*Article*

# Burglary in Gated Communities: An Empirical Analysis Using Routine Activities Theory

## Gregory D. Breetzke[1] and Ellen G. Cohn[2]

## Abstract

Gated communities have experienced phenomenal growth worldwide due in part to increasing fear of urban crime and violence. However, very little is known about the effect of gating a neighborhood on rates of criminal victimization. In this article, we fill this gap by examining the relationship between residential burglary and gated communities in Tshwane, South Africa. South Africa has over 26,000 registered gated communities and high levels of violent and property crime, making it a suitable geographical focus area for research of this nature. Using variables informed by routine activities theory, we ran a series of regression models to assess the independent effect of gating on rates of day and night time burglary. The findings indicate that gated neighborhoods have a significant positive association with burglary rates in both day and night time models, suggesting that residing in a gated community actually increases one's risk of burglary victimization. Possible explanations for these unexpected findings are discussed in the context of South Africa's unique sociopolitical past.

## Keywords

gated communities, South Africa, burglary, routine activities theory, situational crime prevention, rational choice theory

## Introduction

This article examines the relationship between burglary and gated communities in Tshwane, South Africa. We are specifically interested in examining whether gating a neighborhood is an effective way of reducing burglary victimization rates in these areas. Using routine activities (RA) theory as a theoretical backdrop, we construct a series of regression models for both day time and night time burglary patterns in the city of Tshwane, South Africa, and ascertain the extent to which gating can act as an effective capable guardian against burglary.

[1] Department of Geography, College of Science, University of Canterbury, Canterbury, New Zealand
[2] Department of Criminal Justice, Florida International University, Miami, FL, USA

**Corresponding Author:**
Ellen G. Cohn, Department of Criminal Justice, Florida International University, PCA 261A, Miami, FL 33199, USA.
Email: cohne@fiu.edu

Gated communities[1] have experienced phenomenal growth worldwide. Both the United States and the United Kingdom have experienced a dramatic increase in the number of people estimated to be living in these fortified enclaves (see Atkinson, Blandy, Flint, & Lister, 2004; Low, 2003). While accurate figures are hard to come by it has been estimated that there were over 20 million people in the United States residing in gated communities by the end of the 20th century (Vesselinov, 2008). Analysis of the U.S. Census Bureau's 2001 American Housing Survey, a sampling of 62,000 households that is representative of the nation's 119 million households, shows that more than 7 million households—about 6% of the national total—were in developments behind walls and fences. Of these, about 4 million were in communities where access is controlled by gates, entry codes, key cards, or security guards. The most recent English planning authority survey found upward of 1,000 gated communities in England, predominantly in London and the southeast (Blandy, 2007). There has also been a dramatic upsurge in various forms of gated communities in less developed countries including Turkey (Geniş, 2007), Brazil (Caldeira, 2000), Indonesia (Leisch, 2000), China (Miao, 2010), Israel (Rosen & Razin, 2009), and South Africa (Landman, 2000).

A number of factors have contributed to the widespread proliferation of these communities around the world. Among the most prominent factors include the need for privacy, exclusivity, conveniency, and a growing desire on the part of residents to be segregated from other sectors of society (see Dillon, 1994; Low, 2001; Marcuse, 1997; Wilson-Doenges, 2000). The most common worldwide explanation, however, for the growth of these enclaves is the increasing fear of urban crime and violence (Atkinson et al., 2004; Landman, 2000; Landman & Schönteich, 2002). In the United States, the growth of gated communities is seen as a direct housing response to crime and disorder (Blakely & Snyder, 1998). Fuelled by a media that constantly broadcasts images of violence and crime, people have become increasingly fearful and have withdrawn into these housing developments that they perceive to be safer and more secure. Blakely and Snyder (1997, pp. 1–2) observe that "the phenomenon of walled cities and gated communities is a dramatic manifestation of a new fortress mentality growing in America." While this mentality has historically been the preserve of the White upper class, this is changing as an increasing number of gated communities are developing in upper-middle- and middle-class neighborhoods throughout the United States (Plaut, 2011). In fact, recent evidence indicates that up to 38% of residents of owner gated communities in the south and west of the United States belong to the middle class (Vesselinov, 2008). The search for security is also believed to be the main driver of demand for gated communities in the United Kingdom (Atkinson et al., 2004), Lebanon (Glasze & Alkhayyal, 2002), Mexico (Sheinbaum, 2008), Argentina (Roitman & Giglio, 2010), Nigeria (Uduku, 2010), Australia (Lee & Herborn, 2003), and New Zealand (Dixon, Dupois, & Lysnar, 2004).

The reasons for the rapid growth of gated communities in South Africa are equally myriad. Jürgens and Gnad (2002) suggest that the rise in the number of these communities in the 1970s and 1980s was a direct response to increasing politically motivated unrest among the Black African population against the apartheid system and the state's tacit acceptance of breaches of apartheid rules. Naudé (2003) also believes that political uncertainty and postapartheid social unrest has led to the growth of these fortified housing developments. The most common explanation, however, for the growth of gated communities in South Africa is also crime and the fear of crime (Johannes, 2012; Landman, 2000). South Africa is a country ravaged with crime. The country currently experiences approximately 43 murders a day, approximately 31 murders per 100,000 population (South African Police Service, 2012). While the raw figures are lower than those of the United States and China, these latter countries have populations 6 and 30 times greater than South Africa, respectively. Therefore, while the United States experiences approximately 68 murders per day, this translates to a rate of only 9.8 murders per 100,000 population (Federal Bureau of Investigation, 2012). China experiences approximately 41 murders per day, or 1.1 murders per 100,000 population (United Nations

Office on Drugs and Crime, 2011). An estimated 220,000 people have been murdered in South Africa in the past decade alone, leading at least one researcher to question whether crime is a threat to national security (see Hough, 2003). Naturally, large sectors of South Africa's population are fearful of crime. Attitudinal surveys conducted by the Human Science Research Council (HSRC, 2006) reveal that approximately 34% of South Africans feel personally unsafe on most days; 71% are fearful of walking alone in their own residential areas after dark; and 15% are fearful of walking alone during the day.

A common response to crime and the associated feelings of personal insecurity is a retreat into gated communities which have mushroomed in all major urban centers in the country. Despite the common conception that residing in a gated community reduces an individual's risk of criminal victimization, very little research has been conducted in this area. Of the studies that have been conducted, most have, surprisingly, found no significant differences in crime levels between gated and nongated communities (see Atkinson & Smith, 2012; Blakely & Snyder, 1997; Wilson-Doenges, 2000). In some instances, crime levels have been found to decrease immediately after the development of the gated community but to then increase to pregate levels in subsequent years (Fowler & Mangione, 1986). Only one study by Atlas and LeBlanc (1994) found an observable decrease in crime and that was after the installation of street closures and barricades in Miami Shores, Florida. However, most of this prior research has relied on survey and/or interview data with gated and nongated residents or law enforcement agencies tasked with policing these neighborhoods. To our knowledge, no study has undertaken a geospatial analysis of officially recorded and geocoded crime data in gated and nongated neighborhoods and determined the extent to which gating is effective in preventing crime. Finally, and most importantly, no studies have investigated the relationship between crime and gated communities from a criminological perspective. Prior research has primarily focused on the implications of gated communities for civic society, fiscal solvency, social exclusions, and efficient service delivery with very little or no consideration given on the implications of the success or failure of these developments to reduce crime on current criminological theory.

In this study, we use RA theory as a framework to examine the effectiveness of gated communities in reducing burglary rates in neighborhoods in Tshwane, South Africa. Burglary was selected as the type of crime to examine because it is an invasive act that decreases individuals' feelings of personal safety and security. In addition, security from burglary is often considered one of the main motivating factors for residing in a gated community (see Blandy & Parsons, 2002). Both day and night time burglary rates are examined since previous research has shown how burglars change their targeting strategies depending on whether it is day time or night time (see Coupe & Blake, 2006). The remainder of the article proceeds as follows. First, we provide a brief review of RA theory within the context of the situational crime prevention approach, and discuss how we believe the RA theory is most apt in explicating the burglary-gated community linkage. Next, we describe the data and methods that were used for this study, including the definitions of measures used to operationalize RA theory in a South African context, and present the main results. The discussion summarizes our findings.

## Theory

The situational crime prevention approach (Cornish & Clarke, 1987) focuses on the context in which crime occurs and the settings for crime, rather than on potential offenders. The emphasis is on deterrence, making crime less attractive to offenders by changing the circumstances and reducing opportunities for crime. Situational crime prevention includes a large variety of techniques that fall into five main categories or objectives: (1) increasing the perceived effort involved in crime commission; (2) increasing the perceived risks associated with crime commission; (3) reducing the

anticipated rewards to be derived from the crime; (4) reducing provocations that may encourage crime; and (5) removing excuses that facilitate crime. Gated communities primarily employ techniques that fall into the first two categories in an effort to reduce criminal opportunities.

The first category involves increasing the effort involved in committing crimes. Gating entry points to the community does this by controlling access to the targets. The presence of locked gates, booms restricting vehicular entry, entry codes and/or entry cards, and security personnel are designed to restrict nonresident access to the community. These communities generally have a limited number of controlled access points and many are surrounded by walls and/or electrified fences, making it even more difficult for nonresidents to enter the neighborhood. In some communities, exits are also controlled, further increasing the effort required on the part of the offender.

The second category involves increasing the risks associated with committing crimes. In many gated communities, the entrances are monitored by security guards and/or closed-circuit television (CCTV) cameras, strengthening formal surveillance. These communities often require nonresidents to show identification before entering the community and may require some type of visitor identification be worn while in the community. These requirements serve to significantly reduce anonymity and further increase the risk to the offender. Additionally, many gated communities have exit gates which, while they may not be staffed by security personnel, do require vehicles to slow down and wait for the gate to open. This also increases the level of risk for offenders, who generally prefer to commit crimes in locations that offer easy escape routes (Clarke & Cornish, 1985). Another way in which risk is increased is through extended guardianship. Gated communities often involve some element of self-management, which may increase collective community ties within the community. Because members of the community interact while working together in the management of the development, they may be more aware of who does and does not "belong," and thus may serve as informal guardians within the community. Some researchers have noted that gated communities can contribute to an improved sense of community and social cohesion in communities (Landman, 2000), which can make the perpetration of a crime in these areas much more difficult.

Two of the main underlying theories of situational crime prevention are the rational choice and the RA theories. The rational choice approach posits that offenders interpret and weigh up the costs and benefits associated with their offending decisions. With respect to burglary, the idea is that burglars will attempt to maximize the rewards of a burglary by purposefully and carefully selecting a target from a range of alternates. Rather than focusing on offender characteristics and motivation, these theories emphasize the role of criminal opportunity and the dynamic of potential benefits versus possible risk involved in crime commission, arguing that an understanding of how offenders routinely behave and a focus on the situations in which crime occurs are essential for understanding criminal behavior.

RA theory (Cohen & Felson, 1979) suggests that crime occurs when there is a convergence in space and time of three minimal elements: a motivated offender, a suitable target, and the lack of a capable guardian. The theory argues that the likelihood of crime and the risk of criminal victimization may be increased or reduced through the manipulation of these three factors. RA theory also postulates that changes in routine or typical activities increase the probability that individuals or households will be vulnerable to certain types of criminal victimization. Prior research has clearly demonstrated that various features of the natural and built environment can affect the convergence in space and time of the three elements of RA theory (see e.g., Breetzke, 2012a; Clare, Fernandez, & Morgan, 2009; Groff & McCord, 2011; Johnson & Bowers, 2010; Peeters & Elffers, 2010; Ratcliffe, 2003). As noted above, there are a number of ways in which the presence of a gated community can also significantly influence the spatiotemporal patterning of crime. First, gated communities are deliberately designed to be secure. The locked gates, controlled access points, restricted access of nonresidents, and surveillance serve not only as a physical but also a psychological barrier. While residents have unrestricted access and may enter the community unimpeded, this is not the case for

nonresidents, who most often have to obtain permission to pass through the gates. As a result, non-resident offenders may be less motivated to commit crimes within the gated community due to the difficulties involved in accessing desired targets. Thus, by their physical design, gated communities create an environment with reduced opportunities that is likely to lead to a reduction in the number of motivated offenders targeting the community.

Second, gated communities often create economic segregation because they tend to be home to the more affluent (Landman, 2000), those individuals and families who are able to pay the high number of initial costs and monthly homeownership fees in order to live there (Atkinson et al., 2004). This may also serve as a way to reduce the presence of motivated offenders by preventing lower income individuals, who may be unable to afford to live in the secure enclaves, from having easy access to the community. At the same time, however, the affluence of the residents and their higher levels of disposable income may increase their suitability as potential targets, although this may be negated, at least in part, by the increased risk associated with targeting residences within such a high-security environment. It is also possible that the presence of gates in a community may be an indirect indictor of wealth and may be positively correlated with the occurrence of burglary.

Third, the structure of gated communities affects capable guardianship. At a very general level, capable guardians can be defined as all formal or informal control mechanisms that are effective in deterring a motivated offender from committing a criminal act (Cohen & Felson, 1979). With respect to burglary, guardianship has been differentiated into social and physical domains (Garofalo & Clark, 1992; Meier & Miethe, 1993). Social guardianship derives from the surveillance activities of people while physical guardianship refers to devices that offer protection such as fences, locks, dogs, and alarms. The physical structure of gated communities, with features such as security guards and patrols (often armed), walls and/or electrified fences surrounding the community, controlled access, and CCTV monitoring at entry/exit points should result in significantly increased levels of both social and physical guardianship.

In the present study, we use RA theory as a theoretical backcloth and hypothesize that the gating of a neighborhood will influence one essential element in the RA framework, namely capable guardianship. More specifically, we hypothesize that gating a neighborhood will act as a deterrent against crime (i.e., increased social and physical guardianship) and as a result gated neighborhoods are less likely to be selected for burglary than a nongated neighborhood.

## Data and Method

### Data

Crime data for the study included all reported incidences of residential burglary in Tshwane for the years 2004–2006.[2] This information was obtained from the Crime and Information Analysis Centre of the South African Police Services (SAPS). The information obtained included the location ($x$, $y$ coordinates), date, time of day, and a unique code for each burglary incident. A total of 57,276 incidences of residential burglary were recorded in Tshwane over this 3-year period.[3] A total of 24,090 (42%) residential burglary incidences were committed during the day (07:00 a.m. to 18:59 p.m.) and 33,186 (58%) incidences were committed during the night (19:00 p.m. to 06:59 a.m.). Other data were obtained from Statistics South Africa (SSA; 2003). Both the crime and census data were aggregated to the suburb level. The suburb is the finest spatial level at which census information has been provided by SSA and consists of between 150 and 300 households. All 371 suburbs in Tshwane were initially selected as possible locations for the burglaries examined in the study but 11 suburbs were excluded in the final analysis because they contained no households. These suburbs were nature reserves, industrial areas, or areas of vacant land.

## Dependent Variables

The numbers of day time and night time burglary incidents per 100 households reported to the SAPS were the dependent variables in the study. Not surprisingly, initial checks on both burglary rates showed highly skewed distributions and evidence of kurtosis. In order to remove this nonnormality, both dependent variables were log transformed.

## Independent Variables

Data extracted from the SSA census were used to form various indicators of the three elements of routine activity theory: motivated offenders, suitable targets, and capable guardianship. Variables that typically reflect the RA approach include population characteristics, employment status, income levels, and dwelling values. Given the census data at our disposal, we sought to operationalize RA concepts as best we could. The measures of motivated offenders in the analysis included the *percentage unemployed*, *percentage males aged between 15 and 34*, and a *Services Deprivation Index* (SDI). The latter is a multidimensional deprivation index based on the United Nations Development Program's (2003) parameters for deprivation in each of the five dimensions: type of dwelling; source of water; toilet facilities; refuse or rubbish removal; and energy or fuel for lighting, heating, or cooking. An index was created for each of the five dimensions to measure the relative deprivation of each parameter per suburb in Tshwane. The deprivation index was then calculated as a simple average of the five basic services indexes, with 0 indicating extreme deprivation and 1 indicating affluence. Of course, it is readily acknowledged that not all people residing in neighborhoods characterized by high unemployed and high deprivation will be motivated to commit crime. The variables selected here are merely intended to reflect the increased risk to offending behavior that has previously been shown to characterize less affluent neighborhoods, particularly in South Africa (see Breetzke, 2012a; Breetzke & Cohn, 2012). It is an accepted tenet of criminology that economic conditions (i.e., unemployment, income inequality, poverty) are positively associated with high crime rates (Hsieh & Pugh, 1993) and in South Africa this tenet has been found to be historically true.

Measures of suitable targets include *mean household income* and *proximity to potential burglars*. Numerous studies have found that households with higher income have a greater risk of victimization (see Vélez, 2001; Zhang, Messner, & Liu, 2007). This is usually because an increase in family income represents an increase in disposable income (Andresen, 2006), and a greater number of appliances and goods in the household. The *mean household income* of a suburb should also increase the suitability of potential targets as the greater the household's income presumably the more desirable and valuable are the household contents. Some prior research has provided evidence for this relationship (see Miethe & Meier, 1990; Rice & Smith, 2002). Other research has shown how the likelihood of a suburb being selected for burglary is heightened by its proximity to where offenders live (see Bernasco & Nieuwbeerta, 2005; Bichler, Christie-Merrall, & Sechrest, 2011). If a suburb is relatively close to numerous potential offenders, then that suburb would be more suitable for selection as a target than a suburb located further away. As a result, a measure of *proximity to potential burglars* was calculated for each suburb in Tshwane. This was done using the method of Breetzke and Horn (2009) who constructed an offender risk profiling system for Tshwane based on the geo-demographic profile of 1,870 existing offenders. In their study, the 371 suburbs of Tshwane were classified from high to low risk for offender development on the basis of a number of ecological risk factors. Suburbs classified as high risk for offender development were mainly characteristic of the Black African townships and distinct sociodemographic factors were associated with these high-risk clusters including a low socioeconomic status, low income, and a disrupted family. In the current study, a population-weighted centroid for each suburb was created and the mean distance from this centroid to the ten nearest "high-risk" suburb centroids was used as a measure of suburb proximity

**Table 1.** Descriptive Statistics of the Independent Variables.

|                                          | M          | SD         | Min      | Max        |
|------------------------------------------|------------|------------|----------|------------|
| Percentage unemployed                    | 14.33      | 14.02      | 0        | 53.02      |
| Percentage males (15–34 years old)       | 20.10      | 7.32       | 0        | 67.14      |
| Services Deprivation Index               | .82        | .25        | .01      | 1          |
| Mean household income (ZAR)              | 130,291.66 | 107,488.27 | 0        | 534,528.86 |
| Proximity to potential burglars (m)      | 15,210.44  | 7,627.29   | 1,648.05 | 33,765.17  |
| Population density (people/km$^2$)       | 2,454.95   | 2,770.71   | .72      | 19,912.60  |
| Road density (m/km$^2$)                  | 10,602.34  | 5,264.68   | 263.26   | 37,064.80  |

to potential burglars. Of course, this measure is a proxy of a complex and multidimensional "diffusion" process, and it could be that other measures such as that proposed by Bernasco and Luykx (2003) could be more useful. Unfortunately, police and corrections data sets available in South Africa do not contain detailed data of offenders' addresses or physical movements of offenders, which restrict the construction of more detailed indices to represent this measure.

Three variables were used to capture the measure of guardianship. First, *population density* which is measured as the number of people per kilometer squared. Research examining the role of population density in predicting crime rates has produced mixed results, with some researchers finding a significantly negative relationship between population density and crime patterns (Cahill & Mulligan, 2003, 2007) while others have found a significantly positive relationship (Byrne & Sampson, 1986; Dahlbäck, 1998). These mixed results reflect the fact that while population density can increase the number of potential offenders (and targets) in an area, it can also increase the amount of capable guardians against crime. With respect to burglary, we hypothesize that an increase in population density is expected to have a positive relationship to burglary given that population density can be seen as a surrogate for the distribution of private property, much of which offers attractive targets to burglars (Harries, 2006). Second, *road density* which is defined as the total length of streets in a neighborhood (in meters) divided by the total land area measured in square kilometers. Previous research has shown how the more dense and accessible a suburb is in terms of its street network the more likely it is to be suitable and selectable as a target for burglary (see Armitage, 2007; Johnson & Bowers, 2010). Last, a dummy variable equal to one was used to indicate whether a suburb was partially or fully *gated*. By gated, we mean that the suburb is either a security village or an enclosed neighborhood (for detailed definitions of these two types of gated communities in South Africa, see Landman, 2000). In either event, the land within the suburb that is "gated" is physically protected from nonresidents by walls, and fences or a combination of the two. Moreover, access to these areas is rigidly controlled by means of gates and booms. A total of 43 of the 360 suburbs (12%) of Tshwane were gated as at the end of the 2003 calendar year. The descriptive statistics and bivariate correlations for the independent variables are shown in Tables 1 and 2.

As a caveat to this analysis, it should be noted that the variables used to represent the three elements of the RA theory above are proxies for far more complex social and cultural process that operate at all levels of society. It is these processes and the social conditions they espouse (discrimination, colonialism, racism, sexism) that provide the basis for understanding criminal behavior (Andresen, 2006). The operationalization and selection of variables to represent key theoretical constructs (such as those outlined here) is a widely employed approach to a problem to which there is no obvious solution. There is no doubt that attempting to quantify complex social and cultural process via a series of variables is problematic, but this represents a generic limitation in the geography of crime literature. While this limitation is acknowledged in the present study, this should not take away from the value of undertaking this analysis since the results of this research can provide important insights into these social and cultural processes.

**Table 2.** Bivariate Correlations for the Selected Set of Independent Variables.

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. Percentage unemployed | 1 | | | | | | |
| 2. Percentage males (15–34) | .05 | 1 | | | | | |
| 3. Services Deprivation Index | −.70** | −.12** | 1 | | | | |
| 4. Mean household income | −.73** | −.23** | .59** | 1 | | | |
| 5. Proximity to burglars | −.65** | −.03 | .48** | .56** | 1 | | |
| 6. Population density | .47** | .06 | −.16** | −.32** | −.21** | 1 | |
| 7. Road density | −.05 | .01 | .00 | .05 | .05 | −.01 | 1 |
| 8. Gated | .31** | −.18** | .23** | .29** | .44** | −.10 | .02 |

**Correlation is significant at .01 level (one-tailed).

### Statistical Analysis

Initially, an ordinary least squares (OLS) model was run on the data and tests for autocorrelation in the model's residuals were conducted. The application of OLS regression procedures in the presence of significant spatial autocorrelated error can bias statistical tests and can result in Type I or Type II errors. Spatial autocorrelation was, however, not found to be present in either of the models (see Table 3) and as a result no spatial regression techniques were utilized. The presence of multicollinearity in the models was investigated using the variance inflation factors (VIFs). All values for the VIF were below 5, indicating a lack of excessive multicollinearity (Neter, Wasserman, & Kutner, 1985). The first baseline OLS model in the analysis examined the relationship between day time (07:00 a.m. to 18:59 p.m.) burglaries and measures of RA while the second baseline OLS model examined the relationship between night time (19:00 p.m. to 06:59 a.m.) burglaries and the same measures. The results of both baseline regression models are presented in Table 3 (Columns 1 and 3). The gated neighborhood variable was then added to the baseline equations for day time and night time burglary respectfully in order to gauge its effect individually on each model (Columns 2 and 4 of Table 3).

## Results

This study examined the impact that gated neighborhoods have on rates of residential burglary. More specifically, we were interested in determining whether gated neighborhoods were significantly associated with burglary rates after controlling for a number of potential confounders. The Moran coefficients for both models indicated no spatial relationship occurring between burglary rates across neighborhood areas (see Table 3). This indicated that there was no need to control for spatial autocorrelation in the models. As a result, we ran a series of OLS regressions on the data. For both the day time and night time models, the percentage unemployed, the SDI, the mean household income, and population density measures were found to be positively associated with rates of burglary. No other variables had a statistically significant relationship to burglary at the neighborhood level in either model. The adjusted $R^2$ for both models were weak, with the models explaining only 16% of day time and 19% of night time variation in rates of burglary across neighborhood areas, respectively. After controlling for the RA variables, the gated neighborhoods variable was found to have a positively significant effect on burglary rates ($\beta = 1.551$ and 1.527 in the day time and night time models, respectively; significant at $p < .01$). This unexpected finding suggests that residing in a gated neighborhood in Tshwane actually *increases* your risk of burglary victimization, both during the day and during the night. In an attempt to explain this finding, the "burning times" (see Brantingham & Brantingham, 1999) of residential burglary in gated neighborhoods were compared

**Table 3.** OLS Regression Models of Rates of Burglary and Variables Informed by the Routine Activities Theory ($n = 360$).

| Concept | Variables | Day time | | Night time | |
|---|---|---|---|---|---|
| | | Baseline (1) | Full (2) | Baseline (3) | Full (4) |
| Motivated offenders | % Unemployed | .047 (.020)* | .048 (.019)* | .055 (.019)** | .056 (.019)** |
| | % Males aged 15–34 | −.018 (.019) | −.011 (.019) | −.034 (.019) | −.027 (.019) |
| | Service Deprivation Index | 3.402 (.807)** | 3.565 (.797)** | 3.340 (.796)** | 3.500 (.786)** |
| Suitable targets | Mean household income[a] | .044 (.024)* | .025 (.019) | .049 (.019)* | .030 (.019) |
| | Proximity to potential burglars[a] | .212 (.241) | .158 (.238) | .182 (.237) | .128 (.235) |
| Guardianship | Population density[a] | 2.886 (.583)** | 2.784 (.576)** | 3.196 (.575)** | 3.096 (.567)** |
| | Road density | −.093 (.259) | −.031 (.255) | −.013 (.255) | −.055 (.252) |
| | Gated | — | 1.551 (.464)** | — | 1.527 (.458)** |
| | Adjusted $R^2$ | 16.2 | 18.5 | .191 | .213 |
| | Moran's $I$ on residuals | | .015 | | .017 |

*Note.* [a]Coefficients and *SE* multiplied by 10,000.
*$p < .05$, two-tailed test. **$p < .01$, two-tailed.
Standard error in parentheses.

to nongated neighborhoods. In this instance, burning times are defined as "temporal clusters of crimes at specific, repeated moments in some temporal cycle" (Brantingham & Brantingham, 1999, p. 8). Notwithstanding the fuzzy nature of the measurement of time by policing agencies, the results of this analysis (see Figure 1) indicate no discernable difference in the timing of residential burglary in both gated and nongated neighborhoods. Both neighborhood categories experience a peak in residential burglary in the early hours of the morning (06:00 a.m. to 06:59 a.m.) and in the late evening (23:00 p.m. to 23:59 p.m.). Perhaps, the only notable difference is the slightly higher overall incidence of burglary occurring in gated neighborhoods in the late evening, and early morning hours. The results of this descriptive and analytical analysis are discussed below.

## Discussion

This study examined the impact that gated neighborhoods have on rates of residential burglary in Tshwane, South Africa. This relationship was explored using OLS regression analyses that controlled for several variables informed by RA theory.

In accordance with RA theory, burglary rates were found to be higher in suburbs with relatively high unemployment although suburbs with greater household income were also found to be vulnerable to these types of crime. These findings suggest that both poor and affluent neighborhoods are being targeted by burglars in Tshwane. Poorer neighborhoods in the city are most likely to be characteristic of the Black African townships located on the periphery of Tshwane (see Breetzke & Horn, 2009). Burglars targeting these areas are likely to be more opportunistic and impulsive in committing their crimes in these neighborhoods as the strategies for reducing criminal opportunities are restricted by the financial circumstances of the residents. Empirical findings in the international
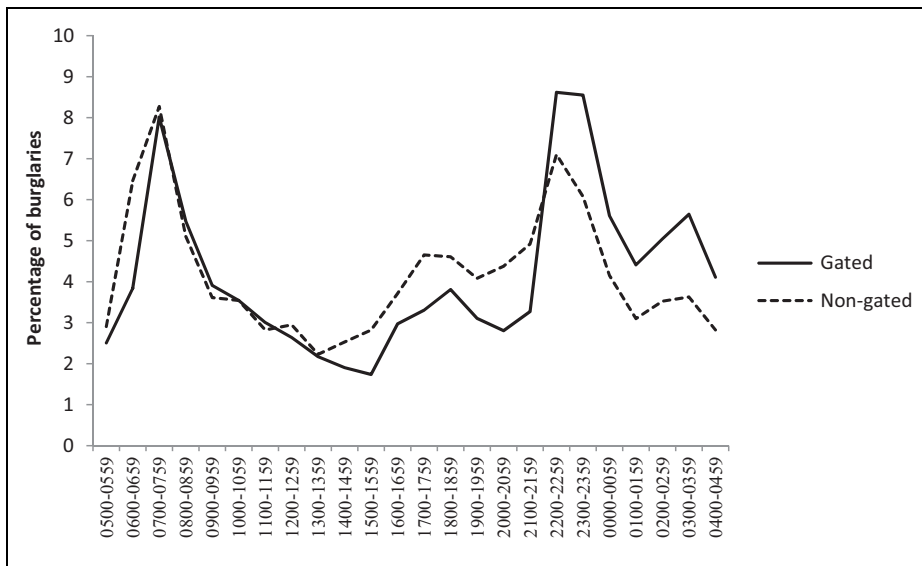
**Figure 1.** Percentage of burglaries by hour in gated and nongated neighborhoods (2003–2006).

literature generally support the notion that poorer neighborhoods are at a greater risk of burglary than more affluent neighborhoods (see Kershaw et al., 2000; Sampson & Groves, 1989). The higher rates of residential burglary in lower income suburbs in Tshwane may be explained, at least in part, by research into the "journey to crime," which has consistently shown that many offenders select targets near their own place of residence, rather than traveling long distances to commit crimes (see e.g., Rengert, 1997; Rengert, Piquero, & Jones, 1999). However, the results of the research also suggest that a portion of burglary occurs in more affluent and gated neighborhoods. These areas are typical of the former Whites-only neighborhoods immediately surrounding the central business district. Burglaries committed here would presumably require more planning and organization as the three interrelated strategies associated with situational crime prevention: access control, surveillance, and territorial reinforcement are likely to be heightened in these neighborhoods. Indeed, researchers have shown how situational crime prevention measures such as neighborhood watch programs and community crime prevention projects are more prevalent and easier to set up in more affluent neighborhoods (Geason & Wilson, 1988).

Interestingly, no relationship was found between the proximity to potential burglars and burglary. The latter finding suggests that burglars are prepared to travel substantial distances in order to find a suitable target. As yet, no research has been conducted in South Africa assessing the criminal distance decay effect; that is, the observed fact that offenders tend to commit crimes nearer rather than farther from their own home. The results of this research provide the first empirical clue that offenders in South Africa may not subscribe to the same offender diffusion process so often found in international research (see e.g., Bernasco & Nieuwbeerta, 2005; Laukkanen & Santtila, 2006; van Koppen & Jansen, 1998). An explanation for this finding is beyond the scope of this article, but it could be related to the unique sociospatial structure of South African cities. Indeed, the fragmented nature of Tshwane, borne out of the inefficiency of apartheid-style urban planning, has resulted in geographically concentrated poverty in the city, often drawn out along racial divides. Since most property offenders in Tshwane reside in the Black African townships located on the periphery of the city (see Breetzke, 2010; Breetzke & Horn, 2006), it would be sensible to assume that offenders emanating from these neighborhoods would need to travel substantial distances in order to target

an affluent neighborhood if profitability was a consideration in the target selection process. After assessing the spatial variation of distance decay models, Eldridge and Jones (1991) concluded that distance decay has a contextual, rather than a universal effect. With regard to this research, it could simply be that the distances traveled by offenders to offence locations are merely a reflection of the unique situational context in which these crimes are occurring. This finding, and interpretation, warrants further academic attention.

Regarding the primary substantive focus of this article, burglary rates in both the day and the night time were found to be higher in gated neighborhoods. The fact that this research is the first of its kind makes it difficult to compare the results obtained with prior local or international research. Locally, however, a recent survey of residents in a large gated community in the town of Krugersdorp in South Africa found that property crime was prevalent in the gated community although most incidences were localized in a few locations (Johannes, 2012). The management of the gated community in question ascribed the crime to casual laborers employed on contracts working in the gated community. Studies in contexts outside South Africa have, however, found no overall reduction in crime in gated communities. In their seminal book *Fortress America: Gated Communities in the United States*, Blakely and Snyder (1997) examined case studies in various different neighborhood contexts in the United States and found no evidence of any general permanent reductions of crime in fully gated communities. In their opinion, not only do gated communities fail to protect residents, but they often cause dissension and controversy in surrounding neighborhoods. Similarly, Wilson-Doenges (2000) found no significant differences in crime rates between gated and nongated areas in both high-income neighborhoods and public housing projects in California. Both these studies, however, relied on individual surveys and/or interviews with gated residents and law enforcement agencies and did not include an empirical examination of recorded crime data. Other evidence suggests that crimes such as burglary do drop in the first year of a neighborhood becoming gated, but then rise back to the level of the areas outside (Fowler & Mangione, 1986). While the results of this research to some extent confirm these findings, it could be that the size and structure of gated neighborhoods in contexts outside of South Africa may make such comparisons futile. This fact notwithstanding, it would certainly be of academic interest to replicate this study in differing contexts, and examining different types of crimes.

From a theoretical perspective, only marginal support was found for RA theory in this research. The positive association between burglary with some concepts of RA theory did lend some support for the theory applied in a South African context; however, there were a number of insignificant findings as well and both models performed poorly. The most notable contradictory finding—and the one most relevant to our research—was that gating a neighborhood was positively associated with rates of burglary. While a discussion of the potential mechanisms explaining this result is speculative at this point, a number of possible explanations are likely. First, since it is typically more affluent sectors of society that reside in gated neighborhoods in Tshwane, it could be that burglars target these suburban enclaves on the presumption that they will get more profitable rewards for their efforts, despite the difficulty in gaining access. Similar to rational choice theory (Cornish & Clarke, 1986), RA theory is premised on the basic assumption of a rational offender carefully weighting the costs and benefits of his or her actions. The results of this research suggest that the material benefits of burglaring a house in a gated neighborhood greatly exceeds the expected costs such as the increased likelihood of being caught. In his earlier work, Clarke (1992) developed a typology that characterized 12 specific crime prevention strategies under three headings: increasing the effort, increasing the risks, and reducing the rewards. Over the years, this typology has been revised and expanded and two additional categories of situational prevention strategies have been added: reducing the provocations and removing excuses (Clarke, 2009; Clarke & Eck, 2003). The idea is that as you modify the physical environment in terms of these situational crime prevention strategies, you reduce the risk of victimization of crime. In theory, by residing in a gated neighborhood you are

increasing the effort required by an offender to commit an offence; you are also increasing the risks required to be undertaken by an offender, and as a result the threat of crime in gated neighborhoods should be lowered. In practice, however, the reality has been the antithesis and this situational crime prevention measure has been found to heighten the risk of victimization rather than lower it. Incidentally, other research in South Africa has led to similar findings (see Centre for the Study of Violence and Reconciliation, 2007; Zinn, 2008).

Of course, the explanation provided above is based on the assumption that burglars come from *outside* gated communities to commit a burglary. While it is likely that some burglars do travel from other areas of the city to target residences within a gated community, it is also possible that, as pointed out by Johnson et al. (2007), many burglars are choosing to commit crimes in these locations because they are already familiar with them. In fact, anecdotal evidence suggests that individuals residing *within* gated communities in South Africa are increasingly responsible for crimes committed inside these communities. Such individuals either act alone or facilitate the commission of the burglary by giving the offender access to the gated community (via a security code) and/or allow the offender to offload stolen property at their residence and allow them to retrieve the goods later on. Research investigating this phenomenon is lacking but the high incidences of burglaries in gated communities despite the formidable physical security measures in place would suggest that this type of collaboration is likely. While almost all gated neighborhoods in South Africa have strict access control measures, any individual can gain access to the gated neighborhood if a resident grants them access via a security code. Other types of individuals are also allowed unlimited access, including domestic workers, municipal workers, telecommunication staff, construction workers, garden and repair and delivery services, thus making the neighborhood far from secure from nonresidents. The fact that an individual such as an "insider" can facilitate the commission of a criminal act has some theoretical implication for RA theory. As previously mentioned, RA theory is built around the premise that the convergence in space and time of a motivated offender and a suitable target, in the absence of capable guardians will increase the likelihood of crime occurring. These three elements are often referred to as "the crime triangle" (Lersch & Hart, 2011) with each element represented on one side of the triangle. In a later version of the crime triangle, an outer triangle is added which addresses the issue of controllers (i.e., handlers, managers, and guardians)—all individuals who have a responsibility to monitor each aspect of the original crime triangle (Eck, 1994). Of course, these controllers all play an inhibitory role in the perpetration of a crime; for example, a handler could be a parent or relative who exerts a positive influence over a potential offender, while a manager could be a bouncer at a night club that ensures that no disorderly behavior occurs at the premises. It could also be however that there are other individuals who rather play either a direct or indirect *facilitatory* role in the commission of a crime. For example, in this study the "insider" could be someone who may not directly participate in the commission of a crime but has some association with the offender and can exercise some control of whether or not the criminal act will occur. An individual residing within a gated community and collaborating with an "outside" offender to commit a burglary would heavily influence the convergence in space and time of the three elements of the RA theory.

## A New Crime-Driven Urban Apartheid Spatiality

While the theoretical implications of these results are important, there is another salient issue to consider. This issue relates mainly to the underlying environmental backcloth upon which crime occurs in South Africa. Brantingham and Brantingham (1993) refer to the environmental backcloth as the myriad of social, psychological, physical, and temporal elements which must be taken into account when exploring the etiology of criminal events. Space is not featureless and unchanging but is rather dynamic and consists of an infinite number of elements that surround and are a part of an individual and that may be influenced by or influence his or her criminal behavior. With regard to

this research, the social element is perhaps the most applicable when attempting to understand the surprising results found. Indeed, previous research has suggested that it is the underlying social fabric of South African society that can be used to understand the magnitude and nature of crime in the country (see Breetzke, 2012b). Breetzke argues that macrosocial patterns of racial and spatial inequalities, borne out of repressively enforced apartheid-era segregationist policies, can be used to explain the high levels of crime in postapartheid South Africa. Unfortunately, these spatially defined inequalities still persist (and in some instances have widened) more than 20 years after the end of apartheid. These inequalities are again evident when one examines the racial composition in gated communities. Approximately 75% of residents in gated communities in Tshwane are White, despite Whites representing less than 40% of the overall population of the city. Not a single historically Black neighborhood has been converted into a gated community, while all 43 gated communities used in this research were formerly Whites-only neighborhoods. This retreat of predominantly White, middle-class families into gated communities in South Africa perpetuates the already exist-ing "us versus them" racial stigma that is often attached to crime in South Africa (Allen, 2002).

Of course, residents of gated communities have argued that their retreat into these fortified enclaves is a direct and natural response to a corrupt and largely ineffective policing agency (see Johannes, 2012). While this may be correct and to some extent understandable, there is little doubt that these communities not only exacerbate existing patterns of spatial segregation and social exclu-sion historically evident in most South African cities but seem to be representing a new form of urban apartheid. As Mabin (2005, p. 51) describes:

> The new compounds of urban South Africa, representing tightly defended social segregation . . . . [and] are a response to the failure of the state to maintain the quiet conditions of white suburban life of the not-too-distant past.

Breetzke (2012b) mentions how apartheid's urban spatiality continues to shape and define the urban landscape in South Africa. Ironically, now, the historically concentrated disadvantage of the majority Black population in certain segregated geographical areas under apartheid is replaced with the concentrated advantage of the minority White population in certain segregated geographical areas postapartheid. With relevance to this work, the irony is that such areas are not free from crime at all but rather exhibit a greater risk of victimization.

## Conclusion

The main goal of this research was to examine the impact that gated neighborhoods had on rates of residential burglary. In accomplishing this goal, the study has made several important contribu-tions to the existing criminological literature. First, this study has demonstrated that residing in a gated neighborhood does not necessarily reduce your risk of burglary victimization but can, in some instances, even increase it. Of course, this study has examined the association between burglary and gated communities in one major metropolitan area in South Africa. It is probably that the findings therefore are not necessarily generalizable to gated communities in other countries or even to gated communities in other South African cities. It could be that gated communities in other contexts could provide residents with greater protection from burglars than was shown in this study. Second, the study has demonstrated that burglars target gated neighborhoods both during the day and during the night; and at similar times to nongated neighborhoods. The implications of these findings are signif-icant especially since it appears as if burglars do not see gating as a deterrent or an obstacle in their pursuit of illegal gains. Of course, there are various other factors that offenders consider when asses-sing the suitability of a target for burglary but within a larger target area the gating of a community has no inhibitory effect. Third, the study has raised some doubt as to applicability of RA theory when

attempting to explain crime phenomena in South Africa. While certainly not a central aim of the study, preliminary results suggest that the RA framework does not adequately explain burglary rates in South Africa. While some results were consistent with expectations provided under the RA framework, overall both models results were weak. Future research could aim to utilize more sophisticated models to tease out these theoretical anomalies and demonstrate ways in which other ecological characteristics of neighborhoods could influence burglary patterns in contexts outside the United States.

Finally, it is important to consider the limitations of this study. First, the two types of gated communities that exist in South Africa, security villages and enclosed neighborhoods, were grouped together in our analysis. It is, therefore, possible that the impact of a gated community on residential burglary varies by type of community; the different physical layouts and security protocols used may contributed to the observed levels of burglary within and without these communities. While we acknowledge this limitation, the main aim of this research was to determine the extent to which gating in general serves as an effective capable guardian against burglary and to begin to examine the veracity of the general belief that living in a gated community reduces one's risk of victimization. Unfortunately, data differentiating the two types of gated communities were not available to us at this time. However, future research will examine the impact of individual types of secure communities on crime levels. Second, as has been noted above, the variables used to represent the key elements of RA theory are merely surrogates for the more intricate and multifaceted social processes and social conditions that exist in society. Third, it is possible that victims of burglary who reside in gated communities may be more likely to report their victimization to the police. Researchers (see e.g., Skogan, 1984; Tarling & Morris, 2010) have noted that the decision to report a crime is affected by a "cost–benefit" analysis on the part of the victim and have found that higher socioeconomic status on the part of the victim increases the likelihood of police reporting. It may be that residents of less affluent nongated communities are more likely to consider the costs of reporting, such as the time required and the risk of retaliation, to be greater than the benefits (e.g., property recovery, insurance), while the reverse may be true for those victims living in gated communities. Finally, as previously mentioned, the study is limited to one city in South Africa and to the types of gated communities that exist in that city. Whether the results of this research are generalizable to the entire country or to other nations which may have different types of secure communities is debatable. What is clear however is that additional research investigating the impact of gated communities on burglary needs to be conducted in other cities and contexts.

## Declaration of Conflicting Interests

## Funding

## Notes

1. In this study, we define a gated community as any residential area that physically restricts the entrance of nonresidents. In South Africa, it is possible to broadly distinguish between security villages and enclosed neighborhoods. Security villages include different types of private developments with various uses, ranging from small enclosed apartment buildings and townhouse complexes to large office parks, shopping malls, and luxury estates. Security villages are physically walled or fenced off and usually have a controlled access point with a security guard. Enclosed neighborhoods are existing neighborhoods that have been closed off in retrospect.

2.  It is readily acknowledged that the crime data used in this research are fairly aged. These data are however spatially replete and provide an accurate description of the incidence of burglary in Tshwane.
3.  In this study, we excluded other types of burglary as well as attempted burglaries of any kind.

## References

Allen, D. B. (2002). Race, crime and social exclusion: A qualitative study of white women's fear of crime in Johannesburg. *Urban Forum*, *13*, 53–80.

Andresen, M. (2006). A spatial analysis of crime in Vancouver, British Columbia: A synthesis of social disorganization and routine activity theory. *The Canadian Geographer*, *50*, 487–502.

Armitage, R. (2007). Sustainability versus safety: Confusion, conflict and contradiction in designing out crime. In G. Farrell, K. Bowers, S. D. Johnson, & M. Townsley (Eds.), *Imagination for crime prevention: Essays in honour of Ken Pease. Crime prevention studies* (pp. 81–110). Monsey, NY: Criminal Justice Press and Willan.

Atkinson, R., Blandy, S., Flint, J., & Lister, D. (2004). *Gated communities in England*. London, England: Office of the Deputy Prime Minister.

Atkinson, R., & Smith, O. (2012). An economy of false securities? An analysis of murders inside gated residential developments in the United States. *Crime Media Culture*, *8*, 161–172.

Atlas, R., & LeBlanc, W. G. (1994). The impact on crime of street closures and barricades: A Florida case study. *Security Journal*, *5*, 140–145.

Bernasco, W., & Luykx, F. (2003). Effects of attractiveness, opportunity and accessibility to burglars on residential burglary rates of urban neighborhoods. *Criminology*, *41*, 981–1002.

Bernasco, W., & Nieuwbeerta, P. (2005). How do residential burglars select target areas? A new approach to the analysis of criminal location choice. *British Journal of Criminology*, *44*, 296–315.

Bichler, G., Christie-Merrall, J., & Sechrest, D. (2011). Examining juvenile delinquency within activity space: Building a context for offender travel patterns. *Journal of Research in Crime and Delinquency*, *48*, 472–506.

Blakely, E. J., & Snyder, M. G. (1997). *Fortress America*. Washington, DC: Brookings Institution.

Blakely, E. J., & Snyder, M. G. (1998). Separate places: Crime and security in gated communities. In M. Felson & R. B. Peiser (Eds.), *Reducing crime through real estate development and management* (pp. 53–70). Washington, DC: Urban Land Institute.

Blandy, S. (2007). Gated communities in England as a response to crime and disorder: Context, effectiveness and implications. *People, Place & Policy Online*, *1*, 47–54.

Blandy, S., & Parsons, D. (2002). *Gated communities and urban planning: Globalisation or national policy*. Paper presented at the 17th IAPS Conference, Coruna, Spain, 23–27 July.

Brantingham, P. L., & Brantingham, P. J. (1993). Nodes, paths and edges: Considerations on the complexity of crime and the physical environment. *Journal of Environmental Psychology*, *13*, 3–28.

Brantingham, P. L., & Brantingham, P. J. (1999). A theoretical model of crime and hot spot generation. *Studies on Crime and Crime Prevention*, *8*, 7–26.

Breetzke, G. D. (2010). Modeling violent crime rates: A test of social disorganization in the city of Tshwane, South Africa. *Journal of Criminal Justice*, *38*, 446–452.

Breetzke, G. D. (2012a). The effect of altitude and slope on the spatial patterning of burglary. *Applied Geography*, *34*, 66–75.

Breetzke, G. D. (2012b). Understanding the nature of crime in post-apartheid South Africa. *Social Identities: Journal for the Study of Race, Nation, and Culture*, *18*, 1–17.

Breetzke, G. D., & Cohn, E. G. (2012). Seasonal assault and neighborhood deprivation in South Africa: Some preliminary findings. *Environment & Behavior*, *44*, 641–667.

Breetzke, G. D., & Horn, A. C. (2006). Crossing the racial divide: A spatial-ecological perspective of offenders in the City of Tshwane Metropolitan Municipality, South Africa. *GeoJournal*, *67*, 181–194.

Breetzke, G. D., & Horn, A. C. (2009). A geodemographic profiler for high offender propensity areas in the city of Tshwane, South Africa. *Environment and Planning A*, *41*, 112–127.

Byrne, J. M., & Sampson, R. J. (1986). Key issues in the social ecology of crime. In J. M. Byrne & R. J. Sampson (Eds.), *The social ecology of crime* (pp. 1–22). New York, NY: Springer-Verlag.

Cahill, M. E., & Mulligan, G. F. (2003). The determinants of crime in Tucson, Arizona. *Urban Geography*, *24*, 582–610.

Cahill, M. E., & Mulligan, G. F. (2007). Using geographically weighted regression to explore local crime patterns. *Social Science Computer Review*, *25*, 174–193.

Caldeira, T. P. R. (2000). *City of walls: Crime, segregation and citizenship in Sao Paulo*. Berkeley: University of California Press.

Centre for the Study of Violence and Reconciliation. (2007). *The violent nature of crime in South Africa*. Pretoria: South African Department of Safety and Security.

Clare, J., Fernandez, J., & Morgan, F. (2009). Formal evaluation of the impact of barriers and connectors on residential burglars' macro-level offending location choices. *Australian and New Zealand Journal of Criminology*, *42*, 139–158.

Clarke, R. V. (1992). *Situational crime prevention: Successful case studies*. Albany, NY: Harrow and Heston.

Clarke, R. V. (2009). Situational crime prevention: Theoretical background and current practice. In M. D. Krohn, A. J. Lizotte, & G. Penly (Eds.), *Handbook on crime and deviance* (pp. 259–276). New York, NY: Springer.

Clarke, R. V., & Cornish, D. B. (1985). Modeling offenders' decisions: a framework for research and policy. In M. Tonry & N. Morris (Eds.), *Crime and justice: An annual review of research* (Vol. *6*, pp. 147–185). Chicago, IL: University of Chicago Press.

Clarke, R. V., & Eck, J. (2003). *Become a problem-solving crime analyst*. London, England: Jill Dando Institute of Crime Science, University College London. Retrieved from http://www.popcenter.org/library/reading/pdfs/55stepsUK.pdf

Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, *44*, 588–608.

Cornish, D., & Clarke, R. V. (1986). *The reasoning criminal*. New York, NY: Springer-Verlag.

Cornish, D., & Clarke, R. V. (1987). Understanding crime displacement: An application of rational choice theory. *Criminology*, *25*, 933–947.

Coupe, T., & Blake, L. (2006). Daylight and darkness targeting strategies and the risks of being seen at residential burglaries. *Criminology*, *44*, 431–464.

Dahlbäck, O. (1998). Modelling the influence of societal factors on municipal theft rates in Sweden: methodological concerns and substantive findings. *Acta Sociologica*, *31*, 37–57.

Dillon, D. (1994). Fortress America: more and more of us living behind locked gates. *Planning*, *60*, 2–8.

Dixon, J., Dupois, A., & Lysnar, P. (2004). Gated communities: Urban innovation or fortification? *Planning Quarterly*, *152*, 9–12.

Eck, J. E. (1994). *Drug markets and drug places: A case-control study of the spatial structure of illicit drug dealing*. Doctoral dissertation, Department of Criminology and Criminal Justice, University of Maryland, College Park, MD.

Eldridge, J. D., & Jones, J. P. (1991). Warped space: The geography of distance decay. *Professional Geographer*, *43*, 500–511.

Federal Bureau of Investigation. (2012). *Crime in the United States, 2010*. Retrieved from http://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2010/crime-in-the-u.s.-2010/index-page

Fowler, F. J., , Jr., & Mangione, T. W. (1986). A three-pronged effort to reduce crime and fear of crime: The Hartford experiment. In D. P. Rosenbaum (Ed.), *Community crime prevention: Does it work?* (pp. 87–108). Newbury Park, CA: Sage.

Garofalo, J., & Clark, D. (1992). Guardianship and residential burglary. *Justice Quarterly*, *9*, 443–463.

Geason, S., & Wilson, P. R. (1988). *Crime prevention: Theory and practice*. Canberra: Australian Institute of Criminology.

Geniş, S. (2007). Producing elite localities: The rise of gated communities in Istanbul. *Urban Studies*, *44*, 771–798.

Glasze, G., & Alkhayyal, A. (2002). Gated housing estates in the Arab world: Case studies in Lebanon and Riyadh, Saudi Arabia. *Environment and Planning B: Planning and Design*, *29*, 321–336.

Groff, E., & McCord, E. S. (2011). The role of neighborhood parks as crime generators. *Security Journal*, *25*, 1–24.

Harries, K. (2006). Property crimes and violence in the United States: An analysis of the influence of population density. *International Journal of Criminal Justice Sciences*, *1*, 24–34.

Hough, M. (2003) Crime in South Africa: Is it a threat to national security? In M. Hough & A. Du Plessis (Eds.), *Combating crime in South Africa: Contemporary perspectives*. Pretoria, South Africa: Institute for Strategic Studies.

Hsieh, C., & Pugh, M. D. (1993). Poverty, income inequality, and violent crimes: A meta-analysis of recent aggregate studies. *Criminal Justice Review*, *18*, 182–202.

Human Science Research Council. (2006). *South African social attitudes survey 2006*. Pretoria, South Africa: HSRC Press.

Johannes, L. (2012). *Gated communities in South Africa: The case of Featherbrooke*. Unpublished MA thesis, Department of Political Science, University of the Witwatersrand.

Johnson, S. D., & Bowers, K. (2010). Permeability and burglary risk: Are cul-de-sacs safer? *Journal of Quantitative Criminology*, *26*, 89–111.

Johnson, S. D., Bernasco, W., Bowers, K. J., Elffers, H., Ratcliff, J., Rengert, G., & Townsley, M. (2007) Space-time patterns of risk: A cross-national assessment of residential burglary victimization. *Journal of Quantitative Criminology*, *23*, 201–219.

Jürgens, U., & Gnad, M. (2002). Gated communities in South Africa – experiences from Johannesburg. *Environment and Planning B: Planning and Design*, *29*, 337–353.

Kershaw, C., Budd, T., Kinshott, G., Mattinson, J., Mayhew, P., & Myhill, A. (2000). *The 2000 British crime survey*. London, England: Home Office.

Landman, K. (2000). *An overview of enclosed neighborhoods in South Africa*. Pretoria, South Africa: Council for Scientific and Industrial Research.

Landman, K., & Schönteich, M. (2002). Gated communities as a reaction to crime. *South African Security Review*, *11*, 71–85.

Laukkanen, M., & Santtila, P. (2006). Predicting the residential location of a serial commercial robber. *Forensic Science International*, *157*, 71–82.

Lee, M., & Herborn, P. (2003). The role of place management in crime prevention: Some reflections on governmentality and government strategies. *Current Issues in Criminal Justice*, *15*, 26–39.

Leisch, H. (2000). Gated communities in Indonesia. *Cities*, *19*, 341–350.

Lersch, K. M., & Hart, T. C. (2011). *Space, time and crime* (3rd ed.). Durham, NC: Carolina Academic Press.

Low, S. M. (2001). The edge and the center: Gated communities and the discourse of urban fear. *American Anthropologist*, *103*, 45–58.

Low, S. M. (2003). *Behind the gates: Life, security, and the pursuit of happiness in fortress America*. New York, NY: Routledge.

Mabin, A. (2005). Suburbanisation, segregation and government of territorial transformations. *Transformation*, *56*, 41–64.

Marcuse, P. (1997). Walls of fear and walls of support. In N. Ellin (Ed.), *Architecture of fear* (pp. 101–114). New York, NY: Princeton Architectural Press.

Meier, R. F., & Miethe, T. D. (1993). Understanding theories of criminal victimization. In M. Tonry (Ed.), *Crime and justice: A review of research* (pp. 459–499). Chicago, IL: University of Chicago Press.

Miao, P. (2010). Deserted streets in a jammed town: The gated community in Chinese cities and its solution. *Journal of Urban Design*, *8*, 45–66.

Miethe, T. D., & Meier, R. F. (1990). Opportunity, choice, and criminal victimization: A test of a theoretical model. *Journal of Research in Crime and Delinquency*, 27, 243–266.

Naudé, B. (2003). The effectiveness of public road closures in suburban areas as a crime reduction measure. *Security Focus*, 21, 34–36.

Neter, J., Wasserman, W., & Kutner, M. H. (1985). *Applied linear statistical models* (2nd ed.). Homewood, IL: Irwin.

Peeters, M. P., & Elffers, H. (2010). Do physical barriers affect urban crime trips? *Crime Patterns and Analysis*, 3, 38–49.

Plaut, P. O. (2011). The characteristics and tradeoffs of households choosing to live in gated communities. *Environment and Planning B: Planning and Design*, 38, 757–775.

Ratcliffe, J. H. (2003). *Suburb boundaries and residential burglars* (No. 246). Canberra, Australia: Australian Institute of Criminology.

Rengert, G. F. (1997). Auto theft in central Philadelphia. In R. Homel (Ed.) *Policing for prevention: Reducing crime, public intoxication and injury* (pp. 199–219). Monsey, NY: Criminal Justice Press.

Rengert, G. F., Piquero, A. R., & Jones, P. R. (1999). Distance decay reexamined. *Criminology*, 37, 427–445.

Rice, K. J., & Smith, W. R. (2002). Socioecological models of automotive theft: Integrating routine activity and social disorganization approaches. *Journal of Research in Crime and Delinquency*, 39, 304–336.

Roitman, S., & Giglio, M. A. (2010). Latin American gated communities: The latest symbol of historical social segregation. In S. Bagaeen & O. Uduku (Eds.), *Gated communities: Social sustainability in contemporary and historical gated developments* (pp. 63–78). London, England: Earthscan Ltd.

Rosen, G., & Razin, E. (2009). The rise of gated communities in Israel: Reflections on changing urban governance in a neoliberal era. *Urban Studies*, 46, 1703–1723.

Sampson, R. J., & Groves, W. B. (1989). Community structure and crime: testing social disorganization theory. *American Journal of Sociology*, 94, 774–802.

Sheinbaum, D. (2008). Gated communities in Mexico City: An historical perspective. *Urban Design International*, 13, 241–252.

Skogan, W. G. (1984). Reporting crimes to the police: The status of world research. *Journal of Research in Crime and Delinquency*, 21, 113–137.

South African Police Services. (2012). Murder in RSA for April to March 2004/2005 to 2011/2012. Retrieved from http://www.saps.gov.za/statistics/reports/crimestats/2012/categories/murder.pdf

Statistics South Africa. (2003). *Census2001*. Pretoria, South Africa: Author.

Tarling, R., & Morris, K. (2010). Reporting crime to the police. *British Journal of Criminology*, 50, 474–490.

Uduku, O. (2010). Lagos: 'Urban gating' as default condition. In S. Bagaeen & O. Uduku (Eds.), *Gated communities: Social sustainability in contemporary and historical gated developments*. London, England: Earthscan Ltd.

United Nations Development Program. (2003). *South Africa human development report 2003*. Cape Town, South Africa: Oxford University Press.

United Nations Office on Drugs and Crime. (2011). *2011 global study on homicide: Trends, contexts, data*. Vienna: Author.

Van Koppen, P., & Jansen, R. (1998). The road to robbery: Travel patterns in commercial robberies. *British Journal of Criminology*, 38, 230–247.

Vélez, M. B. (2001). The role of public social control in urban neighbourhoods: A multi-level analysis of victimization risk. *Criminology*, 39, 837–864.

Vesselinov, E. (2008). Members only: Gated communities and residential segregation in the metropolitan United States. *Sociological Forum*, 23, 536–555.

Wilson-Doenges, G. (2000). An exploration of sense of community and fear of crime in gated communities. *Environment and Behavior*, 32, 597–611.

Zhang, L., Messner, S. F., & Liu, J. (2007). A multilevel analysis of the risk of household burglary in the city of Tianjin, China. *British Journal of Criminology*, *47*, 918–937.

Zinn, R. (2008). *The incidence of house robberies in South Africa*. Unpublished Doctoral Thesis, University of South Africa (UNISA), South Africa.

## Author Biographies

**Gregory D. Breetzke**, PhD, is a senior lecturer at the University of Canterbury in Christchurch, New Zealand. His research interests are situated in environmental criminology. Focus areas include crime mapping and analysis, geodemographic offender and offence profiling, and crime policy and prevention.

**Ellen G. Cohn**, PhD, is an associate professor in criminal justice at Florida International University, in Miami, Florida. Her primary area of research is environmental criminology, with an emphasis on the impact of weather, temporal, and spatial variations on crime and criminal behavior. She also conducts research into scholarly productivity and influence in criminology and criminal justice.