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**Home Foreclosures and Community Crime:
Causal or Spurious Association?***

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ABSTRACT

Objective. Aggregate crime rates continue to decline in the United States despite the depth and breadth of the current foreclosure crisis. This trend calls into question conventional wisdom and prior research that suggest a causal, positive relationship between foreclosures and crime. The objective of this paper is to consider an alternative argument, that foreclosures and crime are part-and-parcel of the same community-level dynamics, and thus are not causally related. *Methods.* We use random effects models to analyze community crime and foreclosure data from Chicago between 2004 and 2009. *Results.* Findings reveal that crime and foreclosures are spuriously related; controlling for confounding factors such as concentrated disadvantage and the political hierarchy of communities renders the foreclosure-crime association non-significant. *Conclusion.* Foreclosures and crime are each explained by antecedent community characteristics. To understand why social problems are unevenly distributed across geographic space, it is necessary to investigate why power and political influence are unevenly distributed.

Data reported by the Mortgage Bankers Association reveal that the rate of mortgages entering foreclosure in the United States increased from roughly 0.2 percent in 1980 to 0.3 percent in 1990, and then to 0.4 percent by 2000. Then the increase in foreclosures accelerated, rising to 0.5 percent by 2006, to 0.6 percent by 2007, to 1.08 percent by the fourth quarter of 2008, to 1.20 percent by the fourth quarter of 2009, and to 1.27 percent by the fourth quarter of 2010 (Mortgage Bankers Association, 2010, 2011; U.S. Government Accountability Office, 2007). The causes of this epidemic in home foreclosures are many, and include an oversupply of new homes, the rise in unsustainable subprime mortgage finance products, falling home values, limited home refinancing options, rising unemployment, and segregation (Rugh and Massey, 2010; U.S. Government Accountability Office, 2007).

The consequences of the current foreclosure crisis need no exaggeration: global recession, massive investment losses, staggering unemployment, and the collapse of major financial institutions and markets (to name just a few). Yet one consequence that remains underexplored is the impact of home foreclosures on community crime.¹ With an estimated 7 million residential properties in the United States foreclosed between 2009 and 2011, thousands of communities have been devastated by this crisis (RealtyTrac, 2010; 2011a; 2011b). The spiral of community decay and deterioration, from foreclosure to vacancy, residential turnover, declining property values, tax losses, and reduced city services, portends a reversal of the decline in crime occurring in many U.S. communities since the early 1990s (see Federal Bureau of Investigation [FBI], 2010).

There are several reasons why residential foreclosures might lead to increases in crime: foreclosures and the associated residential turnover, for example, may increase opportunities for property crime and undermine the informal social control of crime. Yet there are also reasons to expect that the relationship between foreclosure and crime is spurious. Each may be the result of deeper structural challenges, and are therefore explained by a similar set of predictors that include economic disadvantage and the lack of political influence of a community. Thus, in this study, we scrutinize the conventional

¹ Throughout this study, we use the term “community” to refer specifically to *residential* communities, and community crime refers to the rate of crime within the boundaries of residential communities.

assumption that foreclosures prompt an increase in crime by exploring whether foreclosures and crime are in fact spuriously related. To do so, we draw on foreclosure data from the city of Chicago and criminal incident data from the Chicago Police Department from 2004 to 2009.

THE IMPACT OF FORECLOSURES ON COMMUNITY CRIME

There are several reasons to expect that foreclosures will contribute to higher community crime rates. As noted above, foreclosures may increase opportunities for property crime and increase the number of suitable locations for prostitution and drug use (Spelman, 1993). News reports abound on how unoccupied and abandoned properties are ripe for vandalism and burglary (e.g., Leinberger, 2008; Simon, 2008). Relatedly, in a process analogous to the “broken windows” thesis, foreclosed properties that are no longer maintained may signal to would-be criminals that few residents care about controlling crime in the neighborhood, thus reducing their fear of detection and sanction when engaging in criminal activity (Wilson and Kelling, 1982).

Foreclosures may have an indirect effect on community informal social control and crime by altering the population composition of a community. In the social disorganization explanation for crime, population heterogeneity impedes communication and interaction among community residents, thereby undermining processes of informal social control and increasing the likelihood of crime (Bursik and Grasmick, 1993; Shaw and McKay, 1942). To the extent that home foreclosures lead to changes in the characteristics of the community population—e.g., an increase in renters relative to homeowners or a change in socioeconomic status—crime may rise as a result of population heterogeneity.²

Finally, the foreclosure and repossession of a home leads to residential turnover and the fragmentation of community social and organizational networks. Residential mobility hinders the development and maintenance of social bonds and, therefore, undermines a community’s capacity for the informal social control of crime (Bursik and Grasmick, 1993; Sampson, Raudenbush, and Earls, 1997).

² At this point, we are unaware of any systematic research that examines whether individuals moving into foreclosed properties differ by sociodemographic characteristics from individuals who moved out, but numerous news stories would suggest so. For instance, the Washington Post reported the efforts of one program in Prince William County, Virginia which provided renovated foreclosed properties in middle-class neighborhoods to families earning 50 percent or less of the area’s median income (Buske, 2010).

Of course, the exit of a few members of a community social network may not undermine social control to a great extent. Yet communities characterized by rapid changes in the number of foreclosures may become destabilized and disorganized given that rapid change undermines community social control to a much greater extent than more gradual change.

Studies of the impact of foreclosures on crime suggest some support for these propositions, yet study limitations lead to us to conclude that there is room for further investigation. Immergluck and Smith (2006) find that the rate of foreclosures in a given census tract in Chicago in 2001 was significantly predictive of violent crime in the same year, although not property crime. A 1 percentage point increase in the foreclosure rate corresponded to a 2.33 percent increase in violent crime. However, because of the reliance on cross-sectional data, Immergluck and Smith were unable to determine if there is a causal relationship between foreclosures and neighborhood crime, or if they simply co-occur in the same areas.

Goodstein and Lee (2010) use nationally representative county-level foreclosure data to investigate the effect of foreclosure on a variety of property and violent crimes, although they examine a time period before the current foreclosure crisis (2001 to 2006). They find that county foreclosure rates have a positive effect on burglary rates; a 1 percentage point increase in foreclosure leads to a 10 percent increase in burglary in the next year. They also find a positive effect of foreclosure on larceny and aggravated assault, yet no effect on motor vehicle theft, robbery, rape, or murder. The authors hypothesize—though do not test—that the significant effect of foreclosures on crime is explained by a decrease in surveillance by community residents, a process they term “passive policing” which resembles the constructs “informal social control” and “collective efficacy” used in the sociological and criminological literature (Bursik and Grasmick, 1993; Sampson, Raudenbush, and Earls, 1997). Goodstein and Lee (2010) reason that foreclosures are unrelated to crimes such as rape and murder because they claim such crimes are not prevented through informal surveillance by community residents. This line of reasoning is inconsistent with a long line of criminological research that shows that informal social control and collective efficacy among neighborhood residents is vital to reducing neighborhood violence, particularly murder (e.g., Kirk and Papachristos, 2011; Sampson, 2012; Sampson, Raudenbush,

and Earls, 1997). Thus, if “passive policing” is the mechanism linking foreclosures and crime, it is unclear why foreclosures are predictive of specific crimes and not all crimes, particularly murder.

Katz, Wallace, and Hedberg (forthcoming) examine the relationship between foreclosure and neighborhood crime in Glendale, Arizona, a suburb of Phoenix. They employ a longitudinal design that allows them to establish temporal order between foreclosures and crime, and also to assess the timing of the effect of foreclosures on crime. Katz et al. find that to the extent foreclosure positively influences crime rates, the impact is relatively short in duration. The effect of foreclosure on violent and property crime lasts no more than 3 months, and typically 4 months or less for drug-related crimes. Whether such findings generalize to urban areas or other states is an open question, as is the extent to which inferences would remain the same once accounting for confounding influences such as neighborhood political influence.

Arnio and Baumer (2012) importantly consider whether there is spatial heterogeneity in the effect of foreclosures on crime—i.e., whether the relationship between foreclosures and crime might vary across neighborhoods in a city. Foreclosures have been so widespread in recent years that there is significant variation in the types of neighborhoods where foreclosures have occurred. Thus, for example, foreclosures occurring in advantaged neighborhoods may have a different effect on crime than foreclosures in disadvantaged neighborhoods. Spatial heterogeneity may be examined by incorporating statistical interactions between the foreclosure rate and other neighborhood characteristics (e.g., disadvantage) in a statistical model, and also through a methodology known as Geographically Weighted Regression that estimates a “local” coefficient for the relationship between foreclosure and crime for each neighborhood in a city (Arnio and Baumer, 2012; Fotheringham, Brunson, and Charlton, 2002). Consistent with the possibility of spatially heterogeneous effects, Arnio and Baumer estimate that in many Chicago neighborhoods there is no relationship between foreclosure and crime, yet in other neighborhoods there is a positive relationship.

In one of the most comprehensive and rigorous studies of foreclosures and crime to date, Ellen, Lacoë, and Sharygin (2011) investigate whether foreclosures occurring on New York City blockfaces

during 2004 to 2008 led to increases in a variety of different crime types on the blockface. They find a statistically significant yet substantially small effect of recent foreclosure activity on violent and public-order crime. Congruous with Arnio and Baumer's (2012) emphasis on spatial heterogeneity in the effect of foreclosure, Ellen, Lacoë, and Sharygin find that the effect of foreclosure is stronger in areas with relatively low levels of prior crime. They found no significant relationship between foreclosures and property crime. Ellen and colleagues tested for both linear and nonlinear relationships between foreclosures and crime, finding evidence of nonlinearity. Importantly, they conclude that foreclosure starts only have a significant effect on violent and public-order crime if a blockface had more than two foreclosures during the preceding calendar-quarter. Translating the results into effect sizes, they find that one additional active foreclosure on a blockface during a calendar-quarter results in just a 1 percent subsequent increase in crime (2.1 percent increase in violent crime and a 0.8 percent increase in public-order crime). These percentages increase slightly when restricting analyses to just those foreclosures resulting in a vacant property. To put these numbers into perspective, note that during the entire 2004 to 2008 time period, the average number of foreclosures per blockface in New York was under one (0.54) (Ellen, Lacoë, and Sharygin, 2011). This represents the five-year average, not the per-year average. Almost 80 percent of blockfaces had zero foreclosures, and 13.5 percent had just one or two. The remaining blockfaces (approximately 7 percent) account for the bulk of the foreclosure activity in New York, yet still averaged just 5 foreclosures per blockface during the 5-year time period. Thus, even in those areas of New York with substantial foreclosure activity, blockfaces averaged fewer than 1 foreclosure per calendar-quarter, and Ellen and colleagues find that the number of active foreclosures on a blockface only affects crime if there were multiple foreclosures during the preceding calendar-quarter. Thus, whereas Ellen and colleagues find a statistically significant relationship between foreclosures and crime, the increases are quite minimal in absolute terms and may only apply to a very small number of the roughly 90,000 blockfaces in New York.³

³ Moreover, given concerns about the systematic manipulation of crime statistics by the New York Police Department in order to demonstrate crime declines (Eterno and Silverman, 2010; Rashbaum, 2010), it is possible

SPURIOUS ASSOCIATION BETWEEN FORECLOSURE AND CRIME

While prior research suggests that there may be a significant—though perhaps substantively small—association between foreclosure and crime, there are also good reasons to expect that community rates of foreclosures and crime are spuriously related, with each explained by the same set of causal factors. These may include internal factors such as community disadvantage as well as external relationships linking communities to local government services. In this section, we highlight the mechanisms by which crime and foreclosure are related to *disadvantage* and *political economy*.

That crime clusters in impoverished and socioeconomically disadvantaged areas is one of the most robust findings in the study of crime (Sampson, Raudenbush, and Earls, 1997; Shaw and McKay, 1942). The reasons for this clustering are many and include the motivating factor that poverty may play for committing property crimes (i.e., to secure economic resources). Disadvantage can also undermine informal social control processes among neighbors if residents are not actively invested into their community or fear their neighbors to the extent that it undermines social networks. Community disadvantage may also undermine community institutions, such as schools, which are vital sources of socialization for youths (Kornhauser, 1978; Shaw and McKay, 1942).

The political influence of a community—which is related to economic disadvantage as well as racial stratification—is also consequential for the extent of community crime, and arguably, the extent of foreclosure. Bursik and Grasmick (1993) argue that an understanding of the geography of crime necessarily requires focusing not simply on the internal dynamics of a community, but also the interconnection between the neighborhood community and the government and citywide political economy. Building on the work of Hunter (1985), they draw upon the conception of “public control” to describe how the ability of a community to secure public goods and municipal services—particularly police protection—fundamentally influences the level of crime in a community. Central to our argument is that communities differ in their ability to secure public services such as policing, and this at least partially explains the uneven distribution of crime across a metropolitan area.

that these relatively modest effects may be even smaller.

The city of Chicago has long had inequities in workload and resources across police districts. A 1993 report issued by the Illinois Advisory Commission to the United States Commission on Civil Rights (1993) documented that predominately black police districts in Chicago had fewer officers than required per allocation formulas (which are based on workload) whereas white and more affluent police districts received disproportionately more resources. In 2000, in conjunction with the city's move towards community policing, the Chicago Police Department undertook an effort to revisit the resource allocation process to provide a more equitable balance of resources across districts. However, as Skogan (2006) notes, for political reasons the mayor of Chicago had still not implemented any reallocation plan four years after reallocation planning was initiated, and the same is still true as of this writing. Thus, we would expect that the level of police workload varies across Chicago communities, and therefore police responses to crime vary across communities. And this dynamic is rooted in the politics of crime control in Chicago.

Research also suggests that community disadvantage and community-level political dynamics are factors predictive of subprime lending and the resulting rise of foreclosures (Bunce, et al., 2000; Calem, Gillen, and Wachter, 2004; Carr and Kutty, 2008; Rugh and Massey, 2010). Whereas redlining—the practice of denying or limiting loans to low-income communities of color because of the perceived likelihood of loan default among potential borrowers—once limited credit in poor, minority areas (Massey and Denton, 1993), a new form of discrimination, “reverse redlining,” has now become common (Squires, 2005). Rather than denying loans to low- and moderate-income minority areas, reverse redlining floods minority communities with unsustainable high-cost loan products.⁴

Reverse redlining, and subprime lending practices more generally, are rooted in several pieces of federal legislation passed in the 1980s, including the Depository Institutions and Monetary Control Act of

⁴ For instance, in Chicago in 1985, lenders granted 19 conventional home purchase loans in the Washington Park community area. Similarly, in nearby Woodlawn, lenders granted 43 loans (Woodstock Institute, 1987). Both of these community areas are predominately black, disadvantaged communities. By 2005, the number of conventional home purchase loans in Washington Park jumped to 347, yet 63 percent of loan products in this community were high cost (i.e., subprime) (Woodstock Institute, 2010). In Woodlawn, lenders originated 729 conventional purchase loans in 2005. However, 61 percent of conventional loans in Woodlawn were high cost.

1980, the Alternative Mortgage Transaction Parity Act of 1982, the Tax Reform Act of 1986, and the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (Hyra et al., forthcoming; Weicher, 2007). Prior to these legislative changes, mortgage borrowers typically received loans with similar interest rates. These initiatives, however, brought variable rate and fee structures for different borrowers based on their perceived level of risk. The move towards risk-based pricing meant that borrowers with low credit scores, high debt, low income, and minimal down payment would receive higher interest rates than borrowers with less default risk (Chomsisengphet and Pennington-Cross, 2006).

As several studies demonstrate, reverse redlining may be even more detrimental to poor minority communities than previous forms of redlining because high-cost, subprime loans are more likely to default relative to other mortgage products, thereby stripping families of equity and concentrating foreclosures (Coulton et al., 2008; Quercia, Stegman, and Davis, 2007). The disproportionate concentration of subprime loan products in poor, segregated areas is, in part, due to lower credit-worthiness among those residents, but credit alone does not explain the geographic distribution of subprime loans (Rugh and Massey, 2010). As Rugh and Massey (2010: 630) note, “Ongoing residential segregation and a historical dearth of access to mortgage credit in U.S. urban areas combined to create ideal conditions for predatory lending to poor minority group members in poor minority neighborhoods.” Because poor, segregated areas in the United States have been underserved, due to redlining, for so long, residents might be financially inexperienced and therefore ripe targets for subprime loans (Courchane, Surette, and Zorn, 2004; Engel and McCoy, 2008; Massey, 2008). In fact, research has shown that lenders have steered many borrowers who could qualify for prime mortgage loans toward subprime loans (Schloemer et al., 2006).

The history of disinvestment to minority urban communities, and the more recent patterns of reverse redlining, thus reveals that political and economic interests fundamentally and systematically shape internal community conditions. Political clout among community residents not only influences the distribution of police resources, but it also influences a community’s susceptibility to high-cost loans and resulting foreclosures. There are several mechanisms by which community-level political clout may affect

the distribution of high-cost loans. For instance, political clout might be related to the passage and enforcement of local predatory lending laws (Bostic et al., 2008). Furthermore, areas with greater political capital might be able to drive out predatory lenders and might be poised to attract prime lenders, who deploy more sustainable mortgages (Carr and Kutty, 2008). In contrast, communities lacking political clout may be unable to attract many financial institutions to the area, thereby reducing the amount of competition among lending institutions and therefore the number of choices borrowers have in selecting a lender. In turn, borrowers may then be more likely to receive mortgages through independent mortgage companies (IMCs)—i.e., nonbank entities that fall outside federal regulatory oversight—which typically provide higher cost loans than regulated financial institutions (Reid and Laderman, 2009).⁵ In fact, the U.S. Department of Justice recently found that Countrywide Financial, one of the most prominent IMCs during the housing boom, discriminated against more than 200,000 black and Latino mortgage borrowers by charging higher fees and rates than comparable white borrowers and by steering minority borrowers towards subprime loan products (Savage, 2011). Bank of America, which purchased Countrywide in 2008, agreed to pay \$335 million as a settlement to borrowers.

In summary, foreclosures and crime are each explained by a common set of factors which include community disadvantage and political influence. Given this, it may be the case that foreclosures and crime are spuriously related.

THE CURRENT STUDY

Research to date on the impact of foreclosures on community crime is limited, and important challenges remain. First, whether findings from investigations of foreclosure prior to the current surge in mortgage defaults (e.g., Goodstein and Lee, 2010; Immergluck and Smith, 2006) hold in the current economic climate is an empirical question. Second, the observed correlation between foreclosures and crime found in existing studies may be explained by

⁵ The Community Reinvestment Act (CRA) was passed in 1977 in the interest of fair housing and to eliminate the practice of redlining. The CRA requires federally regulated depository institutions to be responsive to the credit needs of the communities they serve, and mortgages made by regulated banks are subject to CRA review (Apgar, Bendimerad, Essene, 2007; Squires and Kubrin, 2006). IMCs, however, are not regulated by the Community Reinvestment of 1977 and loans are therefore not subject to review.

alternative, unmeasured factors such as the political influence of a community. To the best of our knowledge, none of the existing studies of foreclosure and crime directly measure the confounding influence of political economy.

Third, although it is true that the rise of foreclosures has been concentrated in particular regions, states, and metropolitan areas, foreclosures (and crime) are unevenly distributed within metropolitan areas. Foreclosures and the associated risk factors, such as unemployment and high-cost (subprime) lending, are heavily concentrated in poor, racial-ethnic minority communities (Joint Center for Housing Studies, 2009). Given this spatial concentration within metropolitan areas, we examine the effect of foreclosure on crime at the community level. Scaling to a larger areal unit of analysis such as the city or county, as do Goodstein and Lee (2010), leads to a loss in geographical variation in foreclosures. Put simply, conducting a between-city (or county) analysis of the foreclosure-crime relation would necessarily mask the extreme within-city, between-community differences in the level and rate of change in foreclosures (see Openshaw, 1984). Moreover, if foreclosures are related to crime, the theoretical mechanisms are likely to occur at the community level in the form of social processes such as informal social control (Goodstein and Lee, 2010; Immergluck and Smith, 2006). Thus, both theoretically and methodologically, it is advantageous to assess the foreclosure-crime relationship at the community level and not a localized level (e.g., face-block) or a more expansive geographic area (e.g., county).

Finally, in this study we pay careful attention to the issue of simultaneity (i.e., whether community crime affects foreclosure). Prior research has revealed an inverse relation between crime and property values (Schwartz, Susin, and Voicu, 2003; Taylor, 1995; Tita, Petras, and Greenbaum, 2006), and that declining property values make mortgage default more likely. Therefore, it is likely that rising crime at least indirectly leads to higher foreclosure rates (Feinberg and Nickerson, 2002). To address the issue of simultaneity, we examine the effect of foreclosure in a given year on violent and property crime rates in the next year, and we include a control for prior crime rates.

DATA AND RESEARCH DESIGN

To examine the link between foreclosures and crime at the community level, this study draws on five distinct data repositories: yearly crime data reported by the Chicago Police Department; yearly counts of home foreclosure filings compiled by the Woodstock Institute from data provided by the Foreclosure Report of Chicago; mortgage lending data compiled by the Woodstock Institute from Home Mortgage Disclosure Act (HMDA) data, community-level sociodemographic information from the 2000 U.S. Census, and voting data from the Chicago Board of Elections (<http://chicagoelections.com>).

We use the Chicago community area as our unit of analysis, with six time points of data per community area (2004–2009). Chicago community areas were originally delineated by University of Chicago sociologists in the 1920s to represent “natural areas” within the city with a community history, identity, and a common awareness among residents with respect to community interests (Hunter, 1974; Kitagawa and Taeuber, 1963). Community areas are aggregations that contain several census tracts, and the city is divided into 77 different community areas.⁶

Variables

The Chicago Police Department reports crime counts by community area per year in their annual reports (Chicago Police Department, 2011). We converted the counts to rates on the basis of population estimates obtained from Geolytics. We use the following dependent variables in our analyses: the yearly *violent crime rate* per 1,000 residents from 2004 to 2009, and the yearly *property crime rate* per 1,000 residents. We also use one-year lags of these rates in our statistical models (described in further detail in the Analytic Strategy section). Violent crimes include murder, robbery, sexual assault, and aggravated assault and battery. Property crimes include burglary, theft, motor vehicle theft, and arson. All crime rates are transformed to natural logarithm scales to reduce the skewness of the measures.

Data on new foreclosure filings are published in the Woodstock Institute’s *Community Lending Fact Book* (<http://www.woodstockinst.org/the-community-lending-fact-book/>). The Woodstock Institute

⁶ In the 1950s, a community area representing O’Hare airport was added, and in 1980 the Uptown community area was split into two communities—Uptown and Edgewater. Since 1980, Chicago has been identified as having 77 distinct community areas, with an average size of roughly 38,000 residents.

is a nonprofit research and policy organization in Chicago that conducts in-depth analyses of issues related to fair lending and community development. We use a one-year lagged measure of the community *foreclosure rate* ($t - 1$) as our key explanatory variable. We use a lagged measure for two reasons, first of which is to establish temporal ordering with crime. Secondly, whether through a decline in informal social control or the creation of vacant properties, we do not expect the effect of foreclosures on crime to be immediate, if there is an effect at all. Foreclosure is a legal process, and it takes time for the various outcomes of foreclosure to unfold (e.g., bank repossession, short sale, restructuring of the loan). Our foreclosure measure is computed as the ratio of the number of community area home foreclosure filings in a given year (2003 to 2008) divided by the number of active mortgages.⁷ We use the number of active mortgages as the denominator—based on data from the Woodstock Institute’s *Community Lending Fact Book*—because only mortgageable properties are at risk of foreclosures.⁸

In addition to the measure of foreclosure, we utilize four time-invariant measures of community area structure, composition, and political influence as independent variables: concentrated disadvantage, residential stability, the percent of votes received by Mayor Richard M. Daley in the 2003 mayoral election, and the percent of mortgages in a community that were originated by an independent mortgage company in 2003. The first two measures are scales and were created via principal components analysis with data from the 2000 Census. The resulting scales are based on the following 8 items: 1) ***concentrated disadvantage***: the percentages of families below the poverty line, of families receiving public assistance, of unemployed individuals in the civilian labor force, of population under age 18, of female-headed families with children, and of non-Hispanic black population; 2) ***residential stability***: the percentage of residents five years old and older who lived in the same house five years earlier and of homes that are owner-occupied.

⁷ We have foreclosure data for 2009 as well, which are used to produce figures 1 and 2 to follow, but we limit our statistical models to 2003 to 2008 data because we lag the foreclosure data by one year relative to crime data.

⁸ In a sensitivity analysis, we used an alternative measure of foreclosure that uses the number of owner-occupied housing units (mortgaged or not) in the community as the denominator in the rate calculation. We did so because if foreclosure is predictive of crime, it may be due to the overall prevalence of foreclosures among *owner-occupied housing units* in a community, and not simply the rate among *active mortgages*. Our inferences remain the same regardless of which foreclosure measure we use.

We use voting data to proxy for community-level political influence, per our hypothesis that a community's relative level of political influence is correlated with the ability of a community to extract resources such as police protection from the city government or to regulate lending practices. Specifically, we draw upon ward-level data from the Chicago Board of Elections to produce a measure of the *percentage of votes won by Mayor Richard M. Daley* in each community area during the 2003 mayoral election. Our assumption is that the more reliably a community votes for the mayor, the more likely that community will subsequently receive timely services from the city. Because the boundaries of the 50 political wards in Chicago do not align perfectly with the boundaries of the 77 Chicago community areas, we apportioned the voting totals to the community area through tools available in ArcGIS on the basis of the amount of a ward's geographic area that overlaps with a given community area. Trends in mayoral voting patterns suggest that community differences in the share of votes for Mayor Daley were highly stable over time. For instance, the correlation between the percentage of votes Daley received in 1999 relative to 2003 equals .989. Thus, we use the 2003 voting share as a time-invariant measure of political influence in our models.

Our measure of the *percentage of mortgage loans in 2003 originated by an IMC* is drawn from HMDA data distributed by the Woodstock Institute (2005) through the *Community Lending Fact Book*. It represents the percentage of all home loans (purchase, refinance, and home improvement) originated by an independent mortgage company, which are not subject to federal regulatory review. We use this measure as a proxy for the processes of redlining and, subsequently, reverse redlining that left minority urban communities underserved by lenders during the middle part of the 20th century, but then subject to high-cost, subprime lending practices once mortgage lending finally came to such communities during the latter part of the century (see Massey and Denton, 1993; Squires, 2005). The dynamics of mortgage lending fundamentally shape community conditions; disinvestment or investment through high-cost loan products foster community decline and associated outcomes such as crime, whereas community investment through prime lending practices provide resources to communities that can lead to reductions

in crime (Peterson and Krivo, 2010; Squires and Kubrin, 2006; Vélez and Richardson, 2012). Thus, lending practices represent a confounding influence predictive of both foreclosures and crime.

Finally, we also include a measure of *year* in our analyses, from a value of 1 for the first time point of crime data (2004) to 6 for the final time point (2009). We do so in order to characterize the change in crime over time. Table 1 displays the means and standard deviations of all the dependent and independent variables used in our analyses (pooled across time periods for time-varying predictors).

[Table 1 about here]

Analytic Strategy

Our analyses follow two paths. First, we ground our study of foreclosure and crime by providing a descriptive summary of the extent of foreclosure in Chicago. We then turn to inferential analyses to assess the association between the lagged foreclosure rate and two types of crime: property and violent. We examine two different crime types in the interest of determining whether foreclosure—if it is related to crime at all—has a general effect on crime, or whether it is specific to certain crimes. If foreclosure undermines community informal social control because it leads to population heterogeneity or the fragmentation of community social networks, then many types of crime may increase. If, however, foreclosure is consequential because foreclosed homes are ripe for property crimes (e.g., burglary and arson), then we may find a positive association between foreclosure and property crime but no association between foreclosure and violence.

We have yearly observations of property and violent crime rates (from 2004 to 2009) nested within each of 76 Chicago community areas (excluding the O'Hare airport community area from the analysis).⁹ An advantage of our panel research design relative to cross-sectional designs is that we can use the multiple time points of data to examine within-community changes in crime, and whether such changes are due to increases in residential foreclosures. As equations 1 and 2 depict, this model is

⁹ In a preliminary analysis, we assessed spatial dependence with the two crime variables. Given that community areas are interdependent ecological units, we examined whether crime in a focal community is influenced by crime (and the observed and unobserved correlates of crime) in proximate areas. However, using a Lagrange Multiplier test to assess spatial autocorrelation, we did not find evidence of spatial dependence. This lack of spatial autocorrelation is a function of the relatively large size of our community units.

designed to assess whether violence and property crime vary as a function of foreclosures, and whether time-invariant community area characteristics (concentrated disadvantage, residential stability, percent voting for Mayor Daley, and percent IMC mortgages) influence the level of crime in a community:

$$Y_{ij} = \pi_{0j} + \pi_{1j}(\text{Year})_{ij} + \pi_{2j}(\text{Foreclosure Rate})_{(t-1)j} + \pi_{3j}(\text{Crime Rate})_{(t-2)j} + \varepsilon_{ij} \quad (1)$$

where Y_{ij} represents the natural log of the crime rate in community area j at time period t . We do not center our measure of foreclosure or the time variable. Therefore, the intercept is interpreted as the crime rate (violent or property) at the beginning of the observation period (2004) in a community area with a foreclosure rate of zero.

Equation (2) shows that the community area crime rates (π_{0j}) are modeled as a function of a vector of time-invariant community covariates, $W_j\gamma$. By including a random component, ζ_{0j} , we allow for between community area differences in crime rates even after controlling for the vector of community covariates.

$$\begin{aligned} \pi_{0j} &= \mu + W_j\gamma + \zeta_{0j} \\ \pi_{1j} &= \mu + \zeta_{1j} \\ \pi_{2j} &= \mu + \zeta_{2j} \\ \pi_{3j} &= \mu + \zeta_{3j} \end{aligned} \quad (2)$$

RESULTS

To understand the repercussions of home foreclosure for community crime, we begin our analysis by charting the rising trend in foreclosures in Chicago throughout the first decade of the 2000s (see Figure 1). The number of foreclosures in Chicago accelerated rapidly during the latter part of the decade, more than tripling from roughly 7,200 foreclosures in 2004 to more than 22,000 in 2009. The foreclosure crisis did not spread evenly throughout Chicago, however. Figure 2 reveals the change in the proportion of foreclosures from 2000 to 2009 (i.e., the 2009 rate minus the 2000 rate). In every community area of Chicago except for one, foreclosures increased at least minimally (in Pullman, the rate remained flat).

The steepest increases in foreclosures occurred primarily on the South Side, in the Near South Side, Grand Boulevard, and Washington Park community areas. In Grand Boulevard and Washington

Park, which together make up the section of Chicago known as “Bronzeville,” foreclosure rates jumped from under 4 percent of active mortgages in 2000 to 14.4 percent and 16.7 percent, respectively, in 2009. These areas of Chicago have long been characterized by concentrated disadvantage, a lack of financial investment, and an array of social problems, yet after decades of economic and physical decline, they began gentrifying near the turn of the twenty-first century (Hyra, 2008). It is likely, however, that the tidal wave of foreclosures in these communities will reverse whatever socioeconomic gains coincided with gentrification.

[Figures 1 and 2 about here]

We now turn to the repercussions of the foreclosure crisis for crime. Tables 2 and 3 present a total of 3 iterative models each, for property and violent crime rates respectively. The *Year* coefficient in Model 1 of Table 2 reveals that the average community property crime rate declined significantly during the first decade of the 2000s, mirroring trends found nationwide. We also find initial support for a positive relationship between foreclosure and crime. However, in Model 2 we find that the relationship disappears once controlling for antecedent predictors of both foreclosure and crime. Rather, residential stability and the percentage of votes for Mayor Daley are negatively related to crime.

[Table 2 about here]

Our third model adds an interaction between concentrated disadvantage and foreclosure to determine if the relationship between foreclosure and crime is conditioned by the level of concentrated disadvantage in a community (Immergluck and Smith, 2006; see also Arnio and Baumer, 2012). Plausibly, advantaged communities may be able to withstand the consequences of foreclosure activity because they remain relatively desirable places to reside, yet foreclosures in impoverished communities may trigger a deepening of community decline and an increase in crime. However, we find no evidence of statistically significant main or interactive effects of foreclosures on community crime.

Turning to the estimation of violent crime in Table 3, we see a similar pattern of results, with antecedent predictors accounting for the relationship between foreclosure and crime. As in our models of property crime, we find that violent crime is negatively related to residential stability and the percentage

of votes for Mayor Daley. We also find positive relationships between crime and both concentrated disadvantage and the percent of mortgage loans originated by an IMC.

For illustrative purposes, we present in Figure 3 standardized effects to reveal the magnitude of the associations between the independent variables and crime. This figure reveals that concentrated disadvantage is the strongest of all predictors in the model, followed closely by the percentage of votes for Daley and the percentage of mortgages in the community that were originated by IMCs. After controlling for confounding influences, we see that the effect of foreclosures on violent crime is essentially nil.

[Table 3 and Figure 3 about here]

DISCUSSION

Contrary to common perception and to existing studies of foreclosures and crime (e.g., Ellen, Lacoë, and Sharygin 2011; Goodstein and Lee, 2010; Immergluck and Smith, 2006), our results reveal a largely spurious relationship between community foreclosure and crime rates. Once accounting for time-invariant confounding influences, we find no association between foreclosures and both property and violent crime. What appear to matter greatly as predictors of community crime are residential instability, community disadvantage, and the relative political influence of a community. Regarding the latter, we suggest that a community's lack of political influence affects the extent to which that community receives police protection. The Illinois Advisory Commission to the U.S. Commission on Civil Rights (1993) observed this to be true in Chicago. As for inequities in lending, research clearly demonstrates that predatory lending practices, such as large pre-payment penalties, balloon payments, and hefty late payment fees, are more likely targeted at poor minority communities, even after controlling for relevant factors such as borrower income and property characteristics and location (see, e.g., Bocian, Ernst, and Li, 2006). Of course, predatory lending practices have long characterized urban areas in the United States (Massey and Denton, 1993). The fact that regulatory agencies and legislators have been slow to curb these practices may be a consequence of the limited political clout among communities victimized by predatory lending. And in communities underserved by financial institutions, mortgage borrowers may have few

choices for securing a loan besides lenders who peddle high cost loan products even when borrowers should qualify for lower cost loans. Similar to our discussion of policing, communities differ in the extent to which they are subject to predatory and subprime lending practices, and therefore foreclosures, *because* they lack the political influence necessary to thwart such practices or to attract more (prime) lenders to the community.

Our study is not without limitations. One issue is generalizability. Our results may be unique to the context in which this study was conducted. Whether the same findings would arise in other urban and suburban areas, especially in the Sunbelt areas most devastated by foreclosures, is an empirical question worth studying. Additionally, it may be the case that generally there is no independent effect of foreclosures on crime, but we acknowledge that in select neighborhoods—such as those with low prior crime levels—foreclosures may in fact yield increases in crime (i.e., spatially heterogeneous effects).

Although it is important not to overgeneralize inferences, the national trends on foreclosures and crime do suggest that our findings have widespread generalizability. By and large, those metropolitan areas and states hardest hit by the foreclosure crisis have had similar, and in some cases even greater, declines in crime in recent years than those areas with lower foreclosure rates. For instance, in 2008, when foreclosures peaked nationwide, Las Vegas ranked second among metropolitan areas for foreclosure rates (RealtyTrac, 2009). Yet the violent crime rate in Las Vegas declined from 887 to 840 per 100,000 residents between 2007 and 2008 (FBI, 2008: table 7; FBI, 2009: table 7). This 5.3 percent decline compares with a 2.7 percent decline in violent crime nationwide (FBI, 2008: table 4). Similarly, the property crime rate in Las Vegas declined by 11.2 percent between 2007 and 2008 versus 1.6 percent nationwide. In California, which had the fourth highest foreclosure rate in 2008 and the highest number of foreclosures (more than half a million), the violent crime rate declined by 3.6 percent between 2007 and 2008 while the property crime rate declined by 3.1 percent (FBI, 2008: table 4). Again, these declines are substantially greater than those nationwide, on average. In sum, we suggest that our inferences concerning the lack of relationship between foreclosure and crime may in fact generalize to other locations besides

Chicago because the epidemic in foreclosures has not coincided with any measurable increase in crime, even in those areas bearing the brunt of the crisis.

A second potential limitation is our unit of analysis. We argued before that the relationship between foreclosures and crime should be examined at the community level to avoid masking information about spatial concentration of both foreclosures and crime within urban areas. Of course, even for a within-city analysis, there are an infinite number of ways to operationally define communities, and the definition of community used in a given study may influence inferences about the causes and consequences of crime (see Openshaw, 1984). While we do not find a relationship between foreclosures and crime at the community level, we acknowledge the implications of previous research that suggests that foreclosures may have a localized effect on crime (Ellen, Lacoé, and Sharygin, 2011). Of course if there is little net change in crime in the larger community but an increase on face-blocks with foreclosures, then this pattern may result because foreclosures pull crimes onto a face-block that would have occurred elsewhere in the larger neighborhood community had it not been for the foreclosure. In other words, foreclosures may produce a reshuffling of crime in the larger community, as opposed to a net increase in crime. Disentangling such spatial dynamics of foreclosures is an important avenue for research, yet, to our knowledge, no existing studies of foreclosures and crime have been able to address this important issue (for further discussion on this matter, see Ellen, Lacoé, and Sharygin, 2011).

Third, the nature of the available foreclosure data precludes us from examining the effects of the disposition of foreclosure filings on crime. A variety of outcomes may occur during the foreclosure process, including restructuring of the loan, bank-ownership of the property, a short sale, and vacancy. Ellen, Lacoé, and Sharygin (2011) contrasted the effects of foreclosure on crime across dispositions, and found slightly larger effects of bank-owned foreclosures (REO) on crime than total foreclosures. While in aggregate foreclosure filings appear to be spuriously related to crime at the community-level, future research should investigate whether these different outcomes of the foreclosure process are related to changes in community crime.

These limitations present important opportunities for future research. Yet within the limitations of our research design, we nonetheless believe the results support the claim that foreclosures have little to no independent effect on community crime. Rather, foreclosures and crime are each explained by antecedent community characteristics, including a measure of political influence. Thus, to understand why social problems such as crime and foreclosure are so unevenly distributed across geographic space, it is necessary to investigate why power and influence are unevenly distributed.

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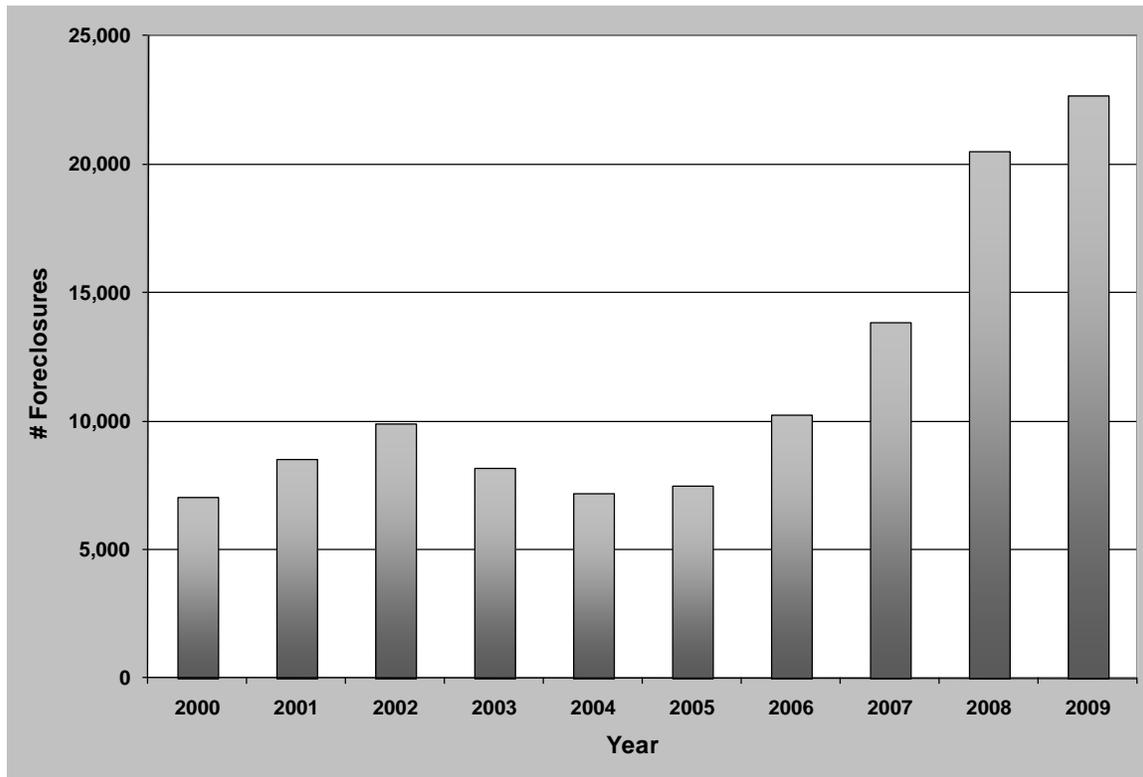
Figure 1: Trends in Home Foreclosure in Chicago, 2000 to 2009

Figure 2: Change in Home Foreclosure Filings, Chicago Community Areas 2000-2009

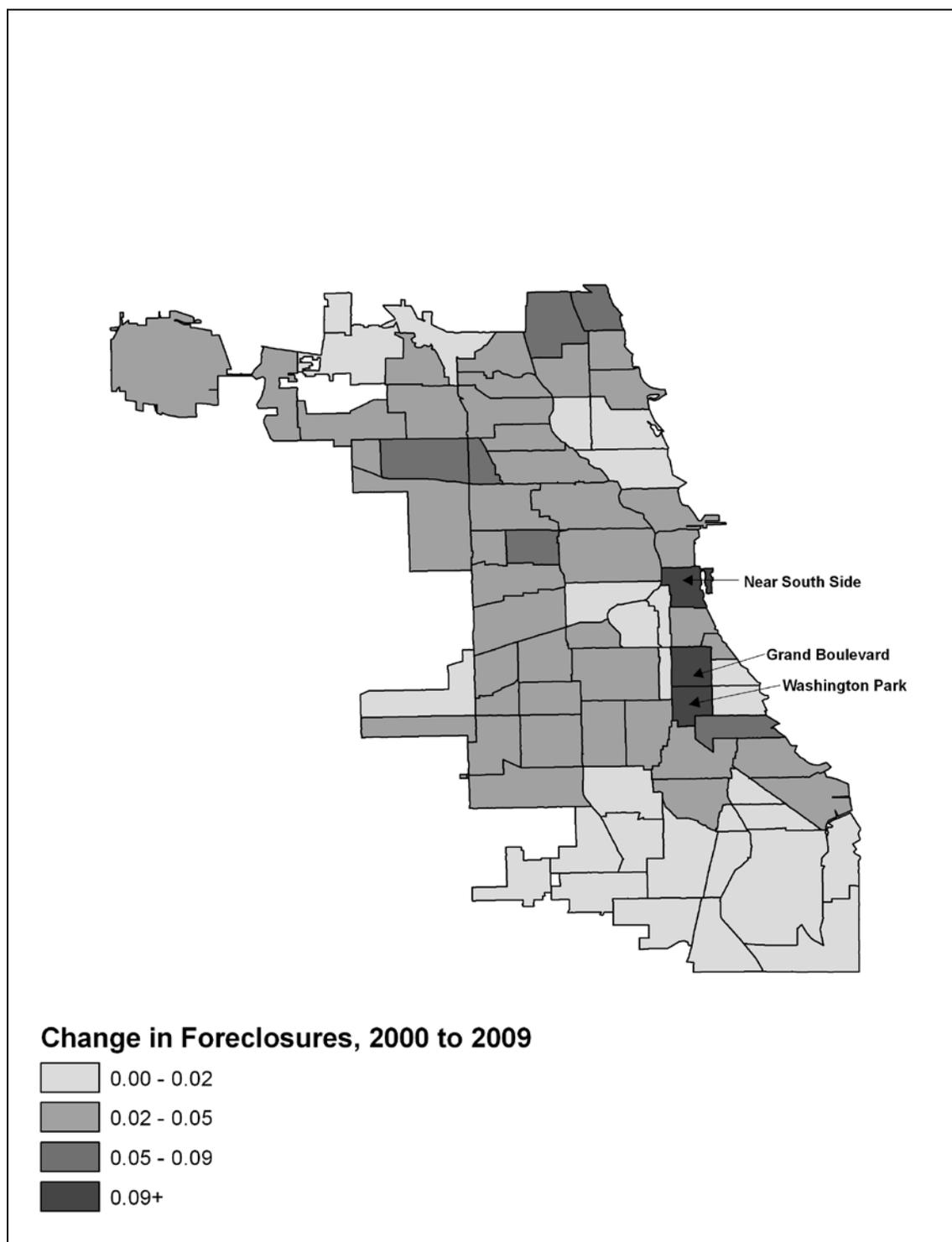


Figure 3: Standard Deviation Change in Violent Crime (2004-2009) per Standard Deviation Change in Community Characteristics

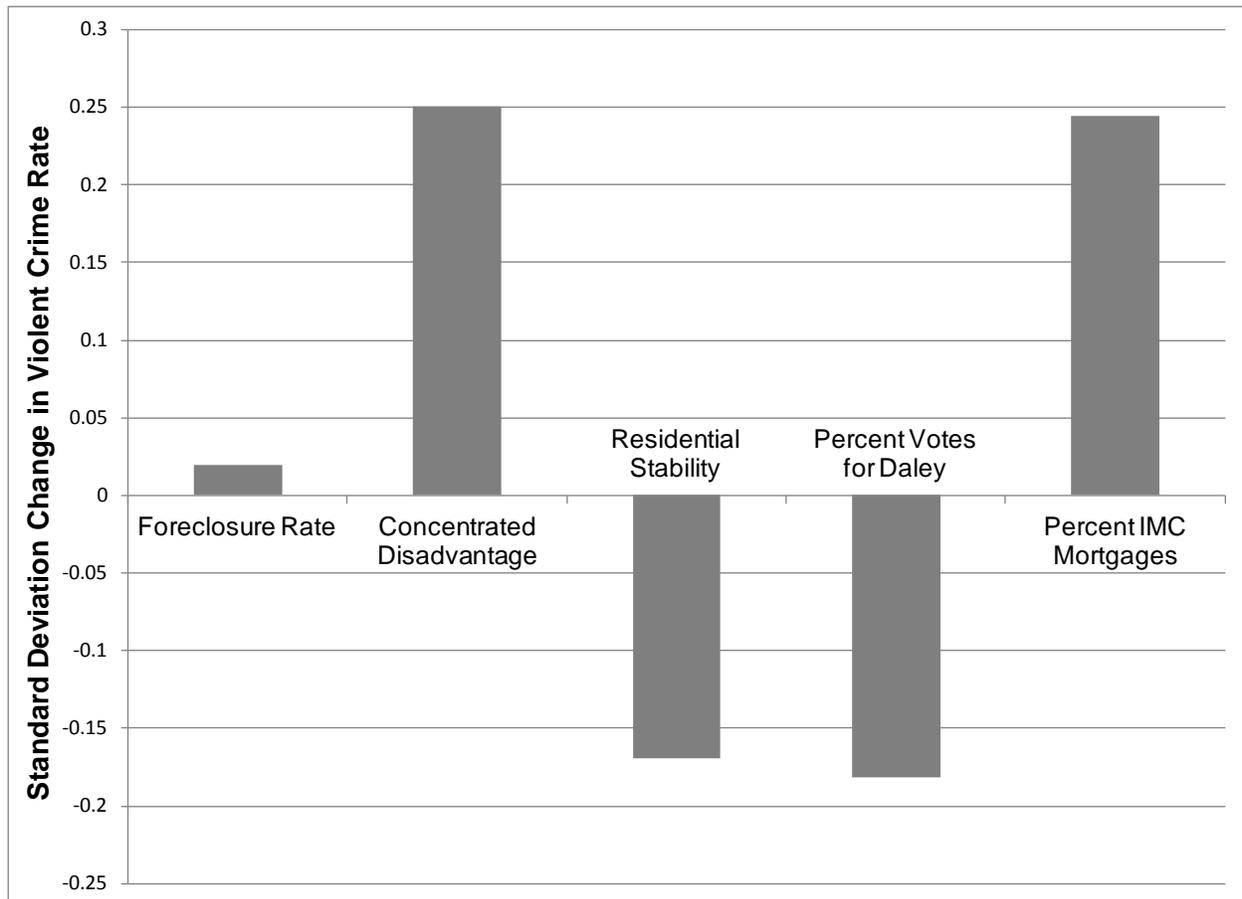


Table 1. Descriptive Statistics of Community-Level Variables

	Mean	(SD)
Violent Crime Rate	14.88	(12.19)
Property Crime Rate	50.58	(32.74)
Foreclosure Rate	2.12	(2.03)
Concentrated Disadvantage	0.00	(1.00)
Residential Stability	0.00	(1.00)
Percent Foreign-Born	0.19	(0.17)
Percent Votes for Daley	0.78	(0.13)
Percent IMC Mortgages	0.29	(0.10)

Notes: N = 456 (76 community areas x 6 time periods; excludes O'Hare Airport).

Table 2. Random Effects Analysis of Property Crime Rates, Chicago 2004-2009

	Log (Property)					
	Model 1		Model 2		Model 3	
	Coef.	Robust SE	Coef.	Robust SE	Coef.	Robust SE
Intercept	3.233	(0.098) ***	3.895	(0.348) ***	3.865	(0.344) ***
Year	-0.015	(0.003) ***	-0.012	(0.003) ***	-0.014	(0.004) ***
Foreclosure Rate	0.010	(0.004) *	0.001	(0.005)	0.007	(0.008)
Prior Crime Rate	0.011	(0.002) ***	0.009	(0.001) ***	0.010	(0.001) ***
Concentrated Disadvantage			0.039	(0.060)	0.050	(0.060)
Residential Stability			-0.081	(0.035) *	-0.079	(0.034) *
Percent Votes for Daley			-0.955	(0.340) **	-0.914	(0.335) **
Percent IMC Mortgages			0.600	(0.551)	0.551	(0.539)
Foreclosure * Disadvantage					-0.005	(0.004)

Notes: N = 456 (76 community areas x 6 time periods; excludes O'Hare Airport).

+ p<0.10 * p<0.05 ** p<0.01 *** p<0.001

Table 3. Random Effects Analysis of Violent Crime Rates, Chicago 2004-2009

	Log (Violence)					
	Model 1		Model 2		Model 3	
	Coef.	Robust SE	Coef.	Robust SE	Coef.	Robust SE
Intercept	1.733	(0.124) ***	2.435	(0.522) ***	2.372	(0.506) ***
Year	-0.024	(0.005) ***	-0.022	(0.005) ***	-0.025	(0.006) ***
Foreclosure Rate	0.022	(0.006) ***	0.010	(0.006)	0.021	(0.014)
Prior Crime Rate	0.040	(0.006) ***	0.018	(0.006) **	0.021	(0.006) ***
Concentrated Disadvantage			0.252	(0.143) +	0.257	(0.142) +
Residential Stability			-0.170	(0.066) **	-0.166	(0.065) *
Percent Votes for Daley			-1.414	(0.525) **	-1.320	(0.511) **
Percent IMC Mortgages			2.516	(1.374) +	2.340	(1.338) +
Foreclosure * Disadvantage					-0.007	(0.007)

Notes: N = 456 (76 community areas x 6 time periods; excludes O'Hare Airport).

+ p<0.10 * p<0.05 ** p<0.01 *** p<0.001