previous three to six months and within 200 meters of a house increased the probability of foreclosure on that house by just over 3 percent. However, a foreclosure farther away—between 500 and 1,000 meters—increased this probability by only 1 percent. If the foreclosure had occurred a year or two before, the effect on the probability of foreclosure was even smaller. Thus, a declining effect over time and space was detected.

Goodstein et al. (2011) analyzed nationwide data from the mortgage data provider Lender Processing Services and found that the likelihood of a mortgage default increased by 0.03 percent in response to a 1 percent increase in the foreclosure rate in zip codes within five miles. This result is not trivial. A one standard deviation increase in the foreclosure rate of the surrounding area would increase the likelihood of mortgage default by as much as 24 percent. The authors controlled for county-level demographic changes and zip-code-level changes in home prices.

FORECLOSURE AND CRIME

Research has found a connection between foreclosure and crime. Homes left vacant for protracted periods can become sites of criminal activity. The earliest study

on the link between foreclosure and crime was done in Chicago in 1999–2001. The study found that higher foreclosure levels in Chicago neighborhoods were associated with higher levels of violent crime, even after controlling for a large number of other neighborhood characteristics (Immergluck and Smith 2006b). A number of other studies have reported consistent results. Stucky, Ottensmann, and Payton (2012) observed that foreclosures in Indianapolis during the middle-to-late 2000s were associated with an increase in neighborhood crime rates (both property crimes and violent crimes). Teasdale, Clark, and Hinkle (2012) found similar results in Akron.

In general, studies using fine-grained data at the neighborhood scale—many with better data sets and more sophisticated methods than the earliest studies—have found that foreclosure leads to increased crime, although some of these findings vary in their details. In a study of New York City between 2004 and 2008, Ellen, Lacoé, and Sharygin (2013) concluded that foreclosures on a particular block led to more total crimes on that block, with the largest increase being in violent crimes. Cui (2010) analyzed crime and foreclosure data in Pittsburgh and found that violent crimes within 250 feet of a foreclosed home increased by more than 15 percent once the home became vacant; similar increases in property crimes occurred. Cui also found that longer versus shorter vacancy periods had larger effects on crime. Williams, Galster, and Verma (2014) used data from Chicago for the years 1998–2009 to disentangle the potential reverse causality between foreclosure and crime. They found that property crime chronologically lags completed foreclosures and not vice versa, adding support to the notion that foreclosure causes crime and is not simply correlated with it for other reasons. Some studies have not attempted to estimate the specific effect of foreclosure on crime but have found an effect of vacancy on crime, and some vacancies are likely associated with foreclosures. Branäs, Rubin, and Guo (2012), for example, found that vacant property was among the strongest predictors of assault when tested along with a dozen demographic and socioeconomic variables.

Other studies have attempted to measure the effect of foreclosure on crime at somewhat larger geographic levels, such as counties. However, these studies have often suffered from the fact that crime varies tremendously at very small geographic levels, much of which will not be picked up at the larger geographic scale. Some of them have also faced challenges in developing accurate and unbiased measures of foreclosure rates across different geographies and jurisdictions.²

2. An example is Arnio, Baumer, and Wolff (2012), who used counties as the geographic unit of analysis and employed a foreclosure rate in which the denominator was the number of housing units in the county. The denominator is problematic because it can severely overestimate the number of one- to four-unit properties on which there could be a mortgage in counties where there are many multifamily rental housing units. This problem creates a systematic bias in the measure of foreclosure rates across and within different metropolitan areas.

FORECLOSURE AND FISCAL STRESS

Foreclosures and associated vacancies may entail a variety of fiscal costs to local governments. These include the following:

- Increased policing due to vandalism and other crimes.
- An increased burden on the fire department due to arson.
- Costs of boarding up and demolishing buildings.
- Costs of removing trash and mowing lawns.
- Costs of managing the foreclosure process, including record keeping and legal expenses.
- Lost property tax revenue if the building owner stops paying taxes.
- Lost property tax revenue due to declining values of nearby properties.
- Lost economic development benefits due to decreased desirability of the community for commercial/industrial development.

In a study of Chicago before the mortgage crisis of the early 2000s, Apgar and Duda (2005) found that direct costs to city government sometimes exceeded \$30,000 per foreclosure. More recent anecdotal evidence supports the high costs of foreclosure and related vacancy. Chicago officials estimated that it cost almost \$900,000 to board up and secure just over 600 properties (U.S. Government Accountability Office 2011). Meanwhile, a study of Baltimore estimated that each vacant property increased annual police and fire expenditures by almost \$1,500 (Winthrop and Herr 2009).

On the revenue side, the fall in housing prices, often spurred or accelerated by foreclosures, led to a decline in property tax revenues in many cities during the late 2000s. Chernick, Langley, and Reschovsky (2011) concluded that in cities hit hard by the foreclosure crisis, lower property values would lead to major declines in property tax revenues. In Las Vegas, for example, they estimated a 22 percent drop in revenues, while in Modesto and Stockton, California, their estimates were in the range of 24–25 percent.

Conclusions

The research detailed in this chapter focused on the relatively near-term impacts of foreclosure on households and neighborhoods. The literature generally shows that foreclosure resulted in negative, nontrivial effects on household financial conditions, health, and schooling, among other important variables. The research on foreclosure contagion and the effects of foreclosure on nearby property values was unequivocal in that almost all the studies found nontrivial negative impacts resulting from foreclosure. The robustness of the methods and the geographic diversity of the studies suggest that these effects were usually economically substantial. However, the heterogeneity in the data, methods, and geographic locations employed makes it very difficult to develop any sort of statistics that would accurately capture any central tendency of the magnitude of these effects. In terms

of the effects of foreclosure on crime, the stronger studies that used sound measures of foreclosure activity at small geographic levels tended to find material impacts of foreclosure on crime, or in some cases regression-adjusted associations. However, this research was not quite as large or robust as the property value literature.

This chapter did not explore research that has examined the longer-term effects or trajectories of foreclosure, including the purchase of properties by investors, the conversion of properties from owner-occupied to rental uses, or the redevelopment of properties using subsidies such as the federal Neighborhood Stabilization Program. Examples of this research include Immergluck and Law (2013) and Pfeiffer and Molina (2013). Another related area of inquiry that has received little attention is the longer-term impacts of the foreclosure crisis on housing tenure in areas where investors may have converted many owner-occupied homes to rental properties. To the extent that some neighborhoods may have seen rapid declines in owner occupancy rates, especially in areas that had relatively high home ownership rates before the crisis, the effects of the crisis could be significant. Moreover, the receptiveness of such neighborhoods to the conversion of owner-occupied single-family homes to rental properties—including the potential fair housing implications—deserves more scrutiny.

In terms of policy implications, some lessons are generally clear. Foreclosure imposes sizable negative costs on individuals, families, and neighborhoods. Many of these costs affect those not involved in the mortgage transaction. When attempting to reform mortgage markets and adopt new regulations, policy makers must consider the damage done by reckless or overly aggressive mortgage lending practices. Many of the policy initiatives thus far have been federally regulated and focused on protecting consumers. These are worthy efforts, but the spatial implications of concentrated risky lending and the associated foreclosures suggest that local and state governments have a stake in this reform effort, too. Fortunately, the Dodd-Frank Act of 2010, by limiting the preemption of state mortgage regulations, allows states to retain the ability to regulate markets if they view federal efforts as insufficient. Given the costs to localities and neighborhoods reported here, this is appropriate.

In addition, federal efforts to reform mortgage markets that relied too heavily on privatization may result in new boom-bust markets and more risk-based pricing—possibly at the neighborhood level. Replacing the cross-subsidization that occurred in the traditional government-sponsored secondary markets with much higher levels of risk-based pricing and a resurgence of high-risk lenders may amplify the tendency toward neighborhood-level housing market volatility and exacerbate the spillover effects of default and foreclosure. Under such a system, as foreclosures increased and values fell, lenders would be likely to charge substantially higher rates in the most heavily impacted neighborhoods, fostering another downward spiral. A more uniform and less segmented mortgage market, with less severe risk-based pricing, should dampen the effects of mortgage distress in neighborhoods experiencing foreclosures, mitigating against vicious cycles. In

addition to encouraging cross-subsidization and broader, less specialized secondary markets, federal (and state) agencies should aggressively enforce the Fair Housing Act to minimize excessive mortgage pricing disparities, which could exacerbate spatial contagion of housing market problems and negative spillovers into the mortgage and housing markets.

State and local governments also have a role to play. They need the tools to intervene in property markets at the earliest signs of mortgage and housing distress, both to stem the tide of foreclosures and to mitigate against the blight and vacancy that can accompany them. These tools might include the ability to assemble and redevelop or demolish distressed properties that harm nearby homes and entire neighborhoods.³ It is much more difficult to address these sorts of problems after they have reached crisis proportions, as they did in many neighborhoods in 2008 and 2009.

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3. See Immergluck (2013) for a discussion of how federal policies to mitigate the local impacts of the foreclosure crisis fell short and some recommendations for improving the resilience of local government responses to increases in foreclosures.

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