2013 Update: The Spillover Effects of Foreclosures

Research Analysis *August 19, 2013*

Between 2007 and 2012, over 12.5 million homes have gone into foreclosure.[i] These foreclosures directly harm the families that experience them, obviously, and they also have negative effects that extend to the neighborhood, community and wider economy. There are myriad costs of foreclosures, but in this report we focus on one: the economic impact on neighboring homeowners who lose home equity as a result of reduced property values.

This brief is the fifth in a series, updating our last report that was issued last year. Our key findings:

- **About $2.2 trillion in property value has been lost or will be lost by residents who live in close proximity to properties that have already started the foreclosure process.** We estimate that over 95 million households have lost home equity as a result of neighbors' foreclosures.
- **As we found last year, over one-half of the spillover loss is associated with communities of color.**[ii] Minority neighborhoods have lost or will lose $1.1 trillion in home equity as a result of spillover from homes that have started the foreclosure process, reflecting the high concentrations of foreclosures in neighborhoods of color. [iii]
- **On average, families affected by nearby foreclosures have already lost or will lose $23,150 in household wealth, representing 8.8 percent of their home value**. The future losses are projected based on foreclosures that have already begun**.** Families impacted in minority neighborhoods have lost or will lose, on average, $40,297 or 16 percent of their home value.

Importantly, these losses represent only the wealth that has been lost or will be lost as a direct result of being in close proximity to homes that have begun the foreclosure process. We do not include in our estimate the total loss in home equity that has resulted from the crisis (estimated at $7 trillion[iv]), the negative impact on local governments (in the form of lost tax revenue and increased costs of managing vacant and abandoned properties) or the non-financial spillover costs, such as increased crime, reduced school performance and neighborhood blight.[v]

II. Background

The massive number of foreclosures that have occurred during the current economic crisis has undercut the economic progress and security of families across the country. When families lose their homes, the resulting damage is multi-faceted. First, there are the immediate financial consequences to those who lose their houses

associated with displacement and devastated credit. Second, there are the longer-term financial consequences of foreclosure for these families. Families who lose a home cannot tap home equity to start a new business, pay for higher education or secure their retirement. Loss of a home also removes a financial cushion against unexpected financial hardships, such as job loss, divorce or medical expenses, and eliminates the main vehicle for transferring wealth inter-generationally.

In addition, foreclosures have ramifications that extend beyond the families who lose their homes. Communities with high concentrations of foreclosures lose tax revenue and incur the financial and non-financial costs of abandoned properties and neighborhood blight, while homeowners living in close proximity to foreclosures suffer loss of wealth through depreciated home values. In this report, we estimate the cost of this latter loss.

III. Data and Methodology

Our analysis relies on mortgage data collected by the federal government under the Home Mortgage Disclosure Act (HMDA) and data compiled by a private company, Lender Processing Services (LPS). HMDA is the largest publicly-available database of U.S. home lending activity. HMDA contains loan-level information on loans at origination, including the census tract in which the property is located. Although HMDA has almost universal coverage, it does not contain information on loan performance—that is, HMDA doesn't report whether loans are current, delinquent, in default or foreclosure . The other source, LPS, is a proprietary, loan-level database that does contain performance information. However, while LPS has good coverage, its coverage is not as extensive as HMDA's[vi] and its geographic information is not as specific as HMDA's.[vii] These two databases merged together, in combination with home price value and housing units data from the American Community Survey and tract area size from the Census, give us the information and coverage needed to conduct our spillover analysis.

Calculating the spillover impact necessitates estimating the number of foreclosures in each community, the number of affected neighboring properties and the loss in value to those properties. We begin by estimating the total number of homes that have entered the foreclosure process for each census tract.[viii] We do this by calculating zip code-level foreclosure start rates of loans originated between 2004 and 2010 from the Lender Processing Services database.[ix] We convert these to census tract-level foreclosure rates[x] and multiply these tract-level rates by the total number of 2004-2011 first-lien originations in each census tract using data from HMDA. These tract-level foreclosure estimates are then scaled up to reflect the total number of foreclosure starts in each state using the Mortgage Bankers Association's National Delinquency Survey.[xi]

Once we estimate the total number of foreclosure starts for each census tract, we calculate the loss of value to neighboring homes by using census tract-level housing densities and median prices. [xii] To do so, we apply Harding, Rosenblatt, and Yao's 2008 estimate of a 0.744% house price depreciation to every home within 1/8 mile of a foreclosure[xiii] (see Appendix for more information). This depreciation amount is then aggregated at various geographic levels to arrive at our total spillover losses. Estimated percentage equity lost per home is calculated at the tract level as the total equity lost in the tract divided by the estimated total value of affected properties (i.e., median value times the number of affected properties). [xiv]

*Limitation*s:

Like any analysis, ours has limitations. First, since our analysis comes out before all 2010 Census information has been released, not all data are available in terms of new Census boundaries. Therefore, while we use current housing price and housing density information, our geographic allocations are based on the 2000 Census boundaries. Second, we assume that both foreclosures and housing units are evenly distributed throughout census tracts. While the distributions of both are likely to be uneven within a given tract, it is unclear whether our assumption of uniform distribution would systematically bias our results.[xv] Third, research suggests that the spillover impact increases during the year leading up to the foreclosure sale, after which the negative effect stabilizes.[xvi] Given that there is variation in the magnitude of the spillover impact depending on what stage of the foreclosure process a property is in, we recognize that the full spillover impact of all of the foreclosure starts may not have materialized yet.[xvii] Finally, spillover loss, like any loss in home equity, may be temporary and there is some evidence that property values may eventually rebound months or years after foreclosed properties are purchased by new owners. Despite this eventual rebound, we believe it is important to capture the aggregate loss in wealth incurred by nearby homeowners throughout the crisis, even if some of that equity may have been restored.

Appendix: Distribution of Housing

In order to conduct the analysis, we must make an assumption about the distribution of houses and the distribution of foreclosures. We assume that both are evenly distributed throughout the tract and that the contagion effect is linear.[xviii] Therefore:

For a census tract, let A be the area size in square miles, B be the number of foreclosed loans, C be the number of housing units, D be the median house price, E be the number of African Americans, and F be the number of Latino Americans. Let $G=64A/\pi$. Then the number of neighboring homes experiencing devaluation is given by

$$H = \begin{cases} C, \text{if } B \geq G \\ C \times B \div G, \text{if } B < G \end{cases} \quad (1).$$

The dollar amount of decrease in house value/tax base from foreclosure effect is given by

$$I = 0.0074 \times C \times D \times B \div G \quad (2).$$

The number of African American experiencing devaluation is given by

$$J = \begin{cases} E, \text{if } B \geq G \\ E \times B \div G, \text{if } B < G \end{cases} \quad (3).$$

The number of Latino American experiencing devaluation is given by

$$K = \begin{cases} F, \text{if } B \geq G \\ F \times B \div G, \text{if } B < G \end{cases} \quad (4).$$

[i] CRL calculation based on MBA National Delinquency Survey, scaled to reflect market coverage. Per MBA's claims, we assume 85% market coverage for 2007q1-2010q2 and 88% coverage for 2010q3 and after.

[ii] "Minority Neighborhood" is defined as a census tract where more than 50 percent of the residents are not non-Hispanic White

[iii] Bocian, Li , Reid and Quercia. "Lost Ground, 2011: Disparities in Mortgage Lending and Foreclosures" Center for Responsible Lending, November 2011. Available at http://www.responsiblelending.org/mortgage-lending/research-analysis/Lost-Ground-2011.pdf

[iv] Federal Reserve Board, "The U.S. Housing Market: Current Conditions and Policy Considerations" (2012), available at http://federalreserve.gov/publications/other-reports/files/housing-white-paper-20120104.pdf .

[v] G. Thomas Kingsley, Robin Smith and David Price, "The Impacts of Foreclosures on Families and Communities." Urban Institute, May 2009, Page 18.

[vi] We estimate LPS's coverage to be equal to approximately 70% of the first-lien mortgages reported to federal regulators in HMDA data from 2005 through 2008

[vii] LPS has zip code but not census tract information.

[viii] We use foreclosure starts as our basis for analysis because research suggests that the spillover impact is evident in the year leading to the foreclosure sale. See Harding, Rosenblatt and Yao, "The Contagion Effect of Foreclosed Properties", July 2009, page 4.

[ix] Foreclosure rate is calculated as of January 2013. Originations are limited to 2004-2010 because this is when LPS becomes sufficiently representative of the market.

[x] We use University of Missouri's MABLE system to match census tracts to zip codes. For census tracts that are fully encompassed with a single zip code, that census tract is assigned the corresponding zip code's foreclosure rate. For census tracts that overlap multiple zip codes, we create a weighted foreclosure rate using the foreclosure rates of all of the zip codes, with weights equal to the proportion of the tract's housing units that are located in each zip code.

[xi] Because the LPS data is limited to 2004-2010 and HMDA data to 2004-2011 cohorts, we need to adjust our estimates to account for foreclosures of loans that were originated outside this time frame. To do so, we calculate total state-level foreclosure starts from 2007 through 2012 using MBA's National Delinquency survey (we adjust this figure to reflect the survey's 85-88% market coverage). We then calculate a "scale factor" for each state by dividing each state's total market-adjusted MBA foreclosure figure by the total number of foreclosures that we calculated for that state's census tracts using 2004-2011 HMDA originations. Each census tract total is then multiplied by this scale factor.

[xii] We use census-tract level housing units from the 2005-2009 American Community Survey (ACS) and tract size from the 2000 Census. We assume uniform distribution of housing units and foreclosures within census tract. Our tract-level median housing prices also come from the 2005-2009 ACS.

[xiii] Harding et al. estimate the spillover impact for two concentric rings around a foreclosed property: 0-300 feet and 300-660 feet. We determined the share the total circle encompassed by each ring and weight each ring's spillover impact by its share of the total area. Therefore, the expected decline for the entire 1/8 mile circle (both rings) is calculated as 25/121 * 1.3% expected home value decline (.269) plus 96/121 * 0.6 expected home value decline (.476) = .744 percent. Harding et al also find that a relationship between foreclosures and spillover effect that is roughly linear and we therefore apply a linear relationship when there are multiple foreclosure affecting a single property..

[xiv] Tract-level percentage estimates are weighted by the number of affected properties to get higher-order geographic estimates.

[xv] If, in reality, housing units tend to be more densely located in areas where foreclosures occur, we are likely underestimating the number of affected properties. If, on the other hand, foreclosures are concentrated on particular blocks in a given tract, we may be overstating the number of affected houses by assuming an even distribution. Because these two effects have opposite directions and because census tracts are small enough geographic entities that there is unlikely to be great variation in distribution, we feel comfortable that these two tendencies are likely to roughly counteract each other, and therefore that the assumption [explain] does not affect the results of our analysis in a major way.

[xvi] Harding, Rosenblatt and Yao find that the contagion effect peaks around the time of the foreclosure sale and stabilizes between the sale and the REO. They find that, although the impact lessens somewhat after the REO sale, it lasts for at least a year post-REO.

[xvii] Furthermore, a small percentage of properties that begin the foreclosure process may "cure" prior to foreclosure sale and, therefore, their maximum spillover impact on neighboring will not be reached. In 2010, Amherst Securities estimated that 14% of non-performing loans (defined as those 60 days or more delinquent or in some stage of the foreclosure process) were "re-performing", either through self-cure or modification (See "The Housing Crisis—Sizing the Problem, Proposing Solutions", Amherst Securities Group, LP, October, 2010.) This percentage is likely dominated by loans that were delinquent but not in the foreclosure process and therefore would likely be much lower had the analysis been limited only to those already in foreclosure. As a result, any overestimate in our spillover estimate that results from not adjusting from re-performing loans is likely to be very small. In addition, any overestimate is likely counteracted by the fact that our

analysis does not include loans that were seriously delinquent but did not start the foreclosure process, though these loans likely had spillover consequences.

[xviii] Harding et al test whether the spillover impact increases linearly with multiple foreclosures and finds this assumption to be safe.