

UNIVERSITY OF CALIFORNIA,  
IRVINE

Practices, Pathologies, and Policies:  
A journey Through Credit, Crisis, and Crime

DISSERTATION

submitted in partial satisfaction of the requirements  
for the degree of

DOCTOR OF PHILOSOPHY

in Criminology, Law, and Society

by

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Dissertation Committee:  
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My years at UCI have been among the most challenging years of my life. Starting the program was literally starting an entirely new chapter of my life—new location, new status, and the beginnings of a new career. While some parts of the process came easier than others I can say without a moment of revisionist history that it was an amazing journey—one that was both wrought with peril and with great rewards, often in the same day.

When I decided to go to graduate school, my friends that had gone through the process warned me that it would change me and my relationships forever. They were so right! I have met amazing people along the way—both in my personal and academic life—and it's from each encounter that I take an incredible amount of knowledge: how to teach, how to advise, how to mentor, and how to see the world through different lenses. The greatest challenge was understanding that there is no answer; there's no magic textbook that tells us how to do things, and we must research and use (or develop) creativity to find potential answers or solutions ourselves.

To list everyone that helped me through the journey would be a novel in itself so for the sake of brevity I will list some and summarize others. First, to my advisor, John Hipp. I have been fortunate to have the same advisor throughout my tenure in graduate school. Thank you for all your help, particularly in the last year.

Second, to Donna Schuele who played a more than pivotal role during my time at UCI. You were the first person that I worked for as a Teaching Assistant and, as I had hoped, you were also the last. I remember many late nights during my first quarter talking through tragic things that were happening in my life and you never wavered in your support and friendship to me. You gave me the freedom to explore teaching. With any luck one day I hope to have the gift for presenting lectures that you possess. In all my years at UCI I have yet to grow tired of hearing you lecture (as was evidenced by C7). You are a true friend and I am so very thankful for all you did for me.

To Elliott Currie, your wisdom, compassion, and patience are truly appreciated. You are the glue that holds the graduate students together. Without you, the process would have been far more difficult and lonely and having someone that understands was a wonderful gift.

There are times when amazing coincidences happen. I met Gilbert Geis at my first criminology conference in Seattle, Washington in 2006. It was a chance encounter that changed my life. For a man of such notoriety in his career, and I a lowly Masters student, he made me feel like the most important person at the luncheon. As people lined up to speak with him he saved me a seat at his table and introduced me to each and every person that came to speak to him (much to their annoyance at times). It was a special gift of his. He cherished building and maintaining relationships and found value in people. We remained friends prior to coming to UCI and he became my "Pops" until his death. I regret that he is not here to see me graduate but I couldn't be more thankful for having

him in my life. I miss him every day. His gravestone sums up his life beautifully, “Always loving, always loved.”

I am especially appreciative of Robert McCaffrey (aka “Bob”) one of my first friends in Newport Beach and one of the most supportive friends I have ever known. His friendship was unwavering and he showed me a life I could have only dreamed about before I moved to California. I can trace almost all my good times, good friends, and amazing experiences back to Bob. There are no words to express my gratitude and there’s no way to repay someone for such things except perhaps to try to carry on those attributes to others that I encounter in my life.

Over the years I made many friends that were champions for me throughout the process: Ed Kimball, Michael Estey (who sadly passed away before I graduated), Sharon Farrell, Crystall Null, Laura BrennanKane, Patrick Moynihan, Fletcher Dice, Tom Berndt, Lisa Willis, Marsha Hill, George Griffith (who swears he always knew I would graduate), Gary Mangold, Steve Landry (who also passed away early on in the process), Kimberly Santora, and Jessica Grebenkemper (my treasured classmate that passed before we graduated). You have all loved me and picked me up when I was down, were my cheerleaders, and helped me grow so much in such a short time. Your friendship is invaluable. And Patrick Moynihan, you are the best.

Lastly, to my boyfriend and companion, David Gamerman. You met me during the roughest part of this process but managed to stick with me through to the finish. I can honestly say that I could not have done this without you. The burden that you took on when you met me, Sara, and Lucky was not for the faint of heart. You loved Sara and Lucky as though they were your own and allowed me the freedom to take care of my responsibilities without demanding anything for yourself. We met when I needed you most and helped heal me when I felt broken. Thank you for having faith and trust and for supporting me for oh so many years.

## CURRICULUM VITAE

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### **EDUCATION**

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Doctorate, Criminology, Law, and Society - 2015

University of California, Irvine

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M.S. Justice Policy – 2007

University of Texas at San Antonio

San Antonio, Texas

B.S. Biology – 1996

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Houston, Texas

### **TEACHING EXPERIENCE - UCI**

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Legal Sanctions and Social Control (Upper Division)– Fall 2014

Teaching Assistant -

Pre-Law courses:

Introduction to Criminology Law & Society

Fall/Spring 2009, Fall 2010, 2011, 2012, 2014

Constitutional Law (Upper Division)– Winter 2009

Gender and Social Control (Upper Division)– Fall 2008, Winter 2014, Winter 2015

American Civil Legal Systems (Upper Division) - Winter and Spring 2012

Criminology Courses:

Research Methods (Spring 2015) – Masters Level Online Course

Forms of Criminal Behavior - Winter 2013

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Deviance – Winter 2011

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White Collar Crime - Spring 2013

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Victimology (December – January 2014)

Penology (February –March 2015)

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CSU – Global Campus (Winter 2011 – Current)

Introduction to Criminology

Introduction to Crime and Deviance

Introduction to Criminal Justice

Analysis of Crime and Deviance in the United States

Ethics for the Criminal Justice Professional

Fundamentals of Law

Fundamentals of Penology

University of Texas at San Antonio (Fall 2007, Spring 2008) – Teaching Associate  
Legal Research & Writing

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## **RESEARCH EXPERIENCE**

Research Assistant – University of California, Irvine – July 2013

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Research Assistant – University of California, Irvine , Fall 2012

Collect and organize data for student assessment of introductory criminology class.

Prepare pre and post tests; create database of students/grades/participation in facilitated study groups; analysis of data for conference preparation.

Research Assistant – University of Texas at San Antonio, Summer 2007

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Research Assistant - University of Texas at San Antonio, Fall 2005-Spring 2006

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Street Crime.

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Typology and Characteristics of School Violence Perpetrators – Book Chapter.  
Critical Examinations of School Violence and Disturbance in K-12 Education (August 2015)

Identity Theft: Cost and Implications to Consumers and Businesses  
The SAGE Encyclopedia of Economics and Society (August 2014)

Identity Theft and Document Fraud: Assessing a Threat to National Security  
The Encyclopedia of Public Administration and Public Policy (Under Review – August 2014)

Entry for Victim Offender Mediation and Victim Reconciliation Programs (2013)  
The Encyclopedia for Criminal Justice Ethics

Entry for Alternative Dispute Resolution (2013)  
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American Society of Criminology – 2013  
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American Society of Criminology – November 2010  
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## **ABSTRACT OF THE DISSERTATION**

Practices, Pathologies, and Policies:  
A Journey Through Credit, Crisis, and Correction

By

Patricia Ann Goforth

Doctor of Philosophy in Criminology, Law, and Society

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Professor John R. Hipp, Chair

The most recent mortgage crisis, resulting from the collapse of the housing bubble, has led to a record number of foreclosures, residential vacancies, and deteriorating neighborhoods. The current challenge is to determine the long-term consequences of the foreclosure crisis. How do we create viable solutions to the woes of the affected neighborhoods? While many of the neighborhoods damaged by the foreclosure crisis were already impacted by structural inequalities, the increased rate of residential turnover may lead to an increase in existing structural inequalities and increased crime rates through negative spillover effects on both neighborhood (micro) and city (macro) levels. Using a dataset that combines foreclosure, crime, and population data in two cities between November 1, 2005–December 31, 2010 and January 2007–December 2010, I investigate the impact of foreclosures and vacancies on neighborhood crime rates and demographic shifts in San Antonio, Texas and San Diego, California as well as home appraisal values in San Antonio, Texas.

First, I investigate the impact of vacancies on both neighborhood crime rates and demographic characteristics. Using negative binomial regression models I find that



increases in the percentage of vacancies in a neighborhood result in increases in neighborhood property, drug, and violent crimes. This result held true for San Diego, California as well. Looking next at the interaction of neighborhood demographics and vacancies, I find that the interaction between income and vacancy has an effect on property and violent crimes. This suggests that neighborhoods with lower income levels (one standard deviation below the mean) are more likely to see higher increases in property and violent crimes than neighborhoods with higher income levels. For San Diego, I find no significant effects on the interaction of income and vacancy with property or violent crimes.

I next consider the interaction of race and vacancy on crime rates. First, the interaction of the percentage of African Americans with vacancy showed no significant effects on crime rates, and the same held true for San Diego. Second, I consider the interaction between the percentage of Hispanic residents in a neighborhood and vacancy on crime rates. I find significant and positive effects only with respect to drug crimes. The results show no effect on crime rates in San Diego.

Then, I examine the effect of foreclosures on neighborhood crime rates. In the analysis, I uncover that foreclosures affect neighborhood crime rates differently than vacancies. Findings here suggest that foreclosures have a positive effect on property and violent crimes, suggesting that as the percentage of foreclosures increases in a neighborhood so too do property and violent crimes. The results held for the city of San Diego. Investigating the interactional effects of demographic characteristics and foreclosure I find the following: With respect to income level and foreclosure I find only a significant and negative effect for drug crimes, differing for San Diego, where I find

significant and positive effects for violent crime. Turning to the interaction of race or ethnicity and foreclosure on crime rates, I find significant and negative effects on property crime, suggesting that in neighborhoods with high percentages of African American residents increasing rates of foreclosure have decreasing rates of property crime. These results did not hold true for San Diego. Additionally, I find a significant and positive relationship on the interaction on violent crime. Again, this suggests that neighborhoods with high percentages of African American residents and increasing foreclosure rates will likely have increasing rates of violent crime. Again, the results did not hold true for San Diego. Examining the interaction of the percentage of Hispanic residents and the percentage of foreclosure, I find a significant and positive relationship with respect to property crime. Neighborhoods with higher percentages of Hispanic residents and increasing foreclosures are likely to experience higher increases in property crime than other neighborhoods. The results for property crime held true for San Diego; however, I also find a significant and positive relationship for violent crime as well.

Last, I examine the effect of vacancies, foreclosures, and crime on property appraisal values in San Antonio, Texas. I conclude that the percentage of vacancies has a positive effect on property appraisal values. In other words, as the percentage of vacancies increases the property appraisal values are apt to increase. Second, I find no effect on the percentage of foreclosures on property appraisal values. Third, estimating the effect of crime types on property appraisal values I find only a significant and negative effect for drug crimes on property appraisal values.

The conclusion of these findings underscores the potentially harmful effects that the foreclosure crisis, and vacancies, had on neighborhoods and their viability. The

findings of this study, which support in part the findings of other studies, emphasize the need for programs and policies that not only reduce crime rates but also improve neighborhood conditions.

## CHAPTER 1: INTRODUCTION

Historically, credit, inequalities of access to credit, and home ownership have long proved problematic for various racial and ethnic groups (Williams, Nesiba, & McConnell, 2005). Credit was difficult to obtain if the borrower was a minority and particularly so if he or she was of African American or Hispanic descent (Dreier, Bhatti, Call, & Schwartz, 2014; Hyman, 2011). Credit inequality has persisted over the greater part of the twentieth century and has contributed to disadvantages in other areas of life, such as general racial segregation and neighborhood decline (Farley & Frey, 1994; Feagin, 1999; Massey & Denton, 1993; Williams et al., 2005).

Discriminatory lending practices such as redlining—a technique used in the 1930s where financial institutions withheld access to mortgage credit in neighborhoods housing predominantly minority residents, regardless of the creditworthiness of the potential borrower—made it more difficult for minority borrowers to access credit, and contributed to racial segregation (Farley & Frey, 1994; Holmes & Horvitz, 1994; Williams et al., 2005). These discriminatory practices were blatant in terms of their exclusionary policies. Federal agencies also endorsed such policies, as did the National Association of Real Estate Boards, which prohibited the introduction of minorities into neighborhoods that were predominantly white (Williams et al., 2005).

The practice of discriminatory lending was more likely to occur in certain neighborhoods, specifically those that consisted predominantly of African Americans and neighborhoods of lower socioeconomic status, which were also neighborhoods at risk of decline (Duda & Apgar, 2005; Kanto & Nystuen, 1982). The disinvestment of urban neighborhoods, where mortgage lenders withheld financing, has been argued to have led

to the deterioration of neighborhoods or at least contributed to their decline (Kanto & Nystuen, 1982). Without infusion of financial capital into the greater community, there is little hope of either maintaining and fortifying existing structures or attracting new homebuyers into the area (Skogan, 1990; Velez, Lyons, & Boursaw, 2012). From this point forward, the process of decline begins.

Even as early as the 1930s, neighborhoods that experienced blighted conditions were recognized as detrimental to the surrounding areas (Dingemans, 1979). Further, if the areas did not receive drastic measures for intervention, the surrounding communities tended to become negatively affected by the blighted conditions. The same holds true in the present (Harding, Rosenblatt, & Yao, 2009; Hyman, 2011). As studies in the recent foreclosure crisis have shown, negative spillover effects continue to impact neighborhoods with a number of homes undergoing gross neglect and deterioration (Harding et al., 2009; Immergluck & Smith, 2006; Lin, Rosenblatt, & Yao, 2009).

During the 1960s, policymakers sought to reduce economic inequality by providing easier access to credit, including mortgage financing, without removing the impediments individuals faced for access to better jobs or to earning higher wages (Hyman, 2011). The Fair Housing Act of 1968 provided a program creating availability of credit for low-income borrowers and for those who were unable to otherwise obtain credit from more conventional lenders to purchase a home, whether new construction or pre-existing. The program was touted as an opportunity for those with little or irregular incomes and questionable credit histories to obtain decent housing (Hyman, 2011; Walter, 1995; Williams et al., 2005). However, the program was plagued with issues similar to those faced in the recent subprime lending and foreclosure crisis; namely,

trusting borrowers were victims of questionable lending practices that ultimately led to default or foreclosure on an unprecedented scale (Hyman, 2011).

Following the passage of the 1968 Fair Housing Act, the Equal Credit Opportunity Act of 1974 made the use of racially-based mortgage discrimination practices illegal (Walter, 1995; Williams et al., 2005). Despite the policy efforts to promote homeownership by removing the impediments created by racial bias, differences continued to exist between African American and White borrowers with respect to mortgage credit denial rates, with African Americans experiencing much higher denial rates than Whites, despite being comparable in socioeconomic status (Nesiba, 1996; Ross & Yinger, 2002; Schaefer & Ladd, 1981; Williams et al., 2005).

In the mid-twentieth century, borrowers assumed that creditors kept a watchful eye over the debt level of their customers. Individuals could not go too far into debt because creditors and credit managers imposed limits on customers, helping them to exert control over their spending (Hyman, 2011). As mortgage lending began to reach abusive levels in the mid-1990s, there was still the assumption that a mortgage broker was an advocate for the borrowers, remaining vigilant so that borrowers did not enter into a mortgage they could not afford. This, however, was not the case.

The same groups of individuals who were the subjects of credit inequality and struggled for access to credit early in the rise of the credit boom (around the late 1960s) were also victims of mortgage abuse that led to the burst of the housing bubble in the mid- to late-2000s. Credit managers who had once refused to lend to individuals based on race or ethnicity, or even to individuals from geographic areas where high percentages of minority populations resided, were replaced by lending institutions that handed out

extensions of credit and mortgages to borrowers who were unable to carry the debt burden. The policies changed from offering no credit to offering extensive credit, which led to millions of Americans, particularly Hispanics and Blacks, losing their homes as their communities suffered the consequences.

### **Subprime and Predatory Lending**

Credit reforms beginning in the 1930s through the 1960s began to make the acquisition of credit easier for borrowers. After World War II, the levels of debt for Americans rose higher than ever before. Unlike earlier times, however, the borrowers were no longer able to pay back the loans (Hyman, 2011). This trend continued through the 1990s when, as a result of various policy changes over the years, loans for mortgages were extended to low-income, first-time homebuyers or to those with less than stellar credit. While mortgages are often viewed as good debt—since home ownership contributes to the financial wealth of the homebuyer—the new mortgage instruments that were being utilized were, in fact, detrimental to homebuyers since many of them undermined the goals of homeownership (Avramenko & Boyd, 2013; Hyman, 2011; Williams et al., 2005).

The shift in mortgage-lending policies, beginning with the Fair Housing Act of 1968, continued into the 1990s when, under pressure from Presidents Clinton and Bush, mortgage regulations again began to relax as another push to increase homeownership came to the forefront. Mortgage loans, considered to be conventional loans, originated by banks or savings and loan associations, were replaced by alternative or non-conforming loans. Non-conforming loans are loans originated by mortgage bankers, brokers, or mortgage service companies to borrowers who are credit-worthy, credit-

challenged, or who could otherwise not qualify for a conventional loan (Harris, 2001; Mahalik & Robinson, 1998; Zimmerman, Wyly, & Botein, 2002). Another option for mortgage financing was through the use of subprime loans, which were primarily issued to those individuals considered to be credit challenged. The relatively new subprime loans began flooding the industry shortly thereafter (Duda & Apgar, 2005; Williams et al., 2005).

Subprime and predatory lending (collectively discussed here as subprime lending) were not new business practices at the time of the recent foreclosure crisis, though they became increasingly prevalent in the 1990s (Crump, 2005; Freeman & Hamilton, 2002; Pyle, 2003). This can be attributed, in large part, to the easing of regulations restricting the usury rates that mortgage lenders could charge to borrowers (Dobbins, 2001). The result of this trend was an increase in the number of subprime loans issued at the end of the 1990s—numbers 10 times greater than those originated in the early 1990s (Fishbein & Bunce, 2001).

The explosion in the use of these frequently abusive lending practices can in large part be credited as the primary cause of the housing and foreclosure crisis. Despite the alleged good intentions, the policies allowed otherwise credit-challenged individuals to purchase property and led to bad performances by banks and mortgage companies, including allegations of falsification of borrower documents, and exaggeration of borrower incomes, among other questionable practices.

### **Foreclosure Crisis**

While financial lending companies continued the practice of subprime and predatory lending to borrowers who historically had been underserved—those considered



high-risk borrowers—the rates of default and foreclosure began to increase dramatically as well, in some areas more than doubling over the course of a few years. Neighborhoods with low-income, high-percentage minority populations were particularly affected by the high rates of foreclosure, though in some regions suburban communities with newer homes fell victim as well (Dreier et al., 2014; Duda & Apgar, 2005; Kaplan & Sommers, 2009; Rugh & Massey, 2010). As late as 1998, subprime loan originations in the United States were estimated to total upwards of \$160 billion, representing an increase of more than 500% from 1994 (Crump, 2005; Dobbins, 2001). Going into the early and mid-2000s, foreclosure rates more than doubled, particularly in low-income and predominantly minority neighborhoods.

The foreclosure crisis can be attributed to a variety of causes, primarily to policies related to the acquisition of housing and the access and use, leading to abuse, of credit. The desire of individuals to acquire material possessions in light of policies relaxing the requirements to obtain credit created a problem that was felt throughout the U.S. economy. The implementation of policies that led to the overuse of these alternative, and often abusive, mortgage loans cannot be ignored as a significant contributory factor in the foreclosure crisis and the decline of neighborhood quality during this time.

The changed policies regarding mortgage lending led to an unprecedented number of foreclosures experienced in the United States during the foreclosure crisis that began in or around the late 1990s and early 2000s, reaching a peak in 2009 (Dreier, 2014). The central and original goal of the policy shift was to promote homeownership to individuals who had otherwise been marginalized or unable to acquire credit for a mortgage. The effect of these changes, however, left neighborhoods reeling from high rates of

foreclosures, leading to increases in residential turnover, high rates of vacant properties, and, for those left behind, higher crime rates and reduction in home values. During the period from 2007 to 2010, it is estimated that three million homes were seized by banks throughout the United States, jumping to nearly 4.9 million through the end of 2013 (Bohan & Daly, 2010; Dreier, 2014). As property values began to drop as a result of the high concentrations of neighborhood foreclosures and vacant properties the residents remaining in the neighborhoods were left owing more money on their mortgages than their properties were worth.

While neighborhood structures are complex and multifaceted, the long-term implications of foreclosures and vacancies on neighborhoods and structural characteristics are continually being explored. This dissertation examines the relationship between foreclosures, vacancies, crime rates, property values, and neighborhood demographic characteristics. More specifically, this research investigates the impact of these external forces (foreclosures and vacancies) on neighborhoods and the consequences for crime rates and demographic shifts over time.

Several datasets were utilized to explore the relationships previously discussed. An aggregated dataset was constructed that includes the foreclosures that occurred in the city of San Antonio, Texas, during the time period October 1, 2005–December 31, 2010 and San Diego, California, between 2007 and 2010. During this period, the rate of foreclosures in Texas was lower than the national average. Until 2011, however, California had consistently ranked among the highest rates of foreclosure in the nation, with one in 200 homes in foreclosure in 2010 (Gaines, 2008; Kolko, 2011). San Diego, while faring better than other cities in California, reached its peak in the mortgage

meltdown in approximately January 2009, when the trend began to slow and eventually reverse (RealtyTrac Staff, 2011; San Diego Regional Chamber of Commerce, 2012).

During the height of the foreclosure crisis, the experience in Texas was much better than that in some states, having one in 644 homes in foreclosure compared to California with one in 200. Bexar county, where San Antonio is located, was ranked fourth in Texas for total foreclosure filings and delinquencies over 90 days. Home appreciation was down by 1.2% compared to the national average of 3% (Gaines, 2008).

The foreclosure trends in San Antonio and San Diego provide good case studies for examining the role that foreclosures and vacancies play in the deterioration of neighborhoods with respect to crime rates and property appraisal values. The cities peak and decline in different years within the time frame of this study, and this allows for a good comparison and contrast of the effects leading up to and following each peak.

### **Description of Research Project**

Homeownership has long been deemed the best way for individuals to increase personal wealth and financial security (Dreier et al., 2014; Tippet, Jones-DeWeever, Hamilton, & Darity, 2014; Williams et al., 2005). The loss of a home to foreclosure harms not only the homeowner but also the other residents left behind in the affected neighborhoods. The losses incurred manifest in the form of increasing levels of disadvantage in a neighborhood, given the relationship between the increased rates of residential mobility (or residential turnover), the likelihood of increasing levels of poverty, and changes to demographic composition of the neighborhood (Shaw & McKay, 1942). Consequently, it is important to understand if and to what extent these various characteristics are affected by concentrated foreclosures and vacancies.

The concentration of foreclosures and vacancies in neighborhoods may also serve as a contributing factor to the decrease in property assessment values conducted by the county. Properties left without supervision, are vacant for extended periods of time, or that fall into disrepair can have a negative impact on the assessment values of neighboring properties (Dreier et al., 2014). If a neighborhood has a concentration of properties that experience residential neglect, the outcome of decreasing assessment values might also contribute to the increasing level of disadvantage by affecting residential mobility, levels of poverty (or decreasing wealth), and crime. The result, for those remaining in the neighborhood, are property values that are lower than what is owed on the property, leaving mortgage holders with negative equity in their homes.

The examination of the impact of foreclosures and vacancies on neighborhood crime rates and property assessment values will help identify the extent of the impact of each on structural characteristics of neighborhoods. These findings can help in the allocation of resources and can provide assistance to neighborhoods struggling to recover from neighborhood transition. Prior research regarding the effects of foreclosure and vacancies has focused primarily on one city, but few have analyzed comparatively the effects between cities. Analysis of the effects of foreclosures and vacancies over time and between cities is important to study as the temporal effects are necessary for the understanding of the rate and type of decline that occurs in neighborhoods experiencing these problems. Understanding of these relationships will likely aid in the formation of more effective policies by directing efforts towards rebuilding communities and, at the same time, helping residents rebuild and protect their financial investments in their properties.

## **Overview of the Dissertation**

In order to examine the impact of foreclosures and vacancies on neighborhood crime rates, demographic shifts, and property assessment values between cities, data was collected from various sources and analyzed. Crime data was obtained from the San Antonio and San Diego Police Departments and provided pertinent information regarding location and types of crimes committed within each city. Addresses pertaining to crime calls were used to document and map the calls to demonstrate the crime patterns around the City of San Antonio. The data was aggregated up to census tract levels and combined with publically available U.S. Decennial Census data for 2000 and 2010, which was used as a means to contextualize the demographic characteristics of the neighborhoods. For San Diego, the data consisted of the number and types of crime calls. The data was used to demonstrate the rate of crime occurring within the various census tracts. For San Antonio, the crime data for San Diego was combined with the census data for use in the analysis. The components of each part of the dissertation are discussed next.

Chapter Four of the dissertation provides a comparative investigation into the role of vacancies on neighborhood crime rates (and the reciprocal relationship of crime rates on vacancies) over time in San Antonio, Texas and San Diego, California during the time periods of December 2005–December 2010 and January 2007–December 2010, respectively. To examine the vacancy aspect of the research, vacancy data was collected from the U.S. Postal Service and obtained via the Department of Housing and Urban Development (HUD) and aggregated at the census tract level and by quarterly time periods. This portion of the research focuses primarily on understanding the direct and reciprocal effect of vacancies on crime. Additionally, the research explores what types of

crime are more likely to be experienced in neighborhoods with high rates of vacancies. More specifically, does the presence of high (or concentrated) rates of vacancies affect crime?

Chapter Four also compares the longitudinal effects of foreclosures on crime rates in San Antonio, Texas and San Diego, California for the time period December 2005–December 2010 and January 2007–December 2010, respectively. This section aims to provide an understanding of the relationship between foreclosure and crime.

Additionally, this section discerns what types of crime are most likely to occur in a neighborhood experiencing high rates of foreclosure and whether this contributes to the social disorganization of the neighborhood. Further, the results of the first and second chapters allow for a comparative analysis, not just between cities, but also between foreclosures and vacancies, and whether vacancy or foreclosure, if either, has a greater effect on neighborhoods and crime rates. Using foreclosure data collected by an independent contractor, the data was aggregated up to the census tract level. Using negative binomial regression for models estimating the effects of foreclosure and vacancy, including lagged measures of the dependent variables, I examine the changes in crime rates over time, as well as the resulting demographic changes in neighborhoods. Inclusive in the models are variables accounting for interaction effects for income and foreclosure, and race and foreclosure, on crime rates.

Further, Chapter Four further explores the relationship between foreclosure and vacancy rates, together with crime rates, on property appraisal values using ordinary least squares regression models for the same time period. This chapter adds to the previous analyses an understanding of the depth to which foreclosures and vacancies can

negatively impact neighborhoods in San Antonio, Texas, as seen in reductions to property assessment values, and whether or not, and to what extent, these reductions are correlated with the concentration of foreclosures, vacancies, or both. This portion of the study is analyzed longitudinally using negative binomial regression models and also accounts for spatial lag of foreclosed properties.

Chapter Five focuses on the proactive intervention efforts employed by both governmental and private entities to remedy the negative effects absorbed both by residents and the neighborhoods in which they live, resulting from the foreclosure crisis. While several different strategies are discussed, the outcomes of the strategies are not yet known, as they were still ongoing at the time this research was completed.

The examination of the relationship between foreclosures, vacancies, and crime within neighborhoods is important in understanding how structural characteristics of neighborhoods are changed, and how those changes reciprocally affect each other over time as a result of rapid and concentrated rates of foreclosures and vacancies, as well as crime. The knowledge gleaned from this research may better assist neighborhoods, as well as local governments, in determining effective strategies for not only coping with, but also reducing, the problems associated with the increase in disorganization and decrease in social control.

## **CHAPTER 2: LITERATURE REVIEW**

Since the mid-twentieth century, foreclosure has been considered a serious problem facing not only neighborhoods afflicted with large concentrations of foreclosures but has also taken its toll on cities and counties. Foreclosure rates began a drastic increase in early 1995 and continued to increase, eventually spiking to a record high in, or about, the mid-2000s. This was considered a crisis level threatening entire communities that were plagued with a large number of foreclosed homes in a relatively short period of time (Edmiston & Zalneraitis, 2007).

### **The Impact of Foreclosure on Neighborhoods**

Neighborhoods and cities that are, or were, plagued with high rates of foreclosures are affected in many ways. First, the city/county experiences increasing costs due to an increased need for police and fire services (as a result of increases in crime and arson). Second, cities and counties face(d) an increase in administrative costs associated with the need to address vacant properties (as an example, sending inspectors to address nuisance complaints regarding property upkeep). Lastly, property values falls, which decreases the amount of tax revenue received by the city/county that was left to pay the bill for the services needed by these neighborhoods (Duda & Apgar, 2005; Immergluck, 2010; Immergluck & Smith, 2006; Schuetz, Been, & Ellen, 2008). Estimates from a study conducted by Duda and Apgar (2005) found that the cost of foreclosures for municipal governments ranged from \$30 for foreclosed properties that never became vacant to \$30,000 for properties that were foreclosed upon and remained vacant for some extended period of time.



The recent crisis has also contributed, in large part, to the deterioration of the quality of life of neighborhoods. This can occur through several different mechanisms: (a) increased crime rates in neighborhoods; (b) demographic changes within neighborhoods; and (c) potentially negative effects on property appraisal values (Baxter & Lauria, 2000; Kaplan & Sommers, 2009; Stein, 2001). During or after the foreclosure process, an increase in the number of vacant properties in these neighborhoods can also result. A number of studies have explored the effects of foreclosures on neighborhoods, this research will expand this focus to provide a comparative study not only of the effect of foreclosures and vacancies on neighborhoods but also between cities.

The explosion in the number of foreclosure on homes was not randomly distributed across cities, and some studies have found foreclosures to be particularly salient in neighborhoods of low and moderate-income level, as well as neighborhoods comprised of predominantly minority residents (Bradford & Rubinowitz, 1975; Crossney, 2010; Dreier et al., 2014; Immergluck, 2010; Immergluck & Smith, 2005; Immergluck & Smith, 2006; Kaplan & Sommers, 2009). Wilson and Paulsen (2010), however, found that the foreclosures were organized in middle-class neighborhoods that had undergone revitalization over the course of the previous decade or more. These were the same neighborhoods that were also likely to have been affected by subprime and predatory lending that sought to provide the residents of these neighborhoods with low-quality loans that were particularly prone to default and foreclosure (Immergluck & Smith, 2005; Rugh & Massey, 2010; Wilson & Paulsen, 2010).

In the early 2000s, homeownership rates reached their highest levels in history, due in large part to the federal government's efforts to make home loans more readily

available to first-time homebuyers. As a result of these changes in lending policy related to homeownership, more families were able to purchase homes than ever before, and rates of homeownership were higher across all socio-economic groups', minorities and low-income populations achieved homeownership levels higher than at any point in history (Herbert, Haurin, Rosenthal, & Duda, 2005; Kobie & Lee, 2011; Williams et al., 2005). Shortly thereafter, the mortgage industry suffered a meltdown, creating a foreclosure crisis devastating neighborhoods, many of which had a significant proportion of African American and Hispanic families (Baxter & Lauria, 2000; Dreier et al., 2014; Duda & Apgar, 2005; Lauria, 1998; Lauria & Baxter, 1999; Williams et al., 2005).

To understand the effects of foreclosure on neighborhoods, the process of foreclosure needs to be addressed. A foreclosure, in the most general sense, happens when a borrower defaults or fails to make mortgage payments over some period of time, after which the property may be repossessed by the lender (Black, 1991; Kalinina, 2013). Texas and California are both non-judicial foreclosure states, which alleviates the need for judicial intervention during the foreclosure process, the initiating of which occurs when a mortgage lender serves a notice of default on the borrower. If the borrower is unable to cure the default either by paying the delinquent amount owed or working out a payment plan with the lender, the foreclosure sale occurs within a specified period of time as outlined in the state Property Code (Kalinina, 2013).

The effect of foreclosure happens not simply at the time when borrowers default on their mortgage payments', it can begin prior to that time. Moreover, the effects can be exacerbated by the length of time a property moves through the foreclosure process and continue even beyond the time of foreclosure. The time period of this process can be as

quick as 60 days or, in many cases, can last a great deal longer. The length of the process is governed by state regulations but can also be drawn out as a result of the homeowner's default, and subsequent cure of the default, in their mortgage payments. This default and cure process can cycle over some extended period of time, and it is during this period that a property, or a neighborhood, is likely to begin its descent into decline. Lacoé and Ellen (2014) suggest that foreclosures are more likely to affect neighborhoods later in the foreclosure process than at the beginning stages.

While this default and cure process plays out over time, the mounting concerns of the homeowner may be more focused on meeting their financial obligations regarding the maintenance of mortgage payments (among other pending financial obligations), rather than with the physical maintenance of the property. Further, the owner may simply lack the finances necessary to provide for the upkeep of the property, allowing it to fall into disrepair. As a result of the impending loss of their residence, the homeowner may experience a sense of despair and emotional disinvestment in the property, as well as with the neighborhood, as the likelihood of losing ownership of the property becomes a reality. The emotional disinvestment of the homeowner provides less incentive for the owner to maintain and keep up the property (Schuetz et al., 2008). A further consequence of emotional disinvestment also extends to the neighborhood. As the owners become emotionally separated from their homes they can also become less inclined to be involved in the goings-on within the neighborhood, which decreases informal social control or passive policing.

High foreclosure rates in a given neighborhood not only affect that particular neighborhood but can also have effects on surrounding neighborhoods as well, in what is

described as spillover effects. In this case, the deleterious effects of these afflicted neighborhoods are likely to cross over into neighborhoods within some distance, a relatively short proximity. Several prior studies found the existence of spillover effects for both vacant and foreclosed homes the effects diminished the farther the distance from a vacant or foreclosed home and another property (Leonard & Murdoch, 2009; Lin et al., 2007; Schuetz et al., 2008).

These negative spillover effects can have deleterious consequences on the surrounding neighborhoods resulting from the affected area's decline in quality of life. This quality of life has been defined as the "public good that is produced by neighbors who enhance (or fail to enhance) their lawns, trim their trees (or fail to trim them), maintain their structures (or do not maintain them), etc." (Leonard & Murdoch, 2009, p. 318).

Crime rates in neighborhoods have been shown to be affected by foreclosure rates. Studies have found that, as the number of foreclosures increases, the likelihood of violent crime also increases. This, however, was not found to be the case for property crime rates (Baxter & Lauria, 2000; Ellen & Laco, 2013; Immergluck & Smith, 2005; Kobie & Lee, 2011). Even for properties that are not vacant but are undergoing the foreclosure process, disrepair and lack of maintenance may signal that the neighborhood is not stable, which may attract individuals engaging in vandalism and crime (Wilson & Kelling, 1982). Further, residents may lack the ability or investment in their community to seek to protect themselves from increasing rates of crime or criminal behavior (Sampson & Raudenbush, 1999).

Foreclosures are also likely to prompt residential transition, affecting the demographic composition of neighborhoods. Bursik (1988) notes that changes in the racial/ethnic composition of a neighborhood are correlated to increases in rates of criminal delinquency. Neighborhoods with high rates of foreclosure and experiencing simultaneous increases in crime rates are then also likely to experience social/demographic shifts. This, coupled with the fact that residents lose their homes during the foreclosure process, leads to population loss and/or residential turnover as homes may be sold to new buyers or current owners being evicted (Hipp, Tita, & Rosenbaum, 2009; Skogan, 1990). Similar studies have found that the transition of racial/ethnic composition of neighborhoods can be hastened by the prices of homes being depressed by foreclosures. Homes become more affordable to potential homebuyers, particularly those who are of lower socio-economic status and non-white, or minority, home buyers (Baxter & Lauria, 2000; Lauria, 1998; Lauria & Baxter, 1999).

### **The Impact of Vacancies on Neighborhoods**

A potential consequence of foreclosure in a neighborhood is that the foreclosed homes can eventually become vacant properties. As a result, a higher rate of foreclosure could be associated with higher vacancy rates in neighborhoods as well as a lower rate of owner-occupied housing (Lauria & Baxter, 1999). These foreclosed and vacant homes then suffer from lack of maintenance and upkeep, contributing to neighborhood degradation and blight.

Foreclosure can bring about the beginning of the cycle of decline that vacant properties then exaggerate. The decline of the property, and likely many homes, can inflict significant negative externalities on neighboring properties and communities, in

part due to the amount of time in which a property remains vacant (Accordino & Johnson, 2000; Molina, 2012). The effects of vacant properties are varied and far reaching, including the creation of blighted conditions that hamper the quality of life of residents in the neighborhood. The properties left unattended may become havens for criminal activity and send a message not only to residents, but also to others around the area, that the neighborhood lacks stability (Accordino & Johnson, 2000; Schuetz et al., 2008; Spelman, 1993).

Foreclosure can lead to further harm in a neighborhood by triggering an event that leads to homes being vacant for prolonged periods of time, or worse, the abandonment of properties. Vacant properties, similar to foreclosed properties, can be detrimental to a neighborhood in that tax revenue is lost from the homes, affecting cities and counties even beyond the neighborhood where the homes are located (Immergluck & Smith, 2006). It is likely that vacant homes will have larger negative spillover effects as properties tend to remain vacant for longer periods of time than foreclosed properties, particularly if foreclosures occur in depreciating markets (Schuetz et al., 2008). It is important to stress that foreclosed properties may become vacant properties, but there is, a greater likelihood that properties in foreclosure can be sold to new owners (and likely in a smaller amount of time), unlike vacant properties.

Properties may become vacant through a variety of different mechanisms, either as a result of owner abandonment or the culmination of the foreclosure process when owners are evicted and lenders have taken control of the property. Generally, compared to properties undergoing (or having undergone) foreclosure, an abandoned property may remain vacant for a longer period of time and have no guardianship or oversight of the

property during the vacancy. During this abandonment period, the continued physical decay of properties begin to negatively impact the neighborhood and surrounding communities. The types of negative externalities resulting from the vacancies bear a striking resemblance to that of foreclosure—increased crime rates, demographic shifts and potential lowering of property values—though the extent of these effects are likely to be very different.

The duration of a vacancy for a property undergoing foreclosure is likely to be shorter than a property that has been abandoned (Schuetz et al., 2008). Research has suggested that this could be due to the income level and racial/ethnic composition of the neighborhood (Molina, 2012; Shlay & Whitman, 2006). Properties located in high income areas are likely to be more desirable properties to potential buyers and can be turned over to new ownership in a relatively short period of time with little or no time in a vacancy status. Additionally, properties in neighborhoods with higher concentrations of Hispanic and African American are more likely to have properties that remain vacant for longer durations of time. Hispanic communities, however, differ from communities of African Americans such that foreclosed homes, rather than remain vacant, are more likely to sell rather than remain vacant and abandoned (Molina, 2012).

As banks assume responsibility for properties that have undergone foreclosure, or become real estate owned (REO), individuals are assigned on behalf of the bank to oversee properties and any maintenance that might be necessary until the property can be sold at auction. The likelihood of being able to maintain the upkeep of properties that were REO diminished greatly as a result of the drastic increase in the number of properties during the foreclosure crisis (Harding, Rosenblatt, & Yao, 2009). While a

property may experience decline in upkeep while undergoing the default and foreclosure process, there may still be residents in the home during this time. These conditions are unlikely to alleviate the decline but may serve to lessen the degree of decline of the property.

Conversely, vacant properties, whether the result of abandonment or some other mechanism (i.e., individuals voluntarily leaving due to changes in the social and economic trends of the neighborhood, loss of job, etc.), may remain so for a significantly longer time with no guardianship or oversight by a concerned party. During this time, the spiral of decline in maintenance is likely to be more drastic, leading to dilapidation and blighted buildings (Immergluck & Smith, 2006). As this happens, the likelihood that the properties will be sold become increasingly unlikely as the market demand for homes in the neighborhood declines. That is, the desirability of the home and of the neighborhood becomes lower (Accordino & Johnson, 2000; Velez et al., 2012).

Vacant properties also increase the likelihood of crime events occurring in neighborhoods. Properties that remain vacant may also attract vandalism and other types of crime. The vacant homes can be used as a “home base” where the property provides accessibility to neighboring homes. Additionally, the properties can be targeted for the theft of copper wiring, appliances left behind from previous owners, or they can be used by individuals as safe places for drinking and drug use as there is a small likelihood of being noticed by others in the neighborhood (Dornin, 2008; Lacoé & Ellen, 2014; Goodstein & Lee, 2010; Knight & O’Shea, 2011; Spelman, 1993). Furthermore, with increasing numbers of vacant properties in a given neighborhood, there are fewer



residents who remain, which provides a diminished likelihood of detection of crime events.

This dissertation seeks to explore the difference in the effects of vacancies versus foreclosures in neighborhoods with respect to crime rates. Though previous studies have looked at the impact that foreclosures have on levels of violent and property crime in neighborhoods with single-family mortgages (Immergluck & Smith, 2006), there is little information regarding the effects of vacancies on crime rates and whether one has a greater effect on crime rates than the other.

### **Impact of Foreclosures and Vacancies on Property Assessment Values**

The foreclosure crisis had further implications, particularly for cities and counties through the loss of property taxes, leading to a decline in both the quality and ability to provide essential services to the community (Baxter & Lauria, 2000; Bursik & Grasmick, 1993; Duda & Apgar, 2005; Lin et al., 2009; Schuetz et al., 2008). The loss of tax dollars is problematic not just from the homes that have been foreclosed or abandoned but also, through the loss of property values, from surrounding homes (Lin et al., 2009; Schuetz et al., 2008). The loss of income through foreclosure and vacancy had a tremendous effect on tax revenue, but the reduction of property values that resulted from dilapidation/blighted conditions, as well as other effects, made the acquisition of homes in these neighborhoods undesirable, due to crime and other incivilities (Hipp et al., 2009; Lin et al., 2009; Schuetz et al., 2008; Velez et al., 2012).

Property values in neighborhoods are affected by various different factors. First, neighborhoods with high concentrations of racial/ethnic minorities are likely to suffer from multiple disadvantages resulting from job loss, poverty, and crime (Peterson &

Krivo, 2010; Sampson et al., 1997). Flippen (2004) found that housing values increase much more slowly in neighborhoods with a high percentage of African American or Hispanic residents. This finding implies that the accumulation of wealth through homeownership is less substantial where less home equity is built up over the time of homeownership (Shapiro, 2004).

Disadvantage has long been established as a predictor of crime in neighborhoods (Hipp, 2010; Peterson & Krivo, 2010; Velez et al., 2012). Neighborhoods undergo residential and physical change through a cyclical, or reciprocal, process: a neighborhood that falls into disrepair or begins to deteriorate prompts residents to leave the area, if possible, which then leads to increases in crime and delinquency; then the neighborhood falls into further decline (Bursik & Grasmick, 1993; Shannon, 1988). The likely rapid residential turnover and subsequent changes in racial/ethnic composition of the neighborhood, have also been linked to increases in crime and delinquency rates (Bursik, 1988; Lauria & Baxter, 1998). As these changes in the neighborhood occur, creating instability, the negative externalities resulting from the changes likely affect property values. In part, this is due to the future homebuyer's lack of desire to purchase properties in the neighborhood. The cumulative effect is not only the crime and deterioration, but also the reduction in home prices and property values (Bursik & Grasmick, 1993; Hipp et al., 2009; Immergluck & Smith, 2005; Schwartz et al., 2003; Taylor, 1996). This reduction continues to bring change to the demographic characteristics of the neighborhood as new residents who previously did not have the means to do so are able to move into the neighborhood (Hipp et al., 2009).

Foreclosed and vacant properties have been shown to have negative effects on values of properties within close proximity. Similar to the data utilized in this study, prior research has utilized property appraisal values as a mechanism to determine the impact on properties within the vicinity of foreclosed or vacant properties. Studies have shown that the greatest negative effects of foreclosed properties generally increase rapidly in the year prior to the foreclosure sale and stabilize after the sale; the effects continue for some period of time after the lender has sold the property, in some cases up to five years after sale (Calorimis, Longhofer, & Miles, 2008; Kobie & Lee, 2011; Lin et al., 2009; Schuetz et al., 2008). Other studies have found that the negative effects of foreclosure are greatly reduced, in some cases non-existent, if the length of time for the foreclosure is less than a year (Coulton et al., 2008). The results found in the various studies are not consistent across space and time with respect to the specificity of the negative impact, but, the consensus is that the greater the distance between the foreclosure and nearby properties, the smaller the impact on the sale price.

The effects are amplified, however, when there are concentrations of foreclosures which can be a catalyst for decline in neighborhood quality and can damage the economic integrity of the neighborhood (Immergluck & Smith, 2006; Kaplan & Sommers, 2009). In neighborhoods that have three or more foreclosures within 300 feet of a property, the sale value of such properties decreases by up to 3% of market value (Lin et al., 2009). While the appraisal values of homes are affected by many factors, evidence strongly suggests that foreclosures contribute to the decline of property values and can be detrimental to both the communities and the property owners.

The impact of vacant properties has also been determined to have an impact on the values of properties that lie within close proximity of other properties in the neighborhood. The results from research conducted by Shlay and Whitman (2006) found that the effect of vacant and abandoned properties depended on the number of these homes within a given distances of a home for sale. Unlike the effects found for foreclosed properties, where the impact on other properties was constant regardless of distance, the negative impact of vacant and abandoned properties was greater at shorter distances.

### **Theoretical Approaches to Crime in Affected Communities**

#### **Social Disorganization**

The foreclosure crisis has been attributed, in large part, to subprime and predatory lending which targeted minority populations, specifically African Americans and Hispanics (Duda & Apgar, 2005; Rugh & Massey, 2010). Since these neighborhoods were already suffering from high levels of disadvantage and absorbed much of the brunt of the crisis, it is important to explore how these neighborhood characteristics operate, in conjunction with the effects of foreclosures and vacancies, to create further disadvantage and crime.

Neighborhoods with high concentrations of minority populations are also neighborhoods that suffer from cumulative disadvantage, much more than white neighborhoods by comparison (Peterson & Krivo, 2010). Even between African American and Hispanic neighborhoods, African American neighborhoods experience some of the most extreme levels of disadvantage. This is particularly poignant since African American and Hispanic residents were particularly targets of predatory lending

practices, and these neighborhoods absorbed much of the impact resulting from the foreclosure crisis (Rugh & Massey, 2010).

The theoretical explanations for neighborhood differences in crime rates stem from the work of Shaw and McKay (1942) and their work on juvenile delinquency. Their research concluded that, despite population changes in neighborhoods over time, crime persists in those neighborhoods and, further, that social structures, or characteristics within the neighborhood itself brought about crime. These high crime neighborhoods were located within the inner city (at the time) and were comprised of a high percentage of residential racial/ethnic heterogeneity, high rates of residential mobility (or residential instability) and persistent poverty. If a neighborhood were to experience a disruption to one or more of these social structures, structural features of the neighborhood that can cause poverty, unemployment, or poor educational opportunities, disruption to the social organization within the neighborhood. The result of which would likely be changes to neighborhood crime rates (Sampson & Groves, 1989; Shaw & McKay, 1942).

Much of the literature on neighborhood effects is framed within Shaw and McKay's (1942) social disorganization theory. Neighborhood dynamics are a likely cause of crime, particularly when communities undergo rapid structural change. The structural characteristics of such neighborhoods that became known as socially disorganized and were determined as likely to increase crime rates were: (a) a high concentration of racial/ethnic heterogeneity; (b) persistent poverty; and (c) residential mobility or residential instability (Shaw & McKay, 1942).

In neighborhoods with high rates of turnover, or high rates of residential mobility (also discussed as residential instability), individuals are likely to experience greater

difficulty both in forming and maintaining attachments, or bonds, to others within the neighborhood (Hipp et al., 2009; Stark, 1987). This inability for bonding relationships between residents to exist in some form has implications for informal social control (Sampson & Graif, 2009). Rapid population turnover in a neighborhood leads to reductions in the informal social control of a neighborhood, as conventional societal institutions, such as schools, family, and church, are weakened, thereby leading to higher crime rates. Research has long established the relationship between these neighborhood characteristics and crime (Coleman, 1990; Sampson & Graif, 2009; Sampson et al., 1997; Skogan, 1990).

Sampson et al. (1997) expanded on social disorganization by focusing on the relationship between environmental factors and crime. The ability of a neighborhood to control crime depends on the “capacity of a group to regulate its members according to desired principles to realize collective, as opposed to forced, goals” (p. 918). This social control, particularly informal social control, can be diminished in at least two different ways: (1) through high rates of residential mobility, and (2) through racial and ethnic heterogeneity (Kikuchi, 2010).

Neighborhoods with high rates of population change are detrimental to social control, as it takes time and frequent interaction to develop mutual trust and form bonds, or relationships, between residents. It is less likely that neighborhood residents would be inclined to intervene to rid the neighborhood of criminality in the absence of mutual trust. When there is instability in the population of a neighborhood, these bonds are either never able to form or they are broken, thereby decreasing the ability to maintain effective informal social control. Further, residents who are transitory are less likely to invest or

will have little vested interest in their neighborhoods, as their tenure in the area is anticipated to be short-lived. This reduces the capacity of residents to intervene in criminal behavior that may occur in the neighborhood or to engage in collective action to address criminal behavior that may arise. This criminal behavior could manifest from persons hanging around street corners or people disturbing the public areas (Bursik, 1988; Sampson et al., 1997). This inability of residents to intervene may result because these residents are no longer aware of which individuals belong or reside in the neighborhood or whether they are there for the criminal or potentially criminal opportunities that may exist.

As Shaw and McKay (1942) described, a key component of these socially disorganized neighborhoods was that they were comprised of residents who were racially and ethnically diverse. As a result, there was less likelihood that residents would frequently interact with each other, compared to neighborhoods that have more racial or ethnic homogeneity (Sampson, 1991). Frequent interaction is necessary if residents are to develop the mutual trust and cohesion needed for social control (Sampson & Groves, 1989). Lack of trust and cohesion causes an inability, or decreased capacity for residents to realize common goals and values, as well as an increase in the likelihood for crime or criminality within the neighborhood was likely to result (Shaw & McKay, 1942). On a more fundamental level, racial diversity can hinder the ability of residents to develop mutual trust as difficulties in communications arise due to fundamental linguistic differences between residents (Sampson & Graif, 2009). Further, this racial/ethnic heterogeneity that exists may make it difficult, if not impossible, for residents even to

establish or maintain a consensus about what they accept as their common goals and values (Kikuchi, 2010; Sampson & Groves, 1989).

Neighborhood vacancies affect crime rates in a number of ways. First, vacancies increase the amount of residential instability, or mobility, of a neighborhood. As residents leave the neighborhood (for any reason), the stability of the neighborhood is compromised, increasing the likelihood of increasing crime rates. Second, as residents vacate properties, those remaining residents who are financially able may decide to leave the neighborhood as well, as a result of the physical decay of the homes in the neighborhood or fear caused by increasing crime rates, and so on. This not only increases the level of residential mobility, or instability, but also leaves behind neighbors who do not have the financial means to move, thereby further decreasing the financial stability of the neighborhood (or increasing the level of poverty).

Neighborhoods with increasing rates of vacancies have high residential mobility (high residential instability) as residents have left or are continuing to leave the neighborhood, which also contributes to concentrated disadvantage largely representative of the economic disadvantage of the neighborhood itself. It is suggested that areas that have high rates of residential instability (i.e., residents moving into and out of the neighborhood) are the most likely to have low levels of collective efficacy, leading to higher crime rates (Sampson et al., 1997). This mobility makes it less likely that individuals will be committed to conventional normative behaviors and suggests that they may be more committed to criminal type behaviors (Tittle & Paternoster, 1988). Further, the decreasing population in the neighborhood interrupts or inhibits the ability of



remaining residents to form strong social ties as the fostering of mutual trust between residents takes time to develop.

Homeownership provides the opportunity for residential investment in a neighborhood, both financial and social. Residential homeowners have a vested interest in the health and welfare of their neighborhoods and may be more likely to come together to act in ways that will maintain or improve the quality of life in the neighborhood. Higher rates of homeownership, therefore, will likely promote collective efficacy, which may, in turn, increase efforts to maintain informal social controls (Bursik & Grasmick, 1993; Sampson & Graif, 2009; Sampson et al., 1997).

Further, homeownership promotes collective efforts to maintain social control (Sampson et al., 1997, p. 919). With increased ownership of homes in a given neighborhood, the amount of residential mobility, or residential instability, decreases as fewer residents are moving into or out of the neighborhood. The mechanism of social interaction between or among neighbors (residents) can have a tremendous impact on the likelihood or willingness of individuals to intervene or engage in intervention in criminal activities (i.e., the more interaction, the greater the likelihood of intervention) (Hipp et al., 2009; Sampson & Groves, 1989; Shaw & McKay, 1942). As a result, neighborhoods that experience flux in residential stability may be more likely to spiral into disorder or decay, which will increase crime rates (Hipp et al., 2009; Morenoff & Sampson, 1997; Skogan, 1990).

### **Routine Activities Theory**

A second theoretical explanation for the effects of vacancies on neighborhood crime rates is Cohen and Felson's (1979) routine activities theory. Unlike social

disorganization theory, which attempts to explain criminality as a function of changes in structural characteristics of neighborhoods, routine activities theory does not seek to explain criminality through the motivating factors of offenders. Instead, the assumption is that offenders are motivated with no explanation for why they are motivated.

The theory contends that, for criminal events to occur, three elements have to come together in space and time: (a) a motivated offender comes in contact with (b) a suitable target while (c) in the absence of a capable guardian (Cohen & Felson, 1979). While the theory assumes the existence of motivated offenders, crime can be concentrated in certain areas as a result of the presence of suitable targets and/or the absence of capable guardians (Cohen & Felson, 1979; Morenoff, Sampson, & Raudenbush, 2001). Moreover, crime rates can change (either increase or decrease) based on the availability of targets and/or guardians without a change in the number of motivated offenders (Kikuchi, 2010). This routine activities model focuses on the distribution of criminal opportunities in a given space, together with the group dynamics related to the distribution of those opportunities (Bursik & Grasmick, 1993). This would suggest that an increase in foreclosures or vacancies in a given neighborhood (suitable targets, as well as a lack of capable guardians) will result in an increase in crime in that neighborhood. An increased presence of distressed or vacant properties, then, should be a consideration for strategies to reduce crime in neighborhoods.

Previous research has shown that an increase in neighborhood foreclosures has resulted in elevated crime rates. Wilson and Paulsen (2008), among others, have suggested that foreclosures tend to be clustered in certain neighborhoods (Kaplan & Sommers, 2009). The clustered distribution of foreclosures or vacancies reduces the

number of “eyes on the street,” or, in this case, the number of capable guardians (Browning & Jackson, 2013; Jacobs, 1961; Stark, 1987; Taylor, 1988). The reduction in ownership/residency in the neighborhood contributes to the decrease in informal social control, or informal policing, and surveillance that could deter the influx of crime in the neighborhood (DiPasquale & Glaeser, 1999; Goodstein & Lee, 2010; Lacoë & Ellen, 2014).

Studies have found that incidents of burglary are greatly increased by the presence of high rates of foreclosures in neighborhoods. Not only does burglary increase with an increase in foreclosures but a one percentage point increase in foreclosure rates can increase the rate of burglary by almost 10 percent (Goodstein & Lee, 2010; Knight & O’Shea, 2011; Lacoë & Ellen, 2014; Wilson & Paulsen, 2008). Cumulative disadvantage has also been shown to have a positive correlative relationship with homicide, and neighborhoods with high rates of foreclosure suffer from cumulative disadvantage. This would suggest that neighborhoods with foreclosures are more likely to experience violent crime events as well as property crimes. While this was shown to be true, the findings for the violent crime/foreclosure relationship are not as dramatic as that for burglary. Immergluck and Smith (2006) found that in Chicago, a one percent increase in the number of foreclosures led to a 2.33 percent increase in violent crimes. Similar results regarding the foreclosure/violent crime relationship were found in New York City (Ellen & Lacoë, 2013).

Properties undergoing foreclosure and auction, or real estate owned (REO) properties, can be suitable targets for motivated offenders, as the properties are owned by the banks and are likely not inhabited or have guardianship. Such properties are attractive

targets for vandalism and other property crimes, particularly for any wiring that remains in the home or other construction type material that can be resold or used in other construction projects (Immergluck, 2010; Knight & O'Shea, 2011). Other REO properties, while vacant, may be monitored by a mortgage service provider that works to prepare the property for sale or auction. This partial guardianship of a property, together with the fact that the property is likely be sold at auction in a relatively short period of time, may prevent a significant amount of violent and other crimes from occurring at the residence.

Vacancies may, however, have a greater negative impact on neighborhoods than foreclosures by increasing the extent of existing disorder (Skogan, 1986). These homes can remain vacant for extended periods of time, leaving them susceptible not only to property crimes, but to other types of crime as well. While these properties may not be suitable targets in the traditional sense of the term (once any profitable items have already been removed), they can be suitable targets in providing opportunities for offenders. Vacant and abandoned homes can harbor squatters and individuals who engage in predatory crimes (Skogan, 1986). As a result, we might also expect to find more incidents of violent and drug crimes (Wilson, 1996). In essence, neighborhoods with lower rates of vacancies simply provide fewer conventional opportunities, or targets, for crime or criminality (Cohen & Felson, 1979; Kikuchi, 2010; Sherman, Gartin, & Buerger, 1989).

Neighborhoods with high rates of vacancies may be more likely to suffer from higher crime rates as a result of either the decrease in capable guardians (due to residents leaving the neighborhood) or an increase in the number of suitable targets (i.e., the vacant

homes). Vacant homes may not necessarily present themselves as suitable targets per se, as there may be few, if any, items of monetary value to be gained or obtained from them. These vacant homes, however, may provide ample opportunity for crime/criminality to occur with little risk of detection because of a lack of surveillance from current residents of the neighborhood (Ballentine, Jang, & Qi, 2009; Immergluck & Smith, 2006). There is likely to be less guardianship of these homes, not only because the residents have left the neighborhood, but also because the targets (homes) provide little monetary value, and it is unlikely they are deemed worthy of the expense associated with surveillance. Stark (1987) proposes that neighborhoods that lack surveillance by residents are susceptible to crimes of vice, such as prostitution, gambling, and so forth. These crimes require knowledge by offenders that the opportunity to engage in the crime(s) is increased and the likelihood of police involvement is limited.

Routine activities theory further contends that the opportunity for criminality is affected by the routine activities that do occur within a particular space (Eck & Weisburd, 1995; Kikuchi, 2010; Sherman et al., 1989). At a minimum, these vacant homes provide “a secure place to plan crimes, fight, do drugs, or engage in other activities that would attract too much attention if done in public view” (Spelman, 1993, p. 482). And, with fewer residents living in a neighborhood, there is less likelihood of complaints from those remaining residents about the problematic behavior occurring in their neighborhood (Goodstein & Lee, 2010). As more individuals become aware of the opportunity to engage in criminality, or undetected criminality, in a given area, the higher the likelihood that the neighborhood may become fair game to those individuals who desire to engage in

such behavior. As a result, the neighborhood may become a hotspot for crime (Kikuchi, 2010; Wilson & Kelling, 1982).

### **Broken Windows**

The existence of vacant buildings provides strong evidence of the unhealthy, or blighted, condition of a neighborhood (Skogan, 1986). Visible signs of social and physical incivility, trash on streets, abandoned buildings, teens hanging out on street corners are all signs that the residents of the neighborhood no longer care or are no longer able to intervene and rid their neighborhood of these problems (Kikuchi, 2010; Skogan, 1986; Wilson & Kelling, 1982). Even such minor disorders as a broken window that is not fixed, which can signal apathy or inability to correct such issues on the part of the residents, can begin the spiral of urban decay that may lead to more serious types of crimes, as well as further physical and social disorder.

Physical disorder is considered more of a sustained condition than social disorder, and it is caused by the deliberate and destructive actions of individuals. The perceived value of a neighborhood declines as physical disorder increases, leading to a reduction in external investments for the neighborhood. The absence of such funding makes it difficult for the neighborhood to repair the existing signs of physical disorder and deterioration which, if alleviated, might otherwise attract new homebuyers and businesses to the neighborhood (Accordino & Johnson, 2000; Burnell, 1988; Peterson & Krivo, 2010). But, when left untended, this deterioration can be linked to increases in crime rates (Peterson & Krivo, 2010; Sampson & Raudenbush, 1999; Skogan, 1990; Wilson & Kelling, 1982).

Social disorder differs from other explanations, however, as it is made up of specific events and behaviors that are deemed undesirable and could lead to the escalation of serious crimes (Sampson & Raudenbush, 1999). Examples of these undesirable behaviors can be public drinking and other types of generally disorderly behavior, threatening of individuals in public space, and bothering of individuals while passing by on the streets (Steenbeek & Hipp, 2011; Wilson & Kelling, 1982).

Wilson and Kelling's (1982) broken windows perspective is a symbolic depiction of the seemingly direct relationship between neighborhood disorder and crime. This untended disorder, both physical and social, within a neighborhood suggests that informal social controls have broken down. As the seriousness of crimes increases in these neighborhoods, residents will begin to fear being victimized, leading to modifications in their behavior whereby they seek to minimize risk and exposure to crime and criminal elements (Wilson & Kelling, 1982). This fear of crime "can undermine the quality of community life...and transform public places into areas to avoid" (Gainey, Alper, & Chappell, 2011, p. 121).

Residents removing themselves from public areas and retreating to their homes results in fewer capable guardians providing surveillance over the neighborhood, leading to less intervention against criminal behavior by residents and a further increase in crime (Skogan, 1986; Wilson & Kelling, 1982). Individuals engaging in criminal behavior who are not removed from these areas receive the message that there is little risk of punishment for their behavior, making the area attractive to others with similar intentions.

Neighborhoods are susceptible to change, due in part to residential mobility. Residents may decide to leave their neighborhoods because "few residents want to live in

an area characterized by mounting crime and fear” (Skogan, 1990, p. 208). In areas where the number of home vacancies is on the rise and crime is increasing, the signs of disorder begin to appear and, over time, take to hold. As this happens, crime and criminality will increase, leading to residential fears those who have the financial resources may move away from their neighborhoods, seeking other neighborhoods that are free of crime.

### **Appraisal Values**

Social science research has gained significant insight into determining the neighborhood characteristics that comprise concentrated disadvantage and how those characteristics interact to disrupt the structural institutions within the neighborhood. Other features such as residential stability, measured in part by the rate of homeownership, together with demographic composition, have been used to provide further insight into why some neighborhoods are more likely to undergo transformations of their demographic composition (Hipp et al., 2009; Massey & Denton, 1993).

Foreclosures and vacant properties both contribute to residential instability, but they do so through slightly different mechanisms. Properties going through the foreclosure process may or may not become vacant properties, but residential turnover of the property ultimately results. In neighborhoods with high rates of foreclosures, a high rate of residential turnover is likely to result. This may decrease the number of owner occupied homes at a given time while simultaneously creating a continual flow of people into and out of the neighborhood.

Vacant properties also contribute to residential instability, to the extent that vacant properties contribute to the outflow of residents from a neighborhood but are less likely



to affect the influx of residents into the neighborhood. Vacant properties may be more likely to remain that way for an extended period of time, particularly in areas where there are higher rates of vacancies. It is during this time that properties may fall into disrepair and, in neighborhoods with large concentrations of vacancies, the neighborhood will begin to take on an appearance of decline, making the neighborhood less appealing to potential homebuyers.

The residential instability experienced by neighborhoods has been said to increase crime rates resulting from increasing levels of disorder (Skogan, 1990). This creates a self-perpetuating spiral of decline, as the increasing levels of disorder may then lead to increased residential instability when residents leave the neighborhood because of increasing crime rates (Hipp et al., 2009; Morenoff & Sampson, 1997; Skogan, 1990). This instability and increasing crime rates tends to decrease the desirability of the neighborhood for current and future residents, which may reduce the value of homes in the neighborhood (Tita, Petras, & Greenbaum, 2006; Hipp et al., 2009). As home values decrease, residents may decide to leave the neighborhood both from the loss of the value of their home and through concerns regarding the increase in the rates of crime.

As discussed above, social disorganization theory states that three neighborhood characteristics, persistent poverty, residential mobility, and racial/ethnic heterogeneity are likely to affect crime rates by disrupting the likelihood of social interaction between residents of the neighborhood (Shaw & McKay, 1942; Sampson et al., 1997). These characteristics affect both the likelihood of residential interaction and how often residents interact, which can impact residential collective efficacy. For example, the higher the residential instability (residential mobility), the less likely residents are to gather

collectively and work together to achieve some mutually desired goal (i.e., reducing crime in their neighborhood).

Social disorganization theory suggests that neighborhoods maintain a certain level of crime and disorder over time (Shaw & McKay, 1942). However, when these levels of crime begin to increase, some residents may choose to move to neighborhoods that are more desirable, that is, to have lower rates of crime (Morenoff & Sampson, 1997; Skogan, 1990). This movement of residents from areas of higher rates of crime to lower rates of crime leads to higher rates of residential mobility.

When discussing residential mobility, or residential instability, there should also be a consideration of why residents move *into* a neighborhood where other residents are leaving for more desirable locations. One possibility is that houses in the neighborhood have become more affordable than before. Previous research suggests that neighborhoods with increasing crime rates are also likely to experience decreasing values of homes. Alternatively, the appreciation of home values is likely to be slower (Buck & Hakim, 1989; Hipp et al., 2009; Schwartz et al., 2003; Tita et al. 2006). This provides an opportunity for residents living in less desirable neighborhoods (i.e., those with even higher rates of crime and disorder) to move into these neighborhoods, which may be less disadvantaged, comparatively speaking.

In addition to effects on property values, residential mobility may also affect the demographic composition of neighborhoods. Previous studies have recognized that racial/ethnic groups tend to live in homogeneous neighborhoods that are similar to their own race/ethnicity, particularly among white residents (Emerson, Yancey, & Chai, 2001; Hipp et al., 2009; Krysan, 2002). These neighborhoods undergoing high rates of

residential mobility (as well as decreases in property values and increases in crime rates) may also experience changes in the racial/ethnic composition previously found in the neighborhood. Changing composition can lead to a reduction in homogeneity. A cycle of transition begins as further mobility may result from the changing demographics of the residents of the neighborhood.

Neighborhoods with high rates of foreclosure are more likely to undergo this change in racial/ethnic composition, since the properties have a change in ownership, as opposed to properties that are vacant or abandoned. Foreclosed properties are anticipated to lower property values, particularly in neighborhoods suffering from high concentrations of foreclosures (Immergluck & Smith, 2006). Reduced property values provide broader accessibility of homes, leading, potentially, to a mixing of racial/ethnic groups in a formerly homogenous neighborhood. Baxter and Lauria (2000) found that block groups in New Orleans that were experiencing foreclosure had higher rates of racial transition than other block groups with lower rates of foreclosure.

Vacant properties, on the other hand, may have a slightly different effect than foreclosures. Vacant properties are likely to contribute less to a change in racial/ethnic composition of the neighborhood, as vacancies result from residents leaving a neighborhood. Rather, higher rates of vacancies (and property abandonment) are seen as resulting from changes in racial/ethnic composition (Metzger, 2000; Shlay & Whitman, 2006). There is less residential influx into the neighborhood, however, as properties remain vacant for much longer periods of time. Skogan (1990) suggests that neighborhoods that are unhealthy or nearing a state of collapse are neighborhoods where there has been a significant drop in the size of the population.

Property values for homes in neighborhoods with high rates of vacancy versus foreclosure may decrease at a faster rate or show an overall greater decrease in value over a longer period of time. Research has found that even a small number of abandoned properties (also vacant) had serious negative consequences on housing values. Additionally, not only is the number of abandoned properties an important consideration but also the proximity of an abandoned property; the closer the vacant property, the stronger its effects on housing values (Accordino & Johnson, 2000; Shlay & Whitman, 2000). As properties fall into decline due to a lack of maintenance and upkeep, the neighborhoods become blighted, leading them into a downward spiral of decline (Accordino & Johnson, 2000; Spelman, 1993). Skogan (1990) notes that in the 1970s, the Department of Housing and Urban Development (HUD) stated that concentrations of vacant or abandoned properties can be detrimental to the housing market in a neighborhood by negatively affecting the attractiveness of other buildings or homes in the neighborhood. This can lead to disinvestment of capital, creating a spiral of decline that has long-lasting negative impacts to the neighborhood and the residents currently residing there. Lower home values, together with lower income levels, can promote declining conditions across neighborhoods of varying demographic compositions (Baxter & Lauria, 2000).

### **Summary**

Several theoretical perspectives can be used to explain the process and reciprocal relationship by which foreclosures and vacancies may impact crimes rates and property appraisal values in neighborhoods. First, neighborhoods experience many harmful effects resulting from the emergence of vacancies and foreclosures, including increasing

levels of disorder, crime, and decreasing property values. The issues are complicated further by the existing structural characteristics of the neighborhoods, which can hinder the ability to combat the deleterious effects presented by concentrations of foreclosures and/or vacancies, though the effects may be experienced differentially. Neighborhoods with foreclosures may have increases in crime with higher concentrations of foreclosures, but neighborhoods with high concentrations of vacancies may have even higher rates of crime. Further, neighborhoods with higher socioeconomic levels, while still likely to have some increase in crime and decrease in property values, are also more likely to absorb the effects and utilize their resources to combat the issues before the problems spiral into decline. The relationship is further complicated by the reciprocal nature of the effects of foreclosures and vacancies on crime and appraisal values. As the crime rates increase and property values decrease, there is a strong likelihood that an increase in foreclosures and vacancies will follow. The cycle disrupts social ties, or social capital, between residents of the neighborhood, resulting from the residential instability as people move into and out of a neighborhood with increasing crime rates.

As discussed in the literature regarding social capital, the greater the amount of social cohesion and social ties between residents in a neighborhood, the more likely residents will be able to bring together resources that can be utilized for positive outcomes. In the case of degradation of neighborhoods resulting from residential foreclosures and vacancies, these resources drawn upon from social capital can include both monetary and social resources to help combat increasing levels of crime as well as work towards reducing blighted conditions in the neighborhood. Additionally, this could not only increase the desirability of the neighborhood for potential buyers but also

decrease the length of time that homes could remain on the market, and possibly reducing the likelihood that blighted conditions could become emblematic of the neighborhood.

Instability of property ownership compounds the problems in already disadvantaged neighborhoods. The residential transition of properties not only contributes to changes in the racial composition of neighborhoods but also contributes to the decrease in the income levels in the neighborhoods and the reduction in values of home sales/property appraisal values. The effects discussed here all lead to the likelihood of not only increased crime rates but also the negative decline of the neighborhoods.

### **CHAPTER 3: DATA, VARIABLES, METHODS**

The first question this study examines is the effect of vacant properties on neighborhood crime rates. The relationship examined suggests that vacancies in one quarter will affect crime in the following quarter. The research also seeks to determine which types of crimes—drug, violent, or property crimes—are most likely to be experienced in neighborhoods with higher rates of vacancies.

The second research question this project addresses is comparative in nature. Previous research has documented inverse relationships between foreclosures and crime rates and vacancies and crime rates. However, the extant studies are longitudinal and thus do not offer an ability to compare relationships across geographic areas. In this study I compare foreclosure, vacancy, and crime rates across geographic locations in two cities, San Diego and San Antonio. This method offers a comparative basis from which I can draw inferences about the relationship between foreclosures, vacancies, and crime rates. The final question this research explores is the relationships between vacancies, foreclosures, crime, and home appraisal values. I use data from San Antonio, Texas to investigate these relationships. While it would be preferable to compare the appraisal values from both cities, the appraisal data from San Diego, California is not readily accessible.

#### **Research Locations**

San Antonio and San Diego are interesting cities for this type of research based on their somewhat unique demographic characteristics and the rapid economic growth experienced by both cities. For the last three decades San Antonio was among the nation's fastest-growing metropolitan areas with a large part of the individuals entering

the community comprising both immigrants with low-skill and low-wage potential as well as high-wage workers enticed by the lure of biotechnology and other technology industries in the city. This dichotomy may have contributed, in part, to the increase in the already high economic segregation experienced by the city (Fry & Taylor, 2012). In fact, San Antonio is listed as one of the ten most economically segregated cities in the United States. San Diego, conversely, ranks among the top ten metropolitan areas with the lowest level of economic segregation (Florida & Mellander, n.d.) which may contribute to the lower rates of violent crime.

If we consider population composition, both cities have relatively similar composition with respect to high percentages of Hispanic residents, compared to many other cities in the country. This is particularly true for San Antonio, which is comprised of greater than fifty percent Hispanic residents. Velez (2006) found that in Chicago, homicide rates for Hispanics was forty to seventy percent lower than in areas with higher percentages of African-Americans. Further, Martinez (2002) and Velez (2006) found lower levels of concentrated disadvantage among Latino neighborhoods, compared to African-American neighborhoods, may explain lower crime rates found in neighborhoods comprised of higher percentages of Hispanic residents. Second, the two cities have relatively small populations of African-American residents. Despite this, San Diego has a relatively low violent crime rate, again, as compared to San Antonio.

The data for this project draw on five sources from San Antonio, Texas and four sources from San Diego, California. The data for San Antonio cover the period of November 1, 2005–September 30, 2010. The data for San Diego cover the period of January 1, 2007–December 31, 2010.



During the 2005–2010 time period (the duration of this study) foreclosures in the United States reached unprecedented levels. The number of foreclosure filings, including notices of default and notices of sheriff’s or trustee’s sales, in the United States steadily increased over this time. In 2006, 0.58% of housing units received a notice of default or notice of scheduled auction. This rate almost doubled to 1.03% in 2007. By 2008 the rate reached 1.84%, and it climbed even higher in 2009 and 2010, eventually peaking at 2.23% (RealtyTrac Staff, 2011). The foreclosure rates here include both residential and commercial foreclosures. The commercial filings, however, account for a very small number of the total number of foreclosure filings.

The foreclosure pattern in San Antonio is somewhat reflective of the national trend. The rate of foreclosure filings rapidly rose in San Antonio over the course of this study. Foreclosures increased steadily from 2005 to 2007. During 2008 to 2009, however, foreclosure filings rose a bit more dramatically. This mirrors the national trend with the rate of foreclosure in San Antonio, Texas rapidly increasing throughout the time period of this research, fourth quarter 2005 through 2010, reaching a peak at the end of 2009 of just more than 10.0% (or 12,000) foreclosures filings. If we consider the trend in more detail, by the end of 2008 sources estimate that the number of foreclosure filings jumped dramatically, increasing by almost 25% of the 2007 rates (Silva, 2008). The number of foreclosure filings rose quickly in 2009–2010 and accounts for the largest increase by far, on a percentage basis, for this time period. The number of foreclosure filings in 2010 increased, though the increase was a bit more modest compared to earlier years. The general trends of foreclosure rates for the United States can vary depending on the source of data.

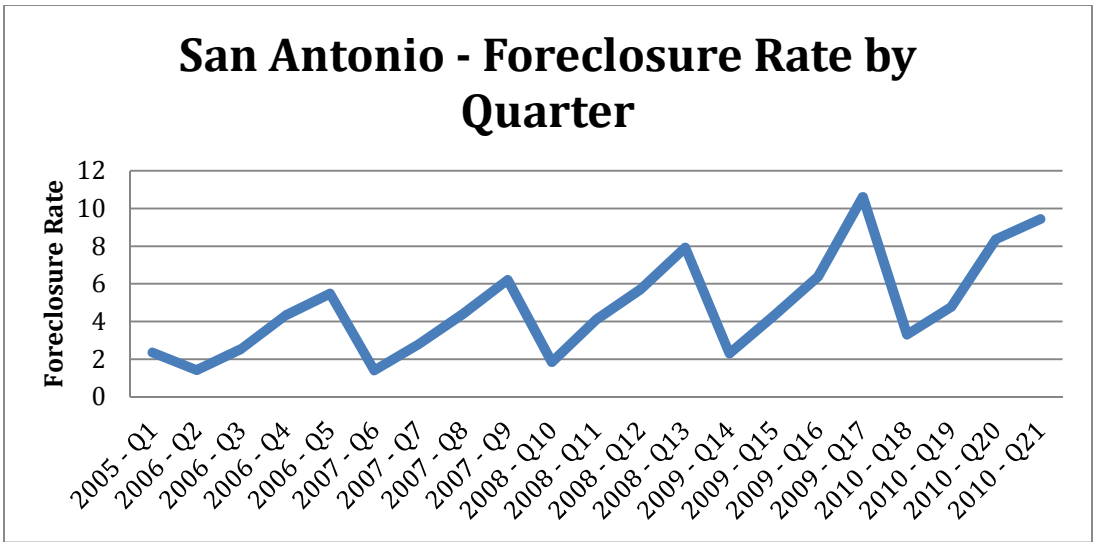


Figure 3.1. San Antonio foreclosure rate by quarter.

San Diego, California, while not affected by the foreclosure crisis to the same extent as other parts of the state, reached its peak in the crisis of 2008. The number of foreclosure filings begins rising in 2006, peaks in 2009, and starts the process of decline in early 2009 (San Diego Regional Chamber of Commerce, 2012). The decline in foreclosure filings in San Diego, California falls beyond the peak in national foreclosure crisis (see Figure 3.2).

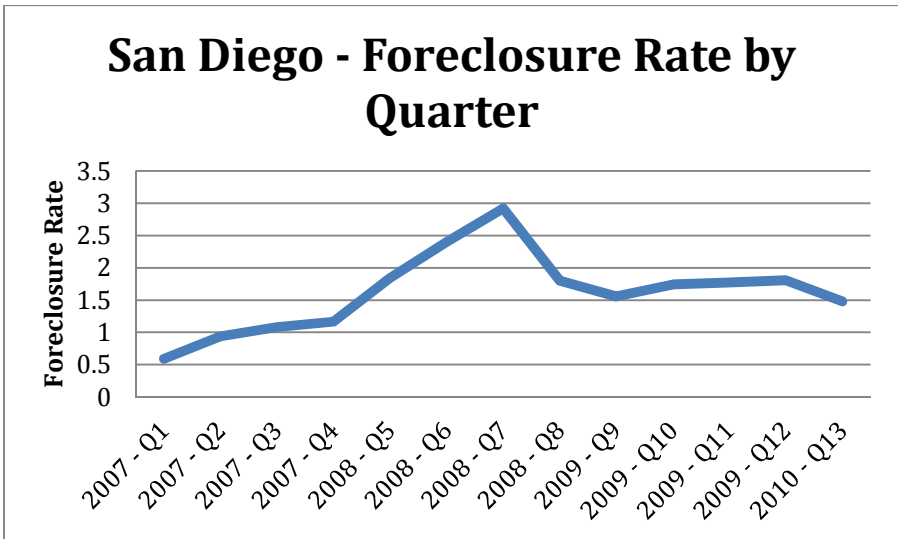


Figure 3.2. San Diego foreclosure rate by quarter.

## Vacancy Rates

During the last quarter of 2005 through to the last quarter of 2006 the rate of home vacancy in San Antonio climbed steadily to approximately four percent and remained relatively stable. From the first to second quarter of 2010 the rate of vacancy jumped almost an entire percent, reaching almost five percent. It should be noted that there is some difficulty accounting for the increase in the percentage of vacancies between 2005 and 2006 considering that the data from 2005 only encompasses the fourth quarter of 2005 (see Figure 3.3).

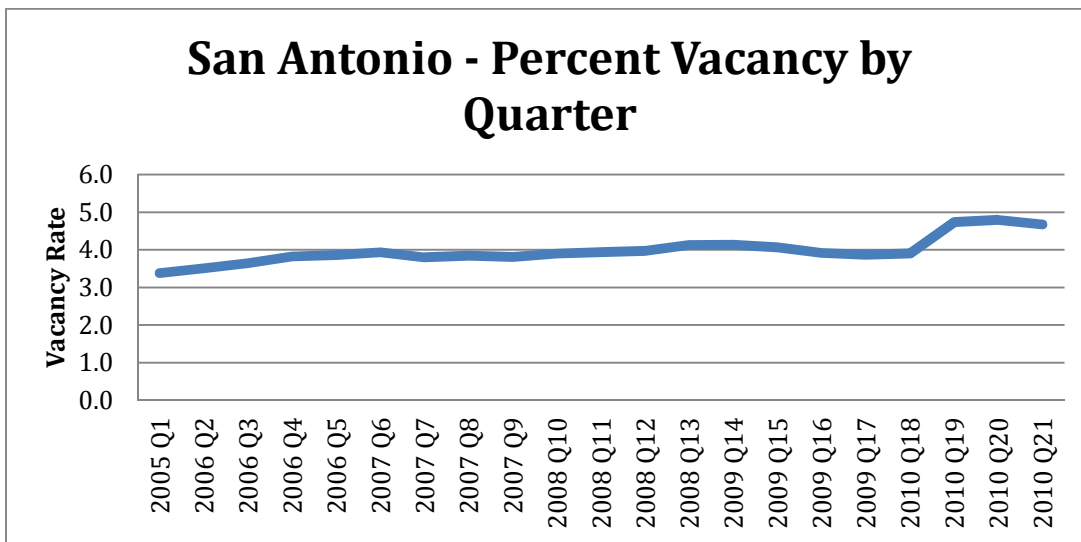


Figure 3.3. San Antonio vacancy rate by quarter.

The vacancy data for San Diego, California shows a similar pattern to that of San Antonio though San Diego's vacancy rate is higher generally. If we consider the first quarter of 2007, the first point in time shared by both cities, we see they both have vacancy rates of four percent. San Antonio remains relatively stable until the first quarter of 2010 when the vacancy rate jumps from four to five percent from the first to second quarter. San Diego appears to exhibit a similar pattern at the same time period, though

the vacancy rate increases dramatically from six to 10 percent from the first to second quarter in 2010 (see Figure 3.4).

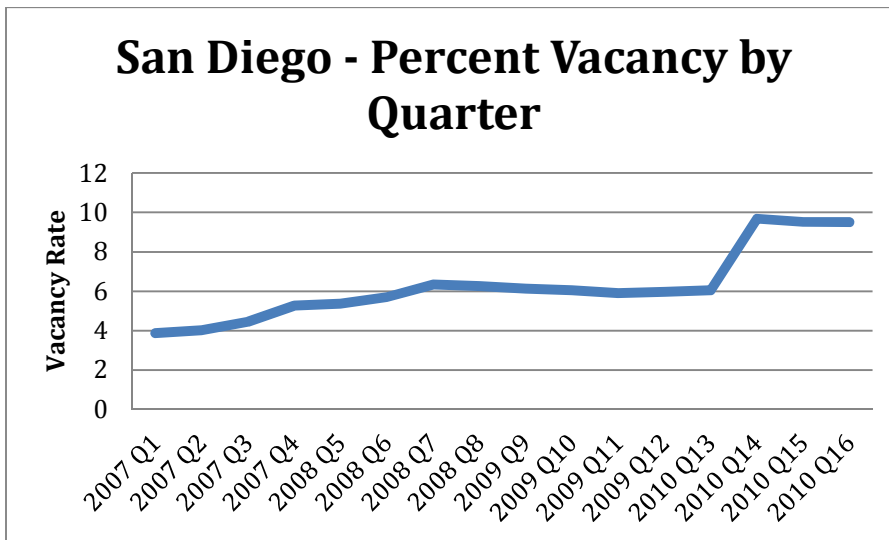


Figure 3.4. San Diego vacancy rate by quarter.

### Demographics

As previous research suggests, the demographic characteristics of a neighborhood—particularly its racial and ethnic composition, its median household income, and the percentage of residents living in the neighborhood for less than five years—are indicative of disorganization that can contribute to the crime rates in neighborhoods (Shaw & McKay, 1942). Tables 3.1 and 3.2 provide basic information from San Antonio, Texas and San Diego, California on demographic characteristics pertinent to this study.

In 2000, San Antonio had a population base approximately 54 percent Hispanic, 7.3 percent African American, and 1.5 percent Asian. In 2010, the percentage of Hispanic and Asian residents increased by 4.5 percent and 0.8 percent, respectively. A large number of the more densely populated census tracts within the boundaries of the interior loop of the county are comprised of more than 75 percent Hispanic residents.

Almost the entirety of the census tracts within the inner loop are comprised of 49 percent or more Hispanic residents (as demonstrated in Figure 3.4). The median household income had a mean value of \$39,329 which is slightly below the value for the U.S. in 2000, \$40,703. The median household income increased to \$51,367 in 2010, above the median household income for the U.S. in 2010 at \$49,445. The assessed property value in the county had a mean of \$191,639 with a minimum value of \$35,633.

Table 3.1

*Descriptive Statistics San Antonio, Texas*

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Percent Black (2000)	7.34	10.55	0.00	73.30
Percent Black (2010)	7.30	8.57	0.00	62.90
Percent Hispanic (2000)	54.33	27.31	0.00	98.30
Percent Hispanic (2010)	58.98	24.30	0.00	98.00
Percent Asian (2000)	1.53	1.49	0.00	9.00
Percent Asian (2010)	2.35	2.83	0.00	24.60
Per Owner Occupied (2000)	60.62	22.31	0.90	96.43
Per Owner Occupied (2010)	61.00	21.95	0.00	100.00
Percent same House >5 Years 2000	41.86	6.37	0.00	100.00
Percent same House >5 Years 2010	41.20	17.38	0.00	98.60
Median HI (2000)	39,329	18,223	10,871	109,424
Median HI (2010)	51,367	27,540	11,019	180,760

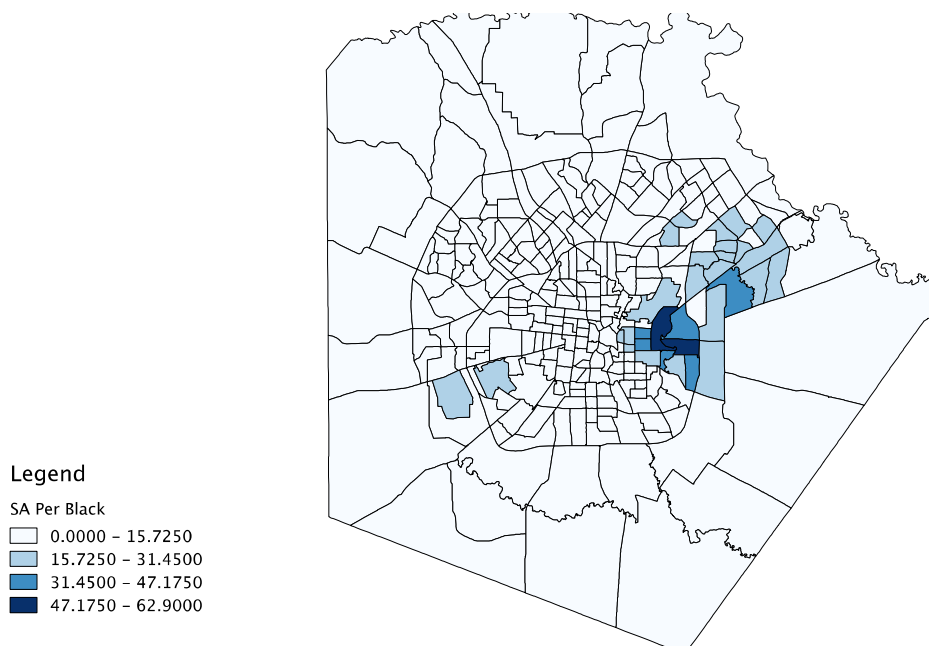
<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
<b>Foreclosure/Vacancy (2005–2010)</b>				
Number Foreclosures	108.36	114.85	1	647
Percent Foreclosures	2.26	1.37	0.46	9.39
Number Vacancy	91.14	79.77	0	578
Percent Vacancy	3.93	3.13	0.14	20.54
Property Assessment	191,639	341,020	35,633	5,599,027
<b>Spatially Lagged Variables</b>				
Percent Vacancy	4.18	1.97	0.00	8.90
Spatial Lag Perc Vac	4.12	1.97	0.00	8.90
Percent Forecl.	0.38	0.19	0.03	2.11
Spatial Lag Perc Forecl.	0.03	2.11	0.39	0.18

*Note.* N = 276.

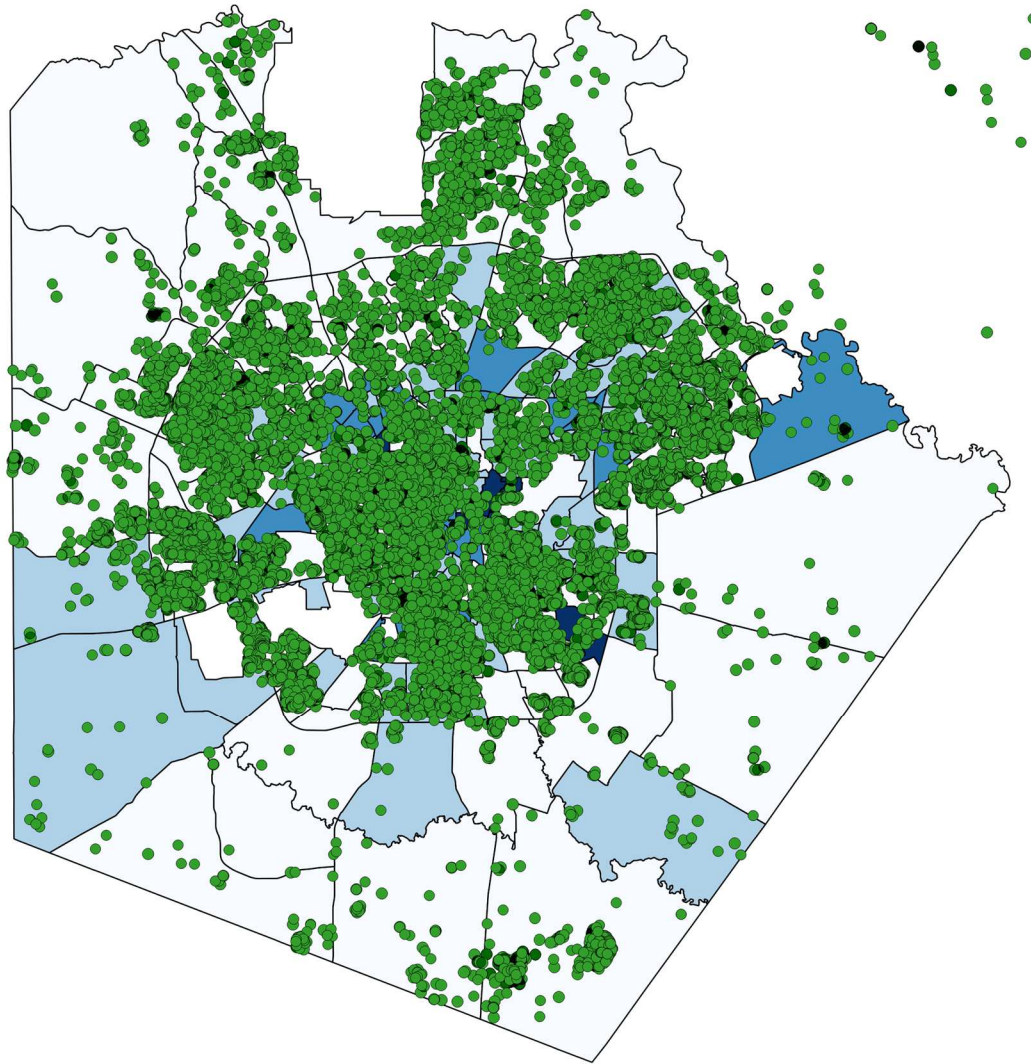
As the distribution of race and ethnicity has been inextricably linked to the distribution of foreclosures resulting from subprime lending practices, a map reflecting the distribution of the percentage of Hispanics (Figure 3.5) and African Americans (Figure 3.6) in Bexar County based on the 2000–2010 apportionment of U.S. Census data is shown below.



*Figure 3.5.* Distribution of percentage of Hispanics in Bexar County (San Antonio).



*Figure 3.6.* Distribution of the percentage of African Americans in Bexar County. Based on the 2000–2010 apportionment of U.S. Census data.



*Figure 3.7.* San Antonio foreclosure map: Bexar County foreclosure 2005–2010.

The map above represents point-level foreclosures for the time period of this study. The data is layered over the percentage of vacancies for Bexar County. Clusters of foreclosures exist particularly within the innermost loop of the city (the center-most area of the map). This coincides with census tracts that are the most densely populated and also have some of the higher percentages of vacancies. Also noteworthy, a significant number of foreclosures occur in the northern and eastern portions of the county, areas that are currently undergoing expansion and development.



Table 3.2

*Descriptive Statistics San Diego, California*

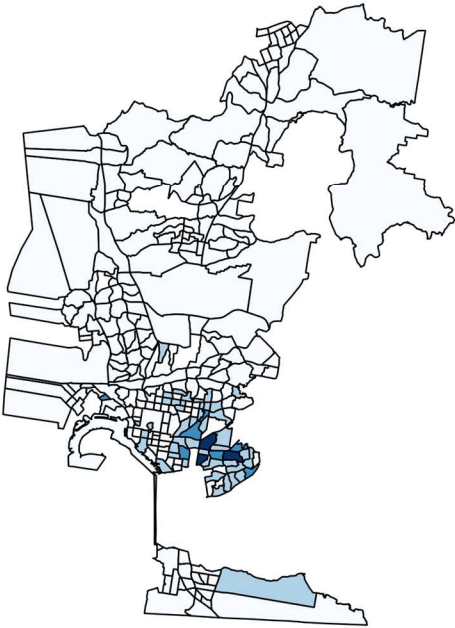
<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Percent Black (2000)	5.06	4.40	0.00	40.07
Percent Black (2010)	7.86	5.67	0.00	44.40
Percent Hispanic (2000)	26.28	21.52	2.80	95.70
Percent Hispanic (2010)	31.71	23.06	0.00	97.30
Percent Asian (2000)	10.63	12.95	0.00	100.00
Percent Asian (2010)	10.03	11.01	0.00	74.00
Per Owner Occupied (2000)	12.39	11.07	0.90	100.00
Per Owner Occupied (2010)	54.54	24.18	0.00	100.00
Percent same House >5 Years 2000	6.89	8.44	0.00	56.30
Percent same House >5 Years 2010	38.59	15.17	0.00	100.00
Median HI (2000)	52,030	23,647	11,535	197,012
Median HI (2010)	67,245	27,898	20,904	194,079
<b>Foreclosure/Vacancy (2007–2010)</b>				
Number Foreclosures	640.57	422.64	0.132	1881
Percent Foreclosures	0.016	0.065	0.0001	0.065
Number Vacancy	494	515	0	4443
Percent Vacancy	1.38	1.25	0	15.06

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
<b>Spatially Lagged Variables</b>				
Percent Vacancy	1.38	1.49	0.00	0.14
Spatial Lag Per Vac.	1.30	1.42	0.00	23.52
Percent Foreclosure	0.02	0.04	0.00	0.94
Spatial Lag Per Forecl.	0.00	0.94	0.02	0.04

*Note.* N = 296.

In 2000, the population of San Diego was comprised of approximately 26 percent Hispanic, five percent African American and 66.6 percent Asian. In 2010, the percentage of Hispanic and African American residents increased to 31.71 percent and 5.06 percent, respectively. Only a small number of census tracts contain more than 33 percent of African American residents. The vast majority of census tracts in the city have 0–11 percent. Less than 10 census tracts have percentages of Hispanic residents of 72 percent or higher (as demonstrated in Figures 3.8 and 3.9). The median household income had a mean value of \$52,030 which is above the value for both San Antonio and the U.S. in 2000, \$40,703. The median household income increased to \$67,245 in 2010, above the median household income for the U.S. in 2010 at \$49,445.

The distribution of percent African Americans (Figure 3.8) and percent Hispanics (Figure 3.9) in the city of San Diego based on the 2000–2010 apportionment of U.S. Census data is provided in the figures below.

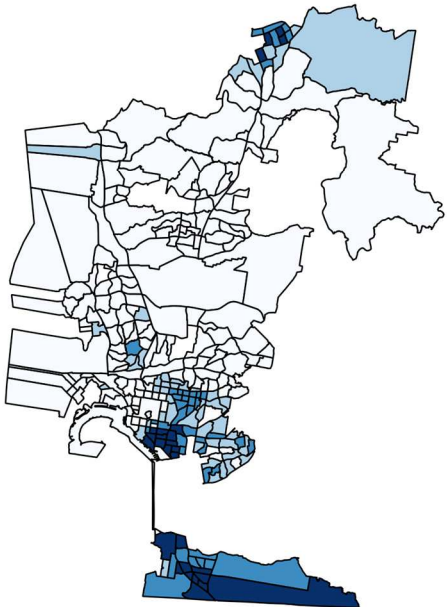


**Legend**

SD Percent Black

- 0.0000 - 11.1000
- 11.1000 - 22.2000
- 22.2000 - 33.3000
- 33.3000 - 44.4000

*Figure 3.8.* City of San Diego percent African American.



**Legend**

SD percent Hispanic

- 0.0000 - 24.3250
- 24.3250 - 48.6500
- 48.6500 - 72.9750
- 72.9750 - 97.3000

*Figure 3.9.* City of San Diego percent Hispanic.

## Summary Statistics of Crime Variables – San Antonio

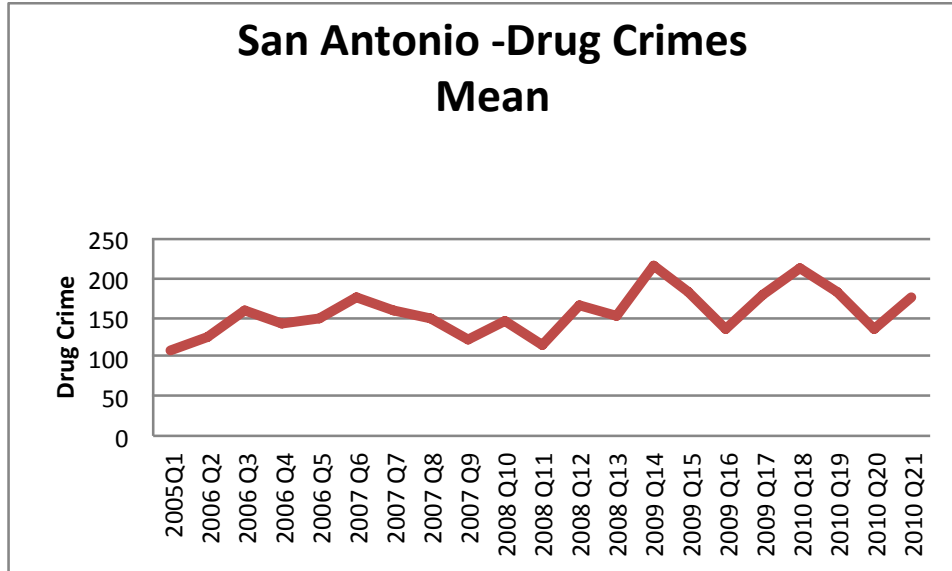


Figure 3.10. San Antonio – Mean drug crimes by census tract.

In the fourth quarter of 2005, the rate of drug crime was slightly above 100 incidents per 10,000 residents. If we consider the foreclosure crisis as occurring from approximately 2007–2009, the rate of drug crimes declined steadily throughout 2007. In 2008 the rate of drug crimes followed relatively modest increases and decreases each quarter reaching a peak of approximately 165 incidents per 10,000 residents in the third quarter of 2008. The peak in the rate of drug crimes is reached in the first quarter of 2009, with a rate of approximately 215 incidents per 10,000 residents and another peak at the first quarter of 2010 that is slightly lower, approximately 213 incidents per 10,000 residents, declining until the third quarter of 2010 and then beginning another ascent.

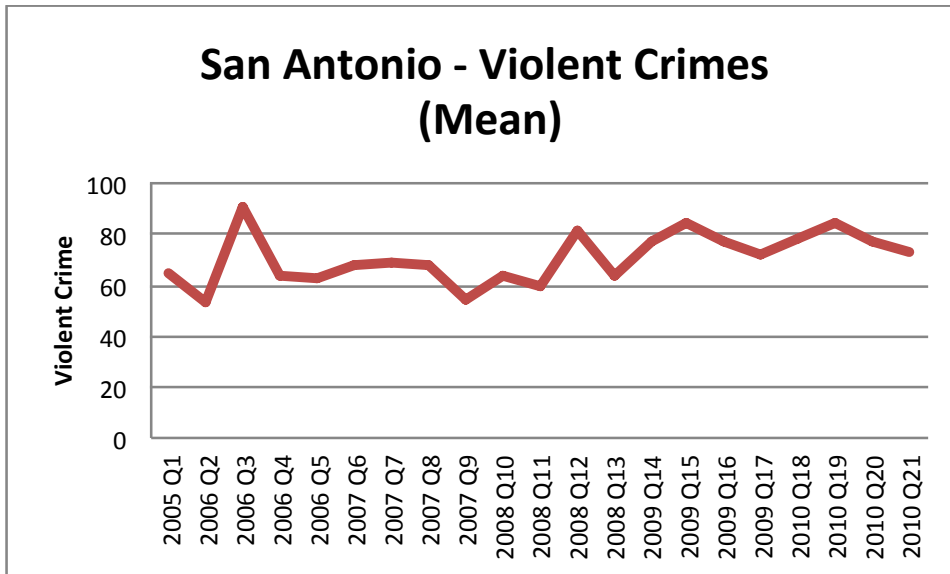


Figure 3.11. San Antonio – Violent crimes (mean).

In the fourth quarter of 2005 there were an average of 65 violent crimes per 10,000 residents. The second quarter of 2006 saw a peak of 90 violent crime incidents, with a steep decline the following quarter. The violent crime rate remained relatively stable until the last quarter of 2007 when the number of violent crimes dropped to 54 incidents per 10,000 residents. Another spike in violent crime rate occurs in the third quarter of 2008, increasing from 54 incidents to 63 violent crime incidents per 10,000 residents. Additional peaks in crime rates occur in the second quarter of 2009 and the second quarter of 2010, each reaching approximately 84 violent crime incidents per 10,000 residents. The periods between these points show declines in violent crime rates.

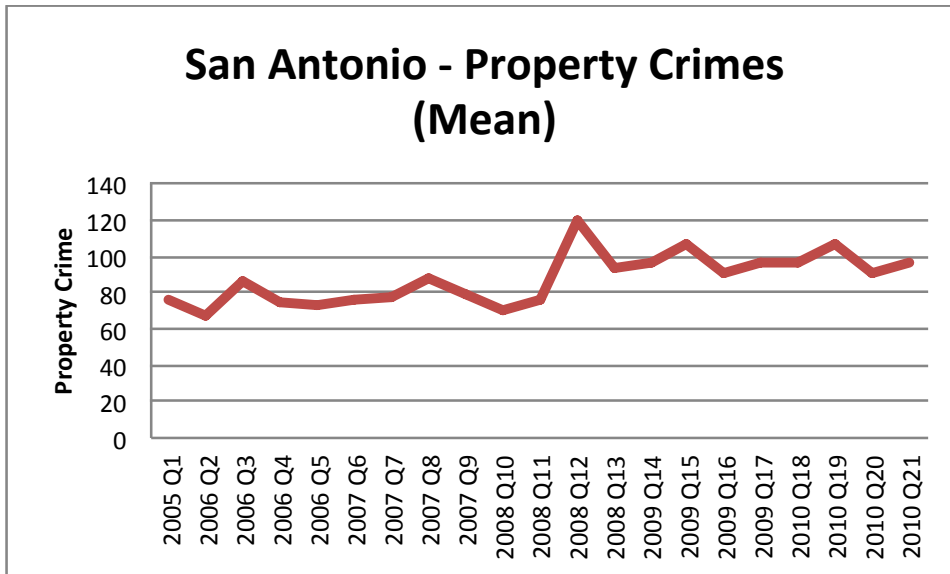


Figure 3.12. San Antonio property crimes (mean).

At the beginning of this study, the property crime rate was approximately 76 property crimes per 10,000 people. The first spike in property crime rates occurred in the second quarter of 2006, rising to 86 property crime events per 10,000 people. The largest spike in the rate of property crimes occurred in the third quarter of 2008 reaching 119 property crime incidents. Additional spikes in property crimes occurred in the second quarter of both 2009 and 2010, reaching 107 property crime incidents per 10,000 people at each point.

## Summary of Statistics of Crime Variables – San Diego

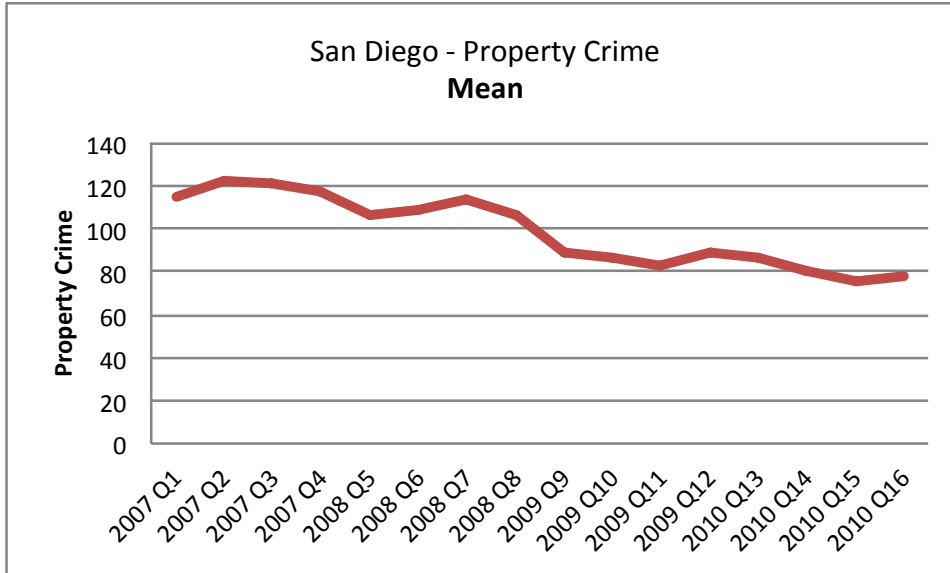


Figure 3.13. San Diego – Mean property crime by census tract.

Property crime rates in San Diego take on a very different pattern from those in San Antonio. The first quarter of 2007 reflects a property crime rate of approximately 115 property crimes per 10,000 residents. Rather than property crime rates peaking throughout the course of this study, rates reach a low point of 106 property crimes per 10,000 residents in the first quarter of 2008, climbing steadily to 113 property crimes, then maintaining a decline. In the third quarter of 2009, the property crime rate reaches a low of 83 property crimes before making a small increase in the final quarter of 2009 to 89 property crimes. The rates generally decline until third quarter of 2010 reaching 76 property crimes.



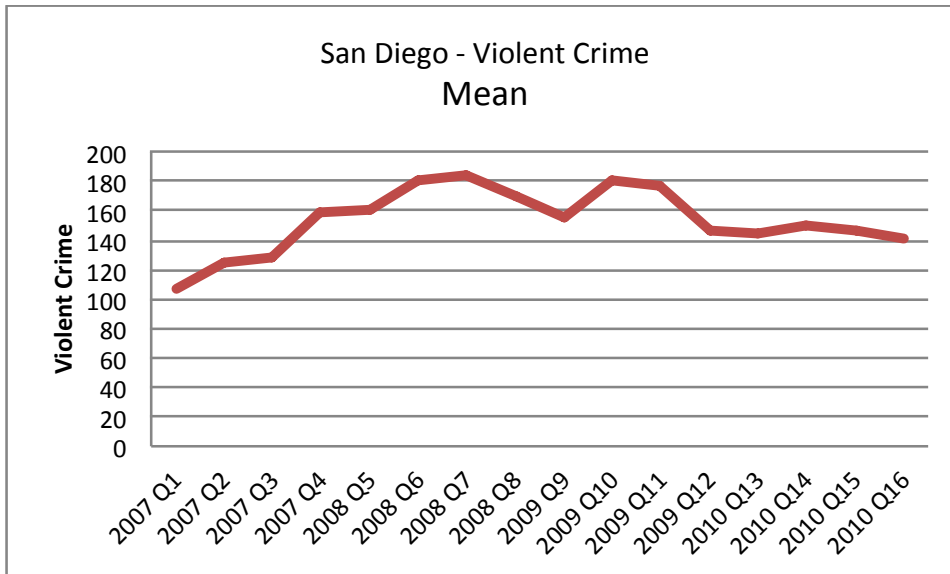


Figure 3.14. San Diego – Mean violent crime by census tract.

Lastly, looking at the trend in violent crimes in San Diego, we see that at the beginning of 2007, violent crime rates were at approximately 107 violent crimes per 10,000 residents. Crime rates climb rapidly reaching a peak of 185 violent crimes in fourth quarter of 2008. At that point, violent crime rates decline reaching a low of 155 violent crimes in the first quarter of 2009. A final peak is reached in the second quarter of 2009, 180 violent crimes per 10,000 people, then a decline to 177 violent crimes in the third quarter of 2009, then they remain steady until the second quarter of 2010. The crime rate then begins a very gradual decline until the final time point, the fourth quarter of 2010.

### Data

#### Foreclosures

The datasets for each location in this study are combined in a way that captures the longitudinal changes and quarterly neighborhood measures of social disorganization and routine activities theory (discussed below). From November 1, 2005 to December

31, 2010 a total of 53,945 foreclosure notices were recorded with the Bexar County Clerk's office and analyzed in this study.<sup>1</sup> As in other studies, these foreclosure filings are used as a proxy for foreclosures, though it is important to note that not all foreclosure filings result in foreclosure (Kobie & Lee, 2011). I obtained information on San Antonio foreclosures from the Bexar County Recorder's Office.<sup>2</sup>

The dataset includes information indicating the property address and the date of a foreclosure filing. I geocoded the data using 2000 U.S. Census boundaries to include census tract identification for each address or location within the dataset. I aggregated the number of foreclosures in a census tract and created a variable measuring the percent of foreclosures both in the quarter and in a given census tract compared to the total number of homes. I used the foreclosure filing dates to assign a quarter designation for use in this study, beginning with the fourth quarter in 2005 (November 1–December 31). I also created temporal lag variables (quarter lag) to account for the possibility that the effects of foreclosure are not likely to happen immediately but instead happen more slowly, over some time period of time (Hipp et al., 2008; Kobie & Lee, 2011).

I obtained data on foreclosures in San Diego from the RAND Corporation covering January 2007 through March 2010. The dataset includes the zip code, year, month, and the number of foreclosures in a given month and year. I assigned foreclosures for each zip code to specific census tracts by estimating the location of a

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<sup>1</sup> During the foreclosure process a borrower may default and cure the default multiple times until a foreclosure occurs. Any duplicative entries for a property that did not include a change of ownership were deemed to be default notifications and removed from the dataset. Filings that included a change of ownership were considered foreclosures.

<sup>2</sup> The foreclosure filings at the Bexar County Courthouse were collected by a private contractor that maintains an active database of all foreclosures filed in the county.

census tract within a zip code.<sup>3</sup> I then created a variable measuring the percentage of foreclosures in a given census tract during a specific quarter compared to the total number of homes in the same census tract. The total number of homes in a census tract was determined using the total housing units in a census tract from U.S. Census data.

### **Vacancy Data**

I collected data on vacancies from the Department of Housing and Urban Development (HUD) via the U.S. Postal Service.<sup>4</sup> The identification of a property as vacant was determined by each U.S. Postal worker. Visual inspection of the property by a carrier while the mail is processed and delivered while on the route determined vacancy status and the length of time the property remains vacant. The U.S. Postal Service maintains a count of the number of properties, both residential and commercial, that are vacant over quarterly time periods. I used these data to calculate the percentage of vacancies in a census tract during a given quarter, calculating the percentage as the number of vacant properties divided by the total number of addresses in a census tract. It would be preferable to have actual addresses or point level data of the properties to be able to measure proximity to other vacant properties. Unfortunately data this fine-grained is simply not available.

---

<sup>3</sup> Zip codes do not conform to, and cover a larger area, than census tracts. The proportion of the overlap of the area between the zip code and the census tract is weighted and allocated to a census tract through population weighted imputation.

<sup>4</sup> The U.S. Postal Service provides quarterly reports to the Department of Housing and Urban Development (HUD) regarding properties that have been vacant or are considered as having no status, or “No-Stat”, in a given quarter and is reported by census tract, as designated by the U.S. Census Bureau. The identification of a property as vacant is determined visually by each U.S. Postal worker the mail is processed and delivered mail on the route. A property can be classified as No-Stat, as opposed to vacant, if the address is under construction, has not yet been occupied or the postal carrier determines a property will not likely be active for some time (U.S. Department of Housing and Urban Development; HUD, 2015).

In the early years of data compilation, the reports of vacant properties provided only a total, or aggregate, number of vacant properties in a particular census tract. After the fourth quarter of 2007, the reports were modified to identify the total count of vacant residential properties as well as the total count of vacant commercial or business properties.<sup>5</sup> Again, to provide consistency in the analysis, the variables for vacant residences, businesses, and vacant other properties were aggregated to provide the total number of vacancies in a given census tract.

### **Crime Data**

The San Antonio Police Department (SAPD) provided me with data on crime, specifically calls for service (CFS), and this served as the basis for the measure for crime. The data was geocoded using 2000 U.S. Census boundaries to the address provided and aggregated to the census tract level based on the address for the CFS. A quarterly designation was then assigned to each observation based on the date for each CFS. The data were collapsed to create the number of violent crimes,<sup>6</sup> drug crimes, property crimes,<sup>7</sup> and total crimes for each census tract/quarter.

San Diego crime data, from San Diego Police Department (SDPD), includes all crimes reported to the police for the time period January 2007–December 2010. The data received from the police department had been aggregated to the census tract level and was organized by year and month allowing for the assignment of quarterly designations. The data is aggregated into crime types similar to San Antonio (drug crime, property crime, and violent crime) though lacks information on drug crimes.

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<sup>5</sup> One quarter of vacancy data is missing (fourth quarter of 2007) due to delays associated with the lag in publishing data resulting from the separation of data into business and residential addresses (HUD, 2015).

<sup>6</sup> Violent crimes are considered to be robberies, aggravated assaults, homicide.

<sup>7</sup> Property crimes are considered to be burglary, larceny, motor vehicle theft.

## **Census Data**

Census tracts are used in this study as the unit of analysis and serve as a proxy for a neighborhood, as is often done in the neighborhood studies. In 2000, Bexar County had a total of 278 census tracts and in 2010 there were a total of 366 census tracts. As a means by which to account for potential changes in the census tract boundaries between the 2000 and 2010 U.S. Census, I apportioned the 2010 census data to the 2000 census tract boundaries. After excluding the census tracts with fewer than 500 residents and tracts missing data, there were a total of 256 census tracts utilized in the models for Bexar County, Texas. Similarly for San Diego, in 2000 the number of census tracts for the city of San Diego totaled 296. In 2010 there were approximately 300 census tracts. After apportioning the 2010 census data with the 2000 census boundaries, and excluding census tracts with fewer than 500 residents and tracts with missing data, a total of 277 census tracts were utilized in the models for San Diego. To account for the census data change over the time period of this study, and since it is unlikely that census tracts experience significant change quarterly, the data was linearly interpolated yearly.

A number of different demographic characteristics are utilized as variables to describe the structural characteristics of a neighborhood. In the tradition of social disorganization theory, three key constructs were utilized to account for ecological characteristics, which are key correlates for differences in crime rates of neighborhoods: median household income, racial or ethnic composition, and owner occupied housing and residential mobility. Demographic data was gathered from the 2000 and 2010 U.S. Census to account for these contextual measures.

First, to account for the economic resources or opportunities of a census tract, the variable for median household income is utilized. The median household income is included as it is an indicator of the socio-economic status and is indicative of the amount of disadvantage in the neighborhood. The availability of economic resources in a neighborhood is important. According to the tenets of social disorganization theory, it is beneficial to the neighborhood to utilize these economic resources for addressing the alleviation of neighborhood ills. In the case of this research, these resources are needed to address problem of the increasing rate of crime and criminality in the neighborhood. This variable is also important as neighborhoods with low socioeconomic status are typically associated with higher rates of crime as well as higher rates of residential turnover (Shaw & McKay, 1942).

Second, for a reflection of the amount of residential turnover in a neighborhood, two variables were utilized. First, a variable was created for the percentage of owner occupied homes by using the total number of owner occupied units divided by the total number of housing units (times 100) in a census tract; and second, a variable from the census that represents the percentage of the residents that have lived in their home for less than five years. In order to account for residential turnover, or residential instability, a factor analysis was used to combine these two measures.

The variable for percentage of owner occupancy is expected to be negatively correlated with crime (i.e., neighborhoods with higher rates of owner occupancy are likely to have lower rates of crime). Previous studies have determined that neighborhoods that undergo a decrease in the percentage of owner occupied homes are also likely to show increases in crime rates (Goodstein & Lee, 2010; Hipp et al., 2009).

A decrease in the number of properties that are occupied increases the number of properties that are left un-tended and increases the likelihood of the occurrence of a criminal event. There is also an expectation that the greater the percentage of residents that have remained in the residence for fewer than five years will be positively correlated with crime rates (the higher the percentage of individuals living in the home for less than five years the higher the rate of crime). As compared to renters, homeowners have a vested financial interest in their residential property and their neighborhoods and are more likely to come together to mobilize their collective efforts, or to intervene if necessary by way of informal social control to protect their homes and families from criminal behavior in their neighborhoods (Morenoff et al., 2001; Sampson & Graif, 2009; Sampson et al., 1997). Additionally, homeownership is consistent with social disorganization theory's emphasis on residential mobility in that homeowners are more likely than renters to be long-term residents of a neighborhood, thereby decreasing rates of residential mobility (or increasing residential stability) and having lower rates of crime (Gainey et al., 2011).

Third, variables for the racial composition (specifically, the percentage of Hispanic, African American, and Asian in a given census tract) were calculated by using the number of Hispanics in a census tract divided by the total population (x100), similar variables were constructed to account for African American and Asian populations as well. According to the U.S. Census for 2000 and 2010, in the city of San Antonio, the population is primarily Hispanic, more than 50 percent, while the population of San Diego is primarily white, approximately 63 percent. San Antonio's Asian population is below three percent in both 2000 and 2010. In San Diego, however, the percentage of

Asians in the community is higher, reaching 10 percent in 2010, higher than the percentage of African Americans.

### **Property Appraisal Data**

The data for property appraisal values was obtained from the Bexar County Appraisal District (BCAD). The dataset includes appraisal values of homes in Bexar County for each year from 2005–2011 and is organized by census tracts. The appraisal district appraises a property every year as of January 1 of a given year. This data provides the appraised value of the property per year and the history of property ownership. To account for property turnover, the change of ownership will be used to create a variable(s) to account for the rate of home sales in a census tract within the year since property sales are indicative of residential instability and can affect the appraised value of a property. The rate is calculated as the number of home sales (change of ownership) divided by the total number of housing units in the census tract.

The variable created for use in the analysis will be an average appraised value of properties in the census tract. These estimated values will be used as the mean appraisal values per census tract per year.

### **Spatial Lags**

As neighborhoods lie adjacent to one another in physical space, it is important to account for a spatial effect of neighborhoods in close proximity in these models. It is often the case that adjacent neighborhoods have similar demographic and social characteristics. Numerous studies identify a *contagion effect* in crime where vacant properties in one census tract can spread and have an effect on crime rates in census tracts that are closely situated (Harding, Rosenblatt, & Yao, 2009; Wilson & Paulsen, 2010).



As a result of these similarities, it is likely the case that crime in a census tract at a given time will have an effect on crime and vacancy rates in the subsequent quarter of nearby census tracts.

It is important to account for possible spatial effects of neighborhoods that are adjacent to the neighborhoods of interest. This provides an accounting for the occurrence of spillover effects resulting from high percentages of foreclosures and vacancies. To address spatial lag effects, a two mile buffer was placed around each property and the average number of foreclosures within the two miles was calculated. The distance was based on the latitude and longitude of the centroid of the census tract containing the foreclosure and the centroid of the census tract where foreclosures were located.

Prior research suggests that offenders are not inclined to travel long distances to engage in criminal activity and distance decay effects have been utilized in other studies (Rengert, Piquero, & Jones, 1999). Pyle (1974) suggested that offenders will likely travel an average distance between one and 2.5 miles from their own neighborhoods. Since in 2000 the median census tract was approximately 1.4 miles across (Hipp, 2007), and for the purposes of this research, the spatial lag was calculated at a distance of two miles from the centroid of the census tract.

Previous studies that have been conducted regarding the effects of foreclosures and vacancies, both concerning crime and property values, have found effects at varying distances from the focal property. For this research the distance decay was calculated at two miles. In essence, the estimation is that the presence of foreclosures and vacancies more than two miles from a given neighborhood are considered to have no effect. The spatial weight matrix (W) was used to create spatially lagged version of various measures

(i.e., variables relating to percent of race and ethnicity, median household income, crime types, as well as percentages of foreclosures and vacancies over the various quarterly time periods). Spatial lags were created for property, drug, and violent crime for San Antonio, Texas and property and drug crime for San Diego, California. Spatial lags were also created for the percentage of vacancies, the percentage of lag vacancies, the percentage of Black, Hispanic, and Asian residents in a census tract, Median Household Income, and a measure of neighborhood Instability.

## **Methodology**

### **Vacancy/Foreclosure and Crime Models**

In an effort to avoid redundancy, the methodology for vacancy and foreclosure are combined into one section as the methodology is very similar, the primary difference being the use of the vacancy versus foreclosure variable for each set of models. To examine the relationship between vacancy rates on crime in neighborhoods over time I used a negative binomial regression to analyze the various models. The dependent variable of interest for this project is crime, which is measured as the number of crimes in a given census tract in a given quarter relative to the population of the census tract. Crime rate is predicted by the vacancy rate from the prior quarter. In other words,

Vacancy Rate (V1)  $\rightarrow$  Crime Rate (X2).

Foreclosure Rate (F1)  $\rightarrow$  Crime Rate (X2)

The outcome variable, crime—a count of property, violent, or property crime—makes use of the Poisson distribution appropriate as the variable is produced by a data generating process that is different from data that reflects a normal distribution. I use a

negative binomial regression model as this provides an additional term to account for the variance of the distribution of the count data. The general equation for the model is:

$$E(y_i|x_i) = \exp(x_i\beta + \varepsilon_i)$$

Where  $y_i$  is the outcome measure,  $x_i$  is the vector of predictor variables,  $\beta$  is the effect of the predictors on the expected  $y$ , and  $\varepsilon_i$  is the additional term that accounts for the variance of the distribution.

The model I implement tests the relationship between the percentage of vacancies, similarly for percentage of foreclosures, and different types of crime (property, drug, and violent crimes for San Antonio and property and violent crimes for San Diego). Crime is not likely to occur immediately as a result of vacant properties. Potential offenders realize over time that a neighborhood has criminal opportunities, in this case vacant properties, thus making the neighborhood an attractive target. For this reason, I use a quarterly lag variable for the percentage of vacancies to account for this lag in time for crime to occur.

Additionally, I also include a spatially lagged version for each of the three quarterly time lagged crime type variables for each quarter of the time period for this study. As discussed previously, I utilize a two mile buffer and the average percentage of crimes within the two miles was calculated. The (W) matrix captures spatially lagged versions of the previously mentioned measures to determine whether surrounding neighborhoods also affect crime. The spatially lagged variables capture the influences of factors outside the census tract but also accounts for the fact that it is the influence of those factors in areas near a particular census tract that can affect crime.

Finally, in order to determine whether, and if any, moderating effects of neighborhood characteristics mediate the effect of vacancies on crime I created a series of interaction variables. First, an interaction variable for the effect of median household income and the percentage of lag vacancies was created to estimate the joint effect that income level and vacancies would have on crime rates. These interactions are used to assess whether census tracts with higher median household incomes were differentially affected by vacancies than census tracts with lower median household incomes. Second, interaction variables were created to estimate the effects of the percentage of Hispanic and Black residents and the percentage of vacancies would have on crime rates. Similar to the interaction of median household income and vacancy, the interaction variables for race and ethnicity are used to determine if census tracts with higher percentages of racial and ethnic residents and higher percentage of vacancies are affected differently by vacancies than census tracts with low percentages of racial and ethnic minority residents.

### **Vacancy/Foreclosure on Appraisal Values**

A third study estimates the effects of vacancies and foreclosures on the dependent variable appraisal value. The model I estimate takes into account that the variables previously identified—the percentage of lag vacancies and the percentage of lag foreclosures, together with crime rates—will have an impact on appraisal values. Similar to the hypothesis for the effect of vacancies or foreclosures on crime rates, the effect of vacancies or foreclosures and crime rates on appraisal values will not be immediate. Given that the appraisals take place once a year and neighborhood change (or instability) can, arguably, be gradual I use a one year lag model.

The first two models examine the relationship between the percentage of vacancies and the percentage of foreclosures on appraisal values in neighborhoods. The models will reflect the fact that the percentage of foreclosures or vacancies in one year cause a change, hypothesized to be a decrease, in appraisal values in the following year while also causing an increase in the percentage of vacancies and the crime rate the census tract. The third model examines the effect of the various crime types on appraisal values. The hypothesis is that crime will decrease appraisal values in the following years. The relationship can be represented as follows.

Vacancy Rate (V1) → Appraisal Value (A2)

Foreclosure Rate (F1) → Appraisal Value (A2)

Crime Type (C1) → Appraisal Value (A2)

The time period in this study covers 2006–2010. The models are estimated using ordinary least squares regression since the outcome variable, appraisal value, is a continuous variable. The general equation for the model is:

$$y = \beta_0 + \beta_1 x_1 + u_1$$

Where  $\beta$ s are population parameters and  $u$  is the value of the error term, or disturbance.

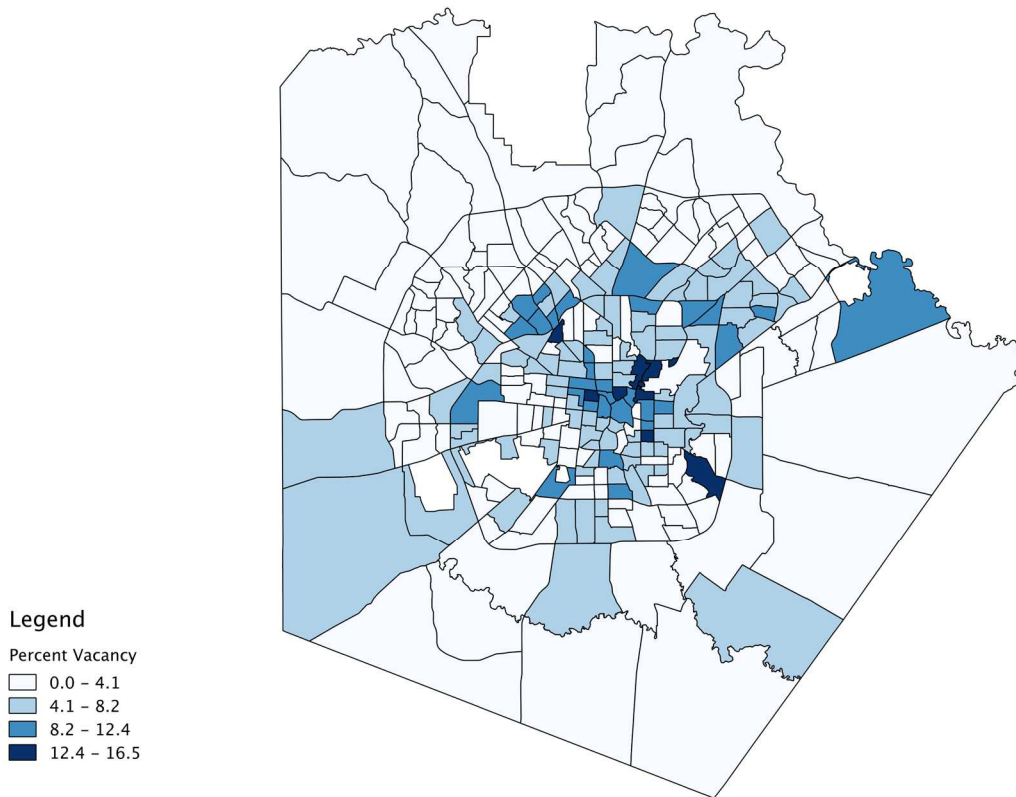
## **CHAPTER 4: ANALYSIS AND RESULTS**

As discussed in the methodology, several models were estimated to examine the effects among vacancies, foreclosures, property appraisal values, and crime. In an effort to be succinct I discuss the results of vacancies first and then the comparative effects of foreclosures and vacancies. Last, I provide the results of the examination of the effects of high concentrations of vacancies and foreclosures on property appraisal values.

### **Vacancies**

#### **San Antonio**

First, it is important to discuss the demographic characteristics of neighborhoods with the highest percentage of vacancies. The depiction of the vacancy problem for Bexar County is provided in Figure 4.1, covering the time period of this study, fourth quarter 2005 through fourth quarter of 2010, which reflects the percentage of vacancies by census tract throughout the county averaged over the entire time period. The city of San Antonio has an interstate loop that circumnavigates the city. The interior northern portion of the loop has been undergoing rapid expansion and is heavily urbanized. The interior southern portion is less densely populated with areas that have yet to be developed. As Figure 4.1 indicates, as was expected, the northern innermost region of the loop, which has more densely populated areas, also suffers from higher rates of vacancies.



*Figure 4.1.* Bexar County percentage vacancy by tracts (averaged over the time period fourth quarter 2005–2010).

In an effort to gain a more comprehensive understanding of the relationship between vacancies and crime an analysis of both the highest and lowest percentage values of the percentage of vacancies in Bexar County is warranted to determine what, if any, effect the different demographic characteristics are likely to have with respect to vacancy and crime. We should consider the census tract with the highest percentage of vacancies over the given time period of this study, which is identified in Figure 4.1 with a vacancy rate of approximately 20 percent. The census data can be used to unpack the demographic characteristics existing in the census tract. The mean value of the percentage of vacancies within Bexar County is 5.45 percent and this tract is five times higher than the average value in Bexar County. Table 4.1 provides a summary of the demographic and crime characteristics of the two census tracts with the highest and

lowest percentage of vacancies as well as the average of the neighboring tracts of the high percentage vacancy tract and average of the lowest vacancy tract nearby. Further, the outcome variable, crime, for all the census tracts of interest is included as well.

Looking at Table 4.1, if we look first at the tract with the highest rate of vacancies, we find that this tract also has the following characteristics: a high percentage of Hispanic residents, a median household income that is almost half that of the county, less than half of the tract is owner occupied, and just above a quarter of residents have lived in the tract for more than five years. Additionally, this tract has high rates of violent and property crime. If we compare these characteristics to the tract with the lowest rate of vacancy, we see that the median household income and the percentage of residents living in the tract for more than five years is almost three times that of the tract with the highest rate of vacancy. Moreover, the percentage of Hispanics living in the tract is less than 50 percent though the percentage of African Americans living in the tract is slightly higher than the tract with the highest rate of vacancies.

Next, if we consider the characteristics of the tracts contiguous to both the highest and lowest rates of vacancies, averaging the values of the six tracts that are contiguous, we find that the average rate of vacancies for the contiguous tracts is less than twice that of the tract with the highest rate. The average median household income, while significantly higher than the tract with the highest rate of vacancies, is still significantly lower than the average for the county. Similarly, the same pattern exists for the percentage of owner occupancy though the percentage for residents living in the tract for more than five years is significantly higher, even for the percentage in the county. The



rate of violent crime is twice that of the tract with the highest rate of vacancy and more than 10 times that of the tract with the lowest rate of vacancy.

Finally, looking at the average for the six contiguous tracts to the tract with the lowest rate of vacancy, while we see higher rates of the percentage of Hispanic and African Americans than the percentage of the county, we also see a higher level of median household income and an average of 80 percent of owner occupancy in the tracts. With respect to crime rates, we see a lower rate of violent crime, though higher than the tract with the lowest rate of vacancy, and lower rates of property crime.

Table 4.1

*Demographic Compositions of Vacancy in Highest, Lowest and Contiguous Tracts*

<b>Variable</b>	<b>% in Highest Vacancy Tract</b>	<b>% in Lowest Vacancy Tract</b>	<b>Avg % Contiguous Tract to Highest Tract</b>	<b>Avg % Contiguous Tract to Lowest Tract</b>	<b>% in county</b>
Percent Vacancies	20.54	0.04	12.47	1.74	5.45
Percent Hispanic	77.50	48.60	56.21	64.54	54.33
Percent African American	6.70	10.80	13.26	8.24	7.24
Percent Asian	0.80	3.2	1.27	2.01	1.96
Median Household Income	\$22,083	\$61,303	\$34,316	\$56,978	\$49,221
Percent Owner Occupancy	36.40	69.70	47.60	80.52	60.62
Percent Living in tract >5 yrs.	28.00	66.00	50.59	43.41	40.66
Property Crime	1,599	314	59.38	904.80	86.72
Violent Crime	1,560	75	110.49	423.00	70.20

## **Results of Models for Vacancy and Crime**

As indicated in the Methods section, a series of models were estimated to examine the relationship between vacancies, crime, and the demographic control variables. I describe the results for each separately. First, I describe the relationship between vacancies and the various crime types. Second, I describe the results of the vacancies and various interactions effects on property, drug, and violent crimes.

### **Effects of Vacancy on Crime Types**

The first set of models explores the relationship of the percentage of vacancies on property, drug, and violent crime. I find that the percent of vacancies in the prior quarter has a positive effect on all three crime types. The results of the models for property, drug, and violent crimes are found in Table 4.2. Turning first to the results of the equation for property crime (Model 1 in Table 4.2), I find that the percentage of lagged vacancies has a positive effect on the lagged property crime. The finding is robust even controlling for median household income and the spatial lag of the instability variable. Calculating the percent change as  $\exp(\beta)$ , this means that for every one percent increase in the percentage of vacancies there is a  $1.0(\beta)$  percent increase in property crime the following quarter.

Turning next to the results for drug crime (Model 2 in Table 4.2), there is a similar pattern. The magnitude of the results are similar when compared to the results of property crime. The results indicate that there is a significant and positive relationship between drug crime and the percentage of vacancies. This finding is robust even controlling for the lag and spatial lag of drug crimes, the spatial lag of vacancies, the percent Asian, and the lag and spatial lag of median household income. Thus, the

increase in the percentage of vacancies in the previous quarter will result in a  $1.08(\beta)$  percent increase in drug crimes in the following quarter.

The third model in Table 4.2 investigates the relationship between the percentage of vacancies and violent crimes. The model here reflects a similar pattern to that of property and drug crimes. The results indicate that there is a significant and positive relationship between the percentage of vacancies in the previous quarter and violent crimes. More specifically, as the percentage of vacancies in one quarter increase, the amount of violent crimes in the following quarter will increase as well. This finding is robust even when controlling for the lag of violent crime and the median household income.

The spatial lag of vacancies showed somewhat different results than the results from the models previously discussed. Looking at the models for property, drug, and violent crimes no significant effects were found.

Next, I examine the effect of various neighborhood demographic characteristics. First, looking at racial or ethnic composition I find no significant effect was found in property, drug, or violent crime. I find similar results for the percentage of Hispanics residing in the census tract. If we look at the results for median household income, I find significant negative effects for all of property, drug, and violent crimes. Again, this suggests that a one percent increase in median household income will result in a  $0.99(\beta)$ ,  $0.97(\beta)$  and a  $0.98(\beta)$  decrease in property, drug, and violent crime, respectively. Last, I examine the results for the instability and the spatial lag of instability and find no significant effect for any of property, drug, and violent crimes.

Table 4.2

*Examining the Effects of Vacancies and Crime*

<b>Outcome: Model 1: Prop. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.043	0.021	0.039*
Spatial -Perc. Vacancy Prev. Quart.	0.007	0.039	0.844
Property Crime <sub>(t-1)</sub>	0.005	0.001	0.000***
Spatial – Lag Property Crime	0.015	0.001	0.976
Percent Black	-0.009	0.010	0.352
Spatial Lag of Percent Black	0.001	0.017	0.935
Percent Asian	0.014	0.014	0.311
Spatial Lag of Percent Asian	0.043	0.068	0.525
Percent Hispanic <sup>a</sup>	-0.001	0.003	0.787
Median Household Income	-0.017	0.005	0.004**
Spatial Lag of MedHI	0.002	0.006	0.722
Instability	-0.063	0.126	0.618
Spatial Lag of Instability	0.070	0.239	0.771

<b>Outcome: Model 2: Drug Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.080	0.027	0.003**
Spatial -Perc. Vacancy Prev. Quart.	-0.030	0.050	0.536
Drug Crime <sub>(t-1)</sub>	0.167	0.004	0.000***
Spatial – Lag Drug Crime	0.001	0.001	0.000***
Percent Black	0.020	0.012	0.114
Spatial Lag Percent Black	0.004	0.019	0.862
Percent Asian	0.042	0.021	0.043*
Spatial Lag Percent Asian	0.017	0.081	0.839
Percent Hispanic	0.009	0.006	0.169
Median Household Income	-0.030	0.009	0.001**
Spatial Lag of MedHI	0.020	0.008	0.022*
Instability	-0.034	0.129	0.794
Spatial Lag of Instability	-0.102	0.315	0.745

<sup>a</sup> The spatial lag of Percent Hispanic was not included in the model due to collinearity.

<b>Outcome: Model 3: Vio. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.044	0.018	0.015*
Spatial -Perc. Vacancy Prev. Quart.	0.014	0.033	0.672
Violent Crime <sub>(t-1)</sub>	0.005	0.001	0.000***
Spatial – Lag Violent Crime	0.001	0.001	0.299
Percent Black	0.007	0.009	0.497
Spatial Lag of Percent Black	0.009	0.014	0.550
Percent Hispanic	0.007	0.004	0.070
Percent Asian	0.006	0.016	0.720
Spatial Lag Percent Asian	0.102	0.074	0.164
Median Household Income	-0.022	0.004	0.000***
Spatial Lag of MedHI	0.005	0.005	0.409
Instability	0.044	0.116	0.702
Spatial Lag of Instability	-0.290	0.208	0.161

### **Interaction Effects of Income and Vacancy on Crime**

Next, I examine the interactional effects of median household income and the percentage of vacancies on the various crime rates. The models examine whether the level of income of a census tract together with higher percentage of vacancies will result in higher levels of crime in neighborhoods. The results of the model are included in Table 4.3.

First, looking at the effect of income and vacancy on property crime I find that there is no significant relationship between income and vacancy and drug crimes. The results, however, do indicate a significant and negative relationship between income and vacancy interaction with property and violent crimes. In essence, increases in vacancy rates lead to higher crime in low-income neighborhoods. This is less likely in high-income neighborhoods. The results for property crime are visually displayed in Figure 4.2 and are plotted by the change in the property crimes for various levels of income:

high (one standard deviation above the mean, \$65,428), average (the mean, \$44,408), and low (one standard deviation below the mean, \$23,388). The x-axis, the percentage of vacancies, is the range based on the percentage of vacancies within the data. The graph shows that in neighborhoods with lower income levels, as the percentage of vacancies increases the rate of property crimes increases, even for neighborhoods with average-income levels. The rate of increase, however, is much more pronounced in areas of lower income level than for other income levels. A similar pattern was discerned with regard to violent crime (Figure 4.3; Model 3 in Table 4.3). The rate of change for violent crime is increasing at a higher rate when income levels are lower and the percentage of vacancies in a neighborhood increases. At higher income levels, however, the rate of violent crime seems to increase, though very minimally as vacancies increase.

Table 4.3

*Examining Interactional Effects—Income/Vacancy*

<b>Outcome: Model 1: Prop Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.069	0.027	0.010**
Spatial -Perc. Vacancy Prev. Quart.	-0.013	0.039	0.740
Property Crime <sub>(t-1)</sub>	0.005	0.001	0.000***
Spatial – Lag Property Crime	0.001	0.001	0.015*
Percent Black	-0.009	0.006	0.298
Spatial Lag of Percent Black	0.011	0.013	0.370
Percent Asian	0.010	0.017	0.550
Spatial Lag of Percent Asian	-0.047	0.065	0.470
Percent Hispanic	0.002	0.006	0.687
Median Household Income	-0.005	0.006	0.418
Spatial Lag of MedHI	0.001	0.007	0.895
Instability	0.056	0.098	0.571
Spatial Lag of Instability	0.631	0.277	0.023*
Income* Percent Vacancy	-0.001	0.001	0.034*

<b>Outcome: Model 2: Drug Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.073	0.031	0.017*
Spatial -Perc. Vacancy Prev. Quart.	-0.051	0.041	0.214
Drug Crime <sub>(t-1)</sub>	0.014	0.002	0.000***
Spatial – Lag Drug Crime	0.001	0.001	0.000***
Percent Black	0.008	0.009	0.350
Spatial Lag of Percent Black	-0.001	0.014	0.963
Percent Asian	0.036	0.030	0.049*
Spatial Lag of Percent Asian	-0.050	0.063	0.427
Percent Hispanic	0.005	0.005	0.386
Median Household Income	-0.031	0.008	0.000***
Spatial Lag of MedHI	0.011	0.007	0.124
Instability	-0.008	0.088	0.924
Spatial Lag of Instability	0.540	0.278	0.052
Income* Percent Vacancy	-0.001	0.000	0.700

<b>Outcome: Model 3: Vio. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.055	0.024	0.024*
Spatial -Perc. Vacancy Prev. Quart.	-0.052	0.036	0.154
Violent Crime <sub>(t-1)</sub>	0.004	0.001	0.000***
Spatial – Lag Violent Crime	0.001	0.001	0.000***
Percent Black	-0.001	0.008	0.918
Spatial Lag of Percent Black	0.021	0.011	0.081
Percent Hispanic	0.010	0.006	0.087
Percent Asian	0.009	0.028	0.675
Spatial Lag of Percent Asian	-0.008	0.068	0.909
Median Household Income	-0.017	0.004	0.003**
Spatial Lag of MedHI	0.009	0.007	0.253
Instability	0.119	0.088	0.175
Spatial Lag of Instability	0.480	0.277	0.084
Income* Percent Vacancy	-0.001	0.000	0.026*

*Note.* All models estimated using negative binomial regression. N = 180 tracts, 3780 observations.



### Income and vacancy interaction predicting property crime

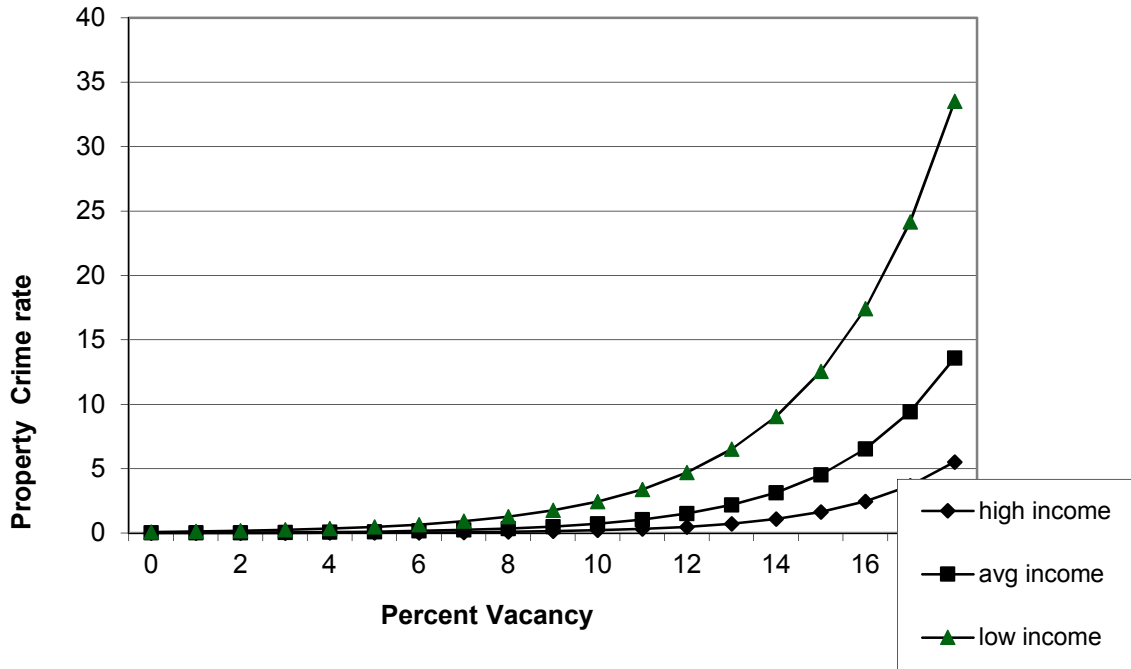


Figure 4.2. Interaction of income and vacancy predicting property crime San Antonio.

### Income and vacancy interaction predicting violent crime

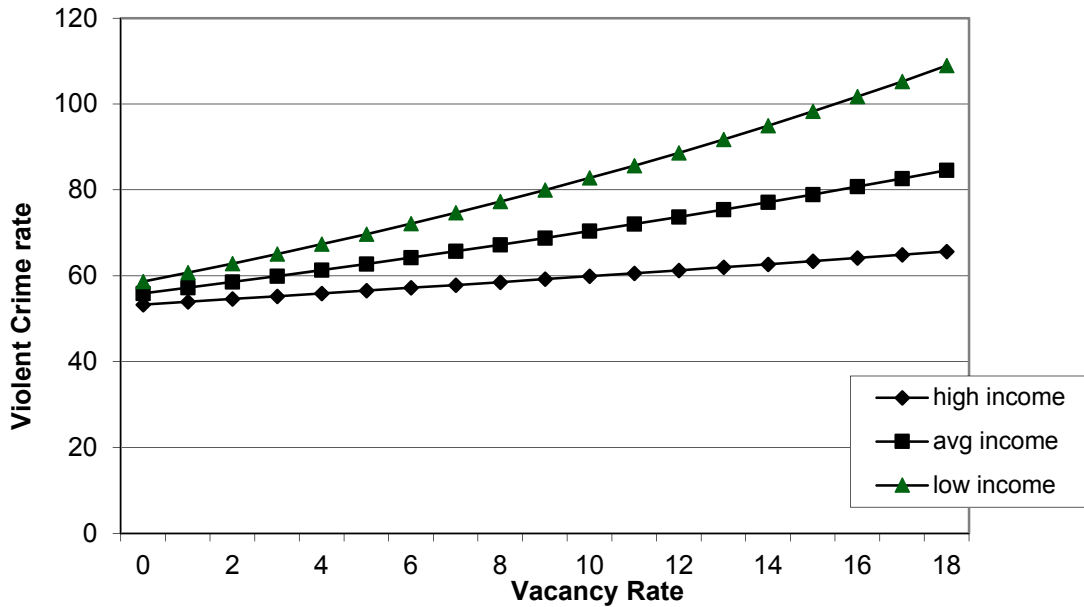


Figure 4.3. Interaction of income and vacancy predicting violent crime San Antonio.

### Interaction Effects of Percent Black and Vacancy on Crime

Next, I examine the models testing the interaction between the percentage of African Americans and the percentage of vacancies on crime. The results of the model are provided in Table 4.4. The results of the models indicate that for all crime types (property, drug, and violent) no significant effects were found. That is to say that there is no interactional effect between the percentage of African Americans in a census tract and the percentage of vacancies on crime.

Table 4.4

#### *Examining Interactional Effects – African American/Vacancy Interaction*

<b>Outcome: Model 1 Prop. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.024	0.020	0.214
Spatial -Perc. Vacancy Prev. Quart.	-0.045	0.058	0.435
Property Crime <sub>(t-1)</sub>	0.005	0.001	0.000***
Spatial Lag Property Crime	0.001	0.001	0.016*
Percent Black	-0.001	0.010	0.351
Spatial Lag of Percent Black	-0.013	0.033	0.681
Percent Asian	0.010	0.017	0.533
Spatial Lag of Percent Asian	-0.037	0.063	0.560
Percent Hispanic	0.004	0.006	0.547
Median Household Income	-0.010	0.006	0.101
Spatial Lag of Med. House. Inc.	0.005	0.007	0.513
Instability	0.060	0.100	0.554
Spatial Lag of Instability	0.575	0.295	0.051
Black* Percent Vacancy	0.005	0.006	0.431

<b>Outcome: Model 2: Drug Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.064	0.019	0.001***
Spatial -Perc.Vacancy Prev. Quart.	-0.055	0.055	0.314
Drug Crime <sub>(t-1)</sub>	0.013	0.003	0.000***
Spatial – Lag Drug Crime	0.001	0.001	0.000***
Percent Black	0.009	0.010	0.391
Spatial Lag of Percent Black	-0.002	0.033	0.951
Percent Asian	0.035	0.018	0.054
Spatial Lag of Percent Asian	-0.049	0.063	0.429
Percent Hispanic	0.005	0.006	0.372
Median Household Income	-0.323	0.007	0.000***
Spatial Lag of MedHI	0.012	0.007	0.086
Instability	-0.008	0.089	0.925
Spatial Lag of Instability	0.538	0.280	0.055
Black*Percent Vacancy	0.001	0.005	0.966
<b>Outcome: Violent Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.031	0.018	0.088
Spatial -Perc.Vacancy Prev. Quart.	-0.081	0.054	0.134
Violent Crime <sub>(t-1)</sub>	0.004	0.001	0.000***
Spatial Lag of Violent Crime	0.001	0.001	0.000***
Percent Black	-0.002	0.010	0.793
Spatial Lag of Percent Black.	0.001	0.034	0.966
Percent Hispanic	0.009	0.006	0.076
Percent Asian	0.009	0.021	0.666
Spatial Lag of Percent Asian	-0.002	0.067	0.970
Median Household Income	-0.019	0.005	0.000***
Spatial Lag of MedHI	0.010	0.007	0.133
Instability	0.122	0.088	0.170
Spatial Lag of Instability	0.451	0.286	0.115
Black*Percent Vacancy	0.004	0.007	0.532

*Note.* All models estimated using negative binomial regression. N = 180 tracts, 3780 observations.

### **Interaction Effects of Percent Hispanic and Vacancy on Crime**

San Antonio is a predominantly Hispanic community and so we next consider the interaction of the percent of Hispanics in a census tract and the percent vacancy on crime. The results of the models are presented in Table 4.5 and indicate a significant and positive relationship between the percentage of Hispanics and the percentage of vacancies with drug crime. No effect was found with property and violent crime. That is to say that higher vacancy rates lead to higher drug crime rates in neighborhoods with higher percentages of Hispanics.

First, the results regarding drug crime are depicted in Figure 4.4 and are plotted by the change in drug crimes for various levels of Hispanic residents: high (one standard deviation about the mean, 90.43), average (the mean, 67.97), and low (one standard deviation below the mean, 45.53). The graph shows that neighborhoods with higher percentages of Hispanic residents have higher drug crime rates. As vacancy rates increase over time these neighborhoods, with high percentages of Hispanic residents, will experience increasing rates of drug crime, similarly for neighborhoods with average percentages of Hispanic residents.

Table 4.5

*Examining Interactional Effects — Hispanic/Vacancy Interaction*

<b>Outcome: Model 1: Prop Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.025	0.020	0.200
Spatial -Perc.Vacancy Prev. Quart.	-0.100	0.104	0.336
Property Crime <sub>(t-1)</sub>	0.005	0.001	0.000***
Spatial Lag of Property Crime	0.001	0.001	0.058
Percent Black	-0.007	0.008	0.344
Spatial Lag of Percent Black	0.015	0.015	0.300
Percent Asian	0.006	0.018	0.736
Spatial Lag of Percent Asian	-0.042	0.063	0.508
Percent Hispanic	0.001	0.006	0.820
Median Household Income	-0.011	0.006	0.082
Spatial Lag of MedHI	0.008	0.008	0.382
Instability	0.054	0.099	0.584
Spatial Lag of Instability	0.696	0.325	0.032*
Hispanic* Percent Vacancy	0.001	0.001	0.358
<b>Outcome: Model 2: Drug Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.060	0.020	0.002**
Spatial -Perc.Vacancy Prev. Quart.	0.127	0.101	0.209
Drug Crime <sub>(t-1)</sub>	0.014	0.003	0.000***
Spatial Lag – Drug Crime	0.001	0.001	0.000***
Percent Black	0.016	0.009	0.079
Spatial Lag of Percent Black	-0.017	0.014	0.250
Percent Asian	0.043	0.018	0.021*
Spatial Lag of Percent Asian	-0.047	0.062	0.460
Percent Hispanic	0.011	0.006	0.059
Median Household Income	-0.029	0.007	0.000***
Spatial Lag of MedHI	0.005	0.008	0.516
Instability	-0.006	0.009	0.946
Spatial Lag of Instability	0.403	0.303	0.184
Hispanic*Percent Vacancy	0.003	0.001	0.039*

Outcome: Model 3: Vio. Crime	Coefficient	Stand. Error	P-value
Percent Vacancy Previous Quart.	0.030	0.019	0.109
Spatial -Perc. Vacancy Prev. Quart.	-0.026	0.094	0.783
Violent Crime <sub>(t-1)</sub>	0.004	0.001	0.000***
Spatial Lag – Violent Crime	0.001	0.001	0.000**
Percent Black	0.001	0.007	0.821
Spatial Lag of Percent Black	0.017	0.013	0.184
Percent Hispanic	0.011	0.005	0.040*
Percent Asian	0.009	0.021	0.665
Spatial Lag of Percent Asian	-0.005	0.067	0.938
Median Household Income	-0.019	0.005	0.040*
Spatial Lag of MedHI	0.009	0.008	0.234
Instability	0.119	0.028	0.174
Spatial Lag of Instability	0.435	0.316	0.168
Hispanic* Percent Vacancy	-0.001	0.001	0.715

*Note.* All models estimated using negative binomial regression. N = 180 tracts, 3780 observations.

### Race/Hispanic and vacancy interaction predicting drug crime

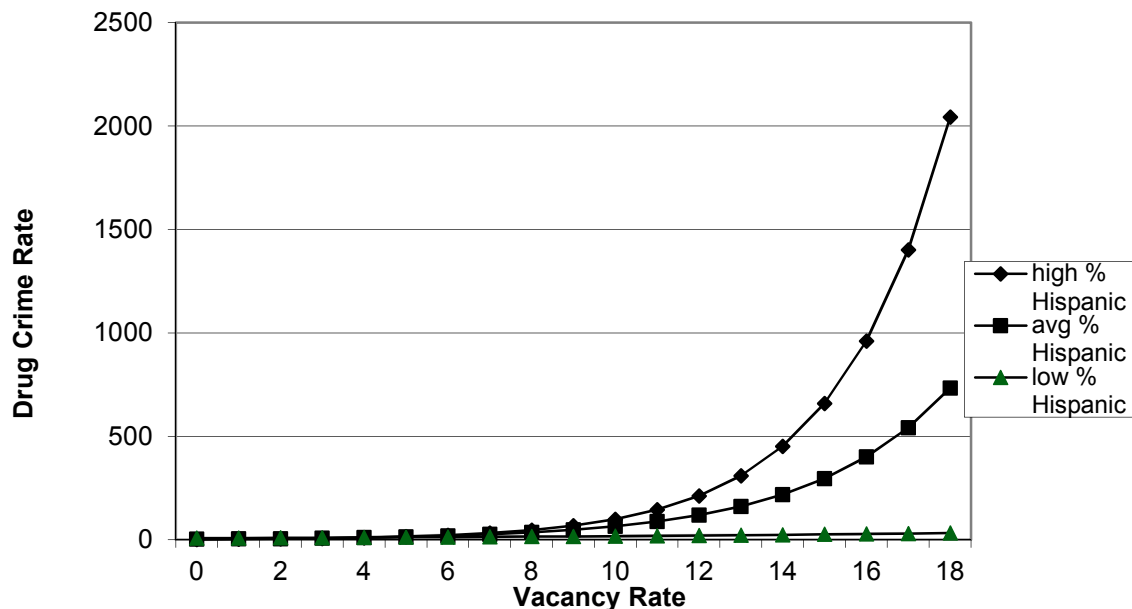


Figure 4.4. Race/Hispanic and vacancy interaction predicting drug crime – San Antonio.

## **San Diego, California**

The data utilized for this portion of the research encompasses the city of San Diego, California (herein referred to as simply “San Diego”). The census tracts within the city with the highest percentage of vacancies can be seen in Figure 4.5, which reflects the percentage of vacancies by census tract throughout the city over the entirety of the time period of this project, 2007–2010.

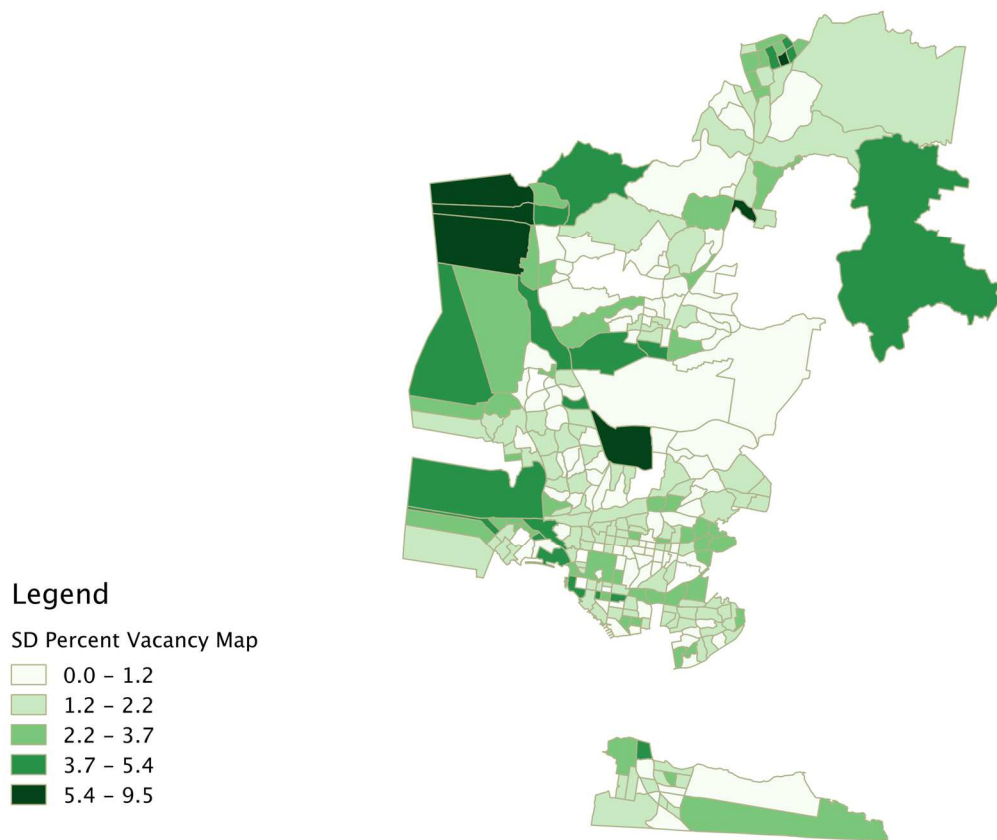
A more in-depth look at the extreme values of the percentage of vacancies in San Diego is warranted if we are to get a better understanding of the relationship between vacancies and crime. If we consider the census tract with the highest percentage of vacancies over time, identified in Figure 4.5 with approximately 9.5 percent, located along the northwestern portion of the county. We look to the census data to unpack the demographic characteristics of the census tracts of interest, found in Table 4.6. As a means of comparison the mean value of the percentage of vacancies within San Diego County is 1.77 percent and this tract is approximately nine times higher than the average value for the county. Table 4.6 below provides a summary of the demographic and crime characteristics of the census tracts of interest thus far, particularly the census tract with the highest and lowest percentage of vacancies as well as the average value of the neighboring census tracts of the highest and lowest vacancy census tracts.

If we examine the demographic characteristics of the census tract with the highest percentage of vacancies, we see that, with respect to race or ethnicity, the percentages for Hispanic (27.3) is slightly below the average of the city (29.18) and the percentage of African American (0.40) is significantly less than the average of the city (6.18). The median household income (\$68,606) is slightly above that of the city average (\$67,978).

Next, if we look at the characteristics of the lowest percentage of vacancies (0.04) we find that this is only slightly below that of the city average (0.85). The race or ethnic characteristics, particularly for Percentage of Hispanic (16.90) and African American (5.20) are also below the average for the city. Similarly for median household income, \$63,300 for the tract and \$67,978 for the city.

### Results of the Models

The first set of models explores the effect of the percentage of vacancies on neighborhood crime, violent and property crime. Table 4.7 below provides the various results of the models.



*Figure 4.5.* Percentage of vacancies by tract in San Diego, CA (averaged over the 2007–2010 time period).



Table 4.6

*City of San Diego*

<b>Variable</b>	<b>% In Highest Vacancy Tract</b>	<b>% In Lowest Vacancy Tract</b>	<b>Avg % Contiguous Tracts to Highest Tract</b>	<b>AVG % Contiguous Tracts to Lowest Tract</b>	<b>% In City</b>
% Vacancies	9.50	0.04	2.76	1.74	0.85
% Hispanic	27.30	16.90	6.08	64.54	29.18
% African American	0.40	5.20	0.48	8.24	6.18
% Asian	3.30	3.2	4.96	2.01	13.88
Med. Household Income	\$ 68,606	\$ 63,300	\$117,861	\$56,978	\$67,978
% Owner Occupancy	51.99	36.60	72.08	80.52	52.19
% Living in tract >5 yrs.	40.08	51.70	27.56	43.41	39.50
Total Crime	247	356	248	2676.60	158,268
Property Crime	226	329	229	904.80	137,000
Violent Crime	14	22	12	423.00	21,268

## Effects of Vacancy on Crime Types

The models reflected in Table 4.7 explore the relationship between the percentage of vacancies and violent crime in San Diego County. I find that the percent of vacancies in the previous quarter does not have an effect on either property or violent crimes.

Looking first to the results of the equation for property crime (Model 1, Table 4.7) I find that the percentage of vacancies in one quarter does not have an effect on property crime in the following quarter.

Next, looking at the second set of models that examine the relationship between the percentage of vacancies on violent crime in the following quarter, again, I do not find any significant effect (Model 2, Table 4.7). I do, however, find a significant and positive effect when controlling for the spatial lag of violent crime.

As mentioned previously, the literature suggests that the percentage of vacancies will have an effect on crime levels in neighborhoods. The results found in these models mirror the findings in San Antonio, which found significant effects in the relationship between the percentage of vacancies in one quarter and the subsequent levels of property, drug, and violent crimes in the following quarters.

Next I consider the effect of the demographic characteristics on both property and violent crime. First, with regard to property crime, I find only a significant and negative effect with respect to Percent Asian and the spatial lag of instability. This suggests that neighborhoods with high percentages of Asian residents, or increases in spatial lag of instability, are likely to experience lower property crime rates as vacancies increase. I find significant and positive effects with respect to the spatial lag of percentage of Asian and Instability. This would suggest that neighborhoods with percentages for spatial lag

of Asian residents, or high percentage of Instability, are likely to experience higher property crime rates as vacancies increase. Second, with regard to violent crime, I find only a significant and positive effect for the spatial lag of Percent Asian and Instability. This would suggest that neighborhoods with higher spatial lag for Percentage of Asian residents, or high Instability, are likely to experience higher violent crime rates as vacancies increase. Significant and negative effects were found for the Spatial lag of Percent Asian, Percent Hispanic, and the Spatial lag of Instability. Again, this would suggest that with increases in these variables neighborhoods are likely to experience lower violent crime rates as vacancies increase.

Table 4.7

*Examining the Effects of Vacancies and Crime By Tract (San Diego)*

<b>Outcome: Model 1 Prop. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.068	0.040	0.083
Spatial -Perc.Vacancy Prev. Quart.	0.046	0.027	0.101
Property Crime <sub>(t-1)</sub>	0.011	0.005	0.024*
Spatial – Lag Property Crime	0.013	0.028	0.632
Percent Black	-0.019	0.014	0.155
Spatial Lag of Percent Black	0.016	0.028	0.573
Percent Asian	-0.015	0.005	0.003**
Spatial Lag of Percent Asian	0.018	0.007	0.014*
Percent Hispanic	-0.007	0.005	0.143
Spatial Lag of Percent Hispanic	0.001	0.001	0.685
Median Household Income	-0.050	0.041	0.222
Spatial Lag of MedHI	0.145	0.080	0.071
Instability	0.277	0.055	0.000***
Spatial Lag of Instability	-0.248	0.052	0.000***

<b>Outcome: Model 2 Vio. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.048	0.026	0.070
Spatial -Perc. Vacancy Prev. Quart.	0.001	0.027	0.988
Violent Crime <sub>(t-1)</sub>	0.001	0.002	0.832
Spatial – Lag Violent Crime	0.067	0.018	0.000***
Percent Black	-0.007	0.008	0.354
Spatial Lag of Percent Black	-0.007	0.019	0.695
Percent Hispanic	-0.001	0.002	0.852
Spatial Lag of Percent Hispanic	-0.001	0.001	0.037*
Percent Asian	-0.013	0.004	0.002**
Spatial Lag Percent Asian	0.014	0.007	0.041*
Median Household Income	-0.009	0.022	0.677
Spatial Lag of MedHI	-0.040	0.062	0.521
Instability	0.162	0.050	0.001***
Spatial Lag of Instability	-0.235	0.042	0.000***

*Note.* All models estimated using negative binomial regression. N = 279 tracts.

### **Interaction Effects of Income and Vacancy on Crime**

Next, I examine the interactional effects of median household income and the percentage of vacancies on both property and violent crime. I hypothesize that neighborhoods are differentially affected by the presence of vacancies with respect to income. More specifically, I hypothesize that neighborhoods with lower income levels, and with a higher percentage of vacancies, are likely to have higher crime than higher income neighborhoods. In other words, lower income levels would be more susceptible to the effects of vacancies on crime as opposed to average and high-income neighborhoods. The models examine whether the level of income of a census tract together with a higher percentage of vacancies will result in higher level of crime in neighborhoods. The results of the models are found in Table 4.8.

First, looking at the model of the interaction between the median household income and the percentage of vacancies on property crime I find that there is no significant relationship. Similarly, I find no significant relationship between the interaction effect of median household income and percentage of vacancies on violent crime. This finding is contrary to the expectation proposed in the hypothesis.

Table 4.8

*Examining Interactional Effects – Income/Vacancy by Tract (San Diego)*

<b>Outcome: Model 1: Prop. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.178	0.106	0.094
Spatial -Perc.Vacancy Prev. Quart.	0.074	0.041	0.068
Property Crime <sub>(t-1)</sub>	0.011	0.005	0.022
Spatial – Lag Property Crime	0.010	0.028	0.694
Percent Black	-0.018	0.012	0.141
Spatial Lag of Percent Black	0.013	0.027	0.628
Percent Asian	-0.015	0.004	0.001***
Spatial Lag of Percent Asian	0.017	0.007	0.018*
Percent Hispanic	-0.008	0.005	0.109
Spatial Lag of Percent Hispanic	0.001	0.001	0.676
Median Household Income	-0.028	0.027	0.297
Spatial Lag of MedHI	0.129	0.070	0.065
Instability	0.277	0.056	0.000***
Spatial Lag of Instability	-0.232	0.051	0.000***
Income* Percent Vacancy	-0.021	0.015	0.101

<b>Outcome: Model 2: Vio. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.077	0.068	0.252
Spatial -Perc. Vacancy Prev. Quart.	0.005	0.030	0.865
Violent Crime <sub>(t-1)</sub>	0.001	0.003	0.826
Spatial – Lag Violent Crime	0.068	0.018	0.000***
Percent Black	-0.007	0.008	0.353
Spatial Lag of Percent Black	-0.008	0.020	0.690
Percent Hispanic	-0.005	0.002	0.817
Spatial Lag of Percent Hispanic	-0.001	0.001	0.039*
Percent Asian	-0.013	0.004	0.002**
Spatial Lag of Percent Asian	0.014	0.007	0.045*
Median Household Income	-0.005	0.020	0.797
Spatial Lag of MedHI	-0.041	0.063	0.512
Instability	0.161	0.050	0.001***
Spatial Lag of Instability	-0.231	0.043	0.000***
Income* Percent Vacancy	-0.007	0.011	0.562

*Note.* All models estimated using negative binomial regression. N = 279.

### **Interaction Effects of Percent Black and Vacancy Rate on Crime**

The next set of models test interaction effects which look specifically at the interaction between the percentage of African Americans residing in a neighborhood and the percentage of vacancies on crime. The models allow me to test if neighborhoods are differently affected by the presence of vacancies and higher percentages of African Americans with respect to crime. The results of the models are provided in Table 4.9. The results indicate that there is no significant effect on the interaction between the percentage of African Americans and the percentage of vacancies on either property crime or violent crime.

Table 4.9

*Examining Interactional Effects – African American/Vacancy (San Diego)*

<b>Outcome: Property Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.066	0.053	0.209
Spatial -Perc. Vacancy Prev. Quart.	0.045	0.028	0.106
Property Crime (t-1)	0.011	0.005	0.024*
Spatial Lag of Property Crime	0.013	0.027	0.632
Percent Black	-0.020	0.012	0.092
Spatial Lag of Percent Black	0.016	0.028	0.570
Percent Asian	-0.015	0.005	0.003**
Spatial Lag of Percent Asian	0.018	0.008	0.017*
Percent Hispanic	-0.007	0.005	0.135
Spatial Lag of Percent Hispanic	0.001	0.001	0.681
Median Household Income	-0.050	0.041	0.217
Spatial Lag of Med. House. Inc.	0.145	0.081	0.073
Instability	0.278	0.055	0.000***
Spatial Lag of Instability	-0.248	0.052	0.000***
Black* Percent Vacancy	0.001	0.004	0.894
<b>Outcome: Violent Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.046	0.036	0.203
Spatial -Perc. Vacancy Prev. Quart.	0.001	0.026	0.996
Violent Crime (t-1)	0.001	0.002	0.835
Spatial Lag Violent Crime	0.067	0.178	0.000***
Percent Black	-0.008	0.008	0.326
Spatial Lag of Percent Black.	0.007	0.019	0.695
Percent Hispanic	-0.001	0.002	0.846
Spatial Lag of Percent Hispanic	-0.001	0.001	0.037*
Percent Asian	-0.013	0.004	0.002**
Spatial Lag of Percent Asian	0.014	0.007	0.042*
Median Household Income	-0.009	0.022	0.673
Spatial Lag of MedHI	-0.040	0.063	0.520
Instability	0.162	0.050	0.001***
Spatial Lag of Instability	-0.235	0.042	0.000***
Black*Percent Vacancy	0.001	0.004	0.923

*Note.* All models estimated using negative binomial regression. N = 279.

### **Interaction Effect of Percent Hispanic and Vacancy on Crime**

Last, I consider the interaction of the effect of the percentage of Hispanics in a census tract and the vacancy rate on crime. The models presented examine what effects, if any, varying effects of the percentage Hispanic and the percentage of vacancies have on neighborhood crime rates. The first model examines the effect of the percentage of Hispanics and vacancies on property crime rates. The results of the models are presented in Table 4.10 (Model 1 and Model 2) on the following page and indicate that there is no significant effect for either property or violent crime.

Table 4.10

*Examining Interactional Effects – Hispanic/Vacancy (San Diego)*

<b>Outcome: Model 1: Prop. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.095	0.062	0.128
Spatial -Perc. Vacancy Prev. Quart.	0.050	0.030	0.100
Property Crime <sub>(t-1)</sub>	0.011	0.005	0.026*
Spatial Lag of Property Crime	0.012	0.028	0.632
Percent Black	-0.020	0.014	0.152
Spatial Lag of Percent Black	0.016	0.028	0.580
Percent Asian	-0.015	0.005	0.002**
Spatial Lag of Percent Asian	0.019	0.007	0.013*
Percent Hispanic	-0.006	0.004	0.141
Median Household Income	-0.049	0.039	0.214
Spatial Lag of MedHI	0.144	0.079	0.068
Instability	0.274	0.055	0.000***
Spatial Lag of Instability	-0.252	0.053	0.000***
Hispanic* Percent Vacancy	-0.001	0.001	0.375



<b>Outcome: Model 2: Vio. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy Previous Quart.	0.052	0.042	0.212
Spatial -Perc.Vacancy Prev. Quart.	0.006	0.027	0.814
Violent Crime <sub>(t-1)</sub>	0.500	0.065	0.010**
Spatial Lag – Violent Crime	0.687	0.077	0.000***
Percent Black	-0.009	0.008	0.268
Spatial Lag of Percent Black	-0.015	0.016	0.334
Percent Hispanic	0.001	0.002	0.712
Spatial Lag of Percent Hispanic	-0.001	0.001	0.002**
Percent Asian	-0.010	0.004	0.020*
Spatial Lag of Percent Asian	0.021	0.006	0.001***
Median Household Income	-0.005	0.022	0.808
Spatial Lag of MedHI	-0.042	0.076	0.574
Instability	-0.048	0.049	0.327
Spatial Lag of Instability	-0.241	0.044	0.000***
Hispanic* Percent Vacancy	-0.001	0.001	0.835

*Note.* All models estimated using negative binomial regression. N = 279.

### **Discussion**

The foreclosure crisis had drastic ramifications for neighborhoods and local governments across the United States. Prior to the crisis subprime lending came in vogue. Banks and mortgage brokers targeted low income, high minority customers for these risky products in an effort, allegedly, to provide homeownership opportunities to those that would not otherwise qualify. The collapse of the real estate market in 2007 and 2008 forced many of these new homeowners into foreclosure leaving many neighborhoods with an increasing number of vacant homes. The consequences of the effects of increasing neighborhood foreclosure rates have been well documented in the media and many other research studies. The results I have presented here reflect the relationship between vacancies and crime and reinforce many of the findings of previous

studies. The results in this study demonstrate that vacancies can have a harmful effect on neighborhoods.

### **The Key Finding**

The focus of this research is the effect of neighborhood vacancies on crime rates. The results for the effect of the percentage of vacancies in San Antonio indicate that, when looking at crime types—drug, property, and violent crime—higher percentages of vacancies in one quarter contributed to higher crime rates in subsequent quarters. These effects were found even when accounting for the level of crime in the tract and nearby tracts in the prior quarter for all crime types. This finding is consistent with the research in this area of study. The results for San Diego, however, were somewhat surprising as I found that the percentage of vacancies has no effect on crime rates.

To further understand the impact of vacancies I examine how an increased level of vacancies impacts crime rates across neighborhoods in both cities. For San Antonio, the results suggest that income level can have a moderating effect on the percentage of vacancies in a neighborhood for property crimes. Neighborhoods characterized as low income appear to show faster increases in crime rates when vacancies increase compared to average and high-income neighborhoods, which may not be surprising. This might suggest that neighborhoods that are already low on resources are further stretched and lack the ability to combat the crime increases faced by the increasing percentages of vacancies in their neighborhood. For the larger community, city, and county, there are increasing costs as well (e.g., the need for increased policing and emergency services and higher costs related to investigation and prosecution of offenders). Again, the results for San Diego were somewhat surprising in that no effect was found with respect to the

interaction effect of income on vacancy levels in neighborhoods, holding true for both property and violent crime. This null finding seems to differ from the general research suggesting that income level would have a differential effect on crime rates.

Neighborhoods considered to be suffering from concentrated disadvantage, such as increasing rates of vacancies and lower income levels, are thought to experience increasing crime rates (Hipp, 2010).

Next, I examined the interactional effect of race or ethnicity and the percentage of vacancies on crime rates. First, looking at the effect of the percentage of African Americans in a neighborhood together with increasing percentages of vacancies I find no significant effects. This seems to contradict other research findings. Prior literature suggests that African American communities may lack social cohesion, which may affect the mechanisms by which residents can combat crime in their communities (Cancino, 2010; Moore & Pinderhuges, 1993). The results in San Diego supported the findings in San Antonio since no significant effect was found for either property or violent crime. This may result from the low percentage of African Americans residing in the city generally; and even in areas characterized by high vacancy rates, there are low percentages of African Americans residing in those neighborhoods.

Last, looking at the interactional effects of the percentage of Hispanics and the percentage of vacancies I find that there is no significant effect on property and violent crime rates, but there are significant effects for drug crimes. As prior research suggests, Hispanics, while also suffering from economic disadvantages, may have more social cohesion in their neighborhoods that allow the neighborhoods and the residents within those communities to better combat crime and criminality (Cancino, 2010; Moore &

Pinderhughes, 1993; Pallonni & Morenoff, 2001). The results in San Diego differed, however, in that no significant effect was found for either property or violent crime rates.

### **Foreclosure and Crime**

The methodology outlined the models that are used to estimate the relationship between the percentages of foreclosures in a census tract in one quarter to crime rates in the following quarter. I first discuss the results of the models for San Antonio, Texas and then follow with the results for San Diego, California. For both San Antonio and San Diego, I discuss the results of the relationship between the percentage of lag foreclosures and the various crime types, then the various interaction effects on the various crime types.

#### **San Antonio**

Similar to the examination of vacancies in Bexar County, I first examine the demographic characteristics of neighborhoods with the highest and lowest percentage of foreclosures as well as the average of the tracts contiguous to each. Both high and low percentages are presented in Table 4.11. A depiction of the distribution of foreclosures for Bexar County is provided in Figure 4.6.

The census tract with the highest percentage of foreclosures has an average of 3.5 times the percentage of foreclosures as that of the county (averaged over the time period of the study). If we consider the demographic characteristics of this census tract we find that the percentage of African Americans and Hispanics living in the tract exceed the average for the county and, in the case of African Americans, significantly exceed that of the county (24.60 percent in the tract and 7.24 percent in the county). The median household income is half that of the income level for the county. Only 50 percent of the

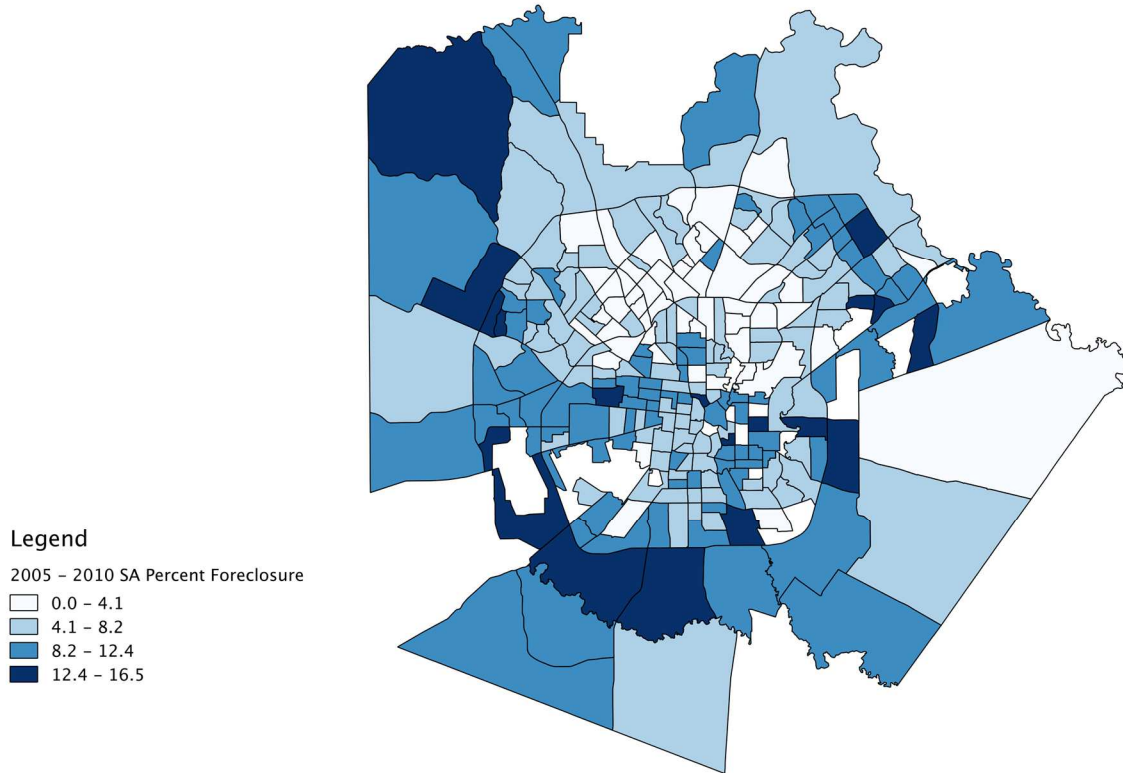
homes are owner occupied and only 30 percent of the residents have lived in the neighborhood for more than five years. Property crime in this tract was less than half that of the entire county and drug crimes were five times that of the county. Violent crime rates, however, were only slightly higher.

Examining the average percentage of these characteristics for those tracts that are contiguous to the highest tract of foreclosure, the percentage of foreclosure is also significantly higher than the percentage of foreclosures in the county. Similarly, for the percentage of Hispanic and African American residents, the tracts have higher percentages than that of the county but particularly so for the percentage of African Americans (average 17.08 percentage in contiguous tracts versus 7.24 in the county). The average median household value is less than half the average median household income for the county but also even less than the income level for the highest foreclosure tract. The percentage of owner occupancy and residents living in the tract more than five years are both less than that for the county. Crimes for the contiguous tracts were more than two times that of the highest foreclosure tract but still slightly lower than that of the county. Violent crimes were much higher than both the highest tract and the county while the drug crimes were less than half that of the highest tract and almost three times higher than that of the county.

Table 4.11

*Foreclosures During the Time Period 2005–2010*

<b>Variable</b>	<b>% In Highest Forecl Tract</b>	<b>% In Lowest Forecl Tract</b>	<b>Avg % Contiguous Tracts to Highest Tracts</b>	<b>Avg % Contiguous Tracts to Lowest Tract</b>	<b>% In Country</b>
% Foreclosure	27.03	0.04	3.02	1.74	1.77
% Hispanic	71.80	16.90	35.48	64.54	31.92
% African American	24.60	5.20	3.15	8.24	5.08
% Asian	0.00	3.30	1.27	2.01	1.96
Med. Household Income	\$27,225	\$44,108	\$23,999	56,978	45,855
% Owner Occupancy	50.40	30.50	49.04	43.41	60.62
% Living in tract > 5 yrs.	36.30	65.40	37.48	43.41	40.66
Property Crime	38.76	131.52	81.41	904.80	183,526
Violent Crime	71.14	115.29	111.81	423.00	27,120
Drug Crime	76.76	34.19	44.25	11.55	15.47



*Figure 4.6.* Foreclosure map – Bexar County (averaged over the entire time period of the study).

## Results

### Effect of Foreclosure and Crime Types

The first set of models explore the relationship between percentage of foreclosures in one quarter and crime rates in the following quarter. I find that the percentage of foreclosures has a positive effect on crime in the following quarters, holding true for property and violent crime types, but not drug crimes. The results of the models are found in Table 4.12. Turning first to the results of the equation for property crime (Model 1, Table 4.12) I find that the percentage of lagged foreclosures has a positive effect on property crime. The finding is robust even when controlling for the effect of the spatial percentage of lagged foreclosures and the percentage of lagged property crimes. This finding suggests that as the percentage of foreclosures increases

the rate of property crime increase by approximately 1.2(  $\beta$  ) percent as well. Next, I find no significant effect of the percentage of foreclosures on the percentage of drug crimes (Model 2, Table 4.12). In the last model (Model 3, Table 4.12), I find a significant and positive effect suggesting that the percentage of violent crimes increase with increases in the percentage of foreclosures. The robustness of the finding hold true when controlling for the spatial lag of the percentage of foreclosures.

If we consider how the characteristics of a neighborhood effectively contribute to property crime, I find a significant and positive effect with respect to the spatial lag of Instability. First, as the rate of the spatial lag of Instability increases rates of property crime increase as well. Second, I find significant and negative effects with respect to the median household income and the rates of drug crimes.

Table 4.12

*Examining the Effects of Foreclosure on Crime – San Antonio*

<b>Outcome: Model 1: Prop. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Foreclosure Previous Quart.	0.138	0.065	0.036*
Spatial -Perc. Forecl. Prev. Quart	-0.449	0.154	0.004**
Property Crime <sub>(t-1)</sub>	0.005	0.001	0.000***
Spatial – Lag Property Crime	0.001	0.001	0.000***
Percent Black	-0.007	0.007	0.352
Spatial Lag of Percent Black	0.015	0.013	0.235
Percent Asian	0.004	0.019	0.823
Spatial Lag of Percent Asian	-0.050	0.053	0.350
Percent Hispanic	0.003	0.006	0.648
Median Household Income	-0.010	0.007	0.094
Spatial Lag of MedHI	0.004	0.007	0.570
Instability	0.091	0.094	0.330
Spatial Lag of Instability	0.552	0.253	0.029*



<b>Outcome: Model 2: Drug Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Foreclosure Previous Quart.	0.141	0.073	0.053
Spatial -Perc. Forecl. Prev. Quart.	-0.545	0.209	0.009**
Drug Crime <sub>(t-1)</sub>	0.014	0.003	0.000***
Spatial – Lag Drug Crime	0.002	0.001	0.000***
Percent Black	0.007	0.010	0.475
Spatial Lag Percent Black	0.006	0.014	0.674
Percent Asian	0.020	0.022	0.361
Spatial Lag Percent Asian	-0.031	0.059	0.604
Percent Hispanic	0.004	0.006	0.530
Median Household Income	-0.033	0.008	0.000***
Spatial Lag of MedHI	0.011	0.008	0.141
Instability	0.047	0.092	0.610
Spatial Lag of Instability	0.429	0.238	0.072
<b>Outcome: Model 3: Vio. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl Previous Quart.	0.132	0.058	0.023*
Spatial -Perc. Forecl Prev. Quart.	0.033	0.155	0.000***
Violent Crime <sub>(t-1)</sub>	0.004	0.001	0.000***
Spatial – Lag Violent Crime	0.001	0.001	0.000***
Percent Black	-0.001	0.007	0.895
Spatial Lag of Percent Black	0.026	0.012	0.033*
Percent Hispanic	0.011	0.006	0.058
Percent Asian	0.004	0.023	0.854
Spatial Lag Percent Asian	0.013	0.057	0.820
Median Household Income	-0.019	0.006	0.001***
Spatial Lag of MedHI	0.001	0.007	0.155
Instability	0.154	0.086	0.072
Spatial Lag of Instability	0.287	0.236	0.224

*Note.* All models estimated using negative binomial regression. N = 277 tracts.

### **Interaction Effects of Foreclosure and Income on Crime**

Next, I look at the interactional effects of income and the percentage of foreclosures on crime rates. The models examine whether there is a different effect on

crime rates based on the interaction of income level and the percentage of foreclosures.

The results of the models are depicted in Table 4.13. I find that there is no significant effect on property, violent, or drug crimes.

Table 4.13

*Examining Interactional Effects – Income/Foreclosure on Crime – San Antonio*

<b>Outcome: Model 1 Prop. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	0.140	0.061	0.020*
Spatial -Perc. Forecl Prev. Quart.	-0.447	0.153	0.004**
Property Crime <sub>(t-1)</sub>	0.004	0.001	0.000***
Spatial – Lag Property Crime	0.001	0.001	0.000***
Percent Black	-0.007	0.007	0.358
Spatial Lag of Percent Black	0.006	0.013	0.234
Percent Asian	0.005	0.019	0.819
Spatial Lag of Percent Asian	-0.050	0.053	0.350
Percent Hispanic	0.003	0.006	0.645
Median Household Income	-0.010	0.007	0.106
Spatial Lag of MedHI	0.004	0.007	0.567
Instability	0.092	0.094	0.330
Spatial Lag of Instability	0.551	0.252	0.029*
Income* Percent Foreclosure	-0.001	0.001	0.836
<b>Outcome: Model 2: Vio. Crimes</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Foreclosure Previous Quart.	0.151	0.053	0.004**
Spatial -Perc.Forecl. Prev. Quart.	-0.609	0.155	0.000***
Violent Crime <sub>(t-1)</sub>	0.004	0.001	0.000***
Spatial – Lag Violent Crime	0.001	0.001	0.000***
Percent Black	-0.001	0.007	0.942
Spatial Lag of Percent Black	0.026	0.012	0.030
Percent Asian	0.005	0.023	0.822
Spatial Lag of Percent Asian	0.013	0.056	0.811
Percent Hispanic	0.011	0.006	0.050*
Median Household Income	-0.018	0.006	0.002**
Spatial Lag of MedHI	0.010	0.007	0.136
Instability	0.154	0.086	0.074
Spatial Lag of Instability	0.279	0.236	0.237
Income* Percent Foreclosure	-0.001	0.001	0.066

<b>Outcome: Model 3: Drug Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Foreclosure Previous Quart.	0.164	0.065	0.012*
Spatial -Perc.Forecl. Prev. Quart.	-0.512	0.209	0.234
Drug Crime <sub>(t-1)</sub>	0.014	0.003	0.000***
Spatial – Lag Drug Crime	0.002	0.001	0.000***
Percent Black	0.008	0.010	0.429
Spatial Lag of Percent Black	0.006	0.015	0.667
Percent Hispanic	0.005	0.006	0.480
Percent Asian	0.021	0.022	0.342
Spatial Lag of Percent Asian	-0.030	0.059	0.609
Median Household Income	-0.032	0.008	0.000***
Spatial Lag of MedHI	0.011	0.008	0.125
Instability	0.046	0.091	0.618
Spatial Lag of Instability	0.422	0.238	0.076
Income* Percent Foreclosure	-0.002	0.001	0.045*

*Note.* All models estimated using negative binomial regression. N = 277 tracts.

#### Income and foreclosure interaction predicting drug crime

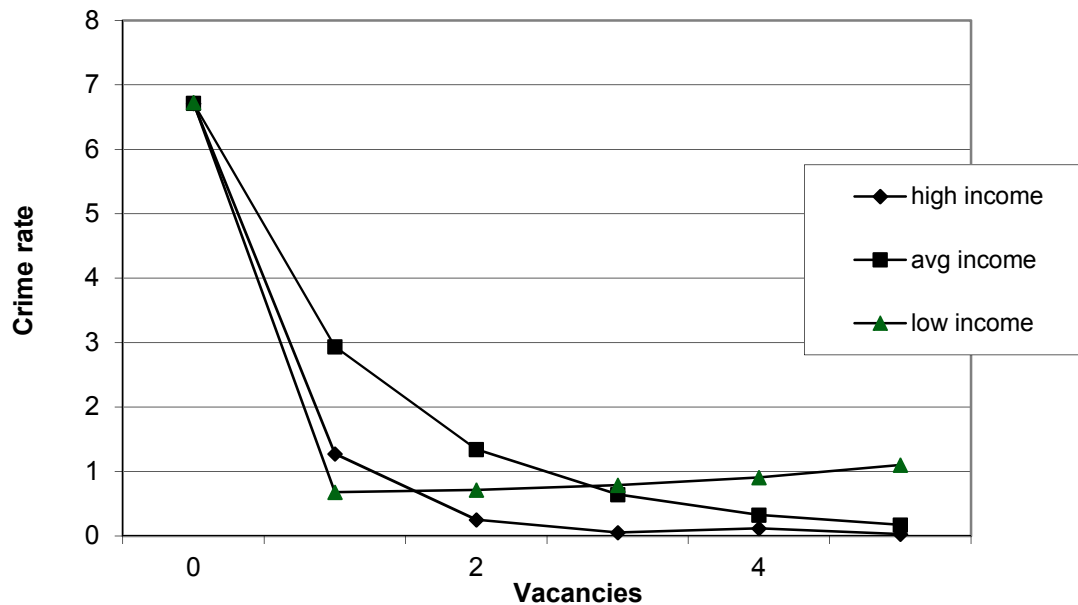


Figure 4.7. Income and foreclosure interaction predicting drug crime.

### **Interaction Effects of Foreclosure and Race on Crime**

The next examination is the interactional effect of the percent of foreclosure and the percentage of African Americans living in the neighborhood on crime rates. Again, I expect that the percentage of foreclosure will have differential effects on different neighborhoods with varying characteristics. The models seek to determine if the interaction of race and foreclosure will have an effect on crime rates in neighborhoods. The results of the models are presented in Table 4.14.

If we look at the first two models, reflecting the effects on property crime (Model 1, Table 4.14), I find significant effects for property crime and violent crime, but no significant effect for drug crime. First, looking at property crime, I find significant and negative effects on property crimes. This suggests that increasing foreclosure rates leads to lower rates of property crimes in neighborhoods comprised of lower percentages of African American residents. To visualize the relationship, I present the results of the effect on property crime in Figure 4.8, which depicts a plot by change in property crime for various percentages of African American residents: high (one standard deviation above the mean, 17.76 percent); average (the mean, 7.29 percent); and low (one standard deviation below the mean, 0 percent). For example, in neighborhoods with low percentages of African American residents at a foreclosure rate of one percent, there are 53 property crimes. When the foreclosure rate increases to two percent, with 41 property crimes, a one percent increase in the percentage of foreclosures (from 1–2 percent) could mean a decrease in property crimes by approximately 12 property crimes.

Additionally, I find significant and positive effects of the percentage of foreclosures on violent crimes. Again, as the percentage of African Americans living in a

neighborhood increases together with the increases in the percentage of foreclosures, violent crimes will, on average, increase. The results are presented in Model 2, Table 4.14. The graph in Figure 4.11 presents the visual of the results.

Table 4.14

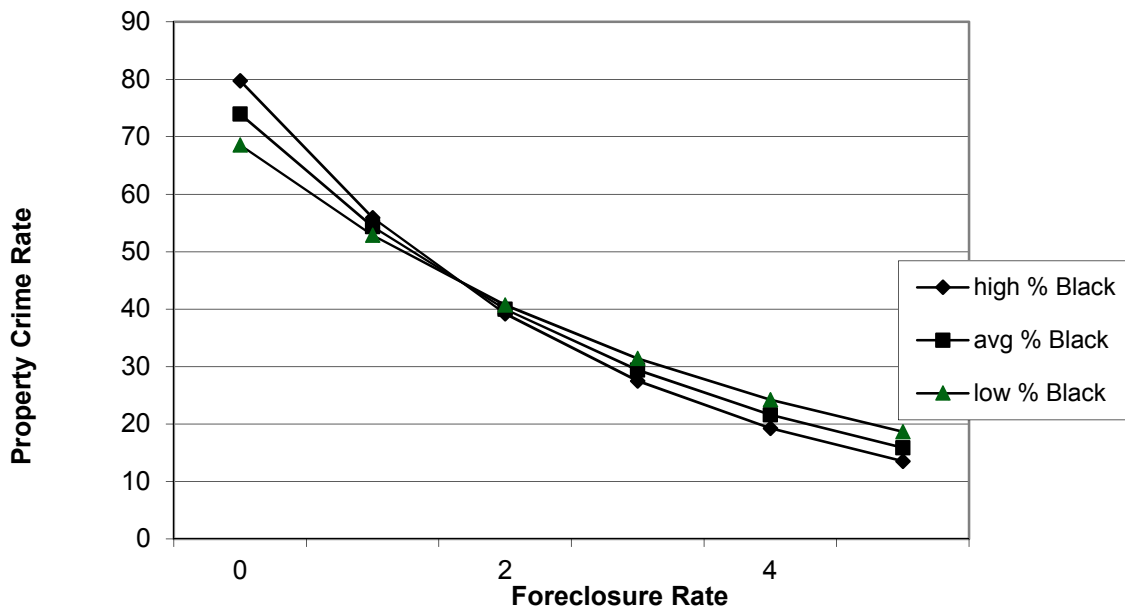
*Examining Interactional Effects – Race/Black and Foreclosure on Crime*

<b>Outcome: Model 1 Prop. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	0.734	0.064	0.037*
Spatial -Perc.Forecl Prev. Quart.	-0.449	0.154	0.004**
Property Crime <sub>(t-1)</sub>	0.004	0.001	0.000***
Spatial – Lag Property Crime	0.001	0.001	0.000***
Percent Black	-0.008	0.008	0.325
Spatial Lag of Percent Black	0.016	0.013	0.223
Percent Asian	0.004	0.019	0.820
Spatial Lag of Percent Asian	-0.050	0.053	0.351
Percent Hispanic	0.003	0.006	0.650
Median Household Income	-0.010	0.007	0.093
Spatial Lag of MedHI	0.004	0.007	0.570
Instability	0.093	0.094	0.324
Spatial Lag of Instability	0.551	0.253	0.029*
Black* Percent Foreclosure	-0.001	0.003	0.020*
<b>Outcome: Model 2: Vio. Crimes</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	0.132	0.055	0.017*
Spatial -Perc.Forecl. Prev. Quart.	-0.633	0.155	0.000***
Violent Crime <sub>(t-1)</sub>	0.004	0.001	0.000***
Spatial – Lag Violent Crime	0.001	0.001	0.000***
Percent Black	-0.001	0.007	0.895
Spatial Lag of Percent Black	-0.025	0.012	0.033*
Percent Asian	0.004	0.023	0.854
Spatial Lag of Percent Asian	0.013	0.056	0.820
Percent Hispanic	0.011	0.006	0.058
Median Household Income	-0.018	0.006	0.001***
Spatial Lag of MedHI	0.010	0.007	0.155
Instability	0.154	0.089	0.071
Spatial Lag of Instability	0.287	0.236	0.224
Black* Percent Foreclosure	0.007	0.002	0.035*

<b>Outcome: Model 3: Drug Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	0.126	0.068	0.064
Spatial -Perc.Forecl. Prev. Quart.	-0.554	0.209	0.008**
Drug Crime (t-1)	0.014	0.003	0.000***
Spatial – Lag Drug Crime	0.001	0.001	0.000***
Percent Black	0.003	0.009	0.673
Spatial Lag of Percent Black	0.007	0.015	0.623
Percent Hispanic	0.004	0.006	0.543
Percent Asian	0.020	0.022	0.352
Spatial Lag of Percent Asian	-0.030	0.059	0.602
Median Household Income	-0.033	0.008	0.000***
Spatial Lag of MedHI	-0.011	0.008	0.141
Instability	0.053	0.092	0.563
Spatial Lag of Instability	0.423	0.238	0.076
Black* Percent Foreclosure	0.004	0.002	0.171

*Note.* All models estimated using negative binomial regression. N = 277 tracts.

**Race/Black and foreclosure interaction predicting property crime**



*Figure 4.8.* Interaction effects: Race/Black and Foreclosure predicting property crime in census tracts (San Antonio).

### Race/Black and vacancy interaction predicting violent crime

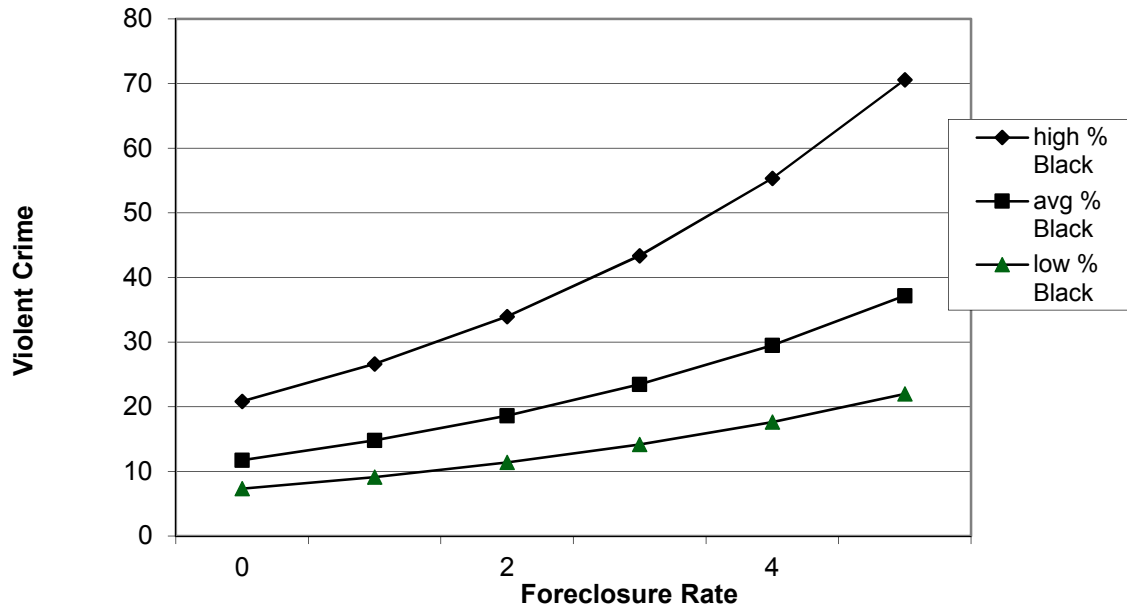


Figure 4.9. Interaction effects: Race/Black and Foreclosure predicting violent crime.

### Interaction Effects of Hispanic and Foreclosures on Crime

Finally, I consider the effect of the interaction between the percent Hispanics and the percentage of foreclosures on neighborhood crime rates. The results of the models are found in Table 4.15. Looking at the first equation (Model 1, Table 4.15) I find a significant and positive effect resulting from the interactional effect of the percent of foreclosures and the percentage of Hispanics living in a neighborhood on property crimes. That is to say that higher vacancy rates lead to higher property crime rates in neighborhoods with higher percentages of Hispanics. First, the results regarding property crime are depicted in Figure 4.10 and are plotted by the change in property crimes for various levels of Hispanic residents: high (one standard deviation above the mean, 90.43); average (the mean, 67.97); and low (one standard deviation below the mean, 45.53). The graph shows that in neighborhoods with higher percentages of Hispanic

residents have higher property crime rates. As foreclosure rates increase over time these neighborhoods, with high percentages of Hispanic residents, will experience increasing rates of property crime, similarly for neighborhoods with average percentages of Hispanic residents. However, looking at Model 2 (Table 4.15) and Model 3 (Table 4.15), I find no significant effect for violent or drug crimes. Figure 4.10 below presents a graphic display of the results.

If we consider the control variables in this model, I find significant and positive effects with the spatial lag of Instability. As the spatial lag of Instability increases, the rate of property crime would increase.

Table 4.15

*Examining Interactional Effects – Race/Hispanic and Foreclosure on Crime (San Antonio)*

<b>Outcome: Model 1 Prop. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	0.107	0.053	0.045*
Spatial -Perc.Forecl Prev. Quart.	-0.459	0.154	0.003**
Property Crime <sub>(t-1)</sub>	0.005	0.001	0.000***
Spatial – Lag Property Crime	0.001	0.001	0.000***
Percent Black	-0.008	0.008	0.332
Spatial Lag of Percent Black	0.015	0.013	0.244
Percent Asian	0.004	0.019	0.850
Spatial Lag of Percent Asian	-0.047	0.053	0.366
Percent Hispanic	0.002	0.006	0.735
Median Household Income	-0.011	0.007	0.089
Spatial Lag of MedHI	0.004	0.007	0.579
Instability	0.094	0.093	0.311
Spatial Lag of Instability	0.549	0.252	0.030*
Hispanic* Percent Foreclosure	0.001	0.001	0.028*



<b>Outcome: Model 2: Vio. Crimes</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Foreclosure Previous Quart.	0.124	0.051	0.015*
Spatial -Perc.Foreclosre Prev. Quart.	-0.640	0.156	0.000***
Violent Crime <sub>(t-1)</sub>	0.004	0.001	0.000***
Spatial – Lag Violent Crime	0.001	0.001	0.000***
Percent Black	-0.001	0.007	0.885
Spatial Lag of Percent Black	0.026	0.012	0.033*
Percent Asian	0.004	0.023	0.861
Spatial Lag of Percent Asian	0.013	0.057	0.816
Percent Hispanic	0.010	0.016	0.066
Median Household Income	-0.019	0.006	0.001***
Spatial Lag of MedHI	0.010	0.007	0.156
Instability	0.156	0.086	0.070
Spatial Lag of Instability	0.287	0.236	0.225
Hispanic* Percent Foreclosure	0.001	0.001	0.471

<b>Outcome: Model 3: Drug Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	0.138	0.062	0.026*
Spatial -Perc.Forecl. Prev. Quart.	-0.547	0.211	0.010**
Drug Crime <sub>(t-1)</sub>	0.014	0.003	0.000***
Spatial – Lag Drug Crime	0.001	0.001	0.000***
Percent Black	0.007	0.009	0.475
Spatial Lag of Percent Black	0.007	0.015	0.673
Percent Hispanic	0.004	0.006	0.540
Percent Asian	0.020	0.021	0.363
Spatial Lag of Percent Asian	0.031	0.059	0.605
Median Household Income	-0.033	0.008	0.000***
Spatial Lag of MedHI	0.011	0.008	0.141
Instability	0.047	0.092	0.606
Spatial Lag of Instability	0.428	0.238	0.072
Hispanic* Percent Foreclosure	0.001	0.001	0.868

*Note.* All models estimated using negative binomial regression. N = 277 tracts.

### Hispanic and foreclosure interaction predicting property crime

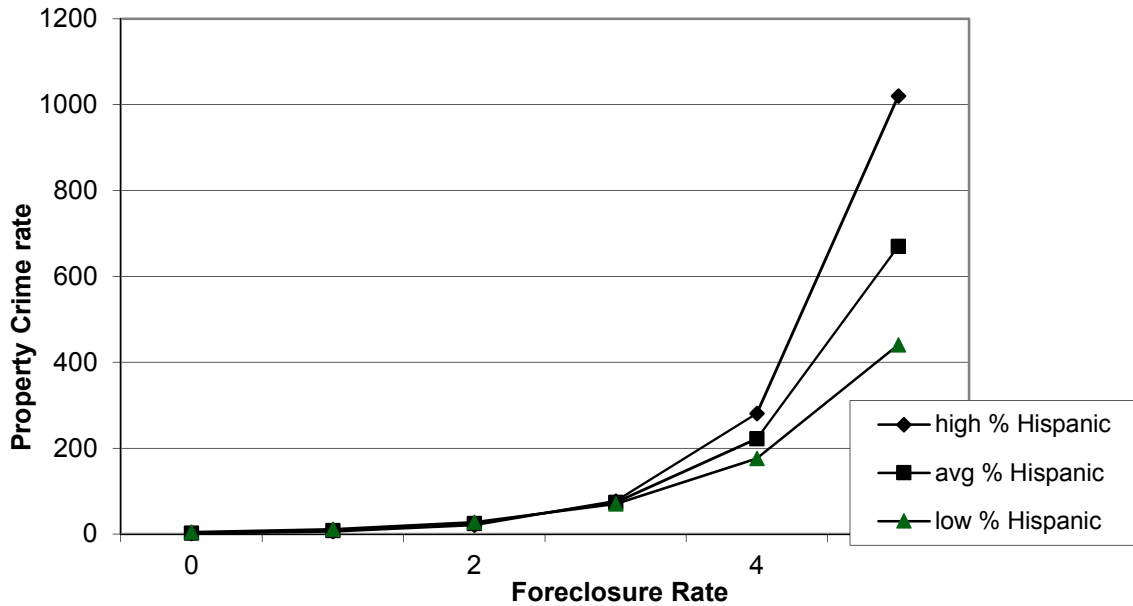


Figure 4.10. Interaction of race/Hispanic and foreclosure predicting property crime (San Antonio).

### Foreclosures and Crime – San Diego, California

The initial models tested the effect of the percentage of foreclosures on crime rates in neighborhoods. The results of the models find significant and positive effects of the percentage of foreclosures on violent crime rates in subsequent quarters, both for violent crimes but no significant effects on property crime. The results for the initial models are found in Table 4.16.

In Model 2, violent crime (Table 4.16), I find significant and negative effects for both Percent Asian and the spatial lag of Instability. I also find a positive and significant effect with the spatial lag of Percent Asian and Instability. The results show that as the percentage of Asians residing in the neighborhood increases rates of violent crimes

decrease. When we consider Instability, the results show that as Instability increases, violent crime rates increase.

Table 4.16

*Examining the Effects of Foreclosures and Crime (San Diego)*

<b>Outcome: Model 1 Prop. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	-3.911	1.476	0.008**
Spatial -Perc.Forecl. Prev. Quart.	-0.013	0.675	0.985
Property Crime <sub>(t-1)</sub>	0.011	0.005	0.014*
Spatial – Lag Property Crime	0.009	0.027	0.729
Percent Black	-0.019	0.014	0.183
Spatial Lag of Percent Black	0.018	0.029	0.539
Percent Asian	-0.015	0.005	0.003**
Spatial Lag of Percent Asian	0.016	0.007	0.024*
Percent Hispanic	-0.009	0.005	0.139
Spatial Lag of Percent Hisp.	0.001	0.001	0.520
Median Household Income	-0.058	0.047	0.213
Spatial Lag of MedHI	0.157	0.085	0.063
Instability	0.285	0.058	0.000***
Spatial Lag of Instability	-0.225	0.049	0.000***
<b>Outcome: Model 2 Vio. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	-6.914	1.349	0.000***
Spatial -Perc.Forecl. Prev. Quart.	1.333	0.479	0.005**
Violent Crime <sub>(t-1)</sub>	0.023	0.003	0.000***
Spatial – Lag Violent Crime	0.052	0.015	0.000***
Percent Black	-0.007	0.007	0.342
Spatial Lag of Percent Black	-0.010	0.018	0.579
Percent Hispanic	-0.001	0.002	0.682
Spatial Lag of Percent Hisp.	-0.001	0.001	0.079
Percent Asian	-0.011	0.004	0.002**
Spatial Lag Percent Asian	0.015	0.006	0.030*
Median Household Income	-0.005	0.022	0.817
Spatial Lag of MedHI	-0.001	0.059	0.986
Instability	0.174	0.048	0.000**
Spatial Lag of Instability	-0.260	0.043	0.000***

*Note.* All models estimated using negative binomial regression. N = 279.

### **Interaction Effect of Income and Foreclosure on Crime Rates**

Next, I examine the interactional effects of median household income and the percentage of foreclosures on property crimes and violent crimes. The models test whether the level of income of a census tract together with the percentage of foreclosures will have a differential effect on crime rates. The results of the models are found in Table 4.17.

In Model 1, I find no significant effect of the median household income and the percentage of foreclosures for property crimes. I do, however, find a significant and positive effect on violent crimes. As depicted in Figure 4.11, we see that as income level increases, together with increases in the percentage of foreclosures, the rate of violent crime increases as well. As previously noted, the foreclosure rate on the x-axis of the graph has a range of zero to four percent, reflecting the percentages of foreclosure in San Diego during the time period of this study. The various levels of income are denoted as follows: high income (one standard deviation above the mean, or \$949,652); average income (the mean value of median household income, or \$667,000); and low income (one standard deviation below the mean, or \$384,347). In low income neighborhoods a one percent increase in the percentage of foreclosures (0–1 percent, one violent crime at each percentage rate) shows no increase in the incidents of violent crimes. When foreclosure rates increase from 1–2 percent (or 1 and 2 violent crime incidents, respectively) there is an increase in violent crime incidents of one incident. When the percentages of foreclosures increase beyond two percent we see an increase in violent crimes by two or more incidents for every one percent increase in foreclosure.

**Income and foreclosure interaction predicting violent crime**

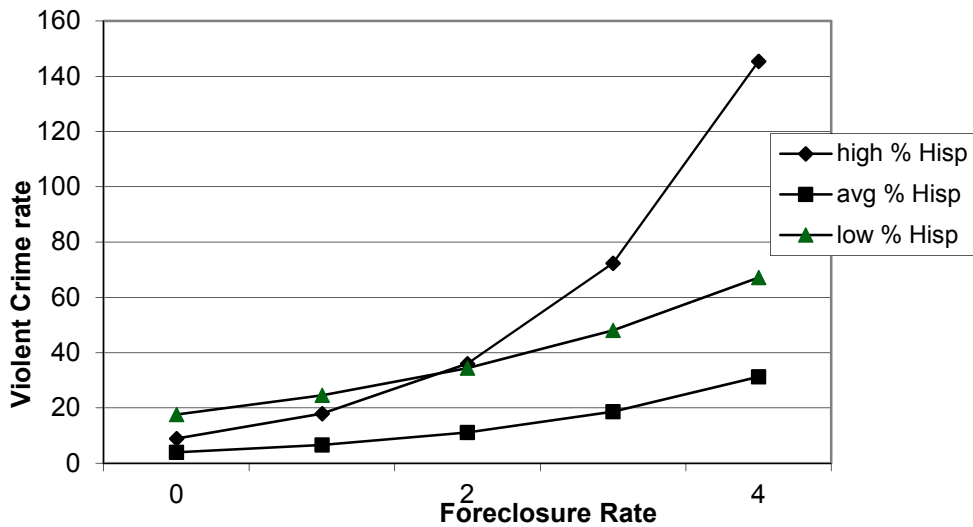


Figure 4.11. Income and foreclosure predicting violent crime in San Diego.

Table 4.17

*Examining the Interaction of Income and Foreclosures/Crime (San Diego)*

<b>Outcome: Model 1 Prop. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	4.422	2.806	0.710
Spatial -Perc.Forecl. Prev. Quart.	-0.911	0.832	0.273
Property Crime <sub>(t-1)</sub>	0.012	0.005	0.011*
Spatial – Lag Property Crime	0.007	0.026	0.793
Percent Black	-0.019	0.015	0.203
Spatial Lag of Percent Black	0.016	0.029	0.592
Percent Asian	-0.015	0.005	0.006**
Spatial Lag of Percent Asian	0.015	0.007	0.039*
Percent Hispanic	-0.009	0.006	0.147
Spatial Lag of Percent Hisp.	0.001	0.001	0.675
Median Household Income	-0.030	0.055	0.586
Spatial Lag of MedHI	0.141	0.087	0.101
Instability	0.289	0.056	0.000*
Spatial Lag of Instability	-0.214	0.050	0.000***
Income * Percent Foreclosure	-0.303	0.195	0.091

<b>Outcome: Model 2 Vio. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	12.052	9.214	0.386
Spatial -Perc.Forecl. Prev. Quart.	-0.015	0.927	0.871
Violent Crime <sub>(t-1)</sub>	0.001	0.002	0.779
Spatial – Lag Violent Crime	0.070	0.016	0.000***
Percent Black	-0.007	0.007	0.329
Spatial Lag of Percent Black	-0.007	0.019	0.740
Percent Hispanic	-0.001	0.002	0.598
Spatial Lag of Percent Hisp.	-0.001	0.001	0.060
Percent Asian	-0.011	0.004	0.001***
Spatial Lag Percent Asian	0.011	0.006	0.078
Median Household Income	0.010	0.026	0.695
Spatial Lag of MedHI	-0.011	0.058	0.826
Instability	0.016	0.048	0.001***
Spatial Lag of Instability	-0.234	0.043	0.000***
Income * Percent Foreclosure	0.001	0.001	0.017*

*Note.* All models estimated using negative binomial regression. N = 279.

### **Interaction Effects of African American and Foreclosure on Crime**

Continuing with the exploration of the interaction of various demographic characteristics with foreclosure I find that the percentage of African Americans together with the percentage of foreclosures has no significant effect on either property or violent crime rates. This suggests that the interaction of the percentage of African Americans in a neighborhood together with the percentage of foreclosures has no effect on either property or violent crime rates in subsequent quarters. The results of the models for the interactional effects on both property and violent crime are found in Models 1 and 2 in Table 4.18.

Table 4.18

*Examining the Interaction of Race/Black and Lag Foreclosures/Crime (San Diego)*

<b>Outcome: Model 1 Prop. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	-1.227	4.956	0.797
Spatial -Perc.Forecl. Prev. Quart.	-2.225	1.123	0.048*
Property Crime <sub>(t-1)</sub>	0.014	0.004	0.001***
Spatial – Lag Property Crime	0.019	0.025	0.426
Percent Black	-0.018	0.018	0.322
Spatial Lag of Percent Black	0.024	0.030	0.434
Percent Asian	-0.015	0.005	0.004**
Spatial Lag of Percent Asian	0.016	0.007	0.025*
Percent Hispanic	-0.008	0.006	0.162
Spatial Lag of Percent Hisp.	0.001	0.001	0.518
Median Household Income	-0.057	0.048	0.233
Spatial Lag of MedHI	0.151	0.085	0.074
Instability	0.275	0.058	0.000***
Spatial Lag of Instability	-0.237	0.048	0.000***
African American/ Foreclosure	-0.152	0.662	0.819
<b>Outcome: Model 2 Vio. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	-9.296	4.457	0.037*
Spatial -Perc.Forecl. Prev. Quart.	-0.052	1.052	0.960
Violent Crime <sub>(t-1)</sub>	0.004	0.002	0.029*
Spatial – Lag Violent Crime	-0.040	0.019	0.030*
Percent Black	-0.013	0.010	0.176
Spatial Lag of Percent Black	0.003	0.021	0.873
Percent Hispanic	-0.001	0.002	0.774
Spatial Lag of Percent Hisp.	-0.001	0.001	0.134
Percent Asian	-0.011	0.004	0.002**
Spatial Lag Percent Asian	0.011	0.006	0.074
Median Household Income	-0.011	0.022	0.608
Spatial Lag of MedHI	0.001	0.060	0.985
Instability	0.176	0.050	0.000**
Spatial Lag of Instability	-0.292	0.039	0.000***
African American/ Foreclosure	0.456	0.538	0.396

*Note.* All models estimated using negative binomial regression. N = 279.

### **Interaction Effects of Percent Hispanic and Foreclosures on Crime**

Next, I examine the interactional effects of the percentage of Hispanics and the percentage of foreclosures on property and violent crimes. The models found in Table 4.19 test whether the percentage of Hispanics residing in a census tract together with the percentage of foreclosures will have a differential effect on crime rates.

In Model 1, I find significant and positive effects of the percentage of Hispanics and the percentage of foreclosures for both property and violent crimes. As depicted in Figure 4.12, we see that as the percentage of Hispanics increases, together with increases in the percentage of foreclosures, the rate of property crime increases as well. As previously noted, the foreclosure rate on the x-axis of the graph has a range of zero to four percent, reflecting the percentages of foreclosure in San Diego during the time period of this study. The various percentages of Hispanic residents are denoted as follows: high income (one standard deviation above the mean, or 54.34%); average percentage of Hispanics (the mean value of median household income, or 29.49%); and low income (one standard deviation below the mean, or 4.65%). In neighborhoods with high percentages of Hispanic residents, a one percent increase in the percentage of foreclosures (0–1 percent, 91 property crimes at zero percent, and 195 property crimes at one percent) shows an increase of more than 100 incidents of property crimes. When foreclosure rates increase from 1–2 percent there is an increase in the number of property crime incidents, from 195 to 418 incidents respectively. When the percentages of foreclosures increase beyond two percent we continue to see an increase in the number of property crimes by four hundred or more incidents for every one percent increase in foreclosure.



Table 4.19

*Examining the Interaction of Race/Hispanic and Foreclosures/Crime (San Diego)*

<b>Outcome: Model 1 Prop. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	-9.571	7.389	0.000***
Spatial -Perc.Forecl. Prev. Quart.	-7.202	2.636	0.006**
Property Crime <sub>(t-1)</sub>	0.011	0.004	0.005**
Spatial – Lag Property Crime	0.011	0.021	0.982
Percent Black	-0.016	0.006	0.008**
Spatial Lag of Percent Black	0.018	0.026	0.476
Percent Asian	-0.012	0.005	0.012*
Spatial Lag of Percent Asian	0.014	0.007	0.031*
Percent Hispanic	-0.017	0.007	0.008**
Spatial Lag of Percent Hisp.	-0.001	0.001	0.398
Median Household Income	-0.050	0.045	0.261
Spatial Lag of MedHI	0.115	0.077	0.136
Instability	0.250	0.053	0.000***
Spatial Lag of Instability	-0.215	0.048	0.000***
Hispanic* Perc. Foreclosure	0.260	0.194	0.000***
<b>Outcome: Model 2 Vio. Crime</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Forecl. Previous Quart.	- 4.563	7.533	0.000***
Spatial -Perc.Forecl. Prev. Quart.	-1.122	1.210	0.353
Violent Crime <sub>(t-1)</sub>	0.002	0.002	0.390
Spatial – Lag Violent Crime	0.024	0.015	0.000***
Percent Black	-0.007	0.007	0.361
Spatial Lag of Percent Black	-0.001	0.019	0.956
Percent Hispanic	-0.009	0.004	0.013
Spatial Lag of Percent Hisp.	-0.001	0.001	0.000***
Percent Asian	-0.010	0.004	0.005
Spatial Lag Percent Asian	0.010	0.006	0.084
Median Household Income	-0.005	0.022	0.827
Spatial Lag of MedHI	0.035	0.057	0.537
Instability	0.141	0.048	0.003**
Spatial Lag of Instability	-0.231	0.040	0.000***
Hispanic* Perc. Foreclosure	0.847	0.249	0.001***

*Note.* All models estimated using negative binomial regression. N = 279.

### Hispanic and foreclosure interaction predicting property crime

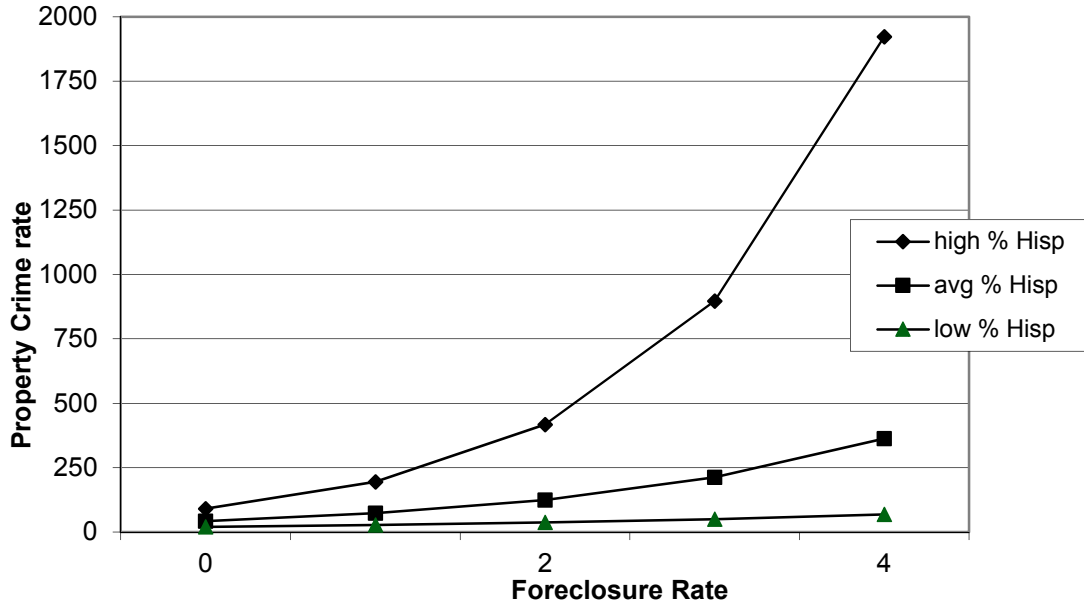


Figure 4.12. Hispanic and foreclosure interaction predicting property crime (San Diego).

### Hispanic and foreclosure interaction predicting violent crime

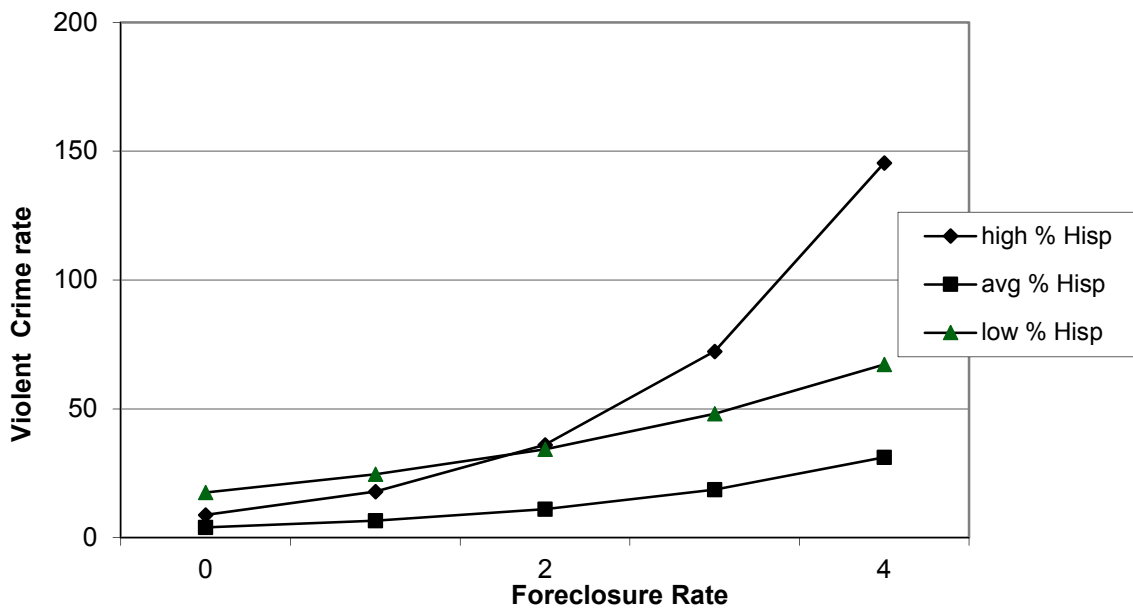


Figure 4.13. Hispanic and foreclosure interaction predicting violent crime (San Diego).

## **Study Limitations**

This study has provided further insight into the relationship between neighborhood crime and vacancy rates. It has also demonstrated that neighborhood context may be important when determining effects of vacancies. There are, however, limitations to the study that should be addressed. One limitation is the vacancy data itself. While it is useful to have the percentage of vacancies in a given census tract, the location of the vacant property is important, particularly when considering that crime incidents are likely correlated spatially to vacant properties.

A cluster of vacant properties may become a hotspot of crime considering the lack of guardianship around the homes, providing ample opportunity for criminal behavior to occur with little chance for detection. Without specific point-level data for the vacant properties, a clear understanding of the relationship is not possible. Further, knowing which properties changed status from vacant to non-vacant would be beneficial, particularly for understanding how this change in status might affect crime patterns over time. The change in the amount of guardianship in a neighborhood together with the potential change in investment or disinvestment of the owner or resident could have an effect on crime rates in the neighborhood.

The crime data for San Antonio and San Diego relied on official crime data from the police department and the limitations of official crime data are well documented. Considering that official crime data is only inclusive of crimes that were reported to police the models will likely underestimate the relationship between vacancies and crime in neighborhoods with high percentages of vacancies since the calls for service are not captured in the data. Additionally, only two crime types are provided in the San Diego

data making an accurate comparative difficult and omitting of what might be a more accurate depiction of the effects of the percentage of vacancies on crime.

Finally, measuring foreclosure is challenging at best. For reasons discussed previously, the process of foreclosure begins with a default notice, but the multiple opportunities a mortgagee has to cure the default before the actual foreclosure takes place creates difficulties with measurement. In this study we consider a home foreclosed, and utilize the filing with the county, as a proxy for foreclosure.

### **Appraisal Values**

As indicated in prior sections, vacancies and foreclosures are likely to have detrimental effects on crime rates but also on property appraisal values as well. The following models estimate these effects. I first estimate the effect of vacancies on appraisal values. Second, I estimate the effects of foreclosures on the appraisal values but then follow with a comparison of the effect of vacancies and foreclosures on appraisal values. Last, the effects of crime types—property, drug, and violent—are tested to determine what, if any, effects exist.

### **Vacancies**

The first set of models explores the effect of the percentage of lag vacancies on property appraisal values in San Antonio, Texas. The results of the model are found on the following page in Table 4.20 (Model 1). The model estimation suggests that the percentage of vacancies has a positive and significant effect on the appraisal values. This means that as the percentage of vacancies increases in a census tract in the prior quarter the appraisal values increase in the current quarter. The results are a bit surprising as I hypothesized that the appraisal values would decrease with an increase in lag vacancies.

Table 4.20

*Examining the effect of vacancy and foreclosure on appraisal values in tracts in San Antonio, Texas*

<b>Outcome: Model 1:</b>			
<b>Appraisal Value/Vacancy</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Vacancy	0.043	0.022	0.048*
Spatial -Perc. Vacancy	-0.011	0.004	0.006**
Percent Black	0.001	0.001	0.782
Spatial Lag of Percent Black	-0.001	0.001	0.518
Percent Asian	0.001	0.001	0.764
Spatial Lag of Percent Asian	-0.006	0.005	0.237
Percent Hispanic	-0.004	0.001	0.157
Median Household Income	-0.001	0.001	0.396
Spatial Lag of MedHI	-0.001	0.001	0.022*
Instability	0.016	0.007	0.021*
Spatial Lag of Instability	0.049	0.021	0.019*
Appraisal (t-1)	0.969	0.009	0.000***
<b>Outcome: Model 1:</b>			
<b>Appraisal Value/Foreclosure</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Foreclosure	0.012	0.012	0.296
Spatial -Perc. Foreclosure	-0.027	0.035	0.442
Percent Black	0.001	0.001	0.583
Spatial Lag of Percent Black	-0.001	0.001	0.306
Percent Asian	0.001	0.001	0.863
Spatial Lag of Percent Asian	0.002	0.004	0.468
Percent Hispanic	-0.001	0.001	0.562
Median Household Income	0.001	0.001	0.236
Spatial Lag of MedHI	-0.001	0.001	0.121
Instability	0.015	0.007	0.046*
Spatial Lag of Instability	0.013	0.019	0.474
Appraisal (t-1)	0.975	0.008	0.000***

*Note.* All models estimated using OLS regression.

The next model estimates the effect of the percentage of foreclosures on appraisal values. The results are shown in Model 2 of Table 4.20 and demonstrate no relationship between the percentage of foreclosures and property appraisal values.

Models in Table 4.21 estimate the effects the percentages of property, drug, and violent crimes have on property appraisal values. The results are displayed by crime type. First, I find no significant effect of the percentage of lagged property crime and violent crimes on property appraisal values. I do, however, find a significant and negative effect on the effect of drug crimes on property appraisal values. The results for drug crime are robust, even when controlling for the percentage of lag vacancies and foreclosures, the percentage of Hispanics living in the neighborhood, and the measure of Instability. The results for drug crime are not surprising as properties considered vacant and properties that have undergone foreclosure are more likely to provide opportunities for individuals to engage in criminal activity with little chance for detection. If we consider property crimes, the result may not be surprising as the vacant and foreclosed properties likely have little, if any, in the way of property to steal compared to occupied homes.

Table 4.21

*Examining the Effect of Crime Types on Appraisal Values*

<b>Outcome: Model 1:</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Property Crime	0.001	0.001	0.001***
Spatial Lag – Property Crime	-0.001	0.001	0.642
Percent Vacancy	0.001	0.001	0.445
Spatial -Perc. Vacancy	-0.007	0.005	0.027*
Percent Lag Foreclosure	0.008	0.012	0.487
Spatial – Percent Forecl	-0.014	0.036	0.696
Percent Black	-0.001	0.001	0.873
Spatial Lag of Percent Black	0.001	0.001	0.757
Percent Asian	-0.001	0.001	0.903
Spatial Lag of Percent Asian	0.001	0.006	0.932
Percent Hispanic	-0.001	0.001	0.093
Median Household Income	0.001	0.001	0.232
Spatial Lag of MedHI	-0.001	0.001	0.015*
Instability	0.018	0.007	0.013*
Spatial Lag of Instability	0.048	0.022	0.037*
Appraisal <sub>(t-1)</sub>	0.961	0.009	0.000***
<b>Outcome: Model 2:</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Drug Crime	-0.051	0.001	0.775
Spatial Lag – Drug Crime	0.001	0.001	0.947
Percent Vacancy	0.001	0.001	0.575
Spatial -Perc. Vacancy	-0.011	0.005	0.022*
Percent Foreclosure	0.014	0.072	0.261
Spatial – Percent Lag Forecl	-0.009	0.036	0.788
Percent Black	0.002	0.002	0.842
Spatial Lag of Percent Black	-0.001	0.001	0.538
Percent Asian	0.001	0.001	0.801
Spatial Lag of Percent Asian	-0.006	0.005	0.233
Percent Hispanic	-0.001	0.001	0.156
Median Household Income	0.001	0.001	0.387
Spatial Lag of MedHI	-0.001	0.002	0.023*
Instability	0.018	0.008	0.015*
Spatial Lag of Instability	0.050	0.024	0.036*
Appraisal <sub>(t-1)</sub>	0.969	0.009	0.000***

<b>Outcome: Model 3:</b>	<b>Coefficient</b>	<b>Stand. Error</b>	<b>P-value</b>
Percent Violent Crime	0.001	0.001	0.393
Spatial Lag – Violent Crime	-0.001	0.001	0.119
Percent Vacancy	0.002	0.001	0.182
Spatial -Perc. Vacancy	0.008	0.005	0.123
Percent Foreclosure	-0.017	0.012	0.153
Spatial – Percent Forecl	0.010	0.036	0.769
Percent Black	-0.001	0.001	0.477
Spatial Lag of Percent Black	-0.001	0.001	0.895
Percent Asian	0.002	0.002	0.502
Spatial Lag of Percent Asian	0.006	0.005	0.226
Percent Hispanic	-0.001	0.001	0.205
Median Household Income	-0.001	0.001	0.809
Spatial Lag of MedHI	0.001	0.001	0.638
Instability	0.003	0.008	0.700
Spatial Lag of Instability	-0.022	0.023	0.155
Appraisal <sub>(t-1)</sub>	0.965	0.009	0.000***

*Note.* All models estimated using OLS regression.

### **Discussion**

For the past five years the U.S. has been recovering from a dramatic, and sudden, increase in the number of foreclosures in neighborhoods across the country. Previous research has examined the impact of foreclosures on crime rates in neighborhoods and found that neighborhoods experiencing high rates of foreclosures also experience increasing rates of crime, though the results have not been consistent. The research in this study sought to explore the effects of high rates of foreclosures and vacancies with respect to crime in neighborhoods. The results confirm, at least in part, that neighborhoods with higher rates of foreclosures and vacancies give rise to higher local crime rates.

Foreclosures are thought to have a different effect on neighborhoods than vacancies because the prolonged process associated with foreclosures can lead to



residential apathy. While residents undergo foreclosure their concerns may shift away from upkeep or maintenance of their home, and they are less likely to maintain emotional investments in their communities and they can become unable, or unwilling, to intervene if criminal activity becomes problematic in their community. A key finding here suggests that neighborhoods with increased rates of foreclosure also have increased rates of property and violent crimes, confirming in part and contradicting in part results from prior research.

Similar to the findings in this research, Harding, Rosenblatt, and Yao (2009) suggested that foreclosures reduce the attractiveness of a neighborhood to those seeking to purchase homes. Residents fail to further invest in their properties during the foreclosure process, detracting from the exterior appeal of their properties. Vandalism, a component of property crimes, may result from the degenerative process undergone by these homes. Other research has shown that foreclosures can increase other types of property crime as well. Goodstein and Lee (2010), as well as Dornin (2008), found that increases in burglary rates are found in neighborhoods with high rates of foreclosures. Additionally, the increase in violent crime found in this study confirms the reports of Immergluck and Smith (2006) and Goodstein and Lee (2010), who both suggested that higher rates of foreclosures are a contributory factor to higher rates of violent crimes.

Foreclosures do not affect all neighborhoods equally, as socio-demographic characteristics exacerbate certain effects and prevent others. To test for this variation, interactions were created between the percentage of foreclosures and the percentage of race or ethnicity (Black and Hispanic). First, it was found that the effect of income level in neighborhoods has no differential effects on crime rates in neighborhoods of different

income levels. The results here differ from results found in previous studies. Prior literature suggests that neighborhoods that suffer from cumulative disadvantage have fewer opportunities for residents. Couple this with decreased, or damaged, mechanisms of social control, and criminal behavior—in particular opportunistic crimes, such as drug crimes or crimes producing sources of income—becomes prevalent (Peterson & Krivo, 2010). In other words, residents that remain in higher income neighborhoods are more likely to utilize resources to combat, or alleviate, the criminal behavior that may occur as the percentage of foreclosures increases over time. The income level interaction with foreclosure in San Diego did not result in significant effects, contrary to previous research.

In addition to the hypothesis that income level differentially affects neighborhoods, I tested for interactional effects of racial or ethnic composition, percentage of African American and percentage of Hispanic of neighborhoods, and percentage of foreclosures. Another key finding in this research, first for San Antonio, was the finding that neighborhoods with high rates of African American residents are likely to experience higher rates of property and violent crime, also confirming the results of prior studies. Neighborhoods comprised predominantly of African American residents have violent crime rates higher than other neighborhoods (Krivo & Peterson, 2010). Again, in areas suffering cumulative disadvantage, property crime rates are higher. Violent crime rates, however, may increase as a result of self-protection or conflict resolution. These measures serve to avoid the necessity of bringing in law enforcement or other more formal mechanisms of social control (Krivo & Peterson, 2010). However,

the results found in the San Diego models were contradictory to the findings in San Antonio, as well as prior literature.

The interactive influence of foreclosures, together with the percentage of Hispanic residents in a neighborhood, revealed significant and positive effects with respect to property crime. Prior research has found that while Hispanic communities are generally disadvantaged, they lack the extreme, or cumulative, disadvantage of African American neighborhoods (Krivo & Peterson, 2010). The group support Latinos provide within their own communities contributes to factors that reduce crime rates (e.g., attachment and social control) (Martinez, 2002). As such, crime rates tend to be lower in predominantly Hispanic neighborhoods than in African American ones (Krivo & Peterson, 2010). San Diego revealed somewhat different results, indicating not only effects on property crime but also on violent crime.

The findings for this section generally underscore the importance of increasing structural resources in neighborhoods that can help reduce the harmful effects of foreclosures. If we consider a theoretical discussion of social disorganization theory, an increase in foreclosures hinders a neighborhood's ability to effectively maintain social control, leading to increases in crime rates. The increase in foreclosures contributes to higher levels of residential instability (or to lower levels of residential instability), which is an important aspect in the development of social control, particularly in the development of informal social control (Shaw & McKay, 1942).

In neighborhoods that suffer from cumulative disadvantage—which include high rates of racial or ethnic heterogeneity, low median household income, and high rates of residential instability—differential effects of foreclosures are likely to occur, particularly

with respect to crime rates. As mentioned previously, neighborhoods with lower income levels were shown to have increased levels of drug and violent crime rates (in San Antonio and San Diego, respectively). As foreclosures together with lower income levels increase residential instability, disadvantage becomes more concentrated, undermining the residents' ability to organize and engage in crime reduction strategies (Krivo & Peterson, 2010; Sampson et al., 1997).

Neighborhoods with increasing rates of foreclosure can be a signal that the neighborhood is spiraling into decline. If we consider the broken window theory, where neighborhoods begin to suffer from blight and disorder without the residents' ability to address the declining condition of the neighborhood, we expect to see increases in crime rates (Wilson & Kelling, 1982). With this increasing level of disorder residents are at an increased risk from crime, including drug crimes (Wilson & Paulson, 2008). When unaddressed, less serious property and drug crimes in turn lead to more serious crimes, including violent crimes (Wilson & Paulson, 2010).

The foreclosure crisis has been credited with having deleterious consequences for neighborhoods, including for the reduction of property values. While foreclosures and vacancies can lead to decreased property appraisal values, the increased crime rates in neighborhoods resulting from increased rates of foreclosure and vacancies can also affect appraisal values.

Prior research has established that foreclosures harm neighborhoods through reduction of property values, which then affect the larger community through increases of spending by local governments while simultaneously reducing income (Schuetz et al., 2008). If homes going through foreclosure are sold at significantly reduced prices these

homes are utilized as comparable properties for sale. This results in a reduction in appraisal values for other homes, negatively affecting those homes around the foreclosed property (Immergluck & Smith, 2006; Lin et al., 2009). These effects can depend on the proximity of the foreclosed home (e.g., the closer a home to a foreclosure the more of an impact). Additionally, the more foreclosures the more of an impact will be felt on surrounding properties (Lin et al., 2009; Schuetz et al., 2008).

An additional factor to consider is the length of time from a home foreclosure. Kobie and Lee (2011) found that the negative impact caused by homes undergoing foreclosure can be seen, though it takes a bit of time—at least a year. This is an important finding since the appraisals take place yearly, unless a property sells in the interim.

The results of this section regarding appraisal values was a bit surprising and contrary to the findings of previous studies which suggest a negative effect on appraisal values from vacancies and foreclosures. The reasons for this are not entirely clear but are worth exploring in future studies.

## **CHAPTER 5: WHAT DO WE DO NOW? PROACTIVE AND PREVENTATIVE EFFORTS**

In light of the recent foreclosure crisis and the resulting fallout, many communities are struggling to find remedies that assist neighborhoods left in the aftermath. The negative externalities resulting from high percentages of vacancies and foreclosures can be difficult to combat, particularly in neighborhoods that lack resources and social cohesion to mobilize efforts. As the findings reported here suggest, which support many of the findings in other studies, there are significant problems that need to be addressed in order to return viability to these neighborhoods for remaining and future residents.

In a struggling economy, struggling due in part to the foreclosure crisis, the vast majority of local governmental resources are likely to be allocated towards reactive measures against criminals rather than proactive measures for crime reduction. Given the existence of negative spillover effects and the contiguous nature of neighborhoods, it is vital to identify potential avenues that can strengthen resources to achieve greater neighborhood stability (Harding et al., 2009; Lin et al., 2009). There are many different strategies being employed at both the city and county level in various parts of the country that attempt to rectify the problems created by the relatively sudden concentrations of foreclosed and vacant homes. A few of those strategies are discussed here. These endeavors, in some cases, are relatively new and their long-term effects are yet to be known but appear to hold some promise.

While studies show that neighborhoods with few vacant and foreclosed properties decrease property values and increase levels of crime, the clustering of vacant and foreclosed properties has been shown to exacerbate these effects (Harding et al., 2009;

Lin et al., 2009). This suggests that measures that seek to reduce blighted conditions and reduce the number of vacant properties, whether by increasing the number of residents living in the neighborhood or removing vacant homes (through demolition or other methods), might contribute to a stabilizing effect for both neighborhoods and their residents.

### **Cuyahoga County - Land Banks**

One such endeavor that has been utilized to provide assistance for communities in distress is the creation and implementation of pseudo-governmental agencies called land banks. The use of land banks provides a mechanism by which local governments can regain control of vacant and foreclosed properties through acquisition and rehabilitation for more effective use of the properties within the community. These entities work to avoid a potentially prolonged period of vacancy of homes that have either been abandoned or are undergoing a lengthy foreclosure process (HUD, 2009).

The approach of the land bank is not necessarily novel, as the first land bank was established in St. Louis, Missouri in 1976 (HUD, 2009). Historically, the concept of the land bank was born out of a response to a rising number of abandoned properties in cities that experienced a population decline due to loss of industrial jobs in the area. A mere five years later, in 1976, legislation was established in Ohio enabling the state to engage in the use of land banks with the City of Cleveland establishing a land bank to address issues of tax-delinquent properties. The purpose of the land bank later expanded in an effort to meet the needs of communities with concentrated numbers of vacant and distressed properties.

Land banks provide an opportunity for communities to be more proactive in their efforts to revitalize neighborhoods and to recoup financial losses from property foreclosure and abandonment. Land bank entities are government sponsored or non-profit groups that are governed by a board of directors that abide by a set of by-laws or articles of incorporation. The board of directors generally seats at least one member of the community and the goals of the organization are specifically outlined to meet the needs of the community the organization services (HUD, 2009).

One example is a land bank in Cuyahoga County, Ohio that was used in an effort to stabilize neighborhoods suffering in the wake of the foreclosure crisis in the Cleveland area, which began around 2006. The county, which was already suffering from a decline in population prior to the foreclosure crisis, was particularly affected by the continued increase in the number of foreclosures and vacant properties. As a residential property continued to remain unoccupied, the homes fell into greater disrepair and accumulated a staggering number of code violations with no viable means to alleviate the conditions (Cuyahoga Land Bank, 2013).

The Land Revitalization Corp., otherwise known as the Cuyahoga Land Bank (CLB), was formed in collaborative effort on behalf of local and state representatives to combat the blighted conditions existing among the neighborhoods within the county. The CLB was created to offer innovative means by which to improve neighborhoods within the community. The mission was to address the existing problem in a variety of ways, as outlined in the following mission statement, “to strategically acquire properties, return them to productive use, reduce blight increase property values, support community goals



and improve the quality of life for county residents” (Cuyahoga Land Bank, 2013, para. 1).

The land bank program offers the opportunity to relieve mortgage lenders of distressed properties. In 2009, the CLB entered into an agreement with mortgage lender Fannie Mae. Under this agreement, the CLB was given \$200 for every property with an appraised value of up to \$25,000 with an additional payment if there was a determination that a given property was to be demolished. The payment for the cost of demolition was provided in an amount not to exceed \$3,500. In 2011, the program estimated that approximately 30 houses per month were turned over to the CLB by Fannie Mae.

Similarly, the CLB entered into an agreement with the Department of Housing and Urban Development (HUD). The terms of the agreement provided that the HUD would pay \$100 for each property appraised up to \$20,000 as well as a percentage of the closing costs. If there was a determination that the property was to be demolished no payment was provided to assist with cost of demolishing the homes.

The funds received by the CLB serve not only to demolish or rehabilitate existing homes in the declining neighborhoods for sale to new owners, but also to redevelop properties to provide housing to under-served populations. The program’s ability to prevent neighborhood home values from declining and reducing blight has led to a declaration of its success. One program of the CLB, Side Lot, removes abandoned homes and creates usable space for adjacent properties and allows those owners options to purchase the revitalized properties at a significantly reduced price, in some cases as little as \$100. The removal of the property not only reduces the blighted condition created by the abandoned property but also alleviates the reduction of property values for

the new owner as well as adjacent properties (Arnold, 2014). The Federal Reserve Bank of Cleveland estimated that blighted properties reduce sales prices of surrounding homes by as much as five to seven percent. Once the CLB had acquired and demolished the properties, however, the sales prices in the community increased by four to nine percent (Whitaker & Fitzpatrick, 2012). The CLB has been touted to be the model for best practices and leadership for policy advocacy with respect to foreclosures and reuse of land (Bulava, 2014). With success comes the opportunity to expand efforts for the benefit of other communities suffering similar fates in light of the foreclosure crisis. In 2010, Ohio legislative efforts made it possible for any county in the state to follow the lead of the CLB and form a land bank (HUD, 2009).

In 2002 a similar program was created in Genesee County (serving the area of Flint, Michigan) with the role of stabilizing and revitalizing the neighborhoods in the county. Similar to the CLB, the organization's mission is to "restore the value to the community by acquiring, developing and selling vacant and abandoned properties" (Genesee County Land Bank, n.d., para. 1). Genesee County was a victim of large-scale population decline resulting from loss of jobs related to the automotive industry leading to large-scale neighborhood decline (HUD, 2009).

Reformation of laws regarding property tax foreclosure in 1999 allowed counties to foreclose on properties that were delinquent on tax payments. The new laws made it easier to foreclose on these properties, as well as shorten the time period for completion of the process. Additionally, proceeds received from the sale of the foreclosed properties could be used by the county to maintain those remaining properties that were still vacant and falling into disrepair (HUD, 2009). In 2003, Michigan passed the Land Bank Fast

Tract Act which was deemed to be one of the most progressive pieces of legislation regarding land banks in the country.

Sine the beginning of its operation the Genessee County Land Bank (GLB) has acquired more than 4,000 properties through the revised tax foreclosure process. Once the properties are in the possession of the GLB the properties are prepared to be placed back into productive use through a variety of efforts—for example, sale or lease of the property, alleviating any blighted conditions of the home or homes and to generally beautify, or revitalize, the neighborhoods (Genessee County Land Bank, n.d.).

While it is generally accepted in the literature that clustering of vacant and foreclosed properties increases crime and disorder, the extent to which this is true differs depending on various structural characteristics of the neighborhood (Baxter & Lauria, 2000; Immergluck, 2010; Immergluck & Smith, 2006; Skogan, 1990). The use of land banks seeks to alleviate these negative effects. Through the continued efforts to renovate or demolish the distressed homes, the property values of not only the foreclosed, but also the surrounding properties, are likely to increase, benefitting not only the homeowner but the community at large through an increase in tax revenue.

Neighborhoods with concentrated disadvantage, where residential mobility (or instability) is high, also have been shown to have diminished social controls and collective efficacy (Bursik & Grasmick, 1993; Gibson, 2002; Peterson & Krivo, 2010; Sampson & Graif, 2009). This suggests that reducing this residential instability is an important consideration in the reduction of crime and disorder. Land banks appear to be addressing this issue. When properties are purchased by land banks and undergo renovation, there is less opportunity for the property to be sold to investors that are

interested in buying the property merely to quickly resell for general profit purposes. The flipping of properties to new owners can also contribute to residential instability in that it is not uncommon for the property to enter the foreclosure process again with the new owners. The continual turnover of ownership of properties contributes to the spiraling of neighborhood decline.

### **Los Angeles - Litigation**

A second noted effort to reduce the blighted and abandoned buildings left in the wake of foreclosure takes place in the city and county of Los Angeles, California. In a measure that has not been successful in other cities, in May 2011 the city of Los Angeles sued both Deutsche Bank and US Bank, alleging that the banks allowed properties within their control to fall into disrepair, leaving the neighborhoods with a large number of vacant and blighted properties. The banks contend that they contract with loan service providers for the management of the properties and, further, that these providers are the entities actually responsible for the maintenance and upkeep of the properties. The city, however, holds that the banks ultimately bear the responsibility, not the service providers, and seeks an injunction as well as damages of millions of dollars in fines and penalties for the distressed properties owned by the banks (Garrison & Jennings, 2012; Hoag, 2011; Reuters, 2011).

In the five or so years since the foreclosure crisis began to unfold, approximately one million homes underwent foreclosure in the state of California (Garrison & Jennings, 2012) with the number of foreclosures in the city of Los Angeles alone reaching well over 100,000 homes. The result is that many homes have been left vacant, with little or no oversight of upkeep and maintenance and remaining residents living in blighted

neighborhoods overrun with nuisance properties. Not only are the properties accumulating penalties resulting from city inspections, but squatters, prostitution, and drug dealing plague these neighborhoods, resulting in increased cost for police resources.

The lawsuit between Deutsche Bank and the city of Los Angeles reached a conclusion in June 2013, when the bank agreed to pay a financial settlement of 10 million dollars and to properly maintain any foreclosed properties within the city of Los Angeles. It is important to note that according to the settlement none of the funds will be provided by Deutsche Bank itself but by the service providers and trusts of the properties (Bloomekatz, 2013; Patterson, 2013).

Since the lawsuit has been filed there have been minimal efforts made by the bank to alleviate some of the problems of the vacant or foreclosed homes. Short term, and fairly minimum, fixes such as graffiti removal, placing pad locks on properties to keep squatters from entering the property, and general trash removal have been addressed on at least some of the properties within the city. How this will lend itself to addressing the decline of property values or reduction of crime in the long-term is a bit unclear. While this effort to force accountability on the banks for the properties within their alleged control may resolve a more pressing issue of dealing with the blighted properties, and some of the more immediate effects resulting from a vast amount of foreclosure in a relatively short period of time, it is unclear whether such measures will have long term effects on the affected neighborhoods.

### **Richmond, CA–Eminent Domain**

The city of Richmond, California located on the far outskirts of San Francisco, California, has been particularly affected by subprime lending, foreclosure, and the

corresponding negative effects of foreclosure and vacancy. The community, comprised of a minority majority (both African American and Latino), is proactively seeking to protect homeowners from the fallout of a vast number of potential, and looming, foreclosures. As it is estimated that nearly half the mortgages within the city of Richmond are upside down (i.e., more is owed on the property than it is actually worth), the consequences of foreclosure and vacancy faced by the community would be dire.

Out of concern that the homeowners would abandon their properties in light of an impending foreclosure, the city of Richmond, in conjunction with a private refinancing company, Mortgage Resolution Partners, will attempt to exercise its power to use eminent domain to seize mortgages that are in jeopardy of foreclosure if properties are not sold to the city by a date certain. As part of the proposal, the city would offer the mortgagee approximately \$150,000 for a \$300,000 mortgage on a home that, at that time, might be worth an estimated \$200,000 (or approximately 80% of the home's market value). The city would then offer a new mortgage of approximately \$190,000 to the homeowner. This dramatic reduction of debt allows the homeowner not only to maintain possession of their home, thereby decreasing vacancy rates and residential instability in the neighborhoods, but would also reduce monthly mortgage payments, giving residents increased disposable income.

Under the government's power to exercise eminent domain, the government may seize private property from a homeowner for public use if just compensation is provided to the homeowner in exchange for the use of the property for the common good (Wiecek, 1998). The public benefit in this case is the reduction of vacant properties, caused by either residential abandonment or foreclosure, as well as the potential to maintain the

property values (or reduce the level to which they may decline) and maintain the residential stability of the neighborhood.

Mortgage lenders Wells Fargo and Deutsche Bank (also named in the lawsuit with the City of Los Angeles for failure to maintain foreclosed and vacant properties) have sued the city of Richmond, as well as Mortgage Resolution Partners, to halt the aforementioned plans. The claim made by lenders suggests that eminent domain is not an appropriate use of police power because the just compensation necessity is not met. The just compensation necessity is reflective of the compensation that is considered fair to both parties, the owner of the property and the public, since the property is being taken for public use. Further, they argue that the use of such police power could cause lenders to cease business activities in similar areas out of concern that other cities would follow suit and exercise their police power similarly.

While these strategies set out to stabilize neighborhoods, it is important to note that the affected neighborhoods are afflicted with concentrated disadvantage and have been for years prior to the current foreclosure woes. High percentages of unemployment, poverty (or low wages), and vacant properties have plagued the communities and contributed heavily to crime and disorder. Understanding this, it is not surprising that these would be the communities facing such a crisis, as these are the same communities that were susceptible to subprime mortgages.

Many critiques of this endeavor have been proposed and have hampered approval of the plan. First, the government's use of eminent domain in this way would likely discourage banks and other mortgage lenders from doing business in these communities, eerily reminiscent of redlining in the early part of the twentieth century. The response to

such concerns is merely to address critics with a reminder that redlining itself is an illegal practice. Despite the criticisms, in March 2014 Irvington, New Jersey voted to follow the example of Richmond and use eminent domain to acquire problem mortgages.

The programs discussed above all seek to reduce the levels of vacancies or neighborhood disorder that have arisen from the crisis through various strategies to retain the residents that remain in the affected neighborhoods. The retention of residents not only reduces levels of vacancies but also reduces the levels of residential instability as there are fewer numbers of residents moving into and out of the neighborhood.

### **Directions for Future Research**

The various findings in this research, together with the findings of previous studies regarding the effects of vacancies and foreclosures on crime rates, suggest that alternative strategies such as those discussed above should be further explored. Future research should examine how the neighborhoods where these alternative strategies have been employed fare with respect to crime rates. For example, in neighborhoods like those in the Irvington area, where residents are provided financial assistance to remain in their homes after a near foreclosure, have changes in crime rates been detected? While this certainly does not determine causality—in other words, that the strategy is the cause for the reduction in crime—the mechanism for the reduction is worth further study.

For example, the prolonged nature of the foreclosure process can damage the mechanisms of informal social control in the neighborhood as residents may become more disengaged from the activities around them and unable or unwilling to keep watch over their neighbors. While Irvington, and Cuyahoga County, through the use of land banks, reduced the number of vacant or blighted properties in their neighborhoods, it is



unclear whether the engagement of residents changes when the threat of foreclosure has been alleviated. Additionally, under the assumption that properties have fallen into disrepair while residents were engaged in the default process (pre-foreclosure) and, under the terms outlined by the city, if residents return their properties to the more ordered conditions that existed prior, the question might be posed as to whether the mechanisms of informal social control are mended as well. This would suggest that any increase in disorder leading to increased crime rates would be reduced and thereby reducing resources needed by the city to deal with the existing disorder.

While the potential use of eminent domain in Richmond is risky—both in terms of future lending and investment by banking and mortgage institutions, and is unlikely to be a cure for the problems faced by the city, which was already structurally disadvantaged—at the very least the use of such tactics may halt a further spiral into economic and social decline. If the cost incurred by the city in their use of eminent domain was less than the cost of the impact of the foreclosures then this would potentially yield policy initiatives for cities suffering similar fates.

## References

- Accordino, J., & Johnson, G. (2000). Addressing the vacant and abandoned property problem. *Journal of Urban Affairs*, 22(3), 301–315.
- Arnold, D. (2014, July 8). Cuyahoga County Land Bank creates neighborhood smiles. *Newsnet 5 Cleveland*. Retrieved from <http://www.newsnet5.com/>
- Avramenko, R., & Boyd, R. (2013). Subprime virtues: The moral dimensions of American housing and mortgage policy. *Perspectives on Politics*, 11(1), 111–131.
- Ballentine, C., Jang, I., & Qi, M. (2009). Foreclosures in Austin: Spatial and demographic trends from 2006–2008. UT Austin School of Architecture.
- Baxter, V., & Lauria, M. (2000). Residential mortgage foreclosure and neighborhood change. *Housing Policy Debate*, 11, 675–699.
- Black, H. C. (1991). *Black's Law Dictionary* (6th ed.). St. Paul, MI: West Publishing Company.
- Bloomekatz, A. (2013, June 29). L.A. settles for \$10 million in Deutsche Bank slumlord lawsuit. *L.A. Times*. Retrieved from <http://www.latimes.com/>
- Bohan, C., & Daly, C. (2010, October 12). White house rejects foreclosure moratorium. *Reuters*. Retrieved from <http://www.reuters.com/>
- Bradford, C., & Rubinowitz, L. (1975). The urban–suburban investment–disinvestment process: Consequences for older neighborhoods. *Annals of the American Academy of Political and Social Science*, 422, 77–86.
- Browning, C., & Jackson, A. (2013). The social ecology of public space: Active streets and violent crime in urban neighborhoods. *Criminology*, 51(4), 1009–1043.
- Buck, A., & Hakim, S. (1989). Does crime affect property values? *Canadian Appraiser*, 33(1), 23–27.
- Bulava, K. (2014, December 12). Cuyahoga Land Bank featured in new report. *The Rockport Observer*. Retrieved from <http://therockportobserver.com/>
- Burnell, J. (1988). Crime and racial composition in contiguous communities as negative externalities: Prejudiced households' evaluation of crime rate and segregation nearby reduces housing values and tax revenues. *American Journal of Economics and Sociology*, 47(2), 177–193.
- Bursik, R. (1988). Social disorganization and theories of crime and delinquency: Problems and prospects. *Criminology*, 26, 519–551.

- Bursik, R., & Grasmick, H. (1993). *Neighborhoods and crime: The dimensions of effective community control*. San Francisco, CA: Lexington Books.
- Cancino, J. M. (2005). The utility of social capital and collective efficacy: Social control policy in nonmetropolitan settings. *Crim Justice Policy Rev*, 16, 287–318.
- Calorimis, C., Longhofer, S., & Miles, W. (2008). The foreclosure–house price nexus: Lessons from the 2007–2008 housing turmoil. NBER Working Paper W14294.
- Cohen, L., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44, 588–605.
- Coleman, J. (1990). *Foundations of social theory*. Cambridge, MA: Harvard University Press.
- Coulton, C., Mikelbank, K., & Schramm, M. (2008). *A report on ownership and housing values following sheriff's sales, Cleveland and Cuyahoga County, 2000–2007*. Cleveland, OH: Center on Urban Poverty and Community Development, Case Western Reserve University.
- Crossney, K. (2010). Is predatory mortgage lending activity spatially clustered? *The Professional Geographer*, 62(2), 153–170.
- Crump, J. (2005). Subprime lending and foreclosure in Hennepin and Ramsey Counties: An empirical Analysis. *Cura Reporter*. Retrieved from <http://neighborhoodindicators.com/sites/default/files/publications/37-2-crump.pdf>
- Cuyahoga Land Bank. (2013). Welcome to the Cuyahoga Land Bank. Retrieved from <http://www.cuyahogalandbank.org/>
- Dingemans, D. (1979). Redlining and mortgage lending in Sacramento. *Annals of the Association of American Geographers*, 69(2), 225–239.
- DiPasquale, D., & Glaeser, E. (1999). Incentives and social capital: Are homeowners better citizens? *Journal of Urban Economics*, 45(2), 354–384.
- Dobbins, B. (2001). Abusive Subprime Lending: A white paper on current and proposed legal rules. *The ABC Committee of the State Bar of Georgia*.
- Dornin, R. (2008, July 22). Police fight a rash of vacant home burglaries. *CNN*. Retrieved from <http://www.cnn.com/>
- Dreier, P., Bhatti, S., Call, R., Schwartz, A., & Squires, G. (2014). *Underwater America*. Berkeley, CA: Haas Institute for a Fair and Inclusive Society.

- Duda, M., & Apgar, W. (2005). *Mortgage foreclosures in Atlanta: Patterns and policy issues*. Washington, DC: Neighborworks America.
- Eck, J., & Weisburd, D. (Eds.). (1995). *Crime and place: Crime prevention studies 4*. Monsey, NY: Willow Tree Press.
- Edmiston, K., & Zalneraitis, R. (2007). *Rising foreclosures in the United States: A perfect storm*. Kansas City, KS: Federal Reserve Bank of Kansas City.
- Ellen, I., & Lacoë, J. (2013). Do foreclosures cause crime? Policy Brief. Furman Center for Real Estate and Urban Policy, New York University. Retrieved from <http://furmancenter.org/files/publications/DoForeclosuresCauseCrime.pdf>
- Emerson, M., Yancey, G., & Chai, K. (2001). Does race matter in residential segregation? Exploring the preferences of white Americans. *American Sociological Review*, 66(6), 922–935.
- Farley, R., & Frey, W. (1994). Changes in segregation of whites from blacks during the 1980s: Small steps toward a more integrated society. *American Sociological Review*, 59, 23–45.
- Feagin, J. (1999). Excluding blacks and others from housing: The foundation of white racism. *Cityscape*, 4(3), 79–91.
- Fishbein, A., & Bunce, H. (2001). Subprime market growth and predatory lending. Retrieved from [www.huduser.org/publications/pdf/brd/13fishbein.pdf](http://www.huduser.org/publications/pdf/brd/13fishbein.pdf)
- Flippen, C. (2004). Unequal returns to housing investments? A study of real housing appreciation among Black, White, and Hispanic households. *Social Forces*, 82(4), 1523–1551.
- Florida, R., & Mellander, C. (n.d.). Segregated city: The geography of economic segregation in America's metros. Retrieved from <http://martinprosperity.org/media/Segregated%20City.pdf>
- Freeman, L., & Hamilton, D. (2002). A dream deferred or realized: The impact of public policy on fostering black homeownership in New York City throughout the 1990s. *The American Economic Review*, 92(2), 320–324.
- Fry, R., & Taylor, P. (2012, August, 1). The rise of residential segregation by income. *Pew Research Center*. Retrieved from <http://www.pewresearch.org/>
- Gaines, J. (2008). Foreclosure forecast: Texas floats while nation flails. *Housing Markets, A reprint from Tierra Grande, Publication 1876*. Retrieved from <http://recenter.tamu.edu/pdf/1876.pdf>.

- Gainey, R., Alper, M., & Chappell, A. (2011). Fear of crime revisited: Examining the direct and indirect effects of disorder, risk perception, and social capital. *American Journal of Criminal Justice*, 36, 120–137.
- Garrison, J., & Jennings, A. (2012, July 17). Los Angeles sues US Bank to reduce blighted, abandoned homes. *McClatchy News*. Retrieved from <http://www.governing.com/>
- Genesee County Land Bank. (n.d.). What we do. Retrieved from <http://thelandbank.org/whatwedo.asp>
- Goodstein, R., & Lee, Y. (2010). Do foreclosures increase crime? FDIC Center for Financial Research Working Paper. Federal Deposit Insurance Corporation, The Center for Financial Research.
- Harding, J., Rosenblatt, E., & Yao, V. (2009). The contagion effect of foreclosed properties. *Journal of Urban Economics*, 66, 164–178.
- Harris, J. (2001). FHA loans, Timeworn or Timeless? *Tierra Grande*, 8(3), 11.
- Herbert, C., Haurin, D., Rosenthal, S., & Duda, M. (2005). Homeownership gaps among low-income and minority borrowers and neighborhoods. U.S. Department of Housing and Urban Development Office of Policy Development and Research. Retrieved from <http://www.huduser.org/Publications/pdf/HomeownershipGapsAmongLow-IncomeAndMinority.pdf>
- Hipp, J. (2007). Income inequality, race, and place: Does the distribution of race and class within neighborhoods affect crime rates? *Criminology*, 45(3), 665–697.
- Hipp, J. (2010). A dynamic view of neighborhoods: The reciprocal relationship between crime and neighborhood structural characteristics. *Social Problems*, 57(2), 205–230.
- Hipp, J., Tita, G., & Rosenbaum, R. (2009). Drive-bys and trade-ups: Examining the directionality of the crime and residential instability relationship. *Social Forces*, 87(4), 1777–1812.
- Hoag, C. (2011, May 22). Los Angeles' Deutsche Bank lawsuit: One fight in a nationwide crisis. *Huffington Post*. Retrieved from <http://www.huffingtonpost.com>
- Holmes, A., & Horvitz, P. (1994). Mortgage redlining: Race, risk, and demand. *Journal of Finance*, 49, 81–99.
- Hyman, L. (2011). *Debtor nation*. Princeton, NJ: Princeton University Press.

- Immergluck, D. (2010). Neighborhoods in the wake of debacle: Intrametropolitan patterns of foreclosed properties. *Urban Affairs Review*, 46(1), 3–36.
- Immergluck, D., & Smith, G. (2005). Measuring the effect of subprime lending on neighborhood foreclosures. *Urban Affairs Review*, 40(3), 362–389.
- Immergluck, D., & Smith, G. (2006). The impact of single-family mortgage foreclosures on neighborhood crime. *Housing Studies* 21(6), 851–864.
- Jacobs, J. (1961). *The death and life of great American Cities*. New York, NY: Vintage Books.
- Kalinina, A. (2013). A grossly inadequate procedure: Non-judicial foreclosure in Texas. *Baylor Law Review*, 65(3), 1061–1085.
- Kanto, A., & Nystuen, J. (1982). De facto redlining a geographic view. *Economic Geography*, 58(4), 309–328.
- Kaplan, D., & Sommers, G. (2009). An Analysis of the relationship between housing foreclosures, lending practices, and neighborhood ecology: Evidence from a distressed county. *The Professional Geographer*, 61(1), 101–120.
- Whitaker, S., & Fitzpatrick, J. (2012). Landbank 2.0: An empirical evaluation. Federal Reserve Bank of Cleveland.
- Kikuchi, G. (2010). *Neighborhood structures and crime: A spatial analysis*. El Paso, TX: LFB Scholarly Publishing, LLC.
- Knight, M., & O’Shea, M. (2011, October 27). Foreclosures leave pockets of neglect and decay. *The New York Times*. Retrieved from <http://www.nytimes.com/>
- Kobie, T., & Lee, S. (2011). The spatial-temporal impact of residential foreclosures on single-family residential property values. *Urban Affairs Review*, 47(1), 3–30.
- Kolko, J. (2011). California housing. Public Policy Institute of California. Retrieved from [http://www.ppic.org/content/pubs/report/R\\_611JK2R.pdf](http://www.ppic.org/content/pubs/report/R_611JK2R.pdf)
- Krysan, M. (2002). Community undesirability in Black and White: Examining racial residential preferences through community perceptions. *Social Problems*, 49(4), 521–543.
- Lacoe, J., & Ellen, I. (2014). Mortgage foreclosures and the shifting context of crime in micro-neighborhoods. Retrieved from [http://lusk.usc.edu/sites/default/files/Lacoe-Allen\\_Chicago-crime-and-foreclosures\\_Lusk-working-paper-06.18.14.pdf](http://lusk.usc.edu/sites/default/files/Lacoe-Allen_Chicago-crime-and-foreclosures_Lusk-working-paper-06.18.14.pdf)

- Lauria, M. (1998). A new model of neighborhood change: Reconsidering the role of white flight. *Policy Debate*, 9(2), 395–424.
- Lauria, M., & Baxter V. (1999). Residential mortgage foreclosures and racial transition in New Orleans. *Urban Affairs Review*, 34(6), 757–786.
- Leonard, T., & Murdoch, J. (2009). The neighborhood effects of foreclosure. *Journal of Geographic Systems*, 11, 317–332.
- Lin, Z., Rosenblatt, E., & Yao, V. (2009). Spillover effects of foreclosures on neighborhood property values. *Journal of Real Estate Finance and Economics*, 38, 387–407.
- Mahalik, R., & Robinson, K. (1998). Credit is overdue for subprime mortgage lending. *Financial Industry*, Second quarter.
- Martinez, R. (2002). *Latino homicide: Immigration, violence, and community*. New York, NY: Routledge.
- Massey, D., & Denton, N. (1993). *American apartheid: Segregation and the making of the underclass*. Cambridge, MA: Harvard University Press.
- Metzger, J. (2000). Planned abandonment: The neighborhood life-cycle theory and national urban policy. *Housing Policy Debate*, 11, 7–40.
- Molina, E. (2012). *In the wake of crisis: Race, place, and residential foreclosures in Los Angeles metropolitan region*. Unpublished doctoral dissertation, University of California, Santa Barbara, CA.
- Moore, J., & Pinderhughes, R. (1993). Introduction. In J. Moore & R. Pinderhughes (Eds.), *In the barrios: Latinos and the underclass debate* (pp. xi–xxxix). New York, NY: Russell Sage Foundation.
- Morenoff, J., Sampson, R., & Raudenbush, S. (2001). Neighborhood inequality, collective efficacy, and the spatial dynamics of urban violence. *Criminology* 39(3), 517–559.
- Morenoff, J., & Sampson, R. (1997). Violent crime and the spatial dynamics of neighborhood transitions: Chicago, 1970–1990. *Social Forces*, 76(1), 31–64.
- Nesiba, R. (1996). Racial discrimination in residential lending markets: Why empirical researchers always see it and economic theorists never do. *Journal of Economic Issues*, 30(1), 51–77.

- Palloni, A., & Morenoff, J. (2001). Interpreting the paradoxical in the Hispanic Paradox: Demographic and epidemiological approaches. *Annals of the New York Academy of Sciences*, 954, 140–174.
- Patterson, E. (2013, June 19). Deutsche Bank settles Los Angeles suit over ‘slumlord’ claims. *Bloomberg BusinessWeek*. Retrieved from <http://www.businessweek.com/>
- Peterson, R., & Krivo, L. (2010). *Divergent social worlds*. New York, NY: Russell Sage Foundation.
- Pyle, G. (1974). *The spatial dynamics of crime* (Vol. CLIX). Chicago, IL: University of Chicago.
- Pyle, M. (2003). A “flip” look at predatory lending: Will the Fed’s revised Regulation Z end abusive refinancing practices? *The Yale Law Journal*, 112(7), 1919–1926.
- RealtyTrac Staff. (2011). Record 2.9 million U.S. properties receive foreclosure filings in 2010 despite 30-month low in December. Retrieved from <http://www.realtytrac.com/>
- Rengert, G., Piquero, A., & Jones, P. (1999). Distance decay reexamined. *Criminology*, 37, 427–45.
- Ross, S., & Yinger, J. (2002). *The color of credit: Mortgage discrimination, research methodology, and fair-lending enforcement*. Cambridge, MA: MIT Press.
- Rugh, J., & Massey, D. (2010). Racial segregation and the American foreclosure crisis. *American Sociological Review*, 75(5), 629–651.
- Sampson, R. (1991). Linking the micro- and macrolevel dimensions of community social organization. *Social Forces*, 70, 43–64.
- Sampson, R., & Graif, C. (2009). Neighborhood social capital as differential social organization: Resident and leadership dimensions. *American Behavioral Scientist*, 52(11), 1579–1605.
- Sampson, R., & Groves, B. (1989). Community structure and crime: Testing social disorganization theory. *American Journal of Sociology*, 94, 774–802.
- Sampson, R., Raudenbush, S., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science*, 277, 918–924.
- San Diego Regional Chamber of Commerce. (2012). San Diego’s road to economic recovery. Retrieved from [http://sdchamber.org/assets/files/Website%20Resource%20Docs/San%20Diego%20RCC%20Report\\_FINALv2.pdf](http://sdchamber.org/assets/files/Website%20Resource%20Docs/San%20Diego%20RCC%20Report_FINALv2.pdf)



- Sampson, R., & Raudenbush, S. (1999). Systematic social observation of public spaces: A new look at disorder in urban neighborhoods. *American Journal of Sociology*, *105*, 603–651.
- Schaefer, R., & Ladd, H. (1981). *Discrimination in mortgage lending*. Cambridge, MA: MIT Press.
- Schuetz, J., Been, V., & Ellen, G. (2008). Neighborhood effects of concentrated mortgage foreclosures. *Journal of Housing Economics*, *17*, 306–319.
- Schwartz, A., Susin, S., & Voicu, I. (2003). Has falling crime driven New York City's real estate boom? *Journal of Housing Research*, *14*(1), 1–35.
- Shannon, L. (1988). *Criminal career continuity*. New York, NY: Human Sciences Press.
- Shapiro, T. (2004). *The hidden cost of being African American: How wealth perpetuates inequality*. New York, NY: Oxford University Press.
- Shaw, C., & McKay, H. (1942). *Juvenile delinquency and urban areas: A study of rates of delinquents in relation to differential characteristics of local communities in American cities*. Chicago, IL: University of Chicago Press.
- Sherman, L., Gartin, P., & Buerger, M. (1989). Hot spots of predatory crime: Routine activities and the criminology of place. *Criminology*, *27*(1), 27–56.
- Shlay, A., & Whitman, G. (2006). Research for democracy: Linking community organizing and research to leverage blight policy. *City & Community*, *5*(2), 153–171.
- Silva, T. (2008, November 23). Foreclosure at record high for Bexar County. *San Antonio Business Journal*. <http://www.bizjournals.com/sanantonio/>
- Skogan, W. (1986). Fear of crime and neighborhood change. *Crime and Justice*, *8*, 203–229.
- Skogan, W. (1990). *Disorder and decline: Crime and the spiral of decay in American neighborhoods*. Berkeley, CA: University of California Press.
- Spelman, W. (1993). Abandoned buildings: Magnets for crime? *Journal of Criminal Justice*, *21*, 481–495.
- Stark, R. (1987). Deviant places: A theory of the ecology of crime. *Criminology*, *25*(4), 893–908.

- Steenbeek, W., & Hipp, J. (2011). A longitudinal test of social disorganization theory: Feedback effects among cohesion, social control, and disorder. *Criminology*, 49(3), 833–870.
- Stein, E. (2001). Quantifying the economic cost of predatory lending. A report from the Coalition for Responsible Lending. Retrieved from <http://www.responsiblelending.org/mortgage-lending/research-analysis/the-economic-cost-of-predatory-lending-2001.PDF>
- Taylor, R. (1988). *Human territorial functioning*. Cambridge, UK: Cambridge University Press.
- Taylor, R. (1996). Neighborhood responses to disorder and local attachments: The systemic model of attachment, social disorganization, and neighborhood use value. *Sociological Forum*, 11(1), 41–74.
- Tippett, R., Jones-DeWeever, A., Hamilton, D., & Darity, W. (2014). Beyond broke: Why closing the racial wealth gap is a priority for national economic security. *Executive Summary*. Center for Global Policy Solutions. Retrieved from [http://globalpolicysolutions.org/wp-content/uploads/2014/04/Beyond\\_Broke\\_FINAL.pdf](http://globalpolicysolutions.org/wp-content/uploads/2014/04/Beyond_Broke_FINAL.pdf)
- Tita, G., Petras, T., & Greenbaum, R. (2006). Crime and residential choice: A neighborhood level analysis of the impact of crime on housing prices. *Journal of Quantitative Criminology*, 22(4), 299–317.
- Tittle, C., & Paternoster, R. (1988). Geographic mobility and criminal behavior. *Journal of Research in Crime and Delinquency*, 25, 301–343.
- U.S. Department of Housing and Urban Development (HUD). (2009). Revitalizing foreclosed properties with land banks. Retrieved from <http://www.huduser.org/portal/publications/landbanks.pdf>
- U.S. Department of Housing and Urban Development (HUD). (2015). HUD aggregated USPS administrative data on address vacancies. Retrieved from <http://www.huduser.org/portal/datasets/usps.html>
- Velez, M., Lyons, C., & Boursaw, B. (2012). Neighborhood housing investments and violent crime in Seattle, 1981–2007. *Criminology*, 50(4), 1025–1056.
- Walter, J. (1995). The fair lending laws and their enforcement. *Economic Quarterly*, 81(4), 61–77.
- Wiecek, W. (1998). *The lost world of classical legal thought: Law and ideology in America, 1886–1937*. New York, NY: Oxford University Press.

- Williams, R., Nesiba, R., & McConnell, E. (2005). The changing face of inequality in home mortgage lending. *Social Problems*, 52(2), 181–208.
- Wilson, W. (1996). *When work disappears: The world of the new urban poor*. New York, NY: Random House.
- Wilson, J., & Kelling, G. (1982, March). The police and neighborhood safety: Broken windows. *The Atlantic Monthly*, 29–38.
- Wilson, R., & Paulsen, D. (2008). Foreclosures and crime: A geographical perspective. *Geography & Public Safety*, 1(3), 1–19.
- Wilson, R., & Paulsen, D. (2010). A theoretical underpinning of neighborhood deterioration and the onset of long-term crime problems from foreclosures. Working paper – U.S. Dept. of Justice.
- Zimmerman, K., Wyly, E., & Botein, H. (2002). Predatory lending in New Jersey: The rising threat to low-income homeowners. New Jersey Institute for Social Justice.