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# Does the Presence of Sexually Oriented Businesses Relate to Increased Levels of Crime? An Examination Using Spatial Analyses

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## Abstract

Scholarly debate about whether the presence of sexually oriented businesses in a community is related to increased levels of crime has been present for several decades. This argument about the “secondary effects” of such businesses shows support for the link to increased crime as well as evidence of a lack of relationship. This article addresses this debate, presenting findings from three spatial analyses using varying-sized buffer zones of rates of violent, property, and public order offenses in the vicinity of sexually oriented businesses in Louisville, Kentucky. Results show that sexually oriented businesses are associated with much higher rates of all types of offenses in the immediate vicinity of the business and continue to have significant effects on crime levels as one moves further from the business. At the site of the sexually oriented business, community, social and economic characteristics are outweighed by the effect of the business; in farther-reaching buffer zones, community characteristics become more important, although the effects of the business remain significant.

## Keywords

spatial analysis, sexually oriented businesses, crime rates, secondary effects

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Central to controlling crime in communities are understandings of not only who commits and is victimized by crime but also where crime occurs; social and structural conditions of communities, which may be associated with crime; and how patterns of land use may facilitate or inhibit criminal activity. If we can better understand community conditions, including what structures are present in a community, locations and movements of people in physical environments, temporal aspects of activities and movements of people, and the locations and uses of physical aspects of communities, it may be possible to design environments to prevent criminal activities or facilitate the detection and effective responses to crime.

Among the issues that criminologists focus attention on is whether and how instances of social deviance may or may not be related, and how non-criminal deviance may or may not be related to the presence of the more serious forms of behavior that are criminal. As a part of this, there are concerns in many communities about whether the presence (especially a highly visible, public presence) of sexual deviance may be related to instances of sexual offending. Relatedly, when individuals are aware of highly visible sexual aspects in their communities, especially locations and entities that are likely to be associated with deviance, they are also likely to have heightened concerns about negative consequences arising from the presence of such entities. One type of community presence that is likely to raise awareness and concerns is the sexually oriented business (SOB).

The presence of SOBs in a community spawns concerns and debates regarding whether such entities are socially harmful. Primary concerns about SOBs center on the issue of crime, as SOBs are presumed to be patronized by socially marginal, and perhaps criminal, individuals. Examinations of whether and how the presence of SOBs in a community is related to negative consequences have been conducted for several decades, with results both supporting and refuting the association of SOBs with crime.

## **Debate Over Criminogenic Effects of SOBs**

Public policy concern regarding whether SOBs are associated with increased rates of crime is referred to as a concern over “secondary effects.” One perspective is that the presence of a SOB is related to, and very likely to be a facilitator or attractor of, crime and deviance. On the other side of the debate are those who argue that although there may be apparent face validity to the argument that SOBs attract or facilitate crime and deviance, there is little or no evidence to support such an argument.

## *SOBs Promote Crime and Deviance*

There is a small body of academic literature that supports the contention that SOBs are associated with numerous negative, secondary effects on communities. In addition, studies completed by community planning agencies (done for purposes of assessing the need for and impact of zoning and legislative initiatives) regarding the effects of SOBs also suggest that the presence of such are associated with crime, deviance, and negative economic consequences. In summarizing the state of knowledge concerning secondary effects of SOBs, the American Center for Law and Justice in 1996 (cited in National Law Center for Children and Families, 2005) concluded that “SOBs support detrimental activities (i.e., personal and property crimes, prostitution, drugs, etc.) within the vicinity that are incompatible with activities occurring within residential area” (National Law Center for Children and Families, 2005, p. 1).

Contemporary examinations of whether SOBs are associated with negative secondary effects on communities—including crime in residential and commercial neighborhoods, reductions in business traffic for other commercial establishments, dampening effects on residential property values, and increased presence of criminal and noncriminal forms of deviance—consistently show numerous secondary effects associated with the presence of a SOB. These results have most frequently been found in numerous small and unpublished studies completed in communities of all sizes (National Law Center for Children and Families, 2005).

In the scholarly community, there are also significant negative secondary effects—especially criminal activities—shown to be associated with the presence of SOBs. McCleary (2007) analyzed crime reports in the vicinity of 20 SOBs in Los Angeles and concluded that “SOBs are ambient crime risk point-sources. As a hypothetical pedestrian walks toward the site, victimization risk rises; walking away from the site, victimization risk falls” (p. 13). In most instances the increase in criminal activities decreases or disappears once beyond 1,500 feet from an SOB (National Law Center for Children and Families, 2005).

Secondary effects are not limited to urban SOBs (National Law Center for Children and Families, 2005). McCleary (2008) demonstrated that when an SOB opens off of a rural interstate exit ramp, crime in the area increased 60%. And, when the SOB closed 2 years later, the crime rate decreased 60%, essentially returning to the pre-SOB-presence level.

### *Other Negative, Secondary Effects Associated With SOBs*

In addition to increased crime rates, so too are SOBs associated with negative economic consequences for communities. One consequence of the presence of an SOB in a community is a decrease in both commercial and residential property values (Cooper & Kelly, 2008; Department of Planning and Development, 2006; Duncan Associates, 2000). SOBs are also associated with high rates of turnover among commercial establishments in close proximity to the SOB (National Law Center for Children and Families, 2005). The rapid turnover of businesses also may contribute to the increased negative secondary effect of increased crime by in turn contributing to social disorganization in the immediate neighborhood. Such a situation may be exacerbated when coupled with the findings of Ford and Beveridge (2004) who show that crime—specifically illicit drug sales—is increased by the presence of “undesirable” businesses (including SOBs) and even more strongly influenced by a lack of “desirable” businesses. Such a situation is an indication of an economically disadvantaged and socially disorganized community.<sup>1</sup>

### *SOBs Do Not Promote Crime and Deviance*

Not all research supports the contention that SOBs are associated with negative secondary effects. Some researchers have concluded that the presence of adult businesses is not associated with increased rates of crime. Linz, Land, Williams, Paul, and Ezell (2004) examined the rate of all criminal offenses reported within 500- and 1,000-foot radii of erotic dance clubs in Charlotte, North Carolina, for 1998-2000. In examining 20 SOB locations and comparing each of these with one of three control locations, they report that there are actually fewer criminal incidents reported in the immediate vicinity of the SOBs. Linz et al. (2004) also reported that the greatest difference in reported level of crimes is for erotic dance clubs located in high-crime communities. Similarly, Linz and Paul (2002) studied police calls for service over a 4-year period within a 1,000-foot radius of eight strip clubs (serving alcohol) and demographically matched control areas in Fort Wayne, Indiana, and show few differences in calls for service between strip clubs and control areas. More recently, Linz, Paul, and Yao (2006) examined calls for police service to 1,000- and 2,000-foot radii around 19 SOBs offering peepshows in San Diego. Their results suggest no “reliable evidence of differences in crime levels” (Linz et al., 2006, p. 182). However, McCleary and Meeker (2006) reexamined the data and point out that for the 19 peepshow locations and corresponding control areas, there were 15.7% more calls for police

service in the 1,000-foot radius of the SOBs. As they argue, “any urban police department would judge a 15.7% difference in CFSs to be *substantively* significant, Linz et al. argued that the difference was not *statistically* significant” (McCleary & Meeker, 2006, p. 194, italics in original).

## **SOBs, Routine Activities, and Facilitation of Crime**

SOBs and the patterns of patron traffic in them reflect the characteristics of routine activity theory (RAT), which serves to promote the opportunities for criminal activities at such locations. At the core of RAT is the idea that when motivated offenders, suitable targets, and a lack of effective guardianship converge in time and space, criminal activities are likely to occur (Cohen & Felson, 1979). SOBs provide a setting where these three characteristics are present.

Perhaps the most obvious and strongest presence of the three RAT concepts at SOBs is that of suitable targets. Patrons of SOBs are typically men, alone and often under the influence of alcohol and/or drugs (DeMichele & Tewksbury, 2004; Douglas & Tewksbury, 2008; Erickson & Tewksbury, 2000; Tewksbury, 1990). Consequently, the typical patrons of SOBs can easily be seen as highly suitable for victimization. These are not individuals who are scanning their environment or attending to copresent others; hence, they are focused on one set of activities and largely unmindful and unaware to other actions in their midst.

In addition, patrons of SOBs typically desire to remain anonymous and to not have their presence or patronage recognized or acknowledged (Donnelly, 1981; Ryder, 2004; Tewksbury, 1990). In his discussion of the character of adult entertainment districts, Ryder (2004) emphasized that “Anonymity is an important feature of many districts. The unsavory reputation deters the casual visitor or those not interested, ensuring that customers will remain relatively unobserved” (p. 1665). The desire for anonymity is seen in the fact that fully 75% of male patrons of adult bookstores enter such establishments alone (McCleary & Tewksbury, 2010).

In sum, the suitability of SOB patrons as potential crime victims is due to the fact that SOB patrons “are disproportionately male, open to vice overtures, and carry cash. Most important of all, when victimized, they are reluctant to involve the police. From the offender’s perspective, they are ‘perfect’ victims” (McCleary, 2008, p. 156).

Crime can be expected at and in the vicinity of SOBs due to the presence of motivated offenders as well. Motivated offenders may be drawn to the

SOB because of the presence of suitable victims, and they too are often under the influence of alcohol and/or drugs as also are SOB employees and other patrons (who could serve as capable guardians; DeMichele & Tewksbury, 2004; Douglas & Tewksbury, 2008; Erickson & Tewksbury, 2000; Tewksbury, 1990).

Guardianship is also lacking at SOBs as such rarely have on-site security. Even when bouncers are present and responsible for social control and rule enforcement, there are strong disincentives for aggressively patrolling and intervening in activities that may be leading to criminal events—Strict control is bad for business (Forsyth & Deshotels, 1997). In addition, SOB patrons typically arrive and leave alone (Donnelly, 1981; Douglas & Tewksbury, 2008; Erickson & Tewksbury, 2000), leaving them without guardians in their presence. Both property and violent offenses may be facilitated as well (via the absence of capable guardians) because some customers park away from the business to avoid having their vehicle identified causing them to have to walk alone to their vehicles late at night (Donnelly, 1981).

## The Present Study

The importance of assessing the impact of the presence of SOBs on rates of crime in a community using sophisticated methodology has been well established. Governments are permitted to regulate SOBs so long as any regulations are focused on attempting to control any adverse secondary effects of such businesses (Andrew, 2002). To defend any regulatory attempt, a government must produce evidence to show that the businesses are associated with secondary effects such as ambient noise, litter, and, in particular, crime. As the secondary effects debate has serious implications for legal attempts to regulate and remove SOBs from communities, there is a clearly established need for sound research on the topic. In fact, in the 2002 Supreme Court ruling in *City of Los Angeles v. Alameda Books, Inc., et al.* Justice Souter (in a dissenting opinion) “asked the city to demonstrate, not merely by appeal to common sense but also with empirical data, that adult businesses are associated with crime and that its ordinance will successfully lower crime” (Linz et al., 2004, p. 73).

The present study seeks to contribute to this call, and to examine whether and to what degree the presence of SOBs are associated with increased rates of crime. Although a number of local government planning agencies have argued that SOBs do contribute to an increase in crime (as well as other negative effects), there is a limited body of scholarly literature on this topic. In addition, the present study adds to the existing literature by advancing the

study of secondary effects through a series of three different analysis techniques, each one more statistically conservative and precise than the prior leading to more robust and defensible results concerning the impact of SOBs on their surroundings.

## Method

### *Analysis Strategy*

This study uses three different analysis techniques in its approach to answering the question; do SOBs increase crime in their surrounding communities? In the first set of analyses, we examine the density of crime found in 500- and 1,000-foot buffers (circles) surrounding the 30 SOBs in the study area of Jefferson County (Kentucky). SOB crime densities are compared with that of the overall study area as well as those found surrounding 400 randomly selected intersections. In making the additional comparison with intersections, we mitigate the criticism that the overall study area presents a diffused rate because it includes many places at which crime is unlikely to occur (e.g., airport runways, tracts of undeveloped land, rivers, etc.; McCord & Ratcliffe, 2009). Street intersections, by definition, are located in areas of higher density, and this analysis results in a more conservative appraisal of the crime impact of SOB on communities. Location quotients (LQs), a method frequently used in regional studies (see explanation below), is utilized in all crime density comparisons.

In the second analysis technique, we examine crime density in a set of 6 concentric 250-foot buffers that extend out from the SOBs to a distance of 1,500 feet. This analysis provides preliminary results as to how far away from the SOBs crime impacts may be observed.

In the final set of analyses, we use regression models that statistically control for important sociodemographic factors associated with social disorganization and low socioeconomic status to determine whether the SOBs contribute to increased crime levels in their immediate surrounds, net the impact of neighborhood social structure. SOBs, as “undesirable” land uses, are often located in neighborhoods of social disorganization and social economic status where the community lacks the political power to resist their placement (Nolan & Salkin, 2006; Pacione, 2005). Social disorganization and low social economic status is also associated with higher crime levels in much crime research (Bursik & Grasmick, 1993). By including socioeconomic variables in the regression models, we hope to produce more robust findings concerning the impact of SOBs on neighborhoods.

## *Data*

The study area is Jefferson County, Kentucky. Thirty SOBs were identified via telephone books as being located within the county. Site visits, telephone calls, and online websites confirmed the SOB addresses and their operation during the study period (October 2009 through September 2010). Of the 30 SOBs, 21 are strip clubs with live entertainment (all of which sell alcoholic beverages). The remaining 9 SOBs are adult book/toy stores with all but 2 having private video viewing booths or an adult theater.

In 2003, Jefferson County and its largest city, Louisville, merged and formed a single governmental agency, Louisville Metro (2010 population = 740,000). Several small communities within the county opted out of the agreement and continue to provide their own local governmental services, including police services. The Louisville Metro Police Department (LMPD) was formed at the time of the merger and polices approximately 90% of the county. Crime data for the 1-year period were provided by the Louisville Metropolitan Police Department for the area under its jurisdiction. Twenty-four of the 30 SOBs are located within the LMPD policing area. The remaining 6 SOBs are all located on a 1.5-mile stretch of road in a small opted-out municipality, but directly across the street from the LMPD area of responsibility. The area is largely small industry on the opted-out municipality side of the street and small commercial establishments with residential areas behind on the Louisville Metro side of the street. Four SOBs are also located on the LMPD side of this 1.5-mile stretch of roadway. The small city that opted out from the merger and contained the above-mentioned 6 SOBs was uncooperative with our repeated attempts to obtain crime data. Because of the proximity of these 6 SOBs and their likely impact on crime in the LMPD area directly across the street (a distance of 30 feet), they remain in the analysis, but their impact is only measured in truncated buffers that overlay the LMPD area, as described below. Crime incidents were separated into the categories of violent crime (homicides, assaults, and robbery), property crime (burglaries, thefts, and vehicle theft), and disorder crime (sales/possession of illicit drugs, prostitution, alcohol violations, criminal mischief, and littering).

Computerized street files, census block groups, and maps of Jefferson County and the LMPD jurisdiction were provided by the Louisville/Jefferson County Information Consortium (LOJIC). Census data at the block group level were obtained from the U.S. Census Bureau and consist of 5-year estimates (2005-2009); the most recent data available at the time this study was being completed.



## Analysis

Using Geographic Information System (GIS) mapping software, the SOBs and crime incidents were geocoded (electronically applied) to the computerized street map. All SOBs were successfully geocoded and 96% of all crime incidents were geocoded. The 4% non-geocoded crime incidents were due to either missing or incorrect addresses in the database supplied by the LMPD. The resulting 96% geocoding “hit rate” exceeds the conventionally accepted hit rate of 90% for accurate mapping suggested by Bichler and Balchak (2007) and the empirically derived minimum of 85% recommended by Ratcliffe (2004). For the first set of analyses, two sets of buffers were drawn around the SOBs. The first set extended out from the SOBs for a distance of 0 to 500 feet, and the second from 0 to 1,000 feet. Buffers of these sizes were selected because they are the standard used by planning agencies, discussed in court cases concerning SOB secondary effects, and reported on in prior research. Overlapping buffers (due to the presence of other SOBs close-by) were dissolved into larger buffers to avoid counting the same crime incidents occurring in them more than once. Using the GIS software, the total area and count of crime incidents falling into the buffers were determined, and the density for each crime category was calculated. Buffers extending outside of the LMPD area were truncated at jurisdictional lines.

For the second set of analyses, a concentric series of six 250-foot wide buffers were drawn around each of the 30 SOBs. Each inner buffer extended from 0 to 250 feet, surrounded by one at 250 to 500 feet, on through to the last one at 1,250 to 1,500 feet out from the SOBs. The width of these buffers is approximately equal to one-half the average city street length in the study area. Again, buffers extending out of the LMPD area were truncated at jurisdictional lines.

We then used the random selection procedure in SPSS to draw a sample of 400 intersections from the 18,058 intersecting streets in the LMPD area.<sup>2</sup> Buffers of 500 and 1,000 feet wide were drawn around each of the street intersections, and the density for each crime category was determined as above.<sup>3</sup>

SOB and intersection buffers were then assigned the appropriate value of the sociodemographic factors of the census block groups in which their center point was located. These factors consisted of median income and the percentage single parents with children younger than 18 years, rental households, and Blacks in the population. The data were combined into two separate data files such that one contained the 500-foot buffers of both SOBs and intersections along with their sociodemographic factor values, and the other contained the

same for the 1,000-foot buffers. A dichotomous 0-1 indicator variable for the SOB buffers was developed (1 = *SOB buffer*) and included in each data set.

The combined SOB and intersection buffer data sets were examined for spatial autocorrelation. Spatial autocorrelation, the clustering of like dependent variable values among neighboring units of analysis, has been shown to inflate error terms in regression models resulting in biased parameter estimates, false indications of significance, and misleading suggestions of model fit (Chainey & Ratcliffe, 2005). Moran's I tests showed low but significant levels of positive spatial autocorrelation in the 500-foot buffer data for all three dependent variables (violent crime = 0.1245,  $p < .01$ , property crime = 0.1336,  $p < .01$ , disorder crime = 0.1336,  $p < .01$ ). Spatial lags were developed using Geoda software and included in the 500-foot buffer models to control for spatial autocorrelation. Significant spatial autocorrelation was not present in the 1,000-foot buffer data; thus, a spatial lag was not included.

## Results

As mentioned previously, three separate sets of analyses are performed to evaluate the impact, if any, of SOBs on their surrounds. Crime density results for the first two analyses are reported as LQs, a ratio value used extensively in the regional sciences (Miller, Gibson, & Wright, 1991). As crime is relatively rare and working with extremely small crime density numbers can be burdensome, LQs help make comparisons clearer when used to compare characteristics of smaller subareas to the larger, surrounding area. LQs were computed by dividing the density of crime around the SOBs (total number of crimes in SOB buffers/total area of all SOB buffers) by the crime density of the entire study area (total crimes LMPD jurisdiction/total area of LMPD jurisdiction). An LQ value of 2 would indicate that the density of crime in a set of SOB buffers (subareas) is twice that of Jefferson County, while a value of 0.75 would indicate the density in the SOB buffers is 25% less than the county rate.

Table 1 presents the LQ values for each category of crime (violent, property, disorder) and each set of buffers at 500 and 1,000 feet. As shown by the LQ values in the top portion of the table, the density of all three crime categories in the buffers surrounding the SOBs are many times higher than that of the larger study area (Jefferson County). For example, violent crime is 12.3 times higher in the 500-foot buffers surrounding the SOBs and 8.3 times higher in the 1,000-foot buffer than the overall county density. This pattern of higher density in the 500-foot buffers, over the still substantially high densities in the 1,000-foot buffers, holds true for both property and disorder crimes.

**Table 1.** LQ Values of Crime Density by Category in Selected Buffers Around 30 SOBs

	Violent crime	Property crime	Disorder crime
LQ values vs. Jefferson County			
500-foot buffers	12.3	10.1	10.7
1,000-foot buffers	8.3	7.1	7.1
LQ values vs. 400 random intersections			
500-foot buffers	4.8	4.2	4.2
1,000-foot buffers	3.3	3.1	2.9

Note: SOBs = sexually oriented businesses; LQ = location quotient.

The lower portion of Table 1 shows the LQ values in comparing the crime density around the SOBs to the 400 random intersections. Although this portion of the analysis is far more conservative in that the SOB density is compared only with the more built up areas of the county, the SOB LQ values remain high. As shown, crime densities in the SOB 500-foot buffers are all at least 4 times higher than the random intersections for all crime categories, while the densities in the 1,000-foot buffers are about 3 times higher for all crime categories.

Table 2 presents the results of the concentric 250-foot buffer analysis. As shown for all crime categories, the highest LQ values are the buffers immediately surrounding the SOBs, which then steadily decrease in the next two buffers out to a distance of 750 feet. Beginning with the 1,000-foot buffers and on out to the last buffers at 1,500 feet, there is no discernable pattern in the analysis. The results of these models suggest that the criminogenic impact of the SOBs is observable out to a distance of at least 750 feet. The monotonic decrease in the first three sets of buffers further supports the idea that it is the SOBs that are promoting high crime levels and not some other unmeasured neighborhood characteristic (Rengert, Ratcliffe, & Chakravorty, 2005).

The final set of analyses utilizes ordinary regression models to evaluate the impact of the SOBs on crime in the 500- and 1,000-foot buffers while controlling for important socioeconomic indicators. Recall that in these analyses, the SOB and 400 random intersections buffers are combined into a single model with a 0-1 dichotomous variable identifying the SOB buffers (1 = SOBs). Dependent variables for these models are the crime densities (crime incidents per 10,000 square feet) naturally logged to reduce skewness. Tests for multicollinearity were performed with all tolerance and variance

**Table 2.** Location Quotient Values of Crime Density by Category in Concentric 250-Foot Buffers Around 30 SOBs

	Violent crime	Property crime	Disorder crime
0-250 feet	23.7	18.3	24.4
250-500 feet	8.1	7.1	5.6
500-750 feet	5.2	5.6	4.8
750-1,000 feet	7.8	6.2	6.2
1,000-1,250 feet	5.8	4.4	4.9
1,250-1,500 feet	7.5	5.8	4.8

Note: SOBs = sexually oriented businesses.

**Table 3.** Standard Multiple Regression Evaluating Crime Density by Category in 500-Foot Buffers Surrounding 30 SOBs and 400 Random Intersections

	Violent crime		Property crime		Disorder crime	
	B	$\beta$	B	$\beta$	B	$\beta$
SOB indicator	.043***	.227	.087***	.215	.075***	.217
Median income	-1.381E-8	-.011	-2.631E-7	-.093	6.693E-8	.028
% renters	.000**	.176	.001**	.173	.000**	.164
% single parents	.000	.091	.000	-.025	.000*	.109
% Black	1.609E-5	.011	-3.482E-5	-.011	.000	.063
Spatial lag	.564**	.256	.609***	.325	.637***	.358
n	416		416		416	
Adjusted R <sup>2</sup>	.277		.312		.382	

Note: SOBs = sexually oriented businesses. Dependent variables are crime densities (incidents per 10,000 square feet) for each crime category, naturally logged. Overlapping buffers due to spatial clustering of SOBs were dissolved into larger buffers resulting in 416, rather than 430 buffers.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

inflation factor (VIF) values found to be within acceptable ranges; no tolerance value was below .410 and no VIF above 2.5.

Table 3 shows the results of the 500-foot buffer regression analyses. As shown, the SOB indicator variable is positive and significant for each of the three categories of crime. This finding indicates that the presence of the SOBs are related to higher densities of all three categories of crime in the 500-foot buffers that surround them, net the impact of median income and the percentage of renters, single parents, and Blacks in the neighborhood (census block groups). Note also that the beta values for all three SOB indicator variables are higher than any of the socioeconomic predictor variables.

Table 4 presents the results of the 1,000-foot buffer regression analyses. Once again the SOB indicator variables are positive and significant for all

**Table 4.** Standard Multiple Regression Evaluating Crime Density by Category in 1,000-Foot Buffers Surrounding 30 SOBs and 400 Random Intersections

	Violent crime		Property crime		Disorder crime	
	B	$\beta$	B	$\beta$	B	$\beta$
SOB indicator	.020***	.119	.056***	.137	.025*	.070
Median income	-3.718E-9	-.003	-2.055E-7	-.076	1.208E-7	.053
% renters	.000***	.280	.001***	.312	.001***	.275
% single parents	.000	.055	.000**	-.119	.000*	.109
% Black	7.939E-5	.066	.000	.065	.000	.071
Spatial lag	.679***	.399	.694***	.419	.748***	.454
n	414		414		414	
Adjusted R <sup>2</sup>	.474		.489		.516	

Note: SOBs = sexually oriented businesses. Dependent variables are crime densities (incidents per 10,000 square feet) for each crime category, naturally logged. Overlapping buffers due to spatial clustering of SOBs were dissolved into larger buffers resulting in 414, rather than 430 buffers.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

crime categories, indicating the presence of SOBs in these buffers is related to higher crime levels, net the impact of the sociodemographic factors. The beta values for the SOB indicator variables in these models are no longer higher than each of the individual sociodemographic factors as we found in the earlier models, suggesting a still significant but decreasing importance in explaining crime in these larger buffers.

## Discussion

This study presents evidence that the presence of SOBs is clearly related to crime in urban communities. The analysis shows crime, including violent, property, and public order offenses, is related to SOBs and in an outwardly decreasing manner. As one moves further away from the physical structure of a SOB, crime rates decrease but continue to be significantly influenced by the SOB. In the buffer of 500 feet, no other variable is more influential on crime rates than the presence of the SOB. In the 1,000-foot buffer, the SOB still has a statistically significant influence on crime but less so than some of the existing neighborhood sociodemographic factors.

The decreasing rate of crime in the areas more removed from the physical structure should be expected, if the SOB is in fact patronized by suitable targets. As one moves away from the structure, fewer suitable targets are present—These individuals are most likely to quickly and perhaps surreptitiously enter and exit the business, interacting with few others and not

venturing beyond the necessary distance to leave the location in their vehicles. Victimization of such individuals is most likely to occur at or very close to the actual building of the SOB.

This study presents clear implications for social policy. At the foundation, both zoning regulators and law enforcement officials need to be aware of the criminogenic impact of SOBs, and adjust their activities and decisions accordingly. SOBs located in or near residential neighborhoods are likely to draw crime (as well as criminally motivated offenders) to the neighborhood, perhaps facilitating criminal offenses by such offenders as they travel to the SOB. Crimes of opportunity, including theft property vandalism and a range of violent offenses, may be perpetrated as motivated offenders travel to and from the SOB location. Although perhaps primarily seeking suitable targets in the immediate vicinity of the SOB, varying paths of travel to the target location may bring such offenders into contact with other opportunities for crimes. As such traveling offenders converge on the SOB, more of them will travel through the areas closest to the SOB, with dispersion through differing outlying areas as such offenders come from and return to differing outlying points of origin. Consequently, law enforcement needs to devote increased resources (patrols, surveillance, and assistance in designing the environment in ways to prevent/reduce crime) to both the immediate vicinity of such businesses and locations near to, and along paths of travel to/from such locations. Although an increased level of visible law enforcement at and near SOBs may have a dampening effect on some patrons' likelihood of visiting such establishments, it is also likely to discourage motivated offenders from being present and acting on their motivations. With both situations, reductions in motivated offenders and possible reductions in numbers of suitable targets, crime would be decreased. Neighborhoods hosting SOBs are clearly attractive to the criminally inclined. Providing a visible law enforcement presence in the immediate vicinity of such establishments is an obvious means for counteracting the effects of such businesses, and should be done.

As with all research, the present study has its limitations. There are two limitations that need to be considered when assessing the present study. The first is in its cross-sectional design, thus causality cannot be confirmed. There is no evidence in our data of temporal ordering of whether the SOBs arrive and subsequently crime follows, or whether SOBs locate in areas that have already high rates of crime. However, it is reasonable to assume that SOBs promote crime due to the opportunities they provide, but it is also possible, even likely in view of economic and social considerations, that the presence of these land uses are only tolerated in neighborhoods of social disorganization and lower social economic status that are already prone to higher crime

levels. The inclusion of sociodemographic variables in the regression models helped control for the impact of existing neighborhood social and crime problems, thus adding to the overall strength of the findings.

A second limitation concerns the fact that it was not possible to separate the impact on ambient crime levels by the two different types of SOBs in the study sample: strip clubs and adult book/novelty stores (most of which had video booths). The spatial clustering of these businesses, common in the study area as well as many other jurisdictions, made it impossible for their impact to be evaluated separately due to overlapping buffers. RAT however suggests all SOB types should promote crime due to their commonality in attracting suitable targets (“perfect victims”) and motivated offenders in areas of reduced guardianship. At least one study shows this to be the case. In their study, McCleary and Weinstein (2009) found that crime rates nearly doubled over a multiyear period within 500 feet of an adult book store (no video booths) compared with only a 25% increase in crime around a nearby motel.

This research has shown that SOBs produce increased crime levels in their surrounding communities up to a distance of at least 1,000 feet. In doing so, this study adds important empirical evidence to the debate concerning the harmful effects of such businesses and the value of local zoning requirements and other regulations trying to control these negative secondary effects. Clearly, SOBs are associated with increased rates of crime. All types of crime—violent, property and public order—are more common at and close to the location of SOBs. As one moves away from the physical structure of such businesses, crime rates decrease but remain influenced by the SOB for significant distances. In short, SOBs attract criminally motivated offenders, suitable targets, and when coupled with a lack of capable guardians, result in increased rates of crime.

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### **Notes**

1. Notably, several researchers (Alwitt & Donley, 1997; Bingham & Zhang, 1997) have shown that socially economically disadvantaged urban communities typically

have significantly fewer grocery stores, drug stores, banks, and general merchandise stores, but more liquor stores.

2. An online sample size calculator ([www.surveysystem.com/sscale.htm](http://www.surveysystem.com/sscale.htm)) determined a sample size of 376 intersections were necessary for a confidence level of 95% at a confidence interval of 5%. The sample size was rounded to 400 cases.
3. Buffers that extended outside of the LMPD area were moved to the closest intersection that would allow their entire area to fall within the study area. The number of buffers moved differed for each set of intersection buffers.

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