

# Housing in the Nation's Capital 2009

## The Urban Institute

### Technical Appendix

#### October 2009

#### **Introduction**

Foreclosure is the legal process that a lender must follow to take possession of a property after an owner defaults on a mortgage. The steps vary by state, but all lenders must begin the process with written notification to either the court or the deeds office. The borrower can exit foreclosure by paying the amount owed, negotiating a compromise with the lender to avoid losing the home, or selling the home to pay off the loan. Otherwise, the home is offered at a publicly advertised auction after either a judicial approval or a specified number of days. A third party may purchase the property, or the property can revert to the ownership of the bank. The latter case is referred to as a “real estate owned” property, or REO. The time from start to finish can range from a few months to multiple years. News coverage and public debate have included several different indicators capturing different stages of the foreclosure process, such as the number of properties first entering into foreclosure, the number of homes currently in the foreclosure inventory, or the number of homes where foreclosure is completed and the property transfers from the original borrower. The sections below document the methodological choices made for the Housing in the Nation's Capital 2009 analysis.

#### **I. LPS Applied Analytics' Mortgage Performance Data**

In the absence of a single data source that accurately captures delinquencies and foreclosure activity across the Washington, D.C. metropolitan area, researchers used multiple data sources to estimate mortgage performance in the region. In this analysis the primary data on the performance of residential mortgages as reported by loan servicers was from LPS Applied Analytics, Inc. The LPS database covers more than 40 million active first mortgages and five million second mortgages, spanning the spectrum of agency, non-agency and portfolio products. The company offers data at the loan level and summary files for geographies such as ZIP codes and counties. This database contains more than 80 loan attributes, including product type detail, geographic detail down to ZIP level, detail on adjustable-rate mortgages, credit scores, document type, property value, occupancy type, property type, loan purpose and loan size. For more information, see their web site at <http://www.lpsvcs.com/LossMit/DandA/Pages/default.aspx>



For this analysis, we purchased monthly data by loan grade for January 2007 to June 2009 for the ZIP codes in the Washington, D.C. metropolitan area. The data covered loans on owner- and renter-occupied units in 1-4 unit properties (including condominiums).

The following counts were included:

- *Total mortgages*
- *Delinquent loans* exclude loans in pre-sale or post-sale foreclosure, that is they are mutually exclusive. Categories include 30- to 59-day, 60- to 89-day, 90 days or more.
- *Loans in pre-sale foreclosure* are the current inventory of loans going through the foreclosure process (litigation in Maryland) but a sheriff sale has not occurred yet. These should not be confused with “foreclosure starts” which would indicate the number of loans beginning the foreclosure process each month.
- *Post-Sale/Real Estate Owned Mortgage Loans* are all loans that have completed the litigation process. Meaning that (1) a Sheriff Sale has occurred; (2) loan is awaiting transfer to government product; (3) third party has acquired title, entitling certificate, or title subject to redemption; (4) post-sale REOs. We think this indicator significantly underestimates the real estate owned properties because it excludes properties with loans that are no longer reported to LPS Applied Analytics as part of their active loan portfolio. However, experts believe the LPS REO indicators are a valuable representation of the relative level of REOs across a region, and of the growth of REOs across time. A comparison of the LPS REO counts to the local administrative data for ZIP codes in the District of Columbia supports this—the two had a correlation of 98 percent.

All of these are inventory numbers, meaning that a loan would be present in the data from month to month until the loan is “liquidated” through either an involuntary payoff (foreclosure completion) or if the loan is paid off (voluntary completion). The Housing in the Nation's Capital analysis does not include completion counts.

We requested these counts for each ZIP code by the following loan grades:

- *Agency Prime* loans are Grade A loans with either Fannie Mae (FNMA) or Freddie Mac (FHLMC) as the investor.
- *Non-Agency Prime* loans include Grade A loans which have a private or portfolio investor and FICO scores greater than or equal to 720 or FICO scores between 680 and 719 with full documentation.
- *Subprime* loans are those with Grade B or C or loans with Grade A and FICO scores less than 620 and an investor other than Ginnie Mae (GNMA).
- *Alt-A* loans are Grade A loans with private or portfolio investors, incomplete documentation, and FICO scores between 620 and 719.



- *Government* loans are Grade A and have Ginnie Mae (GNMA) as the investor.

## Weighting Methodology

The LPS Applied Analytics does not cover the entire mortgage market, and in particular under-represents subprime loans. The following data sources were used to adjust the raw mortgage data for these known shortcomings.<sup>1</sup>

- American Community Survey estimates by county of the owner-occupied housing units with mortgages, and of 1-4 unit rental units (2007);
- United States Census Bureau estimates by county of the total number of owner-occupied housing units with a mortgage (2000); and
- United States Census Bureau estimates by county for the number of housing units (2007); and
- Mortgage Bankers Association's National Delinquency Survey reports on numbers of total and subprime mortgages by state (First quarter, 2008).

The steps below describe the adjustments to the original mortgage analysis file:

- (1) Restricted ZIP-code level LPS Analytics data to first-lien mortgages with known grade.

Our LPS Applied Analytics data includes counts for each loan grade (agency prime, non-agency prime, subprime, alt-a, government, and other). For this analysis, we created a "total" loan category that excluded the loans classified as "other" since this category in the data file delivered to the Urban Institute included both first-lien loans of unknown grade and all second-lien loans. To simplify presentation, we also combined the two prime loan categories.

- (2) Weighted number of loans from LPS Applied Analytics data to correct for the undercounting of outstanding mortgages.

The servicers that contribute data to LPS Analytics do not represent the entire mortgage market. To correct for this, we first identified the county for each ZIP code through a U.S. Postal Service ZIP-to-county crosswalk. We next calculated the number of mortgages in 2007 for each county by averaging the monthly LPS totals. We then created county-level weights by dividing the estimated number of housing units with a mortgage based on data from the U.S. Census Bureau by the 2007 LPS averages.

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<sup>1</sup> For other examples of analysis of LPS Applied Analytics data, see LISC and Immergluck (2009). Immergluck, Dan. "Intra-metropolitan Patterns of Foreclosed Homes: ZIP-Code-Level Distributions of Real-Estate-Owned (REO) Properties during the U.S. Mortgage Crisis." *Community Affair Discussion Paper* 01 (09). Atlanta: Federal Reserve Bank of Atlanta, April 21, 2009. Online: [http://www.frbatlanta.org/filelegacydocs/dp\\_0109.pdf](http://www.frbatlanta.org/filelegacydocs/dp_0109.pdf)



The American Community Survey and Decennial Census publish the number of owner-occupied units with a mortgage, but do not publish a parallel table for rental units. To estimate the number of rental units with a mortgage, we multiplied the number of rental units in one-to-four unit buildings by 44 percent, the estimated share of rental units with a mortgage as published in the Residential Housing Finance Survey in 2001.

For the housing unit data, we used 2007 American Community Survey county-level estimates when available. In cases where estimates were not available for 2007 single-year data, we used the 2005-2007 three year estimates. As a last resort (in 4 cases) when single year or three-year estimates were unavailable, the counts from the 2000 Census were multiplied by the percent change in the number of housing units from 2000 to 2007 using the Housing Units Estimates.

We then applied the county-level weights to the loan counts across ZIP codes, assuming equal weights for all loan grades. This resulted in 60 percent additional mortgages in the metropolitan area compared to the original LPS total.

(3) Adjusted weighted subprime loan counts from Step 2 based on counts from the Mortgage Bankers Association (MBA)

We used the MBA's first quarter of 2008 National Delinquency Survey data on subprime lending to correct for the undercounting of subprime loans in the LPS data. We divided the MBA state total of subprime loans by the ACS-weighted LPS totals to create a state level weight for subprime loans.<sup>2</sup> We then applied the appropriate state-level subprime weight to the subprime loan count in each ZIP code. In order to preserve the total loan count represented in the weighted LPS data, we reduced the prime, Alt-A, and government loan counts in each ZIP code by a commensurate percentage. The delinquency and foreclosure shares for each loan grade remained unchanged. Within each loan grade, we used the original LPS Applied Analytics delinquencies, foreclosures, and post-sale/REOs shares to recalculate the new troubled loan counts based on the final weighted loan total for each ZIP code.

Overall, this shifted the June 2009 share of subprime loans from 4 percent of metropolitan area mortgages to 12 percent.

(4) Summarized ZIP code-level adjusted data to larger geographic levels.

For the last step we summarized the ZIP code-level data for the metropolitan area, subareas, and counties.

## II. District of Columbia Foreclosure Analysis

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<sup>2</sup> We used the January 2008 LPS data because that was the only file available to us with state-wide data.



There is no public, compiled dataset that tracks what happens to properties that enter foreclosure, so we must rely on events that are recorded in administrative data files. Two administrative datasets were used to determine the volume of foreclosures starts, the foreclosure inventory, the outcome for the property owner after receiving a foreclosure notice and the REO inventory for the District of Columbia.

The first dataset contains the notices of foreclosure sale and the notices of trustee's deed sale that are recorded by the District of Columbia Recorder of Deeds. The raw data were copied from the District of Columbia Land Records Electronic Filing System at <http://www.washington.dc.us.landata.com>. These data allow us to tabulate the number of notices of foreclosure per parcel, who the grantee and grantor are on the notice, and if and when a completed foreclosure or trustee's deed sale takes place on that parcel.

Onto these data, we merged all property sales transactions recorded in the real property database maintained by the District of Columbia Office of Tax and Revenue. This merge allowed us to determine who owned the property, including whether it was a bank or government agency, when the property was originally purchased and the next date it was sold, whether the property was owner- or renter-occupied (based on the Homestead Deduction, which provides a property tax reduction to owner-occupants) and what type of structure the parcel contained, including residential property (single-family home, condominium, cooperative, or rental apartment building) or commercial property. The final data file contains a record for each owner/foreclosure episode.

Because the real property sales data are more complete after 1998, our foreclosure history file contains data for properties entering foreclosure between 1999 and up to the latest foreclosure and sales data available (currently 1st quarter 2009).

The Urban Institute created a set of outcomes that are possible for each owner/foreclosure episode:

(1) *In foreclosure*: An episode would have this outcome only if the property owner had last received a notice of foreclosure sale less than a year from the date the file was produced. This timeframe was chosen because many troubled owners receive multiple notices of foreclosure before their property is foreclosed upon or sold.

(2) *Property Sold, Foreclosed*: episodes that ended in a trustee's deed sale (which indicates that the foreclosure was completed).

(3) *Property Sold, Distressed Sale*: properties with a sale within a year of the last notice of foreclosure sale, but not a trustee's deed sale. A distressed sale could also represent a short sale or a deed-in-lieu of foreclosure.



(4) *Property Sold, Foreclosure Avoided*: episodes that do end in a sale but that sale takes place at least a year after the last notice of foreclosure sale, indicating that it is less likely that the owner was under financial pressure to complete the sale.

(5) *No Sale, Foreclosure Avoided*: indicates that it has been at least a year since the owner last received a notice of foreclosure sale and there was no transfer of property of any kind recorded after the last notice.

(6) *Foreclosure Cancellation*: episodes that end when a notice of foreclosure cancellation is filed with the Recorder of Deeds. Few of these notices are ever filed, even when it is clear that the default has been cured and the foreclosure avoided.

These outcomes are often presented in *Housing in the Nation's Capital* as three groups of known outcomes (in foreclosure is not considered an end outcome but an intermediate outcome), foreclosure completed, foreclosure avoided (sale or not), and distressed sale. Cancellations are included in the foreclosure avoided category but typically represent less than 1 percent of the known outcomes.

All episodes have a "first notice date" defined as the date which the owner/foreclosure episode began, the date of the first notice of foreclosure sale. The second date of importance that is recorded is the outcome date. The outcome date would be the date of sale for a trustee's deed or a distressed sale, or 365 days after the last notice date for an outcome of foreclosure avoided. Episodes still "in foreclosure" would not have a valid outcome date. If there is an episode without a notice of foreclosure sale (and the property was included in the file because there was either a trustee's deed or a bank was the buyer or seller in a sale) the "first notice date" is operationalized as the outcome date less 365 days. In *Housing in the Nation's Capital 2009*, the outcome data for foreclosures in the District is presented by the year of the first notice date.

Because there is no administrative record when a foreclosure is cured or delayed, we had to make assumptions about the length of time before a foreclosure could be considered "avoided." On average, during each foreclosure episode, the owner receives 1.4 notices of foreclosure sale. For those who do receive more than one notice, the length of time between the first notice and the last notice is 580 days (median = 336 days). The average length of time between the last foreclosure notice and the outcome date for foreclosed properties is about 182 days and the 95th percentile is 512 days. The average length of time between the last notice of foreclosure and the outcome date for any sale (that was not a completed foreclosure) is 253 days and the 95th percentile is 365 days. Due to the range of days it takes a property owner in the District to move through the foreclosure process, we decide that a year after the last notice date would capture most of the owners who have "avoided" foreclosure.

### **III. Estimation of Number of Homes Coming onto the Market from the June 2009 Inventory of Mortgage Delinquencies and Foreclosures**



While there is no way to predict the exact number of mortgages in the June 2009 inventory that will be lost and come onto the housing market in the coming months, we believed it was important to get a sense of scale by using the best inputs at hand to estimate the number. Our estimation is calculated based on three sources: LPS Applied Analytics (adjusted by the Urban Institute as described above), roll rates from Experian (2008), and foreclosure completion rates from the District of Columbia administrative data.

Calculation uses figures from Experian (2008) that assumes one-half of the 90 to 120 delinquent loans move to 120 to 150 days delinquent, and then 90 percent of the estimated 120-150 day delinquent move to foreclosure.<sup>3</sup> It then assumes based on Urban Institute District of Columbia analysis that 81 percent of the households in foreclosure will move through foreclosure or a distressed sale. This results in an additional 16,600 homes from the current foreclosure inventory that will enter the market.

Taking the 33,600 loans currently in foreclosure, we again assume that 81 percent of the households in foreclosure will move through foreclosure or a distressed sale, leading to 27,200 additional homes on the market. Together, this totals to 43,800, which is rounded to 44,000, additional homes from the delinquency and foreclosure inventory that will come on the market in the coming months given the rough estimation procedure.

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<sup>3</sup> Experian. 2008. *Shifting Consumer Delinquency Trends and the Potential Impact on Lending Policies*. Costa Mesa, CA: Experian. [http://www.experianplc.com/corporate/storage/shifting\\_consumer.pdf](http://www.experianplc.com/corporate/storage/shifting_consumer.pdf).



**Components of Estimate of Number of Homes that Will Enter the Market**

	<b>Number</b>	<b>Source</b>
Number of loans 90 or more days delinquent < June 2009	51,500	LPS Applied Analytics
<i>Share moving from 90 to 120 days</i>	0.49	Experian (2008)
Estimated number 120 - 149 days	25,235	
<i>Share moving from 120 to 150 days</i>	0.90	Experian (2008)
Estimated number 150+ days	22,712	
<i>Share moving from 150 days to foreclosure</i>	0.90	Conservative estimate
Estimated number in foreclosure from 90+ delinquency pool	20,440	
<i>Share of loans entering foreclosure resulting in a move</i>	0.81	DC administrative data
<b>Estimated number of home sales of homes 90+ days late as of 6/2009</b>	<b>16,557</b>	
Number of loans in foreclosure	33,600	LPS Applied Analytics
<i>Share of loans entering foreclosure resulting in a move</i>	0.81	DC administrative data
<b>Estimated number of home sales of homes in foreclosure as of 6/2009</b>	<b>27,216</b>	
<b>Potential number of home sales from homes entered into foreclosure</b> (compared to 35,900 homes on market June 2009)	<b>43,773</b>	
Monthly sales, June 2009	6,762	
Number of months of inventory	6.5	

We believe this is very conservative because it does not include mortgages delinquent less than 90 days, a proportion of which will certainly move through the pipeline into foreclosure sale. Also, we surmise that the foreclosure completion rate in the District may be lower than suburban jurisdictions because home values in the District would allow more people to refinance than suburbs with more lost home values.



#### IV. Public School Students Affected by Foreclosure

To calculate the number of students affected by foreclosure, we match the parcel identifiers of the foreclosure episode file described in Section II and the enrollment file for the 2007-2008 school year, issued in October 2007. Our enrollment file includes traditional District of Columbia public school students and charter school students. To complete the match of students to parcels in foreclosure, we needed to ensure that the point-in-time observation that comprises the student-level data matched the particular parcel's foreclosure timeline. Our method for the Housing in the Nation's Capital analysis matches those cases where the span of time between dates of a first notice and an outcome includes the date of the October school count. Using this method, the table below shows how many parcels in the foreclosure process included a student and how many students this affected.

	SY2003	SY2004	SY2005	SY2006	SY2007	SY2008
<b>Parcels with DC public student</b>	22,683	22,981	22,827	22,758	22,822	23,027
<b>Parcels with foreclosure outcome</b>	500	452	325	317	430	612
<b>Students affected</b>	1,033	916	728	672	928	1,380

**Example: Public School Student Affected by Foreclosure**

