

RESEARCH IN BRIEF

The Impact of Foreclosures on Neighborhood Crime in Nevada, 2006-09

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U.S. foreclosures increased steadily between 2006 and 2009 following the national mortgage crisis. Nevada suffered the highest rate of state foreclosures during this time period. Although the foreclosure rate fell in southern Nevada during 2010 by 7%, it remained at five times the national average with one in every nine households receiving at least one foreclosure filing during the year (Associated Press, 2011).

The significant and negative impact of foreclosures on the national and local economies has been well documented. There is also concern that foreclosures have produced increases in crime. Highly publicized incidents have intensified these concerns.

- A mother in a high foreclosure neighborhood was awakened by gunfire when a bullet was shot into her child's bedroom (Vidmar, 2008).
- Blood inside a vacant house was traced to an injured sexual assault suspect who hid there before stealing a car and fleeing the state (Mummolo & Brubaker, 2008).

Sensational news stories like these and various criminological theoretical perspectives suggest a possible relationship between foreclosures and criminal activity. In 2010, The Center for the Analysis of Crime Statistics (CACS) received funding from the Bureau of Justice Statistics (BJS) through the State Justice Statistics Program for Statistical Analysis Centers to assess the influence of Nevada foreclosures on crime.

This State Data Brief provides an examination of foreclosures in Nevada and the impact of these events on crime in Nevada neighborhoods. The distribution of foreclosures across neighborhoods, the characteristics of high foreclosure neighborhoods, and the impact of foreclosures on neighborhood

HIGHLIGHTS

- Between 2006 and 2009, 73,548 foreclosure filings occurred in Clark County, Nevada.
- From 2006 to 2009, Las Vegas recorded the most foreclosures, (70%), followed by North Las Vegas (18%), and Henderson (12%).
- Less than 2,000 neighborhoods experienced foreclosures in 2006. However, almost 6,000 neighborhoods experienced foreclosures in 2009.
- Significant correlations exist between 2006 and 2009 crime rates: total crime events, violent crime, property crime, and disorder events.
- Results of multivariate regression analyses do not show evidence that foreclosures increased crime Clark County, Nevada.

crime between 2006 and 2009 are examined. The findings and related policy implications are discussed in light of theoretical frameworks that help to explain the observed outcomes.

The Impact of Foreclosures on Crime

Previous Research

Four previous studies specifically examine the relationship between foreclosures and crime. This research provides evidence to suggest that foreclosures may be related to some types of crime, using particular units of analysis, under some conditions.

Immergluck and Smith (2006) found that Chicago, Illinois, census tract foreclosure rates were

significantly and positively related to structural variables and violent crime, but were not related to property or total crime numbers. However, the study only examined 2001 data, and the authors noted potential temporal order issues with using cross-sectional data. Furthermore, the models did not control for previous crime totals.

Bess (2008) examined crime patterns in high and low foreclosure neighborhoods (n = 173) in Charlotte, North Carolina, between 2003 and 2006. This study found consistent increases in violent crime across time in high foreclosure neighborhoods and mixed results in low foreclosure neighborhoods. However, the study did not (1) explain how neighborhood boundaries were defined, (2) determine if crime increases were significant across time, or (3) determine whether previous or concurrent increases in foreclosure rates were significantly related to increases in crime rates.

Teasdale, Clark, and Hinkle (2011) used data from 71 census tracts in Akron, Ohio, to examine the relationship between 2003 foreclosures and crime while controlling for 2000 crime rates and structural variables. This study found significant relationships between foreclosures and numbers of larceny, burglary, drug violation, disorderly conduct, and public order incidents. However, the study did not use longitudinal data to examine changes in both foreclosure and crime rates across time to assess subsequent neighborhood impacts or temporal order assumptions.

Pandit (2011) examined the impact of foreclosures on crime in 225 U.S. Metropolitan Statistical Areas (MSA) between 2005 and 2008. This study found positive and significant cross-sectional correlations between foreclosure rates and crime rates. However, change in foreclosure rates did not predict change in violent, property, or overall crime levels, suggesting that other structural forces may be responsible for the observed cross-sectional correlations.

Competing Hypotheses

In general, both researchers and police practitioners expect foreclosures to influence neighborhood crime since “opportunities for crime emerge, disappear, or move as the urban landscape changes” (Wilson & Paulson, 2008, p. 1). The primary mechanism through which foreclosures are assumed to impact neighborhoods is through the triggering of structural

vacancies (Immergluck & Smith, 2006).

How Vacant Properties Increase Crime

Vacant properties can potentially harm neighborhoods by (1) harboring trash, animals, and squatters, (2) offering criminals a place to conduct illegal activities, and (3) providing targets for theft, vandalism, and arson (Skogan, 1990). In support of this thesis, Spelman (1993) found that 83% of abandoned residential buildings in a low-income, Austin, Texas, neighborhood showed evidence of illegal activities (e.g., drug use and prostitution).

According to routine activities theory, unoccupied homes and the surrounding grounds are vulnerable to crime because (1) the individual properties lack capable guardians and (2) neighborhoods have fewer general place managers to regulate conduct in un-owned spaces (Taylor, 2009).

How Vacant Properties Decrease Crime

According to crime pattern theory, offenders “stumble” across and seek out crime opportunities in familiar places (Brantingham & Brantingham, 2008), including places in which they live. Concentrations of offenders in areas that provide attractive targets produce crime hot spots. If foreclosures displace potential offenders living in residential neighborhoods to other areas, high foreclosure neighborhoods may experience decreases in crime.

Similarly, routine activities theory maintains that motivated offenders must come together in time and space with vulnerable victims or suitable targets in order for crime to occur. While vacant properties remain in the neighborhood as a result of foreclosure, potential crime victims are displaced from the area. As such, decreases in population density as a result of foreclosures may also produce neighborhood crime decreases.

Examining Foreclosures and Crime in Nevada

The current study examines foreclosures that occurred between 2006 and 2009 in Nevada residential neighborhoods. The distribution of foreclosures, the characteristics of high foreclosure neighborhoods, and the impact of foreclosures on neighborhood crime are examined.

Almost three-fourths of Nevada’s population resides in Clark County, and the vast majority of the state’s foreclosure filings – over 80% – have occurred in this area. Therefore, the following analyses examine

foreclosure and crime in Clark County, and specifically within the contiguous police jurisdiction boundaries of the Las Vegas Metropolitan Police Department (LVMPD), the Henderson Police Department (HPD), and the North Las Vegas Police Department (NLVPD).

Neighborhood Boundaries

Methodological choices in operationalizing neighborhood size and boundaries can significantly influence analysis results (Kirk & Laub, 2010). Meaningful residential neighborhood boundaries are unlikely to be consistent with census boundaries, which often contain different land uses. Meaningful boundaries are also likely dependent upon context.

In Clark County, residential neighborhoods are separated into subdivisions. The boundaries of these subdivisions are defined by licenses obtained by homebuilders. Homes in individually licensed subdivisions are often differentiated from each other through brick walls that separate the subdivisions, different home structure styles and elevations (i.e., residential building facades), and unique neighborhood names that are often posted at the entries of the subdivisions.

Residential subdivisions are used as the unit of analysis in the current study. A Geographic Information Systems (GIS) shapefile of subdivision boundaries was obtained from the Clark County Assessor’s Office in 2010. Neighborhoods (i.e., subdivisions) that fell within the police jurisdiction boundaries and contained more than 20 individual parcelsⁱ were included in the analyses (see Table 1). The number of parcels within each neighborhood was used to calculate neighborhood foreclosure and crime rates.ⁱⁱ

Foreclosure, Crime, and Census Data

Foreclosure data was purchased from RealtyTrac. Between 2006 and 2009, 73,548 foreclosure filings occurred in Clark County. This data was geocoded in ArcGIS using a county-level street centerline file (match rate = 99.78%). The neighborhood boundaries shapefile was then used to identify, select, and aggregate the number of individual residential foreclosures to the neighborhood level (n = 59,981).

Calls for service data for 2006 to 2009 were obtained from the three police agencies listed above to

Table 1. Number of neighborhoods by police jurisdiction.

| Police jurisdiction | Neighborhoods | |
|--|---------------|-------|
| | (N) | (%) |
| Total | 7,469 | 100.0 |
| Las Vegas Metropolitan Police Department (LVMPD) | 5,284 | 70.7 |
| Henderson Police Department (HPD) | 1,246 | 16.7 |
| North Las Vegas Police Department (NLVPD) | 939 | 12.6 |

Source: Clark County Assessor's Office.

assess the impact of foreclosures on crime changes over time.ⁱⁱⁱ In 2009, the North Las Vegas Police Department changed the way in which calls for service data were documented and stored. This shift in collection methods resulted in highly skewed crime numbers for 2009 when compared to previous years. Therefore, all crime-related analyses exclude North Las Vegas neighborhoods to avoid biased estimates.^{iv}

The neighborhood boundaries shapefile was used to identify, select, and aggregate the crime events to the neighborhood level (n = 870,599). Appendix A lists the types of calls for service used to construct the four crime categories examined in the analyses: violent crime, property crime, disorder events, and total crime.

The 7,469 neighborhoods fall within 1,117 census block groups. The number of neighborhoods within each block group range from 1 to 41 (mean = 7, median = 6).

Block group demographic characteristics were obtained from the 2006-10 American Community Survey 5-year summary files provided by the U.S. Census. These characteristics were spatially joined to the neighborhood shapefile to examine the features of areas in which high and low foreclosure neighborhoods are located.^v

Neighborhood Demographic Profiles

Census block group demographics attributed to the individual neighborhoods are summarized in Table 2.

The list of variables summarized in Table 2 is similar to those used in previous crime and foreclosure studies (e.g., Immergluck & Smith, 2006).

Since neighborhood boundaries are not consistent with block group boundaries, the summary statistics (e.g., mean values) are not precise measures of neighborhood demographics. Still, this summary provides a rough estimate of variation in key neighborhood structural characteristics assumed to influence both crime and foreclosure rates.

The summary suggests that these neighborhoods are located in areas that differ significantly along these structural dimensions.

Foreclosure Profiles Across Neighborhoods

Increase in Foreclosures Over Time

Table 3 presents the total numbers of foreclosures by year across police jurisdictions. Of the 59,981 total foreclosures, 3.6% occurred in 2006, 11.6% occurred in 2007, 41.9% occurred in 2008, and 42.8% occurred in 2009.

In terms of the relative yearly changes in city foreclosure numbers between 2006 and 2009, Las Vegas had the most foreclosures, (41,781; 69.6%), followed by North Las Vegas (10,950; 18.3%), and Henderson (7,250; 12.1%).

Table 3. Foreclosures by police jurisdictions, 2006-09.

| Year | Police jurisdiction | | | Total |
|-------|---------------------|-------|--------|--------|
| | LVMPD | HPD | NLVPD | |
| Total | 41,781 | 7,250 | 10,950 | 59,981 |
| 2006 | 1,540 | 327 | 320 | 2,187 |
| 2007 | 4,799 | 1,009 | 1,179 | 6,987 |
| 2008 | 17,410 | 2,960 | 4,786 | 25,156 |
| 2009 | 18,032 | 2,954 | 4,665 | 25,651 |

Source: RealtyTrac.

The most dramatic increases in foreclosures occurred between 2006 and 2008. Table 4 shows that foreclosures increased by 230% between 2006 and 2007, and by 254% between 2007 and 2008. While the total number of foreclosures remained high, the trend in foreclosure filings leveled off between 2008 and 2009.

Table 5 provides the mean number of foreclosures across neighborhoods, per 1,000 parcels, between 2006 and 2009. T-tests reveal significant yearly changes in foreclosure trends across neighborhoods during 2007 and 2008. While a slight increase in the mean number of neighborhood foreclosures was observed between 2008 and 2009, this change was not significant.

Table 2. Block group demographic characteristics of neighborhoods.

| Demographics | Min | Max | Mean | SD |
|--|-------|---------|--------|--------|
| Proportion Female-Headed Households | 0 | 1.00 | 0.19 | 0.16 |
| Proportion Black | 0 | 0.90 | 0.09 | 0.10 |
| Proportion Hispanic | 0 | 1.00 | 0.23 | 0.18 |
| Median Family Income | 2,499 | 217,625 | 74,582 | 25,724 |
| Proportion Males Aged 15 to 24 | 0 | 0.31 | 0.06 | 0.03 |
| Proportion Renter Occupied | 0 | 1.00 | 0.31 | 0.19 |
| Median Home Structure Age | 0 | 63.00 | 14.80 | 11.52 |
| Proportion Who Moved Since 2005 | 0 | 1.00 | 0.46 | 0.21 |
| Proportion Who Moved Since 2000 | 0.17 | 1.00 | 0.76 | 0.18 |
| Proportion Residents Below Poverty | 0 | 0.69 | 0.09 | 0.08 |
| Proportion Single-Person Households | 0 | 0.86 | 0.21 | 0.11 |
| Average Household Size | 1.08 | 4.99 | 2.83 | 0.53 |
| Proportion Receiving Public Assistance | 0 | 0.32 | 0.02 | 0.03 |
| Proportion Divorced Residents | 0 | 0.48 | 0.13 | 0.05 |

Source: U.S. Census Bureau.

Table 4. Yearly percent change in foreclosures by police jurisdiction, 2006-09.

| Jurisdiction | Years | | |
|--------------|---------|---------|---------|
| | 2006-07 | 2007-08 | 2008-09 |
| Total | 229.5 | 254.0 | 0.3 |
| LVMPD | 211.6 | 262.8 | 3.6 |
| HPD | 208.6 | 193.4 | 0.0 |
| NLVPD | 268.4 | 305.9 | -2.5 |

Source: RealtyTrac.

Distribution of Foreclosures Across Neighborhoods

Like crime, foreclosures are also clustered in space. Clark County neighborhoods experienced differential rates of foreclosures between 2006 and 2009. Figure 1 depicts the total foreclosure rates during this period for all neighborhoods. This is an example of a j-curve graph, often used to illustrate differential crime risks across locations and different types of facilities (Eck, Clarke, & Guerette, 2007).

Figure 1 reveals that the risk of foreclosure is not equal across neighborhoods. Some neighborhoods experienced higher rates of foreclosures than others. ^{vi} While a few neighborhoods did not experience any foreclosures, and a few experienced very high rates of foreclosures, most fall somewhere in-between these two extremes.

Differential Changes in Neighborhood Foreclosure Rates

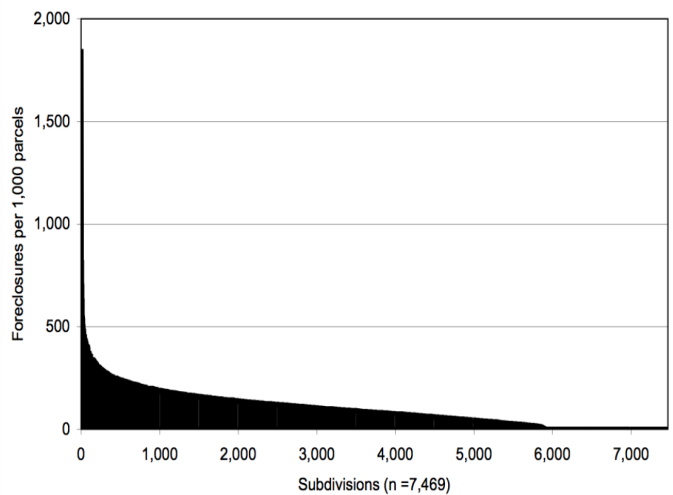
The 2006 neighborhood foreclosure rates are correlated with the 2009 neighborhood foreclosure rates ($r = .094, p < .001$). While a significant relationship exists between these rates, the Pearson's r statistic shows that the relationship

Table 5. Mean number of neighborhood foreclosures per 1,000 parcels by police jurisdiction, 2006-09.

| Jurisdiction | Years | | | |
|--------------|-------|--------|--------|------|
| | 2006 | 2007 | 2008 | 2009 |
| Total | 4.7 | 13.9 * | 49.0 * | 50.0 |
| LVMPD | 4.6 | 13.8 * | 48.9 * | 49.8 |
| HPD | 4.3 | 11.8 * | 35.1 * | 34.6 |
| NLVPD | 5.3 | 17.2 * | 70.4 * | 71.6 |

*Significant change from previous year ($p < .001$).

Foreclosure rates across neighborhoods, 2006-09.



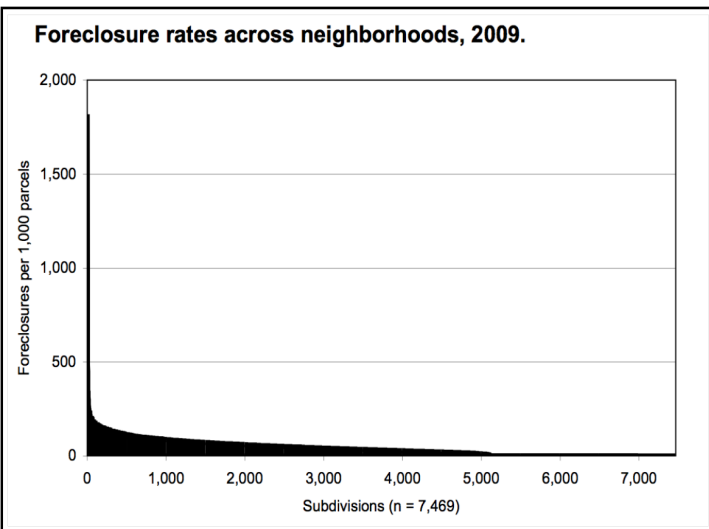
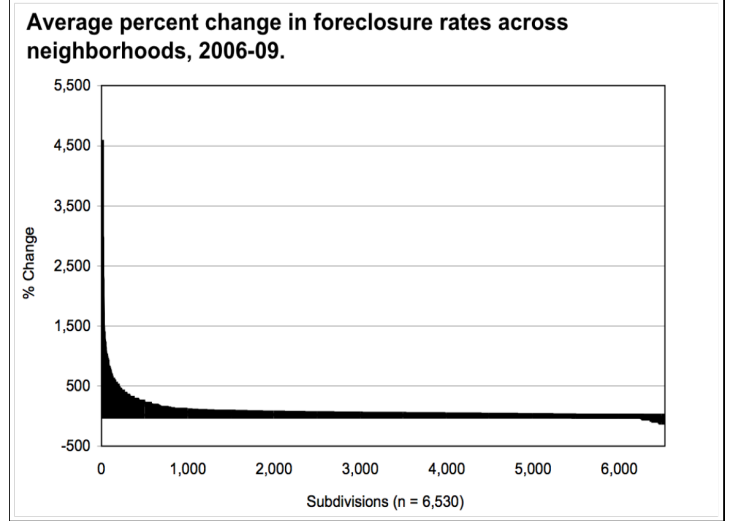
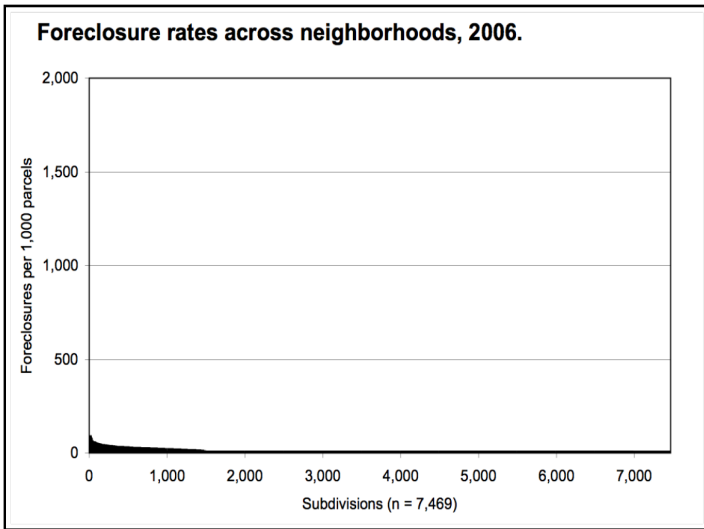
is not particularly strong. This is because many neighborhoods that experienced foreclosures in 2009 did not experience foreclosures in 2006.

The j-curves presented in Figures 2 and 3 illustrate these neighborhood changes. Less than 2,000 neighborhoods experienced foreclosures in 2006. However, almost 6,000 neighborhoods experienced foreclosures in 2009.

An “average percent change in foreclosure rates” variable was calculated to assess the relative impact of foreclosure increases between 2006 and 2009. This variable was constructed to better account for both significant increases in foreclosures and high numbers of foreclosures across time.

To determine the average percent change rate, the average number of yearly foreclosures that occurred after 2006 was calculated for each neighborhood $((2007 + 2008 + 2009 \text{ Foreclosures})/3)$. This number was converted to the average number of foreclosures per 1,000 parcels. The percent change was then calculated between this “average rate” and the 2006 rate of foreclosures per 1,000 parcels. This value provides a more comprehensive measure of the total impact of foreclosures over time than changes between individual years.

Figure 4 depicts the average percent change in foreclosure rates across neighborhoods. The graph shows that, although few in number, some neighborhoods experienced declines in foreclosure rates. However, the vast majority of neighborhoods experienced increasing foreclosure rates between 2006 and 2009.



are significant. The analysis suggests that neighborhoods tend to cluster in block groups that score higher on variables indicative of higher levels of social disorganization. Only 1 of the 14 variables failed to reach significance: proportion of divorced residents. Two variables that serve as a proxy for population density among parcels, proportion single-person households and average household size, are significant. However, the relationship is not in the expected direction. Higher parcel density appears to be an area characteristic of low foreclosure neighborhoods. This may be a function of having the potential for additional income in households with more than one adult.

Overall, these census data findings may support claims that foreclosures occur disproportionately in disadvantaged neighborhoods (Tuthill, 2008). However, it is also plausible that foreclosures produced structural changes in residential neighborhoods that increased levels of neighborhood disadvantage (e.g., greater residential mobility, lower median family income levels) and may, in turn, have increased the risk for crime. If these structural characteristics are the symptoms rather than the cause of higher foreclosure rates, then subsequent crime increases may also follow high rates of foreclosures.

Neighborhood Crime

Like the distribution of foreclosure rates, the distribution of crime across neighborhoods is not equal. Figure 5 shows the distribution of crime across neighborhoods, standardized by the number of neighborhood parcels.

Area Characteristics of Neighborhoods with High and Low Foreclosure Changes

Census block group demographics were used to determine whether low and high foreclosure neighborhoods cluster in different types of areas. Low and high foreclosure neighborhoods were identified using the “average percent change in foreclosure rates” variable described in the previous section. Neighborhoods that experienced 10% or less average foreclosure rate increases were coded as low foreclosure neighborhoods (n = 1,468; 22.5%). Neighborhoods that experienced 60% or greater average foreclosure rate increases were coded as high foreclosure neighborhoods (n = 1,674; 25.6%).

Table 6 presents the mean differences in census block group demographics across low and high foreclosure neighborhoods. T-tests were conducted to determine whether these differences

Table 6. Mean differences in block group demographic characteristics of neighborhoods with low (10% or less) and high (60% or greater) foreclosure rate increases.

| Demographics | Averages | |
|--|-------------|----------------|
| | 10% or less | 60% or greater |
| Proportion Female-Headed | 0.177 | 0.197 ** |
| Proportion Black | 0.066 | 0.082 ** |
| Proportion Hispanic | 0.171 | 0.259 ** |
| Median Family Income | 80,254 | 72,233 ** |
| Proportion Males Aged 15 to 24 | 0.055 | 0.069 ** |
| Proportion Renter Occupied | 0.283 | 0.327 ** |
| Median Home Structure Age | 13.513 | 14.068 * |
| Proportion Who Moved Since 2005 | 0.471 | 0.501 ** |
| Proportion Who Moved Since 2000 | 0.756 | 0.790 ** |
| Proportion Residents Below Poverty | 0.076 | 0.091 ** |
| Proportion Single-Person Households | 0.235 | 0.208 ** |
| Average Household Size | 2.635 | 2.903 ** |
| Proportion Receiving Public Assistance | 0.018 | 0.020 * |
| Proportion Divorced Residents | 0.131 | 0.128 |

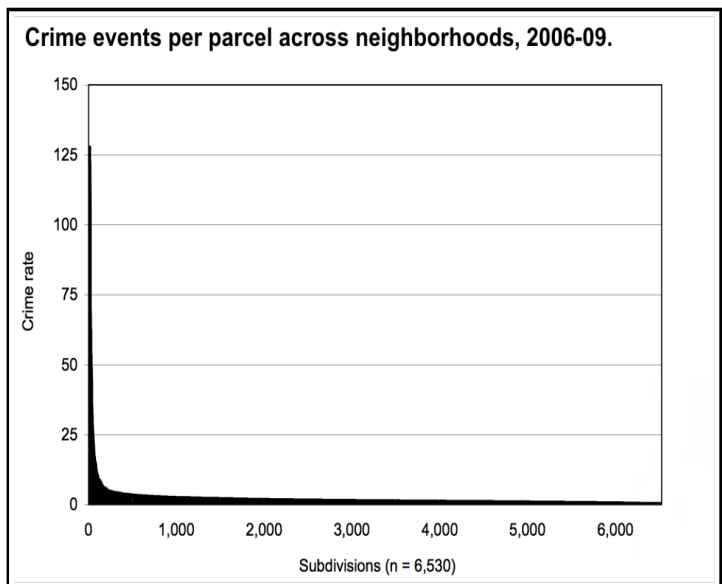
*One-tailed t-test significant at the $p < .10$ level.

**One-tailed t-test significant at the $p < .05$ level.

Figure 6 shows the relative yearly changes in raw crime numbers between 2006 and 2009. Disorder events were most common, with more than 100,000 incidents occurring each year. As expected, more property crime occurred in residential neighborhoods than violent crime. Appendix A contains a listing of the types of calls for service included in each crime type category.

Percent changes in crime numbers were not as large as percent changes in foreclosure numbers between 2006 and 2009. However, Table 7 shows that the largest increases occurred between 2007 and 2008 and the largest decreases occurred between 2008 and 2009 for all crime categories.

Table 8 provides the mean number of crime events across neighborhoods, per parcel, between 2006 and 2009. T-tests reveal that most of the significant yearly changes in crime trends across neighborhoods occurred between 2007-2008 and 2008-2009, although property crime did not change significantly between 2007 and 2008. With the exception of a significant decrease in violent crime, crime trends remained relatively stable between 2006 and 2007.



Significant correlations exist between 2006 and 2009 crime rates: total crime events ($r = .951, p < .001$), violent crime ($r = .940, p < .001$), property crime ($r = .814, p < .001$), and disorder events ($r = .948, p < .001$). Unlike the weak relationship found between foreclosure rates over time, the Pearson's r statistics show very strong correlations in crime rates across time.

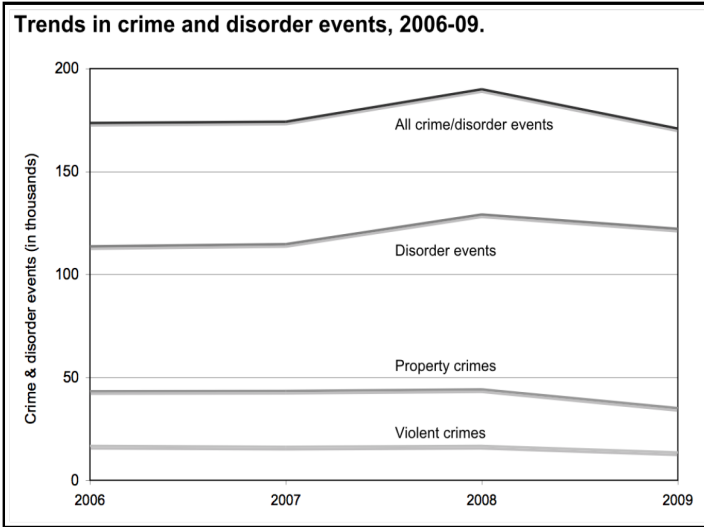


Table 7. Yearly percent change in crime and disorder by event type, 2006-09.

| Event type | Years | | |
|----------------|---------|---------|---------|
| | 2006-07 | 2007-08 | 2008-09 |
| Total | 0.3 | 9.1 | -10.1 |
| Violent crime | -3.4 | 3.2 | -18.8 |
| Property crime | 0.2 | 1.9 | -20.6 |
| Disorder event | 1.0 | 12.6 | -10.1 |

Table 8. Mean number of crime and disorder events per parcel by event type, 2006-09.

| Event type | Years | | | |
|----------------|-------|--------|---------|---------|
| | 2006 | 2007 | 2008 | 2009 |
| Total | 0.42 | 0.41 | 0.46 ** | 0.41 ** |
| Violent crime | 0.04 | 0.04 * | 0.04 * | 0.03 ** |
| Property crime | 0.11 | 0.11 | 0.11 | 0.09 ** |
| Disorder event | 0.27 | 0.41 | 0.46 ** | 0.29 ** |

*Significant change from previous year ($p < .05$).
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Impact of Foreclosures on Neighborhood Crime

Following previous foreclosure study methodologies, linear regression models were conducted to assess the impact of foreclosures on neighborhood crime. However, since longitudinal data were obtained, yearly change in both foreclosure rates and crime events were included in the analyses rather than yearly counts. The dependent variables for the four independent regression models represent the most recently observed crime changes (i.e., change in total crime, violent crime, property crime, and disorder incidents between 2008 and 2009).

The three independent variables included in each model are (1) 2006 to 2007 percent change in foreclosure rates, (2) 2007 to 2008 percent change in foreclosure rates, and (3) 2008 to 2009 percent change in foreclosure rates. The first two variables are examined to determine if there is a lagged effect of foreclosures on crime, while the third variable tests for contemporaneous effects of foreclosure changes on crime changes.

The models also control for previous crime trends (2006 to 2007 and 2007 to 2008 changes in crime). If crime is a function of neighborhood opportunity structures, then the inclusion of previous crime changes helps to control for previous neighborhood structural characteristics and changes that may influence subsequent crime changes, beyond the impact of changes in the number of foreclosed properties.^{viii}

Table 9. Regressions of 2008 to 2009 changes in neighborhood crime on changes in foreclosure rates and previous crime rate changes.^a

| Percent change in: | Percent change from 2008-09 in: | | | | | | | |
|--------------------------|---|-------------------|---|-------------------|--|-------------------|---|-------------------|
| | Total crime (R ² = .029) ^b | | Violent crime (R ² = .039) ^b | | Property crime (R ² = .050) ^b | | Disorder events (R ² = .044) ^b | |
| | <i>b</i> (t) | SE (sig) | <i>b</i> (t) | SE (sig) | <i>b</i> (t) | SE (sig) | <i>b</i> (t) | SE (sig) |
| Foreclosure rates | | | | | | | | |
| 2006-07 | 0.000 (-0.820) | 0.000 (-0.412) | -0.001 (-2.930) | 0.000 (-0.003) | 0.000 (-0.878) | 0.001 (-0.380) | 0.001 (-1.460) | 0.001 (-0.144) |
| 2007-08 | 0.000 (-0.020) | 0.000 (-0.984) | 0.000 (-0.188) | 0.000 (-0.851) | 0.000 (-0.706) | 0.000 (-0.481) | 0.000 (-0.884) | 0.000 (-0.377) |
| 2008-09 | 0.000 (-0.999) | 0.000 (-0.318) | 0.000 (-0.161) | 0.000 (-0.872) | 0.000 (-0.660) | 0.000 (-0.510) | 0.000 (-0.556) | 0.000 (-0.578) |
| Total crime | | | | | | | | |
| 2006-07 | -0.002 (-0.293) | 0.007 (-0.770) | - | - | - | - | - | - |
| 2007-08 | -0.091 (-14.100) | 0.006 (0.000) | - | - | - | - | - | - |
| Violent crime | | | | | | | | |
| 2006-07 | - | - | -0.021 (-1.990) | 0.010 (-0.046) | - | - | - | - |
| 2007-08 | - | - | -0.168 (-16.100) | 0.010 (0.000) | - | - | - | - |
| Property crime | | | | | | | | |
| 2006-07 | - | - | - | - | -0.031 (-3.810) | 0.008 (0.000) | - | - |
| 2007-08 | - | - | - | - | -0.147 (-18.500) | 0.008 (0.000) | - | - |
| Disorder events | | | | | | | | |
| 2006-07 | - | - | - | - | - | - | -0.018 (-2.130) | 0.008 (0.039) |
| 2007-08 | - | - | - | - | - | - | -0.143 (-17.300) | 0.008 (0.000) |

^aSignificant bivariate correlations exist between some of the independent variables. However, a correlation matrix of Pearson's *r* values found no correlation greater than 0.247, suggesting that multicollinearity is not a likely problem.

^bAdjusted R-squared.

Table 9 presents the results of these analyses. While it appears that previous crime trend changes are significantly related to subsequent changes in crime, changes in foreclosure rates, both lagged and concurrent, are not consistently related to changes in crime. The single exception is the significant relationship found between the 2006-2007 percent change in foreclosure rate and change in violent crime. The analyses suggest that increases in foreclosure rates produce declines in violent crime two years later.

The same regression analyses were conducted using the "average percent change in foreclosure rates" variable in place of the three individual foreclosure percent change variables. The results presented in Table 10 also reveal that previous neighborhood crime changes are significantly related to subsequent changes in crime. However, these analyses find

significant and negative relationships between the average foreclosure rate change and both disorder and overall crime changes. Significant relationships were not found between the average foreclosure rate change and violent or property crime changes.

Since linear modeling may mask the effects of nonlinear relationships, t-tests of the mean difference in crime rate changes between low and high foreclosure neighborhoods were conducted (see Table 11). The results of these analyses suggest that overall crime rates were significantly more likely to decrease in high foreclosure neighborhoods than low foreclosure neighborhoods (*p* = .002). While property crime decreased in both low and high foreclosure neighborhoods, low foreclosure neighborhoods experienced significantly greater declines in property crime.

Table 10. Regressions of 2008 to 2009 changes in neighborhood crime on average changes in foreclosure rates and previous crime rate changes.

| Percent change in: | Percent change from 2008-09 in: | | | | | | | |
|--------------------|---|-------------------|---|-------------------|--|------------------|---|------------------|
| | Total crime (R ² = .030) ^a | | Violent crime (R ² = .038) ^a | | Property crime (R ² = .049) ^a | | Disorder events (R ² = .044) ^a | |
| | <i>b</i> (t) | SE (sig) | <i>b</i> (t) | SE (sig) | <i>b</i> (t) | SE (sig) | <i>b</i> (t) | SE (sig) |
| Foreclosures | | | | | | | | |
| Average rate | 0.000 (-2.630) | 0.000 (-0.009) | 0.000 (0.872) | 0.000 (0.252) | 0.000 (0.485) | 0.000 (0.628) | 0.000 (-2.340) | 0.000 (0.019) |
| Total crime | | | | | | | | |
| 2006-07 | -0.002 (-0.284) | 0.007 -0.777 | - | - | - | - | - | - |
| 2007-08 | -0.091 (-14.200) | 0.006 (0.000) | - | - | - | - | - | - |
| Violent crime | | | | | | | | |
| 2006-07 | - | - | -0.021 (-2.050) | 0.010 (-0.041) | - | - | - | - |
| 2007-08 | - | - | -0.168 (-16.100) | 0.010 (0.000) | - | - | - | - |
| Property crime | | | | | | | | |
| 2006-07 | - | - | - | - | -0.031 (-3.820) | 0.008 (0.000) | - | - |
| 2007-08 | - | - | - | - | -0.147 (-18.500) | 0.008 (0.000) | - | - |
| Disorder events | | | | | | | | |
| 2006-07 | - | - | - | - | - | - | -0.017 (-2.060) | 0.008 (0.039) |
| 2007-08 | - | - | - | - | - | - | -0.143 (-17.300) | 0.008 (0.000) |

^aAdjusted R-squared.

Discussion and Policy Implications

The results of the current study are not surprising given the highly divergent trends between Clark County foreclosures and crimes. While foreclosure filings have increased drastically between 2006 and 2009, crime changes exhibit greater levels of stability (see Tables 4 and 7). The dramatic difference in trends helps to explain the exceptionally low explanatory power of the regression models. Further, contrary to the hypothesis that foreclosures increase neighborhood crime, all crime types decreased significantly between 2008 and 2009 following a third year of high foreclosure rates.

If a relationship exists between foreclosures and neighborhood crime in Clark County, it appears that the impact may be lagged or a function of

cumulative effects. The 2006 to 2007 percent change in foreclosures was significantly related to decreases in violence two years later (lagged effect), while the 2006 to 2009 average percent change in foreclosures was significantly correlated with decreases in disorder and total crime events (cumulative effect). These negative relationships support the hypothesis that foreclosures may be displacing potential targets and offenders from residential neighborhoods.

The differences in means analyses also find greater decreases in total crime within high foreclosure neighborhoods. The finding that property crime decreased less in high foreclosure neighborhoods than low foreclosure neighborhoods may be explained by unique crimes opportunities provided by foreclosures.

Table 11. Mean differences in crime and disorder rates between neighborhoods with low (10% or less) and high (60% or greater) foreclosure rate increases between 2006-09.

| 2008-09 percent change in: | Average percent change in foreclosure rates, 2006-09 | |
|----------------------------|--|----------------|
| | 10% or less | 60% or greater |
| Total crime rate | 0.070 | -0.014 * |
| Violent crime rate | -0.127 | -0.124 |
| Property crime | -0.095 | -0.035 * |
| Disorder event | -0.157 | 0.097 * |

*One-tailed t-test significant at the $p < .05$ level.

used to define neighborhoods do not conform to census boundaries. This prevents estimations of accurate neighborhood demographic characteristics. Third, North Las Vegas crime data could not be used due to changes in recording practices. This reduced the anticipated sample size by 12.6%.

Discussion and Policy Implications

Although the presence of fewer people provides fewer targets for violence, offenders from outside the neighborhood may be targeting residential foreclosed properties. As noted in the literature, looters target vacant foreclosed properties to steal valuable materials, including copper piping, wire, and appliances, while squatters may move in to escape cold weather and set fires that destroy properties (Dalton, Gradeck & Mercaldo, 2008).

The findings of this study support Taylor’s (2009) recent hypothesis that foreclosures will impact neighborhood crime differently in suburban settings than in inner-city urban neighborhoods. Taylor argues that unoccupied houses in suburban neighborhoods may be stronger indicators of market dysfunctionality than other social and physical problems. As such, we may not see contemporaneous or even long-term negative effects of foreclosures on crime. Even if foreclosures do not increase neighborhood level crime in Clark County, police and communities may want to block criminal opportunities associated with vacant properties. The Bureau of Justice Assistance (2010) published a report that outlines 59 strategies to limit the negative impact of foreclosures on neighborhoods. These strategies include prevention, enforcement, and reuse interventions.

Data Limitations

There are three primary limitations to the data used in this study. First, the analyses rely on crimes known to police. Unreported crimes may underestimate the impact of foreclosures, particularly if crimes are less likely to be reported in high foreclosure neighborhoods. Second, the subdivision boundaries

END NOTES

- i. The analyses were restricted to neighborhoods with more than 20 parcels to limit disproportionate effects of small changes in crime and foreclosure numbers on rate and rate change calculations.
- ii. Parcel count was determined to be the most useful denominator to standardize variables across neighborhoods. Standardized scores may be skewed in areas that contain multi-unit dwellings; however, this does not bias the final regression analyses since variables represent changes across neighborhoods over time rather than differences in neighborhood rates.
- iii. Geocoding was not necessary since the crime data contained X&Y spatial coordinates for each incident.
- iv. The total sample size is reduced from 7,469 to 6,530 when North Las Vegas neighborhoods are excluded.
- v. Average scores were assigned to neighborhoods that crossed block group boundaries.
- vi. As mentioned previously, some of these rates may be skewed in neighborhoods that contain multi-unit dwellings. Still, most subdivisions contain single-family detached housing. The degree of variation across all neighborhoods confirms that differential foreclosure risk is not a function of this bias alone.
- vii. Regression analyses using 2006 crime rates in place of the two control variables (change in crime between 2006-2007 and 2007-2008) were conducted.
- viii. The results of the analyses did not change, although this decreased the explanatory power of the models.

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