Housing Crisis and Family Well-being: Examining The Effect of Foreclosure on Families
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Abstract

The housing market crash in the mid-2000s was characterized by unusually high rates of mortgage delinquencies and foreclosures. Thus, many families faced the prospect of losing their homes. Although several recent studies have examined the effects of the foreclosure process on families, most have focused on specific metropolitan areas or used aggregate foreclosure data. Using a unique data set linking the U.S. Census Bureau's 2008 Panel of the Survey of Income and Program Participation to *individual* foreclosure event data collected from local government sources by RealtyTrac, I estimate random and fixed effects regression models to examine how experiencing foreclosure affects family well-being and *changes* in well-being, including economic well-being, hardship, access to social support, food security and neighborhood conditions. As SIPP is a panel survey, I am able to follow families through the foreclosure process and examine their outcomes before, during and after foreclosure.

Extended Abstract

The housing market crash in the mid-2000s was characterized by unusually high rates of mortgage delinquencies and foreclosures. Thus, many families faced the prospect of losing their homes. However, only a few recent studies have examined the effects of the foreclosure process on families. Taking a qualitative approach, Kingsley, Smith and Price (2009) suggest that foreclosure results in displacement and housing instability among families but offer little empirical evidence. Other studies find that families experiencing foreclosure had a higher propensity to move (Molloy and Shan 2011; O'Donnell and Coulsen 2012). Both studies also find that these moves are to neighborhoods similar in quality to the foreclosed neighborhoods. Some studies focus on the effects of foreclosure on children, finding associations between foreclosure and adverse educational outcomes, such as changing schools and increased truancy (Isaacs 2012), lower economic well-being and less positive parent-child interaction (Mykyta 2014).

In general, however, the literature examining the effects of foreclosure on families and children has been sparse since these families are hard to identify and track in household surveys (Kingsley, Smith and Price 2009). Using a unique data set that links the U.S. Census Bureau's 2008 Panel of the Survey of Income and Program Participation to foreclosure event data collected from local government sources by RealtyTrac, I explore the effects of the foreclosure process on well-being.[1] As SIPP is a panel survey, I am able to follow families and their members through the foreclosure process. Specifically, I address the following research questions:

(1) Do families experiencing foreclosure have lower well-being (in terms of family economic well-being, hardship, access to social support, food security and neighborhood conditions) than those who do not experience foreclosure?
(2) Is experiencing foreclosure associated with changes in family well-being?
(3) How do public and private safety nets moderate the effects of foreclosure on well-being?

[1] The estimates in this paper are based on responses from a sample of the population. As with all surveys, estimates may vary from the actual values because of sampling variation and other factors. All comparisons made in this paper have undergone statistical testing and are significant at the 90-percent confidence level unless otherwise noted. For information on confidentiality protection, sampling error, non-sampling error, and definitions see http://www.census.gov/sipp/sourceac/S&A08_W1toW11(S&A-16).pdf.

Homeowners face foreclosure when their mortgage payments are delinquent for a period of time, suggesting insufficient resources to meet housing and other needs. Therefore, I expect that homeowners experiencing foreclosure will be more economically disadvantaged, with lower levels of income and higher poverty rates, than their counterparts who do not experience foreclosure. I also expect that they will report higher levels of hardship and food insecurity than their counterparts. Since families facing foreclosure are likely to experience hardship *prior* to receiving any notice that their home is being foreclosed, experiencing foreclosure may not have a significant effect on *changes* in well-being. However, I expect that accessing public and private safety nets will alleviate the effects of foreclosure on well-being.

Data and methods

In this analysis, I use data from the U.S. Census Bureau's 2008 Panel of the Survey of Income and Program Participation (SIPP) merged with individual foreclosure event data from RealtyTrac, a company that maintains a database of foreclosure events based on local government records.[2] Records in the RealtyTrac file consist of foreclosure events for properties experiencing such events from calendar years 2005 through 2011.

The Survey of Income and Program Participation (SIPP) is a panel survey based on a nationally representative sample of the civilian, non-institutionalized population and includes approximately 50,000 eligible households.[3] The SIPP contains information about the income and program participation (e.g. Social Security, SSI, TANF, SNAP, Medicaid, housing and energy assistance) of individuals and households in the United States and also contains additional information in topical modules concerning real estate, assets and liabilities, health expenditures, work-related expenditures, child support and adult and child well-being (U.S. Census Bureau 2006). All adults in sampled households are interviewed once every four months for a period of twenty four to forty-eight months. SIPP's longitudinal design follows household members over time, even if the individuals move out of the original household. In this analysis, I will use data from the core SIPP files collected at each wave, the Medical Expenditure and Health Care Modules collected at Wave 4 (September 2009 to December 2009), Wave 7 (September 2010 to December 2010) and Wave 10 (September 2011 to December 2011); and the Adult Well-Being modules collected at Wave 6 (May 2010 to August 2010) and 9 (May 2011 to August 2011). I also use the Real Estate topical modules to determine mortgage status of the household.

As a panel survey, SIPP follows Wave 1 sample households *and* members of these households over time, even if they move to another residence. My analytic sample includes adults living in households which were owned and had an outstanding mortgage in the first reference month of Wave 1 of the SIPP panel, and for whom information was collected in the medical expenditure and health care modules (for outcomes related to health status), or the Adult Well-Being Module (for outcomes related to housing conditions, hardship, social support and neighborhood conditions).

The commingled SIPP-RealtyTrac data set created for this analysis is particularly appropriate for analyzing the effects of foreclosure on adult and family well-being because it enables me to examine changes in foreclosure status as well as changes in well-being over time, while controlling for a host of individual, parental and household characteristics that likely affect well-being.

Measures of Well-Being

In this analysis, I explore the effects of foreclosure on several measures of individual and family well-being, including family income-to-poverty ratio and program participation, whether or not the family

[2] Prior to linking the survey data to the foreclosure data, SIPP households who opted out from having their data linked with administrative data were removed.

[3] Households may consist of families, a single individual or a group of unrelated individuals.

is doubled up, economic hardship, self-reported health, food security, housing conditions as well as reported neighborhood conditions.

Dependent variables reflecting economic well-being and household composition (doubling up) are reported in the core SIPP data file for each wave. These measures include total monthly family income, as well as income to poverty ratio. Other measures of family well-being are derived from the Medical Expenses and Health Care Utilization module and the Adult Well-being Topical Module (hardship, housing satisfaction, food insecurity).

Defining Foreclosure Events

In this analysis, I treat foreclosure is a process and foreclosure events are classified as one of three types of events recorded in the RealtyTrac database:

(1) *Notice of Default/Lis Pendens:* The Notice of Default/Lis Pendens is the first stage of foreclosure. The Notice of Default/Lis Pendens represents the date that the lender adds a Notice of Default to the deed to indicate that the foreclosure process has begun. Sixteen states do not require a Notice of Default to be filed.

(2) *Notice of Foreclosure/Trustee Sale:* This indicates the date that a Notice of Sale of the property was posted. It does not represent the actual auction or sale date. In the sixteen states that do not require a Notice of Default to be filed, the Notice of Foreclosure/Trustee Sale is the first recorded foreclosure event.[4]

(3) Real Estate Owned: If the lender cannot find a buyer for the property, the lender takes possession of the property. The recorded event indicates the date that the lender took possession of the foreclosed property. Herein, I refer to this foreclosure event as “Notice of Lender Ownership”.

As discussed below, in my models, I operationalize the foreclosure process – the key independent variable in the analysis -- as a categorical variable coded as 0: Did not experience foreclosure event; 1: Received Notice of Default; 2: Received Notice of Sale; 3: Received Notice of Lender Ownership. I use a categorical measure of foreclosure to distinguish among these stages. Not all families that enter the foreclosure process (ie receive a Notice of Default or Notice of Sale) lose their home to foreclosure. Some families may lose their home while others may be able to renegotiate or receive additional support enabling them to pay their mortgage. While the stress of undergoing any stage of the foreclosure process likely affects families and children, actually losing one’s home or having to move may have differential effects than experiencing the earlier stages of foreclosure.

Predicting the effects of foreclosure on well-being

In order to examine the effects of foreclosure on well-being, I estimate random effects models for each dependent variable described above. In order to answer the second research question, i.e. to examine the effects of foreclosure on *changes* in well-being, I estimate fixed effects models for each dependent variable.

First, I estimate a set logit random-effects regression models on the pooled SIPP data, controlling for the experience of foreclosure events and the additional control variables described below. I use random-effects models in order correct standard errors for correlation of error terms for the same individuals across waves. Standard errors were further adjusted for sample design effects. These models provide estimates of the association between experiencing a foreclosure event and the measures of well-

[4] Conversation with Tyler White, RealtyTrac, November 2011.

being described above. In the models, I also control for socioeconomic characteristics and housing characteristics age, marital status, sex, race, nativity status, educational attainment, employment status, and presence of children in the household), and household characteristics (household type, metropolitan residence, state). Model 1 for each outcome includes only the foreclosure event measure. In Model 2, I incorporate additional characteristics and controls as described above, and in Model 3, I include measures indicating whether the individual received support from government assistance programs, family, friends or community agencies to determine whether these variables moderate the effects of foreclosure on well-being.

In order to analyze how *changes* in foreclosure status affect *changes* in reported well-being, I estimate logit models controlling for individual fixed effects for each dependent variable. In these models, the sample is necessarily restricted to those for whom we have reported responses to the relevant topical module at more than one time point. The fixed-effects models predicting changes in well-being are specified as follows:

$$(W)_{it} = \beta_1 F_{it} + \beta_2 Z_{it} + \theta_{it} + \varepsilon_{it}$$

where W_{it} represents the log odds of a change in well-being for individual *i* between Waves 4 and 10; F_{it} represents a change in foreclosure status between Waves 4 and 10; Z_{it} represents a vector of time-varying individual or family characteristics, including changes in age, employment status, marital status, number of children in family,etc. In these models, θ_{it} represents an individual fixed effect controlling for time-invariant characteristics of individuals (such as sex, race and nativity) as well as any unobserved characteristics that might influence both the time-varying predictors and changes in household income. The fixed effects regression model within-person changes in well-being. They control for unobserved characteristics of individuals and use only within-individual variation in the independent variables to predict coefficients. Thus, these models are well suited to estimate changes in well-being that result from a change in foreclosure status. However, a limitation of fixed effects models is that they do not estimate coefficients for time-invariant characteristics, such as race/ethnicity, sex and nativity. Models 1 to 3 are estimated as described above, but in the fixed effect models only the effects of changes in any of the independent variables will be reported.

Preliminary Results

The preliminary results I report here are based on measures derived from the Adult Well-Being topical modules of the 2008 SIPP Panel. Table 1 describes sample characteristics for homeowners having outstanding mortgages at Wave 1. As shown about three-quarters of the sample were aged 50 to 64 years. A similar proportion were white, non-Hispanic. About two-thirds of the sample was married and more than one-third had children under 18 years of age residing in the household. Although only about one in five householders held a bachelor degree, nearly half (47 percent) had at least some college experience.

Table 2 presents measures of foreclosure status and household well-being at Waves 6 and 9 from the 2008 SIPP Panel. As shown, 3.8 percent of homeowners with outstanding mortgaged experienced any stage for foreclosure by Wave 6; 4.4 percent had experienced foreclosure by Wave 9. In terms of well-being, 12-13 percent of homeowners expressed difficulty paying essential expenses, and about 7 percent reported difficulty paying housing costs and 8 percent reported difficulty paying utilities at both waves. While one in five homeowners reported experiencing any hardship, about 12 percent reported 2 or more types of hardship. More than four percent reported experiencing food insecurity.

Table 3 presents preliminary results of random effects models predicting the association between experiencing foreclosure and household well-being as reported in Waves 6 and 9 As shown in Table 3, experiencing any stage of foreclosure was positively associated with an inability to meet essential expenses, including housing costs and utility costs, in the previous year. This result is not surprising as an inability to pay one's mortgage suggests that resources may not be sufficient to meet other household expenses as well. Further, experiencing any stage of foreclosure was also associated with higher levels of medical hardship and food insecurity.

Discussion

In this paper, I will examine the effects of experiencing foreclosure on family well-being, including economic well-being, hardship, food insecurity and health. In addition, I will examine the extent to which access to public and private safety nets moderate the association between foreclosure and well-being. In this preliminary analysis, I only examined the association between experiencing foreclosure and reported hardship.

My preliminary results suggest that experiencing foreclosure increases hardship among families. Homeowners at risk of losing their homes to foreclosure not only face difficulty affording their housing costs, but increased difficulty affording other expenses as well. Further, families facing foreclosure also have increased log odds of experiencing food insecurity as well as unmet medical needs.

There are several limitations to this preliminary analysis that I expect to address in further analysis. First, here I have only examined as my key independent variable whether or not a homeowner experienced any stage of foreclosure. However, foreclosure is a process, and it is useful to examine how experiencing the different stages affects family well-being. Indeed, in an earlier paper, I found differences in the association between foreclosure and child well-being by stage of foreclosure. In addition, this preliminary analysis, I only examine some of the measures of well-being that I propose to examine in the final paper. Further, the preliminary results reported here do not take into account the potentially moderating effects of public and private safety nets on the association between foreclosure and family well-being.

Finally, this paper examines the effects of foreclosure among from families that owned their homes. Yet families who rent might also experience adverse effects of foreclosure if they are forced to move when a landlord loses his property to foreclosure. Thus, in future analyses I intend to incorporate families living in rental properties that experience foreclosure.

Despite these limitations, this paper exploits a unique data set linking panel survey data with foreclosure event data. The preliminary analysis discussed here further suggests that families facing foreclosure are vulnerable to other forms of hardship as well.

Table 1: Characteristics of Householders with Outstanding Mortgages

	Wave 6	Wave 9
Total	47,956	46,121
Age		
18 to 24 years	0.5	0.3
25-34 years	3.9	3.0
35 to 49 years	7.4	6.5
50 o 64 years	74.7	75.0
65 years amd older	13.5	15.2
Male	49.7	50.2
Race/ethnicity		
White non-Hispanic	77.1	76.7
Black non-Hispanic	8.6	8.9
Hispanic	9.1	9.1
Other non-Hispanic	5.2	5.4
Foreign-born	12.2	12.3
Marital status		
Married	67.6	66.9
Separated, divorced or widowed	21.9	22.8
Never married	14.6	10.3
Presence of related children under 18 years	36.7	35.5
Educational attainment		
Less than high school	6.9	6.7
High school graduate	25.6	26.2
Some college	48.1	47.5
Bachelor's degree or higher	19.4	19.6
Labor force status		
Employed	73.4	72.5
Unemployed	5.0	4.3
Not in labor foce	21.6	23.2
Disabled	9.6	10.3
Personal income below single person poverty threshold	17.5	18.0

Source: 2008 Survey of Income and Program Participation with RealtyTrac foreclosure event file

Table 2: Foreclosure Status and Well-Being of Households with Outstanding Mortgages

	WAVE 6	WAVE 9
Total	47,956	46,121
Foreclosure Status		
Experienced any stage of foreclosure process	3.8	4.4
Received notice of default	1.5	1.6
Received notice of sale	1.4	1.8
Received notice of lender ownership	0.9	1.0
Measures of Well-Being		
Had difficulty meeting household expenses in past year	13.1	12.4
Had difficulty affording housing costs in past year	7.1	7.1
Had difficulty paying utility bills in past year	8.2	8.2
Had unmet medical need (i.e. did not see doctor or dentist when needed)	9.7	9.7
Experienced any hardship	19.0	18.7
Hardship scale (Number of hardships)		
0	81.0	81.3
1	6.6	6.5
2	5.3	5.5
3 or more	7.0	6.7
Experienced food insecurity	1.3	1.3
Shared household with additional adults	16.2	17.5

Source: 2008 Survey of Income and Program Participation with RealtyTrac foreclosure event file

Table 3. Coefficients from Random Effects Models Predicting Effect of Experiencing Foreclosure on Hardship and Well-being

	B	Adj SE
Had difficulty meeting household expenses in past year	0.423**	0.071
Had difficulty affording housing costs in past year	0.373**	0.091
Had difficulty paying utility bills in past year	0.539**	0.083
Had unmet medical need (i.e. did not see doctor or dentist when needed)	0.479**	0.076
Experienced any hardship	0.171**	0.023
Hardship scale	0.547**	0.068
Experienced food insecurity	0.646**	0.097
Shared household with additional adults	0.341**	0.064

** $p<0.001$

Note: All models control for householder age, sex, race/ethnicity, nativity, marital status, number of own children under 18, educational attainment, employment status, disability status, family poverty status, metropolitan residence and state.

Source: 2008 Survey of Income and Program Participation with RealtyTrac foreclosure event file

Appendix A-1: Matching the 2008 SIPP Panel and the RealtyTrac Forecosure Event Files

In this analysis, I use data from the U.S. Census Bureau's 2008 Panel of the Survey of Income and Program Participation (SIPP) merged with individual foreclosure event data from RealtyTrac. Prior to merging the SIPP data with the foreclosure data, SIPP households who opted out of having their survey responses linked to administrative data were excluded.

The 2008 SIPP Panel file and the RealtyTrac foreclosure event database were matched on the address of the property.[5] To match the data, we use a "crosswalk" file, the Master Address File (MAF). The MAF is a dynamic inventory of addresses for all known living quarters in the United States and Puerto Rico. Data in the MAF includes address listings from Decennial Censuses, the U.S. Postal Service and residential construction permits. The MAF is the source of all samples for Census surveys. The MAF file includes a variable that provides a unique ID for every residential unit listed (MAFiD). RealtyTrac foreclosure event data are matched with the MAF using address information and assigned an MAFiD. After the foreclosure data are matched to the MAF, these data are merged with the 2008 SIPP Panel data using the MAFiD variable.

Matching the RealtyTrac foreclosure event data with the 2008 SIPP Panel data is a three-stage process. First, all foreclosure event data is matched to SIPP household data using the MAFid as described above. Next, foreclosure event data matched to rental units and residential units not interviewed in Wave 1 are removed from the matched file so we retain foreclosure event data only for households interviewed in Wave 1. Finally, we compare the foreclosure event dates and the date that the homeowner moved into the home in order to identify individuals residing in households in Wave 1 that were purchased in a foreclosure auction. We remove foreclosure event data for homeowners who moved into their Wave 1 household after foreclosure. The matched records that remain represent those households interviewed at Wave 1 who experienced any stage of the foreclosure process.

The matched foreclosure event data are incorporated into 2008 SIPP file. The resulting commingled file used in this analysis includes both households interviewed at Wave 1 who experienced any stage of the foreclosure and household interviewed at Wave 1 who did not experience foreclosure.

[5] The name of the property owners was not included in the RealtyTrac foreclosure event file.