

## THE RELATIONSHIP BETWEEN CRIME AND PRIVATE SECURITY AT US SHOPPING CENTERS

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**ABSTRACT:** *This paper uses self-report data from the 1993 National Shopping Center Security Survey to examine the growing problem of crime at shopping centers located in the United States. Security managers from 369 shopping centers provided data on crime incidents, private security measures, and numerous shopping center demographic measures. Data are analyzed via LISREL using bivariate regression modeling. Results show that there is no direct relationship between the private security measures at the shopping center and the occurrence of property, violent, or public order crimes on the premises. Instead, private security presence is shaped by the size of the shopping center. Direct effects were also found between the incidence of crime on the premises and the size of the shopping center and the presence of various "problematic" persons (i.e., gangs and loitering groups of youth). Possible implications for shopping center security are considered.*

### INTRODUCTION

The nature of retail shopping activity in the US has changed significantly in the post-World War II era. Several social scientists (e.g., Feagin & Parker, 1990; Felson, 1994; Kowinski, 1985; Robertson, 1990) have documented how the urban central business district has gradually evolved into a divergent suburban shopping metropolis. Despite numerous expensive, urban shopping district renewal experiments in many US cities and towns, the traditional main street has gradually been replaced by the suburban strip shopping centers and large enclosed malls. Driven by the demographic pressure of post-war popula-

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tion growth, inexpensive suburban tract housing, and the widespread availability of the family automobile, down town retail stores have been relocated on what Felson (1994) refers to as the edge of "the great metropolitan reef." In an attempt to be close to their newly mobile customers and to avoid high property taxes and land costs, retail developers have constructed thousands of strip shopping centers and enclosed malls on suburban the fringes of metropolitan centers.

Ironically, US suburban shopping malls and their adjacent neighborhoods are facing some of the same problems that precipitated the earlier downfall of the central business district. One of the more visible of these social problems is an increase in suburban crime (Stahura & Hollinger, 1988; Stahura & Huff, 1981, 1986; Stahura & Sloan, 1988). In addition to attracting thousands of potential customers, large suburban shopping centers are being recognized for their ability to appeal to the criminal element as well. Just beneath the facade of a placid shopping environment, there often exists the threat of gang violence, abductions, carjackings, armed robberies, sexual assaults, homicide and crimes by and against young children.

There are several features present at most shopping centers that make them suitable targets for criminal activity. For example, their vast parking lots and unsupervised enclosed garages offer out of the way places for offenders to perpetrate attacks. The millions of persons that visit shopping centers each day enter carrying large amounts of cash, credit cards, and checks and then leave carrying valuable merchandise. The upscale architecture and suburban location of the shopping center or mall can lull visitors into a false sense of security, thus resulting in behaviors that place them at increased risk of crime. In every respect, this population represents an attractive pool of potential crime victims.

For the most part, shoppers are not afforded much protection from the police. Law enforcement efforts to target shopping centers are complicated by the fact that these centers are almost exclusively located on private property. As such, shopping centers are defended primarily by private security personnel and often are afforded only sporadic public police patrols.

During the past few years, the national news media have documented what appears to be a growing proliferation of serious criminal activity perpetrated at or near suburban shopping centers and malls. A review of the retail industry trade literature (Hazel, 1992; Hyde, 1978; Phillips & Cochrane, 1988; Poole, 1991; Whyte, 1988; Wilson, 1992) suggests that increasing numbers of unfavorable tort judgments and publicly reported crime incidents have prompted shopping center managers, real estate developers, and the shopping public to become more concerned about the safety of these facilities. In an attempt to

quell public fears, many mall owners have launched public relations campaigns that actively publicize what they are doing to protect the shopping public and retail store tenants.

While the majority of shopping centers remain safer than most city streets, the owners and managers of US shopping centers have become increasingly concerned that the perceptions and/or realities of an increasingly violent society will permeate on their properties. In the 1990s, we have witnessed an industry wide effort to upgrade security measures. In many cases, shopping center managers have turned to technological advancements to assist them in their crime prevention efforts. As a result, many centers are now equipping their premises with state-of-the-art security hardware such as sophisticated CCTV camera systems, motion detector devices, "panic buttons," and emergency telephones.

There has also been a sustained movement to upgrade the level of security personnel at the mall. This has been accomplished principally by increasing the patrol coverage and/or training of private security guards. Some centers have even encouraged local police to locate substations within the shopping center, often free of rent. Shopping center managers also have made efforts to upgrade the resources available to their private security forces, adding security hardware such as beepers, two-way radios, security vehicles, and a host of other crime-fighting tools. Finally, the scope of private security forces' duties have been expanded in many cases to include such new responsibilities as customer escort services, valet parking, parking lot patrols, and automotive assistance (towing) services. All of the above efforts suggest that shopping center owners and managers are taking their security responsibilities more seriously. Unfortunately, there have been no reliable sources of empirical data regarding crime prevalence with which to evaluate security efforts at the shopping center. In fact, this topic that has remained largely outside of the realm of criminological inquiry.

There does exist, however, considerable ecologically based research and theory that can help inform us how and why shopping centers attract crime. Perhaps the most popular contemporary variation of these ecologically based approaches to crime causation is known as the routine activities approach. Formulated in 1979 by Cohen and Felson, this model attempts to explain the occurrence of crime using a combination of human ecology, rational choice, and deterrence concepts. Cohen and Felson observe that crime is unevenly distributed across time and space. They argue that the level of crime at a given time and place is a function of three necessary social conditions: (1) the availability of suitable targets to victimize, (2) the presence of motivated offenders to commit the crimes, and (3) the absence of capable guardians to deter

potential deviant behavior. Hence, Cohen and Felson postulate that the prevalence of crime will be highest at times and places where all three of these conditions are present and lowest at times and places where they are not.

There are several appealing characteristics of the routine activities approach. First, it has a parsimonious conceptual framework. The occurrence of crime is dependent upon only three necessary conditions — suitable targets, motivated offenders, and capable guardians. Second, this conceptual framework incorporates all of the logically necessary elements required in the crime causation nexus, namely, the presence of a victim target, perpetrator, and minimal certainty of detection. Collectively, these characteristics afford scholars a high degree of flexibility in terms of the type of offenses, offenders, and victims, as well as the geographic unit of analysis that they can choose to analyze from a routine activities perspective. A review of the existing routine activities literature reveals that the theory has been relatively successful in explaining how certain types of locations and/or the social/ecological characteristics therein relate to the rate variations of a broad variety of crime types (Kennedy & Forde, 1990; Massey, Krohn & Bonati, 1989; Messner & Tardiff, 1985; Miethe, Stafford & Long, 1987; Roncek, 1981; Roncek & Faggiani, 1985; Roncek & Lobosco, 1983; Roncek & Maier, 1991; Sampson & Wooldredge, 1987; Stahura & Hollinger, 1988; Stahura & Sloan, 1988).

Numerous other scholars have examined the empirical relationship between specific social environments and crime rates. Other examples include, but are not limited to, the following: Oscar Newman's defensible space theory (Newman, 1972; Newman & Franck, 1980, 1982); crime prevention through environmental design as described by Jeffery (1971) and his colleagues (Duffala, 1976; Molumby, 1976); the situational crime prevention faction associated with Clarke (1992), research that focuses on criminal mobility and the journey to crime (Costanza, Halperin & Gale, 1986; Figlio, Hakim & Rengert, 1986; Rand, 1986); environmental criminology (Brantingham & Brantingham, 1978, 1981b); the notion of criminogenic hot spots (Sherman, Gartin & Buerger, 1989); and, finally, the Brantinghams' conception of urban nodal points of crime (Brantingham & Brantingham, 1981a). While there are substantive differences among each of the above variants of the applied human ecology tradition, they all are driven by the primary goals of either describing the geographic distribution of crime events or preventing specific types of offenses in specific types of locations.

The present analysis attempts to forward our understanding of the human ecology approach to crime. Relying on a national survey of crime incidents reported occurring at US shopping centers, this article

examines the nature and extent of crime present at these centers. Specifically, we use LISREL modeling techniques to explore the relationship between crime rates, private security, and a host of other environmental risk factors that exist at US shopping centers.

## METHODS

### Sample

Reporting inconsistencies that exist between private security and public law enforcement agencies prevent the creation of reliable official crime statistics for shopping centers. Moreover, the shopping center industry's fear of negative publicity has consistently hindered efforts to conduct a self-study of the levels of crime and security measures among industry members. The 1993 University of Florida National Shopping Center Security Survey sought to address this issue by querying directly the mall managers of major US shopping centers and asking them to report their experiences with crime as well as the state of their existing security efforts (Hollinger & Hayes, 1993).

Our survey population was derived from the Directory of Major Malls (1993). This annually updated commercial directory provides basic demographic information on all existing and proposed strip shopping centers and enclosed malls in the US and Canada. In fall 1993, the managers of all US malls and shopping centers with a gross leasable area (GLA) of 250,000 square feet or greater ( $N = 2,227$ ) were identified. Each shopping center was then mailed a self-administered, anonymous questionnaire.

### Procedures

The data collection materials were disseminated via a two-stage mailing procedure. First, each of the potential shopping center managers was sent, via first-class mail, a packet containing a cover letter, a four-page questionnaire, a business reply return envelope, and a business reply postcard. These materials were addressed to the "mall manager or director of security" and sent to the management offices of each shopping center or mall as listed in the Directory of Major Malls (1993). Two weeks after the initial mailing, each potential respondent was sent a reminder postcard thanking those who had already completed their questionnaires and encouraging those who had not to reconsider participating in the study. Due to inaccuracies in the mailing list, 27 questionnaire packets were unable to reach their intended destinations because of incorrect addresses. This reduced the population of potential respondents to 2,227. Completed questionnaires were returned from 369

respondents. Thus, the response rate of this study was determined to be 16.8%.

A nationwide, self-reported crime survey of retail shopping centers of this magnitude was nearly unprecedented (the exception is Hyde, 1978). As such, evaluating the representativeness of our survey respondents provided a special methodological challenge. When compared to self-reported survey of individuals, we recognize that our response rate is low – far below the 50%-75% standards that are used for mailed, self-reported surveys of individuals. However, we believe that directly comparing the response rate of this survey with those achieved by mailed surveys of individuals is not appropriate. This is a survey of formal organizations (i.e., retail business corporations), not individuals. We argue that this is a critical distinction. In surveys of individuals, the researchers must calculate and appraise response rates that are based on a sample of the population. Response rates of 50%-75% are required to assure freedom from sampling bias. In the present survey, our sampling frame included the entire universe of potential respondents, nearly 17% of which actually participated.

We had at our disposal a resource that allowed us to determine whether there existed a bias in the self-selection among the respondent shopping centers — the 1993 edition of the Directory of Major Malls. This resource's detailed demographic information on all existing US strip shopping centers and enclosed malls that have at least 250,000 square feet of gross leasable area offered us an opportunity to compare the demographic characteristics of the subpopulation of responding malls and shopping centers with the entire population. These demographic comparisons are presented in Table 1. Note that 81.8% of the respondents were enclosed malls and 17.9% were open strip centers. This compares to 65.4% and 33.4%, respectively, in the population (i.e., all centers listed in the Directory of Major Malls, 1993). Similarly, the average gross leasable area or size of the responding malls and shopping centers was quite comparable to the population — 627,431 vs. 590,816 sq. ft., respectively. Referring again to Table 1, it can be observed that the survey respondents nearly matched the national population on other characteristics such as the average number of retail establishments per center (85.4 among the survey respondents vs. 79.8 in the population), average number of parking spaces (3,482 vs. 3,179), and average annual sales per square foot (\$236.58 vs. \$245.57). Based upon these comparisons, we feel confident that even though a smaller than expected number of the shopping centers and malls responded to our survey, those that did respond closely approximate the population on a number of important demographic characteristics.

**TABLE 1**  
**Survey Respondents Compared with Directory of Major Malls**

Demographic Variables	Survey Respondents	Directory of Major Malls
Total Respondents	369	2,555
Type of Shopping Center		
Enclosed Mall	81.8%	65.4%
Open Strip Centers	17.9%	33.4%
Average GLA	627,431 sq. ft.	590,816 sq. ft.
Major Size Categories		
Strip Center	3.7%	4.0%
Community Strip Center	9.4%	20.8%
Lg. Community Strip Center	4.8%	8.6%
Small Enclosed Mall	20.2%	16.1%
Medium Enclosed Mall	19.6%	13.1%
Regional Enclosed Mall	24.1%	21.7%
Super Regional Mall	17.3%	14.4%
Average Number of Establishments	85.4	79.8
Average Number of Parking Spaces	3,482	3,179
Average Sale Per Sq. Ft.	\$236.58	\$245.57

## Measurement

### *Crime Incidents*

An anonymous mailed questionnaire asked each shopping center to provide information about the incidence of crime that they had experienced on the premises in the past year. Respondents were presented with a list of 32 separate crime categories and asked to report how many incidents were reported to have occurred in this shopping center during the last calendar year (i.e., 1992). The original list of 32 crimes encompassed the three broad categories of crime (property, violent, and public order offenses). The property offenses ranged from shoplifting to burglary. The list also included a variety of violent crimes such as assault, rape, carjacking, and murder. Finally, the list contained a number of public order offenses such as disorderly conduct, public drunkenness, drug offenses, sex offenses, and even suicide. The length of the list precluded conducting a separate analysis of each crime type. Instead, we chose to collapse the summed incidence data into three separate composite crime measures: public order offenses, property offenses, and violent crime offenses.

**Public Order Offenses:** Perhaps the single most important single major task facing shopping center security forces is the keeping of order. Our list of public order offenses include disorderly conduct, trespassing, vagrancy, panhandling, public drunkenness, obscenity violations, prostitution, solicitation, and the possession or sale of controlled substances. These types of crime consistently yielded the highest incidence numbers. In fact, the average number of annual public order offenses reported by respondents was 104.

**Property Offenses:** A series of items focused on crimes that victimized the property of the center, its retail store tenants, or its shoppers. Specifically, each respondent was presented with a list of five property offense types and asked to indicate how many of each incident occurred on the premises during 1992. These crimes included vandalism, theft, employee theft, burglary, and arson. Responses to these five items were summed to build a composite property crime measure. This composite measure suggests that respondents experienced an average of 42.1 property crime incidents during 1992. The standard deviation for this measure was 63.3.

**Violent Offenses:** Not surprisingly, the crimes that have received the greatest amount of public and media attention invariably involve violence against shoppers, employees, or security personnel. In an effort to assess the nature of violent offenses, each respondent was presented with a list of 14 different offense types and again asked to report the number of offenses that they experienced during calendar year 1992. These offenses include simple assault, purse snatching/pickpockets, possession of a deadly weapon, robbery of a shopper, robbery of a business, bomb threats, aggravated assaults, rape, other sexual assault, carjackings, kidnapping/abductions, hostage takings, homicide, and attempted homicide. Each of these offenses are characterized by potential or real physical harm to a person. Recognizing that violent offense on the premises of the shopping center are still relatively rare events, we combined the above offense types into a composite measure of violent crime. The overall average indicates that incidents involving violence occur on average slightly more than once a month – or 16.5 annually. The standard deviation for this composite measure was 25.4.

Our analysis revealed a low correlation between the aggregate public order measure and the aggregate measures of property and violent offenses. Consequently, we decided to conduct two separate analyses. The first attempts to model the incidence of public order offenses. In a second analysis, we aggregate the property and violent offenses and model the incidence of this “serious crime” measure.

## ***Private Security Measures***

Both models consider the relationship that several private security counter measures have with the above crime variables. In particular, we have chosen to focus our analysis on three indicators of the level of private security at the shopping centers: (1) the number of full-time security personnel, (2) the weekly number of hours worked by security personnel at the facility, and (3) the security budget for each center.

**Number of full-time security personnel:** The survey instrument asked a series of questions about the number of security personnel employed by the shopping center. Respondents were asked to indicate the total number of employees among the following types of security officers: (1) in-house employees of the shopping center, (2) persons hired under a contract with an outside security vendor, and (3) moonlighting off-duty police officers. These data were aggregated to determine the total number of full-time security personnel presently employed by the shopping center. This was used as the first of our three indicators of private security presence. The overall average for survey respondents was 6.8 full-time security personnel per shopping center. The standard deviation for this item was 8.0.

**Security Personnel Hours Per Week:** The second measure of private security is the number of mall security personnel hours worked per week at each responding facility. This measure was derived by totaling the number of weekly part-time and full-time security personnel hours worked at each facility. The overall average for survey respondents was 292.8 hours per week. This item had a standard deviation of 285.8.

**Security Budget:** The third component of private security presence is the annual security budget expended in each shopping center and mall. We reasoned that a shopping center's annual security budget is a proxy measure of each center's commitment to proactive protection and safety. The data show that the average 1992 security budget among the responding malls was slightly less than \$200,000 (or \$199,247). The standard deviation for this measure was \$256,392.

A closer examination of the three private security measures showed a high degree of reliability between the items ( $\text{Alpha} = .920$ ). This situation allowed us to combine them into one latent construct called "private security." We suspected that there may be a reciprocal relationship between the levels of crime and private security at a shopping center. At times, centers might act proactively toward crime, increasing security measures based on potential crime problems. Conversely, it is also likely that shopping centers pursue a reactive security agenda whereby increased crime rates yield an added security presence. To further confound matters, one would expect that the

levels of private security and crime will be influenced by a number of other environmental factors present at the shopping center. Therefore, we set out to formulate an analysis plan that would allow for both of these constructs (crime and security) to be treated as outcome measures. This was accomplished via the LISREL program using bivariate regression models. We predicted that the private security construct would be positively correlated with the number of crime incidents (public order or property/violent) occurring on the premises. At the same time, both constructs were expected to be significantly related to the exogenous variables below.

### ***Problematic Tenants***

There are hundreds of different types of stores and tenants located in shopping centers across the country. We asked respondents to indicate whether the 17 most commonly found types of tenants were located within their particular facility. Conversations with shopping center managers suggested that certain types of tenants can cause special security needs and precipitate criminal incidents. In particular, managers indicated that food courts, movie theaters, video arcades, and bars elicit increased security concerns. These tenants are known to be attractive to youth and other categories of criminally motivated offenders. Large numbers of youths and other crime-prone groups regularly used the shopping center as a place to "hang out." While these social gathering places provide an attractive environment for youths and adults, they tend to haunt the shopping center security personnel.

Separate questionnaire items asked respondents if the above types of "problematic" tenants were among those presently leasing space in the shopping center. Our results show that more than half of responding shopping centers contained video arcades or game rooms (63.4%), food courts (53.4%), and movie theaters (52.8%). Also, more than one-third of the centers leased space to bars that serve alcoholic beverages (34.7%). A problematic tenants variable was derived by summing the presence of these four types of tenants. This variable yielded a mean of 2.04 and a standard deviation of 1.23. We expected that the greater presence of these problematic tenants would increase the number of crimes and the security presence at the shopping center accordingly.

### ***Problematic Patrons***

While the above-mentioned social spaces provide a crime-conducive environment, they are not a necessary condition for the occurrence of crime. Motivated persons will often find a way to get into trouble

regardless of their surroundings. Following this logic, we asked shopping center managers to identify those types of patrons that pose the greatest security risk. They identified the following groups as particularly problematic: (1) loitering groups of young people, (2) individuals who rely on public transportation access to the center or mall, and (3) organized street gangs. The shopping center security experts agreed those three types of visitors are commonly considered "red flags," indicating the likely presence of potentially disruptive persons on the premises. We reasoned that these indicators should be considered additive in nature. In other words, the presence of any two of these types of persons should yield a greater concern than the presence of just one. As such, a problematic patrons variable was constructed by summing responses to the above three items. This variable had a mean of 2.05 and a standard deviation of 0.87. We predicted that the presence of problematic persons would increase the level of security and the number of crime incidents at the shopping center.

### ***Size of Mall***

Clearly, the level of private security and the number of security incidents at a given mall will be influenced by its physical size. Therefore, several size-oriented control variables were included in the analysis. The first variable was the most commonly accepted generic size indicator used within the shopping center industry, the amount of gross leasable area (GLA) available at the facility. Respondents were asked to indicate for their facility the total GLA as measured in square feet. The average GLA of our survey center is 627,431 sq. ft. The standard deviation for this GLA variable was 361,410. We predicted that larger centers and malls would employ more private security measures and experience greater crime problems.

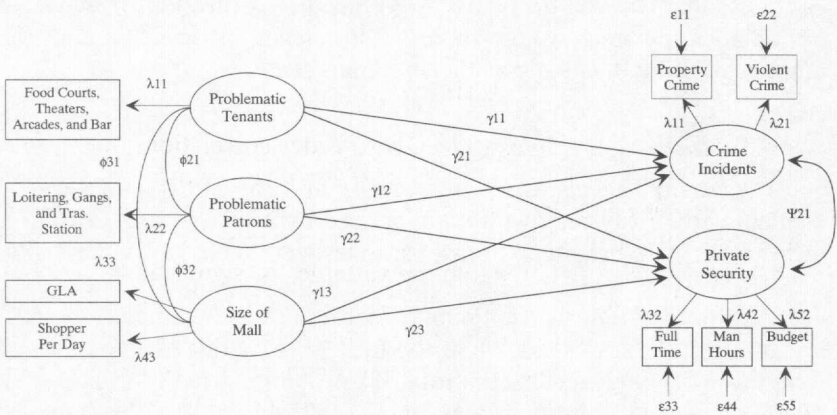
A second size-specific indicator focuses on the degree of physical activity occurring at the shopping center on an average day. Industry members assess this issue using a measure of human activity in and around the center — the average number of shoppers that visit a facility each day. The data show that the average number of shoppers per day among survey respondents is 11,966. This variable had a standard deviation of 13,074. We predicted that the added numbers of shoppers would yield increased security presence as well as increased numbers of criminal victims and perpetrators at the mall.

## **Analysis**

The analysis evaluates two models to examine the partial covariance of crime and private security for given independent variables of

problematic tenants, problematic patrons, and size of mall. Figure 1 illustrates the path diagram to be used in the first of our two bivariate multiple regression analyses. Finn (1974) suggests that a bivariate form of the multiple linear regression model is appropriate when two dependent variables are being considered. Bivariate multiple regression techniques are particularly useful for obtaining multiple univariate results from a given sample. In addition, this analysis technique allows for simultaneous significance tests to be obtained.

**FIGURE 1**  
**Bivariate Multiple Regression Model for Crime and Private Security at US Shopping Centers**



The bivariate multiple regression of crime and private security on problematic tenants, problematic patrons, and size of mall is written

$$[y_1 \ y_2] = x_1[\gamma_{11}\gamma_{12}] + x_2[\gamma_{21}\gamma_{22}] + x_3[\gamma_{31}\gamma_{32}]$$

Which is represented as

$$Y = \Gamma X + \zeta,$$

where  $\Gamma$  is the regression matrix of order  $2 \times 3$  with B zero,  $\Gamma$  a full free matrix, and  $\Psi$  for the dependent variables a symmetric free matrix.

The conditional covariance matrix,  $\Psi = \Sigma$  is

$$\Psi = (1/DF) S_e$$

where  $S_e$  is the conditional sum-of-products matrix.

The partial correlations are

$$R_E = D_E^{-1/2} \Psi_E D_E^{-1/2}$$

where  $D_E$  is the matrix of adjusted standard deviation.

The LISREL program (Jöreskog & Sörbom, 1989) was used for estimation of both bivariate regression models. This program is based

upon maximum likelihood statistical theory and as Jöreskog and Sörbom (1989) indicate, it is superior to ordinary least squares analysis in several ways. First, it allows for multiple indicators of constructs to be simultaneously examined. Second, this technique adjusts parameter estimates for the unreliability of measurement when multiple indicators are employed. Third, it is capable of handling correlated residuals. Fourth, it provides a test of the extent to which over identified models fit the data. Most important, the LISREL program allows one to simultaneously test multiple dependent variables in a single model. All of the above factors were a concern in the present analysis. The model presented in Figure 1 illustrates the predictive values of problematic tenants, problematic patrons, and size of mall in predicting the serious crime (property/violent) incidents and private security measures using the LISREL VII statistical program (Jöreskog & Sörbom, 1989).

## RESULTS

Table 2 presents the matrix of zero-order correlations, means, and standard deviations ( $N = 252$ ) for the variables used in the analysis. Notice that all of the relationships are in the expected direction. The intercorrelation between property and violent crime is .306 and significant. The public order offenses variable is significantly, but not strongly, related to property and violent crime (.128 and .166, respectively). Property and violent crime are also significantly associated with each of the exogenous variables (.168 through .394). The level of public order crime is significantly related to the three security measures, as well as the GLA of the shopping center. Note there is a positive, significant relationship (.156 to .394) between all of the crime (property, violent, and public order) and security measures (full-time employees, security personnel hours, and security budget).

The correlation coefficients among security measures (Table 2) range from .750 to .797, suggesting a high reliability of those items. The intercorrelation between GLA and number of shoppers per day is .387. In general, the security measures are significantly related to the problematic tenants and problematic patrons variables — ranging from .144 to .226. The only notable exception to this trend is the correlation between number of full-time security and problematic tenants and patrons variables (.114 and .093, respectively). The correlation between problematic tenants and problematic patrons is .181. Finally, Table 2 reveals that a positive, significant relationship exists between each of the three measures of private security (full-time employees, security personnel hours, and security budget).

**TABLE 2**  
**Bivariate Correlation Matrix for Crime and Private Security at US Shopping Centers**  
**(N = 252)**

	1	2	3	4	5	6	7	8	9	10
Mean**	45.73	17.79	113.69	7.40	323.60	211.34	2.20	2.12	661.41	12.73
Std. Dev.**	66.08	26.28	344.18	8.20	293.94	267.80	1.13	0.84	353.99	11.33
(1) Property Crime	1.000									
(2) Violent Crime	.306*	1.000								
(3) Public Disorder Offenses	.128*	.166*	1.000							
(4) Number of Full-Time Security Personnel-Hours	.389*	.235*	.156*	1.000						
(5) Number of Security Personnel-Hours	.394*	.339*	.304*	.797*	1.000					
(6) Security Budget	.309*	.244*	.205*	.776*	.750*	1.000				
(7) Problem Tenants	.189*	.214*	.039	.114	.226*	.133*	1.000			
(8) Problem Patrons	.208*	.306*	.108	.093	.144*	.178*	.181*	1.000		
(9) GLA	.299*	.260*	.324*	.403*	.568*	.391*	.358*	.233*	1.000	
(10) Number of Shoppers Per Day	.168*	.235*	.058	.363*	.423*	.422*	.160*	.072	.387*	1.000

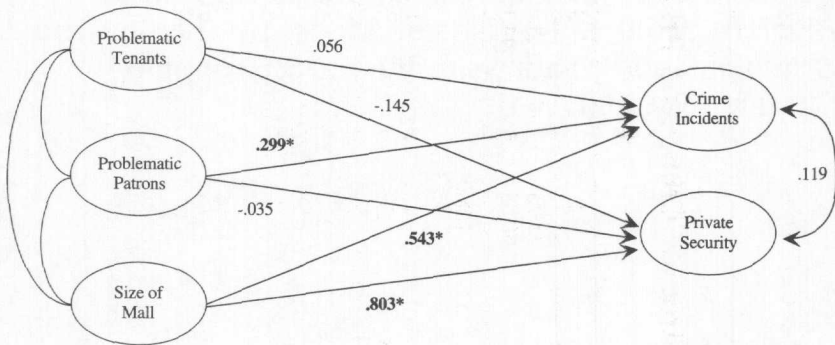
\* P < 0.05

\*\* The means and standard deviations reported here are slightly different from those reported in the measurement section. This table was produced utilizing a listwise deletion including all variables for the study. Case numbers are the same for all variables (N = 252).

We were encouraged to find that there are positive and significant relationships between all of the crime and security measures. However, the strong relationships between the size of the shopping center and the security measure suggest that the relationships between crime and private security at the US shopping centers may be spurious due to the size of the shopping center and the corresponding higher number of shoppers in shopping centers. Subsequently, the nature of this relationship was pursued using the previously described bivariate multiple regression analysis techniques.

Figure 2 presents the results of our first bivariate multiple regression model. This model has two dependent variables (property/violent crime and private security) and the three independent variables of problematic tenants, problematic patrons, and size of mall.

**FIGURE 2**  
**Standardized Maximum Likelihood Estimates of**  
**Bivariate Multiple Regression Model for Serious**  
**Crime and Private Security at US Shopping Centers**  
**(N = 262)**



\*  $P < .05$

Chi-square (18) = 37.57 ( $p = .004$ )

Goodness of fit index = .962

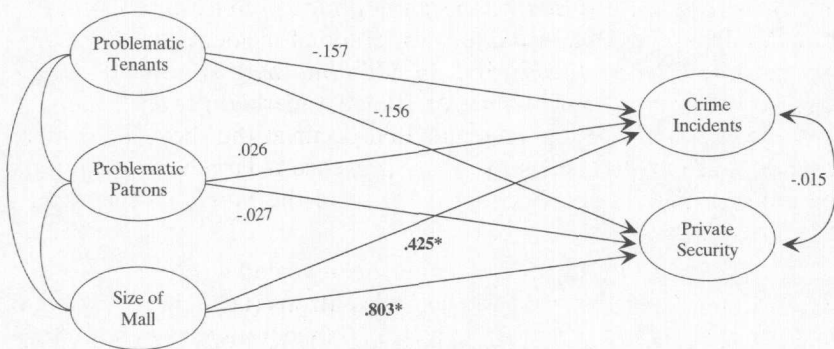
Adjusted goodness of fit index = .906

As shown in Figure 2, the model fits the data well:  $\chi^2$  with 18 degrees of freedom = 37.57,  $p = .004$ . Although the  $\chi^2$  is significant at the  $p = .05$  level, its ratio to degrees of freedom (2.1) is low (Carmines & McIver, 1981). Moreover, the goodness-of-fit index and adjusted goodness-of-fit index are both greater than 90. Finally, note that the factor loadings for the latent variables are relatively high and stable across all indicators.

The path coefficients ( $\gamma$ ) show that problematic tenants are not significantly predictive of either crime incidents or private security measures (.056 and  $-.145$ , respectively). The problematic patrons variable is significantly associated with crime incidents (.299), but not with the private security measure ( $-.035$ ). The size of the center or mall, as a control variable, is significant for both crime incidents and private security measures (.543 and .803, respectively).

Figure 3 shows the maximum likelihood estimates of a second bivariate multiple regression model. Here, public order offenses and private security are treated as dependent variables. Again, the summary data indicate that the model fits the data well. The path coefficients indicate results somewhat similar to those seen in Figure 2. In this model, however, note that the size of mall construct is the only one that has significant effects on both the public order offense and private security measure (.425 and .803, respectively). Moreover, the effect of problematic patrons does not seem to have the same significant effects on public order offenses as they do on property/violent offenses at the mall.

**FIGURE 3**  
**Standardized Maximum Likelihood Estimates of**  
**Bivariate Multiple Regression Model for Public Order**  
**Offenses and Private Security at US Shopping**  
**Centers (N = 260)**



\*  $P < .05$   
 Chi-square (18) = 53.00 ( $p = .001$ )  
 Goodness of fit index = .937  
 Adjusted goodness of fit index = .826

While the zero-order correlations presented in Table 2 suggest that the relationships between crime incidents and the various security

measures are quite strong and statistically significant, the same trend is not meted out in the partial correlations from the bivariate regression model (Figures 2 and 3). These latter multivariate models allow us to examine the statistical relationship between the incidence of crime and security measures while controlling for the effects of problematic tenants, problematic patrons, and physical size. Figure 2 reveals that the resulting partial correlation ( $\psi$ ) between the property/violent crime measure and the private security measure is .119 with t-value of 1.172. Referring to Figure 3, note that the partial correlation ( $\psi$ ) between the incidence of public order offenses and the private security measure is  $-.015$  with a t-value of  $-.302$ . Neither of these relationships is statistically significant at the .05 level. This situation reveals that the initial zero-order relationships between crime incidents and security measures are spurious and that the size of mall, as measured by GLA and number of shoppers, are the significant predictors of both crime incidents and private security countermeasures. As such, none of our hypothesized relationships were supported when we introduced more sophisticated forms of analysis.

## DISCUSSION

The purpose of this study was to examine the relationships between crime incidents and private security at US shopping centers. Interestingly, the results of this analysis reveal that there is no direct significant relationship between crime incidents at the shopping center and the private security countermeasures on the premises. In summary, these findings suggest that the level of criminal incidents does not dictate the level of private security. In addition, there is no evidence to suggest that private security measures have a marked preventive effect on the number of criminal incidents that occur at the shopping center. Instead, it seems that private security presence is largely a function of the physical size of the shopping center and the number of shoppers that it draws to the facility.

Our conversations with mall managers revealed a concern over the presence of certain groups of problematic patrons (i.e., loitering youths, organized gangs, and persons who rely on public transportation). However, our data suggest that the presence of these problematic patrons produces an insignificant effect on security measures. This remains the case, despite the fact that the presence of problematic patrons does have a significant effect on the number of property and violent crime incidents. In short, while mall managers are aware of the impact that these groups have on crime rates, they do not appear to be responding with increased numbers of full-time security personnel, security person-

nel hours, or an increased security budget. Note, however, that this does not preclude the possibility that mall managers are responding to these new people-oriented problems via other security initiatives. For example, recent news reports suggest that some shopping centers have instituted a "Parental Escort Policy" on Friday and Saturday evenings whereby youths under the age of 16 must be accompanied by an adult from 6 p.m. until closing. Policy makers reason that these efforts limit the potential for youths to engage in crime and allay shoppers' fears that unsupervised youths will likely engage in crime. There is presently no data to evaluate the effectiveness of these or other innovative security measures that attempt to reduce crime by eliminating problematic patrons.

In the wake of unwanted media attention that accompanies reports of crime in shopping centers, individual shopping centers have initiated various crime awareness programs. Some shopping center managers and owners have clearly portrayed a public image suggesting that they are concerned about security and customers' fear of victimization. The present analysis, however, shows that increases in the number of criminal incidents at a shopping center did not prompt mall managers or owners to commit more money or security personnel in an effort to protect the public and tenants. Perhaps the recent industry-initiated public relations campaigns and trade journal articles that speak of increased security measures at shopping malls reflect more of a public relations effort (e.g., signage containing tips on personal safety and crime prevention) than they do serious crime prevention efforts. While both shopping center managers and owners acknowledge the importance of security, the perceived financial costs of such measures may take a back seat to more immediate financial concerns such as keeping leasable space rented and maintaining high customer traffic. In short, it seems as though they gauge their need for increased security efforts based upon the increases that they experience in the area of physical and customer size.

It is important to realize, however, that effective security measures do not necessarily require substantial financial investments on the part of the shopping center owners. For example, many shopping center managers are placing local law enforcement substations or offices on the premises. While these tenants do not pay rent, this type of initiative affords the shopping center the benefit of increased public police presence and routine police without having to pay the officers' salaries. More important, recent research has revealed that regular police patrols had a far greater impact on mall motor vehicle theft than did private security patrols, and they are much less expensive (Hollinger & Dabney, 1999).

The shopping centers of today are much more than simply places where retail sales take place. Increasingly, people use shopping centers and malls for a variety of non-economic purposes (Graham, Graham & MacLean, 1991). Shopping centers have become a place to meet friends, to pass time, to watch people, and to engage in other aspects of social exchange. In fact, for many people, the primary purpose in visiting the shopping centers is not shopping for merchandise; instead, they come to patronize food and entertainment tenants (e.g., movie theaters, bars, food courts, and arcades). These non-merchandise-oriented establishments have long been viewed as problematic environments where most of a center's incidents of misbehavior, disorder, and fighting are initiated. This perception notwithstanding, we were surprised to find that the presence of so-called problematic tenants, namely food courts, movie theaters, video arcade/game rooms, and bars, had no significant direct effects on the crime rates at these shopping centers and had only minimal negative effects on the levels of private security at the centers. Instead, shopping center crime rates appear to be much more connected with the presence of various "problematic" persons than with the presence of non-retail tenants.

We recognize that there are a number of shortcomings with the present study. Most important, this analysis had to contend with a low response rate and significant amounts of missing data. At present, there is little that can be done to address these issues. At least for now, if we choose to study crime at shopping centers, we may have to accept these inherent data collection problems. However, there is one noticeable substantive shortcoming that can be overcome in future research: The analysis of shopping center crime should investigate the connection between the crime rates immediately surrounding the shopping center and the crime rates and security efforts within the facility. Given that many scholars (Brantingham & Brantingham, 1981a; Costanza et al., 1986; Figlio et al., 1986; Rand, 1986) have demonstrated that potential criminals usually travel relatively short distances in order to commit their crimes, this information is integral to a more complete understanding of crime at shopping centers at a specific location.

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## REFERENCES

- Brantingham, P. J., & Brantingham, P. L. (1978). A theoretical model of crime site selection. In M. D. Krohn & R. L. Akers (Eds.), *Crime, law and sanctions* (pp. 105-118). Beverly Hills: Sage.

- Brantingham, P. J., & Brantingham, P. L. (1981a). Mobility, notoriety, and crime: A study in the crime patterns of urban nodal points. *Journal of Environmental Systems*, *11*, 89-99.
- Brantingham, P. J., & Brantingham, P. L. (1981b). *Environmental criminology*. Beverly Hills: Sage.
- Carmines, E. G., & McIver, J. P. (1981). Analyzing models with unobserved variables: Analysis of covariance structures. In G. W. Bohrnstedt & E. F. Borgatta (Eds.), *Social measurement: Current issues* (pp. 65-115). Beverly Hills: Sage.
- Clarke, R. V. (1992). *Situational crime prevention*. New York: Harrow and Heston.
- Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activities approach. *American Sociological Review*, *44*, 588-608.
- Costanza, C. M., Halperin, W. C., & Gale, N. (1986). Criminal mobility and the directional component in journeys to crime. In R. M. Figlio, S. Hakim, & G. F. Rengert (Eds.), *Metropolitan crime patterns* (pp. 73-95). Monsey, NY: Willow Tree Press.
- Directory of Major Malls*. (1993). Spring Valley, NY: JOMURPA Publishing.
- Duffala, D. C. (1976). Convenience stores, armed robbery, and physical environmental features. *American Behavioral Scientist*, *20*, 227-245.
- Feagin, J., & Parker, R. (1990). *Building American cities: The urban real estate game*. Englewood Cliffs, NJ: Prentice Hall.
- Felson, M. (1994). *Crime in everyday life*. Thousand Oaks, CA: Pine Forge Press.
- Figlio, R. M., Hakim, S., & Rengert, G. F. (1986). *Metropolitan crime patterns*. Monsey, NY: Willow Tree Press.
- Finn, J. D. (1974). *A general model for multivariate analysis*. New York: Holt, Reinhart and Winston.
- Graham, D. F., Graham, I., & MacLean, M. J. (1991). Going to the mall: A leisure activity of urban elderly people. *Canadian Journal on Aging*, *10*, 345-358.
- Hazel, D. (1992). Crime in the malls: A new and growing concern. *Chain Store Age Executive*, February, 27-29.
- Hollinger, R. C., & Dabney, D. A. (1999). Motor vehicle theft at the shopping center: An application of the routine activities approach. *Security Journal*, *12*, 63-78.
- Hollinger, R. C., & Hayes, R. (1993). The national shopping center security report. *Chain Store Age Executive*, May, 83-114.
- Hyde, E. W. (1978). *National study on shopping center security*. Briarcliff Manor, NY: Burns Security Institute.
- Jeffery, C. R. (1971). *Crime prevention through environmental design*. Beverly Hills, CA: Sage.
- Jöreskog, K. G., & Sörbom, D. (1989). *LISREL 7: A guide to the program and application*. Chicago: SPSS.
- Kennedy, L. W., & Forde, D. R. (1990). Routine activities and crime: An analysis of victimization in Canada. *Criminology*, *28*, 137-152.
- Kowinski, W. S. (1985). *The malling of America*. New York: William Morrow.
- Massey, J. L., Krohn, M. D., & Bonati, L. M. (1989). Property crime and the routine activities of individuals. *Journal of Research in Crime and Delinquency*, *26*, 378-400.
- Messner, S. F., & Tardiff, K. (1985). The social ecology of urban homicide: An application of the routine activities approach. *Criminology*, *23*, 241-267.

- Miethe, T. D., Stafford, M. C., & Long, J. S. (1987). Social differentiation in criminal victimization: A test of routine activities/lifestyles theories. *American Sociological Review*, 52, 184-194.
- Molumby, T. (1976). Patterns of crime in a housing project. *American Behavioral Scientist*, 20, 247-259.
- Newman, O. (1972). *Defensible space*. New York: Macmillan.
- Newman, O., & Franck, K. A. (1980). *Factors influencing crime and instability in urban housing developments*. Washington DC: Law Enforcement Assistance Administration, National Institute of Law Enforcement and Criminal Justice.
- Newman, O., & Franck, K. A. (1982). The effects of building size on personal crime and fear of crime. *Population and Environment* 5, 203-220.
- Phillips, S., & Cochrane, R. (1988). *Crime and nuisance in the shopping centre: A case study in crime prevention*. London: Home Office Crime Prevention Unit.
- Poole, R. (1991). *Safer shopping: The identification of opportunities for crime and disorder in covered shopping centres*. West Midlands, England: West Midlands Police.
- Rand, A. (1986). Mobility triangles. In R. M. Figlio, S. Hakim, & G. F. Rengert (Eds.), *Metropolitan crime patterns*. (pp. 117-126). Monsey, NY: Willow Tree Press.
- Robertson, K. A. (1990). The status of pedestrian malls in American downtowns. *Urban Affairs Quarterly*, 26(2), 250-270.
- Roncek, D. W. (1981). Bars, blocks, and crimes. *Journal of Environmental Systems*, 11, 35-47.
- Roncek, D. W., & Faggiani, D. (1985). High schools and crime: A replication. *Sociological Quarterly*, 26, 491-505.
- Roncek, D. W., & Lobosco, A. (1983). The effect of high schools on crime in their neighborhoods. *Social Science Quarterly*, 64, 598-613.
- Roncek, D. W., & Maier, P. A. (1991). Bars, blocks, and crimes revisited: Linking the theory of routine activities to the empiricism of "hot spots." *Criminology*, 29, 725-754.
- Sampson, R. J., & Wooldredge, J. D. (1987). Linking the micro- and macro-level dimensions of lifestyle-routine activities and opportunity models of predatory victimization. *Journal of Quantitative Criminology*, 3, 371-393.
- Sherman, L., Gartin, P. R., & Buerger, M. E. (1989). Hot spots of predatory crime: Routine activities and the criminology of place. *Criminology*, 27, 27-56.
- Stahura, J. M., & Hollinger, R. C. (1988). A routine activities approach to suburban arson rates. *Sociological Spectrum*, 8, 349-369.
- Stahura, J. M., & Huff, C. F. (1981). Persistence of suburban violent crime rates: An ecological analysis. *Sociological Focus*, 14, 123-137.
- Stahura, J. M., & Huff, C. F. (1986). Crime in suburbia, 1960-1980. In R. M. Figlio, S. Hakim, & G. F. Rengert (Eds.), *Metropolitan crime patterns* (pp. 55-72). Monsey, NY: Willow Tree Press.
- Stahura, J. M., & Sloan, J. J. (1988). Urban stratification of places, routine activities and suburban crime rates. *Social Forces*, 66, 1102-1118.
- Whyte, W. F. (1988). *City: Rediscovering the center*. New York: Doubleday.
- Wilson, C. (1992). Securing America's new town centers. *Security Management*, June, 41-48.