

Peep Show Establishments, Police Activity, Public Place, and Time: A Study of Secondary Effects in San Diego, California

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An empirical study was undertaken in San Diego, California, to test assumptions made by the government and by conservative religious policy advocates that there is a greater incidence of crime in the vicinity of peep show establishments. We asked two questions: (a) Is criminal activity in San Diego particularly acute at peep show establishments compared to surrounding control locations? and (b) Is criminal activity in San Diego disproportionately greater at or near peep show establishments between the hours of 2 a.m. and 6 a.m. compared to other times of the day? The levels of crime activity and the expenditure of police resources were examined by measuring the number of calls-for-service (CFSs) to the police within a 1,000-ft. area on either side of the peep show establishments and comparably-sized control areas beyond the immediate 1,000-foot area. A more focused “late-night” (2 a.m. to 6 a.m.) analysis was also undertaken. The results showed no reliable evidence of differences in crime levels between the control and test areas, nor was there any evidence of disproportionately greater amounts of crime within the 2 a.m. to 6 a.m. time period in the areas surrounding the peep show establishments. We concluded that San Diego does not have a problem with crime at the peep show establishments generally, nor is there a heightened problem with crime during the 2 a.m. to 6 a.m. period. We discuss the implications of assuming that peep show establishments are associated with negative effects in the community and the possibility of viewpoint discrimination against sex communication.

The members of the Community Defense Counsel of Scottsdale, Arizona, a politically conservative, religious-based organization devoted to the strict regulation or elimination of sex businesses, have a theory about sexual communication and place. They maintain that the neighborhoods or business districts surrounding sex businesses typically suffer declines in property values and increases in crime, especially sex crimes (Community Defense Counsel, 2004). On its webpage, the Community Defense Counsel offers the following in a section of the page entitled *Answers to frequently asked questions about sexually oriented businesses*: “Communities that have been the most effective in protecting their neighborhoods have been those that use a combination of aggressive enforcement of criminal obscenity laws and . . . stringent time, place, and manner regulations.”

We examined the so-called “secondary effects” of adult peep show establishments in a community both during the day and after hours. The city of San Diego was chosen for study because of an ordinance passed in October 2000 that

made it unlawful for any person to operate a “peep show booth” or “peep show device” between the hours of 2:00 a.m. and 6:00 a.m. The city claimed—consistent with the sex communication, place, and time theory advanced above—that the ordinance was needed to further a substantial government interest in combating crime in the geographical locations surrounding these adult businesses, particularly during late-night hours. We obtained empirical evidence and used it to test the government’s and religious conservatives’ assumptions of the harms associated with sexually-oriented adult businesses. Specifically, we asked two questions: is criminal activity in San Diego particularly acute at peep show establishments compared to surrounding control locations, and is criminal activity in San Diego disproportionately greater at or near peep show establishments between the hours of 2 a.m. and 6 a.m. compared to other times of the day?

Research on Sex Entertainment Establishments in the Community

The place of adult entertainment establishments in the community, the characteristics of those who patronize them, and their impact on the community have been investigated by sex researchers from several points of view. One perspective examines the sexual interests and behavior of the individual patrons of adult businesses. Here, researchers have not focused on peep shows, but have

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examined men's objectification of women through the use of materials commonly found at these venues. For example, researchers have examined exposure to these materials as a possible inhibitor of intimacy with women (Brooks, 1995), and they have examined men's attitudes toward non-relational sex given patronage of adult businesses (Good & Sherrod, 1997).

The second approach might be termed the sociology of the adult peep show. For example, the social environment of the adult bookstore and video peep show in a large Midwestern city was examined using a dramaturgical perspective based on covert participant observation (Tewksbury, 1990). A similar approach was taken by Frank (2003), who investigated the appeal of modern strip clubs for certain groups of late 20th century, heterosexually-identified American men.

A third approach, the feminist perspective, has assumed men are motivated to use the sex industry, including adult peep shows, out of a desire to maintain sexual mastery and power over women (Bartky, 1990; Edwards, 1993). These researchers note that although they are euphemistically labeled "adult entertainment," most of these places in the community are sources of commoditized sex. In this view, strip clubs, pornographic bookstores, peep shows and erotic massage parlors are primarily aimed at male consumers and perpetuate male domination and female oppression.

A fourth approach, perhaps best described as the communication/message effects approach, has included empirical investigation of pornographic content of adult videos and magazines found in adult bookstores and peep show arcades (Yang & Linz, 1990) and addressed methodological issues in the content analysis of pornography (Linz & Donnerstein, 1988). Other research has investigated the effects of exposure to sexually explicit materials and attitudes toward rape and other forms of sexual violence (Linz, 1989; Linz & Malamuth 1993; Malamuth, Heavey, & Linz, 1993).

Finally, other scholars have examined the impact of businesses such as peep shows on the culture of a community. Mosco (in press), for example, examined the impact of closing Times Square peep shows in New York City, and the marginalization of sex entertainment venues in the community through the process of urban renewal.

In this study, we examined peep shows from a different perspective. We empirically tested assumptions made by religious conservatives and lawmakers regarding the effects of sex businesses on crime and disorder in the space surrounding them.

Time, Place, and Manner Restrictions

The legal rationale for regulating peep show establishments was laid out most completely in *City of Renton v. Playtime Theatres, Inc.* (1986). The Supreme Court held that a Renton city ordinance could not be aimed at the content of the films shown at adult theaters. However, the Court stated that the ordinance would be upheld as long as the city of Renton showed that its ordinance was designed to serve a substantial government interest, such as reducing crime. Recently, in

City of Los Angeles v. Alameda Books, Inc., et al. (2002), the Supreme Court endorsed the secondary effects justification laid out in *Renton* but cautioned that municipalities must find a way to address the alleged secondary effects without reducing the availability of sex-related messages through the elimination of adult businesses. Justice Kennedy asserted in *Alameda Books* that the government cannot reduce secondary effects by reducing speech.

The Supreme Court has also considered the legality of attempts to regulate the form or manner of sexual messages within adult businesses. Several anti-nudity ordinances have been passed by municipalities or states. In 1991, the Court in *Barnes v. Glens Theatre, Inc.* held that the state of Indiana could regulate public nudity by requiring that dancers wear pasties and g-strings. In 2000, in the decision *City of Erie v. Pap's A.M.*, the Court again held that municipalities have the right to pass anti-nudity ordinances on assumption that combating negative secondary effects associated with adult businesses was a legitimate basis for the imposition of such regulations.

Limitations on the times when adult businesses may operate represent another form of restriction. The California State Supreme Court addressed the constitutionality of time restrictions in *People v. Glaze* (1980). The *Glaze* case was concerned with violation of a municipal ordinance requiring picture arcades to remain closed between the hours of 2 a.m. and 9 a.m. The Court held that when an ordinance not uniformly applicable to all commercial enterprises involves restrictions on activities protected by the First Amendment, the government must bear the burden of showing that the regulation is narrowly and explicitly drawn and necessary to further a legitimate government interest. The Court noted that the record before it failed to show either that criminal activity is particularly acute at picture arcades, or that it is prevalent between the hours 2 a.m. and 9 a.m.

The Ninth Circuit Court of Appeals has taken a different position on time-based restrictions of sex speech (*Center for Fair Public Policy v. Maricopa County*, 2003). The Court ruled that the time regulation passed by Maricopa County, Arizona, was valid, despite the large and obvious reduction in expression resulting from the time restrictions. The Court disavowed Justice Kennedy's assertion in *Alameda Books* that the government cannot reduce secondary effects by reducing speech—an effect, it may be argued, that results from limiting the times during the day when adult businesses may operate. The Court opined that Justice Kennedy was not talking about hours of operation restrictions when he said the government cannot reduce secondary effects by reducing speech, since this would have the effect of overturning hundreds of limitations undertaken by communities across the nation, and this, according to the Court of Appeals, was not his intention.

Empirical Study of Secondary Effects of Adult Businesses

According to the Community Defense Counsel, many land use studies, police investigations, and public health evalu-

ations conducted over the last 30 years document the negative secondary effects that sexually-oriented businesses bring to communities. These adverse impacts include decreased property values, the spread of sexually transmitted diseases (STDs), and increases in crimes ranging from indecent exposure to assault to rape.

Contrary to the assertions made by religious conservative organizations such as the Community Defense Counsel, Paul, Linz, and Shafer (2001) found that among the most frequently cited studies by communities across the United States, none had been subject to scientific peer review and most lacked essential methodological features that would ensure their reliability and validity. For example, the City of Indianapolis, Indiana study (1984) failed to match study and control areas on critical variables; the City of Phoenix, Arizona study (1979) relied on crime data collected for only a one-year period; and the City of Los Angeles study (1977) authors admitted that the police increased surveillance of adult businesses during the study period.

In contrast to the assertions of the Community Defense Counsel, Paul et al. (2001) concluded,

With few exceptions, the methods used in the most frequently cited studies are seriously and often fatally flawed. These studies, relied on by other communities throughout the country, do not adhere to professional standards of scientific inquiry, and nearly all fail to meet the basic assumptions necessary to calculate an error rate—a test of the reliability of findings in science. Those studies that are scientifically credible demonstrate either no negative secondary effects associated with adult businesses or a reversal of the presumed negative effect (p. 1).

Paul et al.'s critique applied to many of the studies used by the city of San Diego as justification for its ordinance.

When municipalities have conducted studies of crime and adult businesses in the past, there has not been a set of methodological criteria or minimum scientific standards to which the cities were required to adhere. First, to ensure accurate and fair comparisons, a control area must be selected that is truly "equivalent" to the area containing the adult entertainment business(es). Since most analyses of secondary effects attempt to uncover increases in crime, professional standards dictate that the control (non-adult) areas must be comparable (matched) with the study (adult) areas on variables related to crime. Of particular importance are that the study and control areas are matched for ethnicity and socioeconomic status of individuals in both areas. Second, a sufficient period of elapsed time following the establishment of an adult entertainment business is necessary when compiling crime data in order to ensure that the study is not detecting an erratic pattern of social activity. Generally, the longer the time period for observation of the events under consideration, the more stable (and more valid) the estimates of the event's effects tend to be (Singleton, Straits, & Straits, 1999). Third, the crime rate must be measured according to the same valid source of data for all areas considered (Campbell & Stanley, 1963). It is especially important that the measurement of crime is based on the same information source for both areas and

throughout the entire study period. For example, if the study area measures crime by the number and type of calls made to the police department, the comparison area must also rely on such a measure when the two areas are compared.

In addition, the crime information source must be factually valid and reliable, such as a daily log kept by police or a compilation of the number of calls-for-service made in a municipality recorded by street address or similar geographical locators. Any change in police surveillance techniques regarding adult entertainment businesses in a particular community must also be noted. Obviously, increased surveillance of an area simply because an adult business is located there will have an impact on the amount of crime detected by the police. If increased police surveillance and the presence of an adult business in a particular area are confounded in this way, it is impossible to tell whether crime has increased due to the presence of the adult business or because of the increased police activity. Finally, an error rate must be calculated. The error rate is the degree of chance a scientist will allow. In the social sciences, it is conventional to set the error rate at 5% or less (i.e., 95 times out of 100 the results could not be obtained by chance).

Recent studies utilizing sound methodological procedures have not found adverse secondary effects associated with adult businesses in the community. For example, Linz, Land, Williams, Paul, and Ezell (2004) sought to determine whether a relationship exists between adult erotic dance clubs and negative secondary effects in the form of increased numbers of crimes reported in the areas surrounding the adult businesses in Charlotte, North Carolina. For each of 20 businesses, a control site, matched on the basis of demographic characteristics related to crime risk, was compared for crime events over a period of three years (1998–2000) using data on crime incidents reported to the police. The presence of an adult nightclub did not increase the number of crime incidents reported in localized areas surrounding the club (defined by circular areas of 500- and 1,000-foot radii) as compared to the number of crime incidents reported in comparable localized areas that did not contain an adult business. The analyses implied the opposite: that areas surrounding adult businesses sites have smaller numbers of reported crime incidents than do corresponding areas surrounding the three control sites studied.

Previous research specifically addressing the possibility of greater adverse effects after hours also did not find the effects alleged by the Community Defense Counsel and lawmakers in San Diego. The city of Phoenix conducted a study in 1994 that examined cabarets, arcades, and bookstores in that community (City of Phoenix Planning Department, 1994). Interviews with residents, police officer interviews, and on-site observations were undertaken to determine what type of activities were taking place outside adult businesses. Calls-for-service to the police were also analyzed by time of day. Additional data from the

police department's Organized Crime Bureau Vice unit about specific violations, such as prostitution and disorderly conduct, noise/disturbance, and loitering, per time of day were also obtained.

The findings of the Phoenix (1994) study directly contradicted the government's assertions that adult businesses cause problems in the community. According to business owners who were surveyed, more vandalism, more crime against customers and businesses, and more money was spent on security in the control areas. Only 2% of police surveyed said adult businesses presented "a lot of problems" requiring their attention, compared to 31% who said the control business areas had "a lot of problems" requiring police attention.

Condemnation of Sex-Related Communication Establishments and Viewpoint Discrimination

It is important to study empirically the assumptions made by religious conservatives and government officials, because the lack of a quantifiable link between the presence of sexually-oriented businesses in the community and secondary crime effects may have serious consequences for social policy concerning sex communication. If the theory of negative secondary effects does not stand up to empirical scrutiny, the results of this study may point to an incidence of what Justice Souter in the *City of Los Angeles v. Alameda Books, Inc., et al.* (2002) has referred to as a weak demonstration of facts indicating "viewpoint discrimination." Justice Souter formulated a legal test based on the empirical verification of adverse secondary effects of adult businesses. He argued that because courts do not apply strict scrutiny to time, place, and manner regulations, municipalities need to be vigilant about restricting sex-related speech. In his view, sound empirical investigations of presumed adverse secondary effects are helpful in guarding against unconstitutional restrictions of freedom of sexual speech. Justice Souter noted that the weaker the demonstration of empirical facts as separate from disapproval of the viewpoints expressed in adult materials, the greater the likelihood that unconstitutional condemnation of the these viewpoints by the government is occurring.

This study may be considered an application of Justice Souter's viewpoint discrimination test. In this sense, the study is an attempt to determine if San Diego is engaging in disapproval of adult sex speech rather than attempting to regulate sex communication out of concern for empirically-verifiable, adverse secondary effects.

Research Questions

For each peep show establishment in San Diego, we compared a control area for crime events over a period of five years using data on crime incidents reported to the police. The research was designed to measure the extent to which the peep show establishments contributed to community disorder (i.e., increased crime in the immediate vicinity) compared to the control vicinities beyond the peep show establishments. We asked two questions:

1. Is criminal activity in San Diego particularly acute at peep show establishments compared to surrounding control locations?
2. Is criminal activity in San Diego disproportionately greater at or near peep show establishments between the hours of 2 a.m. and 6 a.m. compared to other times of the day?

METHOD

To ensure accurate and fair comparisons, control areas were selected that were equivalent to the areas containing the peep show establishments. A sufficient period of time (five years) was used when compiling crime data in order to ensure that the study was not merely detecting an erratic pattern of social activity. The crime information source was a compilation of the number of calls for police service made in the municipality recorded by street address or similar geographical locators. Error rates were calculated for the statistics to determine if any observed differences between control and comparison areas were reliable differences or were due to chance (Paul et al., 2001).

The study included several steps. Data on calls-for-service were requested from the San Diego Police Department. Test areas ("inner areas") were established and defined to constitute 1,000 feet on either side of the center point of each peep show establishment on both sides of the street in San Diego (spanning a contiguous distance of 2,000 feet). These areas were measured along the street on which each peep show establishment was located. The width of each test area was determined to ensure all calls-for-service occurring within the 2,000-foot test area, and associated specifically with the street on which the business in question operated, were included in our analysis. Control areas ("outer areas") were established along that same street in the 1,000-foot distance adjacent to these two immediate 1,000-foot inner areas. There were no adult entertainment businesses of any type included in any of the control areas used in this study. The calls-for-service to the police were then plotted using a computerized mapping program.

All calls were plotted based on the longitude and latitude coordinates provided by the city's crime analyst. Comparisons of the number of crime incidents were then made for the inner and outer areas. We also made comparisons for the number of crime incidents occurring between the hours of 2 a.m. to 6 a.m. and those occurring throughout the entire 24 hours of the day.

Locating Peep Show Establishments

A "peep show establishment," for the purposes of this study, was defined as any place to which the public is permitted or invited where one or more "peep show devices" are maintained. According to the San Diego Municipal Code section 33.3302 a "peep show device" means any device which displays still or moving images that are distinguished or characterized by an emphasis on "specified sexual activities" or "specified anatomical areas." Although

the city of San Diego has 39 adult entertainment businesses, only 19 of those businesses are peep show establishments. Accordingly, for purposes of this study, only data tied to these 19 peep show locations were analyzed. Names and addresses of the 19 peep show establishments are available upon request.

Compiling a Crime Incident Database

The neighborhoods surrounding the peep show establishments constituted the geographical area of the database for this study. A record of all calls-for-service for each police beat that included within it one or more of the city's 39 various adult entertainment businesses, or which included any areas within 2,000 feet of such businesses in the city of San Diego, was obtained from the City of San Diego. (A copy of the list of beats provided by the city may be obtained from the authors). This included a database with five years of Computer Aided Dispatch (CAD) data (January 1997 through December 2001), including (a) incident date and time, (b) incident type, (c) disposition, (d) incident addresses, and (e) XY coordinates for each of the beats.

To retrieve the data, the San Diego Police Department managing analyst researched the crime incident categories to make sure all applicable call types were included in the data retrieval. City analysts determined which of the Department's beats were associated with the requested locations (including the 2,000-foot area on either side of each establishment). We wrote a query to retrieve the data and then performed a download to place it into a database format. The Appendix lists the calls-for-service categories (CAD) used to compile data for the study by the San Diego Police Department data analyst.

Spatial Placement of Police Calls

The Geographic Information System (GIS) expert within the San Diego Police Department suggested that the research on the requested locations should include geo-validation utilizing parcel data to ensure the points used for the radius were placed accurately. This proved to be impossible since the parcel data available through the city's GIS does not include the level of detail required for this type of validation. To overcome any problems associated with the inexact spatial placement of the points representing the addresses and the city's GIS base maps being accurate only to ± 40 feet at a 95% confidence level, we placed a 1,040 foot radius (instead of a 1,000 foot radius) around locations to determine which beats needed to be included in the data set.

Additionally, since 1997, there have been several changes related to beat boundaries and numbering of beats. The data was extracted to include all appropriate calls, carefully taking into account changes in beat structure or beat boundaries over time.

The XY coordinates provided by the Department are in the Stateplane NAD 83 (California Zone VI) coordinate system. These coordinates provide a more precise location of the global position of the location of the call-for-service.

The resulting data extract included 607,903 calls-for-service records from the San Diego Police Department's CAD system. These records were used in our study.

Establishing Test and Control Areas

The GIS mapping program *Maptitude* was used to establish the 1,000-foot strip on either side of the peep show location (inner area) and to establish an additional 1,000-foot area on each side beyond the inner area. Crime incidents occurring within the two inner 1,000-foot areas were then compared with the incidents in the two outer 1000-foot areas. An example of the placement of the two inner 1,000-foot and two outer 1,000-foot areas surrounding a peep show establishment address may be found in Figure 1.

This inner and outer 1000-foot measurement along city streets was employed because of the arrangement of commercial property in San Diego. As is common throughout California, the commercial zones routinely follow main streets or strips. The advantage to using such a measurement area as a control is that it also contains nearly identical neighborhood characteristics as the test area. This renders the two areas comparable on most dimensions aside from the presence of a peep show establishment.

RESULTS

Police Activity at Peep Shows vs. Control Locations

We made comparison of calls-for-service to the police for the inner and outer areas surrounding the peep show establishments to determine if criminal activity is high at or near San Diego peep shows compared to surrounding control locations. As shown in Table 1, the amount of crime within the inner and outer areas was nearly identical. For 10 of the peep show locations, crime incidents were higher in the inner 1,000-foot areas than in the outer areas. For nine of the locations, crime was lower in the inner areas compared to the outer areas. This result conforms to what would be expected by chance.

Figure 1. An example of the placement of the two inner 1,000-ft. and two outer 1,000-ft. areas surrounding the peep show establishment addresses.

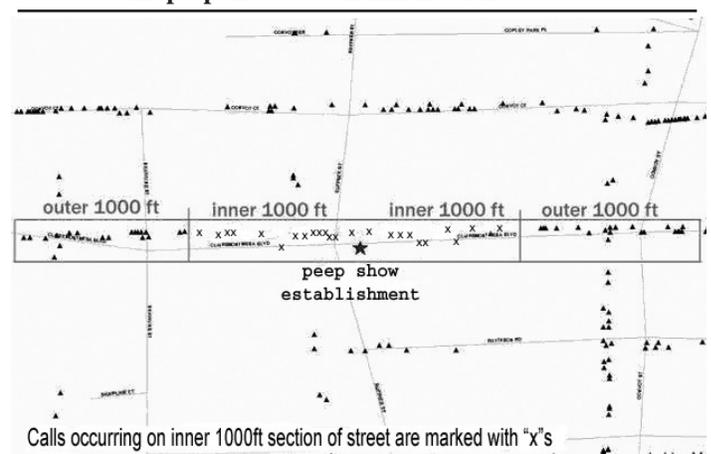


Table 1. Total Calls-for-Service for Inner and Outer 1000-ft. Areas Surrounding Peep Show Establishments in San Diego, CA

Peep Show	Total inner	Total outer	Inner/Outer*
Establishment A	2551	2123	1.20
Establishment B	1421	1591	0.89
Establishment C	3444	1569	2.19
Establishment D	2552	2571	0.99
Establishment E	1930	1780	1.08
Establishment F	419	540	0.77
Establishment G	1182	941	1.25
Establishment H	2120	2099	1.01
Establishment I	5328	2304	2.31
Establishment J	1372	1907	0.71
Establishment K	726	558	1.30
Establishment L	306	451	0.67
Establishment M	1221	549	2.22
Establishment N	926	681	1.35
Establishment O	1068	1733	0.61
Establishment P	1424	2126	0.66
Establishment Q	423	605	0.69
Establishment R	332	216	1.53
Establishment S	755	1157	0.65
Average	1552.63	1342.15	1.16

*Ratios greater than 1 indicate more calls-for-service in the 1,000-foot areas immediately on either side of the peep show establishments than in the adjacent 1,000-foot areas. Ratios below 1 indicate more calls-for-service in the adjacent areas.

To probe this apparent null finding, we conducted a series of statistical tests, beginning with a Mann-Whitney *U* Ranking Test. This is a non-parametric statistical procedure that tests the notion that two sample populations are equivalent in location or origin. The results were Mann-Whitney $U = 180.00$, mean rank inner = 19.53, mean rank outer = 19.47, $z = -.015$, $p = .988$. This test indicated a failure to reject the null hypothesis that there is no difference between the inner and outer areas around peep show establishments in calls-for-service frequency.

We computed a statistically more powerful two-sample *t*-test for the mean levels of calls-for-service for the inner ($M = 1,552.6$, $SD = 1,250.70$) and outer areas ($M = 1,342.2$, $SD = 750.36$), $t(36) = .629$, $p = .533$. This test indicated a failure to reject the null hypothesis at the conventional α level of .05.

To guard against a Type II error (i.e., falsely accepting the null hypothesis when there is in actuality an effect), we conducted a compromise power analysis using a MS-DOS version of the computerized power calculator "G*Power" (Erdfelder, Paul, & Buchner, 1996). The power of a statistical test is the probability of rejecting the null hypothesis given that the alternative hypothesis is true (Cohen, 1988; Kraemer & Thiemann, 1987; Lipsey, 1990). Power depends on the type of test, the alpha level, the sample size and variance, and the effect size. Generally speaking, bigger samples, larger effect size, larger α -level, and smaller sample variance will give more power to a statistical test.

In a typical controlled experiment, planned or *a priori* power analysis is often performed to ensure a study would have enough statistical power to reject the null hypothesis.

The goal is to make a decision about the sample size and alpha level that will be used in the study and the target effect size that will be "detectable" with the given level of statistical power. The sample size in this study is limited by the number of peep show establishments in the test area. Thus, an *a priori* power analysis often used to determine a minimum sample size is unsuitable.

Post-hoc or retrospective power analyses are often suggested to guard against a Type II error (i.e., falsely accepting a null hypothesis when there is a true effect) in situations where statistically non-significant results are found. In a post-hoc power analysis, the sample size and alpha-level are known, and the variance observed in the sample provides an estimate of the variance in the population. An inherent problem of a post-hoc power analysis is that when sample size is held constant, power is determined by the effect size. Specifically, the smaller the effect size becomes, the weaker the power would be. Thus, a retrospective power calculation based on observed effect size is rarely useful when increasing sample size is not a viable option to increase power (Thomas & Krebs, 1997). Such inappropriate use of post-hoc power analysis have been documented and discussed in detail by many researchers (Goodman & Berlin, 1994; Lenth, 2001; Levine & Ensom, 2001; Thomas & Krebs, 1997). Based on this logic, a post-hoc power analysis would tell us no more than what can be inferred from the observed *p*-value in this study because our sample size is limited by the number of peep shows in San Diego.

Nevertheless, it has been suggested that it is important to guard against Type II error if a statistically non-significant finding is obtained. In this study, while a primary goal was to test the hypothesis that areas immediately surrounding a peep show establishment would require more police attention than other nearby areas, a more interesting and important question is, if we fail to reject the null hypothesis at alpha level of .05, can we then be confident enough to accept the null hypothesis? The answer would be *no*. The conventional wisdom of setting the alpha level at .05 is based on the assumption that it would be more important to guard against a Type I error (i.e., false positive) than to guard against a Type II error because in most empirical studies, researchers are looking to confirm a hypothesis rather than to disconfirm it. In fact, it would be four times more likely to commit a Type II error than to commit a Type I error at alpha = .05. Thus, to guard against Type II error, a compromise power analysis should be conducted.

Compromise power analyses are primarily used in two situations: (a) for reasons that are beyond a researcher's control (e.g., working with clinical populations), the sample size is too small to satisfy conventional levels of alpha level and power given the effect size; and (b) given conventional levels of significance, a sample is too large such that even negligible effects would force a rejection of the null hypothesis (Erdfelder et al., 1996). In a compromise power analysis, researchers would specify the relative seriousness of both Type I and Type II errors (Cohen, 1988)

with a beta/alpha ratio. An optimum critical value for the test statistic which satisfies this ratio is then calculated. Given a sample size, this optimum critical value can be regarded as a rational compromise between the demands for a low alpha risk and a large power level, given a fixed sample size.

Our analysis assumed a fixed sample size and the observed effect size and was conducted under the assumption that the relative ratio between alpha and beta is 1 (i.e., an equal likelihood of committing a Type I or Type II error). A new optimum critical value was obtained, two-tailed t -critical (36) = .78, power = .56, alpha = beta = .44. This analysis indicated a failure to reject the null hypothesis at a new and more liberal critical value.

To account for possible spatial dependence between the inner and outer areas around each peep show location, an OLS regression analysis was also conducted. A challenge associated with geo-coded crime data is the issue of spatial dependency. Criminologists have noticed that crime occurrences in a neighborhood are not independent of each other (Morenoff, Sampson, & Raudenbush, 2001; Smith, Frazee, & Davison, 2000). Thus, statistical models often used in criminology research, such as an Ordinary Least Square (OLS) regression, with data that have geographic units of analysis may violate the assumption of independence. Statistical errors are likely to be correlated across locations because of systematic ordering across spatial units of analysis, such as street blocks or census tracts (Smith et al., 2000). In our study, spatial dependence can be understood as the fact that the crime events in the inner 1,000-foot areas on either side of the adult business are related and influenced by crime events in the adjacent outer areas for each of the peep show locations.

Several techniques have been developed to estimate spatial dependence (Morenoff et al., 2001). The two frequently used forms of spatial dependence models are the spatial lag model and the spatial error model (Anselin, 1988). In this study, we utilized the spatial lag model to control for the influence of spatial dependency. The spatial lag model can be expressed by the following equation:

$$y = \rho Wy + X\beta + \varepsilon$$

where y is an $N \times 1$ vector of observations on a dependent variable taken at each of α locations, ρ is the spatial dependence coefficient, Wy is an $N \times 1$ vector composed of elements of the spatial lags for the dependent variable (i.e., the product of W and y , where W is a $N \times N$ covariance matrix of the spatial dependency among each locations), X is an $N \times k$ matrix of exogenous variables, β is an $k \times 1$ vector of parameters, and ε is a vector of error.

Our regression model used calls-for-service to the police observed in the inner and outer zones surrounding peep show locations as the dependent variable. A spatial lag term was introduced to the regression model before the inner/outer condition variable was entered into the equation in order to control for spatial dependency. We made the assumption that the inner and outer 1,000-foot areas

surrounding each peep show location were spatially interdependent on each other; we assigned an arbitrary weight of .50 to account for this dependence. We also assumed the entire 4,000-foot area around each peep show was independent of the 4,000-foot areas around other peep show locations.

The overall regression model was statistically significant, $F(2, 35) = 11.92, p < .001$. The spatial dependency term explained almost 36% of variance in the dependent variable ($R^2 = .359$). However, the variable representing the inner and outer areas did not add significant contribution to the overall predictive power of our model, $F(1, 35) = 1.684, p = .203$, once spatial dependence was controlled.

Hotspot Analysis of Calls-for-Service

A "hotspot" analysis was also undertaken. Although there is a voluminous literature on crime hotspots, we used the procedure employed in the Garden Grove study (McCleary & Meeker, 1991) as a precedent. The Garden Grove Study is frequently cited by municipalities across the country as justification for ordinances to limit adult businesses and sex communication.

The authors of the Garden Grove Study undertook a hotspot analysis by listing the relative rank of adult business addresses vs. other business addresses in the immediate surrounding area. This method involves comparing specific adult business addresses with the remaining neighborhood in terms of percentage of crime and the relative ranks of addresses. They reasoned that if the adult business accounted for 10-25% of crimes in a neighborhood, they constituted a significant source of crime events. They also computed the relative ranking of the adult business address among all addresses on Garden Grove Boulevard. They concluded that because three to five of the six adult businesses were found at the top 10 hotspots, this finding further bolstered their conclusion that these businesses were a significant source of crime. We employed the percentage and ranking method employed in the Garden Grove Study to crime events in San Diego.

Hotspot analyses pinpoint the exact source of the calls for service to the police. These results are summarized in Table 2. The analyses were conducted only for the 10 inner areas that had a greater number of calls than the control outer areas. Within each of the 10 inner areas we identified the 15 street addresses that had the greatest number of calls-for-service. These analyses indicated that in 6 of the 10 inner areas, the peep show was not among the top 15 addresses most frequently brought to the police's attention through calls-for-service.

For the four peep shows ranked 15th and below, we conducted further analysis. The number of calls-for-service to the police at these four peep show establishments accounted for no more than 4% of the total calls-for-service in their respective test area. In the one instance where a peep show establishment did appear at the number 3 rank among the top 15 street addresses, that peep show establishment had an average of less than one incident per year

Table 2. Calls-for-Service Hotspot Analyses in Areas Surrounding Peep Show Establishments in San Diego, CA

Peep Shows	CFSs from Peep Shows	% of Total Rank	CFSs from top Inner	Hotspot
Establishment E	73	5	3.7%	316
Establishment H	34	12	1.7%	98
Establishment G	20	14	1.7%	104
Establishment R	4	3	1.2%	46

at its address. Finally, in no instance did the number of calls-for-service at any of the peep show establishments approach the frequencies of the top hotspot street addresses within the inner areas.

Police Activity Between 2 a.m. and 6 a.m. Compared to Other Times of Day

Three analyses were undertaken to answer the question of whether police activity in San Diego was disproportionately greater at or near peep show establishments between the hours of 2 a.m. and 6 a.m. compared to other times of day. We used the first analysis to determine if the number of calls-for-service was greater than would be expected given the number of hours comprising a day. Table 3 shows the results of analyses of the calls-for-service between the hours of 2 a.m. and 6 a.m. and a comparison of the frequency of these calls to the entire 24 hour period. If calls were distributed equally across the day, approximately 17% of those calls would be expected in the four-hour period between 2 a.m. to 6 a.m. If crime were a particularly acute problem at this time of day, it may be expected that more than 17% of the total criminal activity

Table 3. Calls-for-Service for Inner 1,000-ft. Areas Surrounding Peep Show Establishments in San Diego Between the Hours of 2 a.m. and 6 a.m. as a Proportion of the Entire 24-Hour Period

Peep show	Total inner	Inner 2-6	Inner 2-6/ Total inner
Establishment A	2551	249	0.09
Establishment B	1421	146	0.10
Establishment C	3444	463	0.13
Establishment D	2552	340	0.13
Establishment E	1930	247	0.12
Establishment F	419	44	0.10
Establishment G	1182	142	0.12
Establishment H	2120	201	0.09
Establishment I	5328	830	0.15
Establishment J	1372	140	0.10
Establishment K	726	89	0.12
Establishment L	306	27	0.08
Establishment M	1221	170	0.13
Establishment N	926	114	0.12
Establishment O	1068	135	0.12
Establishment P	1424	131	0.09
Establishment Q	423	39	0.09
Establishment R	332	21	0.06
Establishment S	755	76	0.10
Average	1552.63	189.68	0.11

would occur during that time. The results displayed in Table 3 show that 11% of calls-for-service occurred in the inner areas during the 2 a.m. to 6 a.m. period, contrary to the expectation of 17%.

Second, we compared this hours-based data to data from the control areas. Table 4 presents the results of these analyses. The percentage in the outer areas is on average 10.6, nearly identical to the 11% figure found for the inner areas immediately surrounding the peep show establishments.

The third step was to compare the inner areas and the outer areas using only those calls-for-service that occurred between 2 a.m. and 6 a.m.; Table 5 shows the results of these analyses. There was a nearly identical percentage of crime occurring in the inner areas as compared to the outer areas, indicated by the average ratio of inner to outer areas, which is very close to 1.00. As further confirmation a statistical test was performed, Mann-Whitney $U = 176.00$, inner mean rank = 19.74, outer mean rank = 19.26, $z = -.131$. The results of this test indicate there was no difference between the inner and outer areas in their call-for-service frequencies between the hours of 2 a.m. and 6 a.m.

We also performed a more powerful statistical test on the mean ratio between calls-for-service frequencies between 2 a.m. and 6 a.m. and the entire day for the inner areas ($M = .11$, $SD = .02$) and outer areas ($M = .10$, $SD = .02$) surrounding peep show establishments. The result of this test, $t(36) = .77$, $p = .45$, indicated a failure to reject the null hypothesis at $\alpha = .05$.

We also conducted a compromise power analysis. Given fixed sample size and the observed effect size, a new optimum critical value was obtained under the assumption that the relative seriousness ratio between alpha and beta is 1 (two-tailed t -critical (36) = 1.54, power = .70). The results of

Table 4. Calls-for-Service for the Outer 1,000-ft. Areas Surrounding Peep Show Establishments in San Diego Between the Hours of 2 a.m. and 6 a.m. Compared to the Remaining Time of Day

Peep show	Total outer	Outer 2-6	Outer 2-6/Total
Establishment A	2123	282	0.13
Establishment B	1591	207	0.13
Establishment C	1569	152	0.09
Establishment D	2571	325	0.12
Establishment E	1780	172	0.09
Establishment F	540	51	0.09
Establishment G	941	129	0.13
Establishment H	2099	194	0.09
Establishment I	2304	237	0.10
Establishment J	1907	204	0.10
Establishment K	558	59	0.10
Establishment L	451	42	0.09
Establishment M	549	61	0.11
Establishment N	681	52	0.07
Establishment O	1733	244	0.14
Establishment P	2126	179	0.08
Establishment Q	605	69	0.11
Establishment R	216	16	0.07
Establishment S	1157	123	0.10
Average	1324.16	147.26	0.102

Table 5. Calls-for-Service for Inner and Outer 1,000-ft. Areas Surrounding Peep Show Establishments in San Diego Between the Hours of 2 a.m. and 6 a.m. Compared to the Remaining Time of Day

Peep show	Inner area	Outer area	Outer/Inner
Establishment A	249	282	1.13
Establishment B	146	207	1.41
Establishment C	463	152	0.32*
Establishment D	340	325	0.95*
Establishment E	247	172	0.69*
Establishment F	44	51	1.15
Establishment G	142	129	0.90*
Establishment H	201	194	0.96*
Establishment I	830	237	0.28*
Establishment J	140	204	1.45
Establishment K	89	59	0.66*
Establishment L	27	42	1.55
Establishment M	170	61	0.35*
Establishment N	114	52	0.45*
Establishment O	135	244	1.80
Establishment P	131	179	1.36
Establishment Q	39	69	1.76
Establishment R	21	16	0.76*
Establishment S	76	123	1.61
Averages	189.68	147.26	1.03

* Higher number of crime incidents in the areas immediately surrounding the peep show establishments than in outer areas.

this analysis indicated a failure to reject the null hypothesis at a much more liberal level of $\alpha = \beta = .30$.

Hotspot Analysis of Calls-for-Service between 2 a.m. and 6 a.m.

A crime “hotspot” analysis was also undertaken. The 10 locations that had more crime in the inner than outer areas between the hours of 2 a.m and 6 a.m. were identified. Within each of these 10 inner areas, we identified the 15 street addresses that had the greatest number of calls-for-service. Eight peep show establishments ranked below 15. Table 6 displays the results of the hotspot analysis for these eight establishments. The number of calls-for-service at these eight businesses accounted for no more than 6.5% of the total calls-for-service in the 2,000-foot areas immediately adjacent to the peep show establishments. Additionally, the number of calls for service at any of the individual peep show establishments did not remotely

Table 6. Calls-for-Service Hotspot Analyses in Areas Surrounding Peep Show Establishments in San Diego Between the Hours of 2 a.m. and 6 a.m.

Peep Shows	CFS from Peep shows	Rank	Percent of Total Inner	CFSs from top “Hotspot”
Establishment C	13	10	2.8%	190
Establishment E	16	4	6.5%	60
Establishment D	10	5	2.9%	51
Establishment I	10	10	1.2%	120
Establishment M	9	5	5.3%	16
Establishment G	7	3	4.9%	22
Establishment H	5	6	2.5%	17
Establishment N	3	9	2.6%	34

approach the frequencies of the top hotspot street addresses within the inner areas.

DISCUSSION

The city of San Diego claimed, consistent with the place and time theory about sex businesses advanced by religious conservatives, that regulation was needed to further a substantial interest in combating harmful crime effects in the geographical locations surrounding adult peep show establishments, particularly during late-night hours. In the study presented here, we obtained empirical evidence and used it to test the governmental and religious assumptions of harm to the community from these establishments.

Overall, the results of the analyses suggest police activity in a given geographical space is not significantly related to the presence of peep show establishments in San Diego. Not only were calls-for-service to the police not acute at or near peep show establishments compared to surrounding control locations, but the peep show addresses themselves appeared to be among the least frequent sites coming to police attention. Further, the data showed no indication of a disproportionately greater amount of criminal activity near peep shows in San Diego between the hours of 2 a.m. and 6 a.m. compared to other times of the day. In fact, there were substantially *fewer* crimes than would be expected by a random distribution model.

Two features of our analyses strengthen confidence in the findings of this study. First, in order to guard against a Type II error (i.e., falsely accepting the null hypothesis when it should be rejected), we conducted a power analysis. This analysis indicated that the study design permitted a sufficient amount of statistical power to allow for confidence in the null results. Second, to account for the possible spatial dependence between calls-for-service in the inner and outer areas around each peep show location, we conducted analyses controlling for spatial dependence. Even after we controlled for the correlation of crime events between the areas surrounding the peep show and adjacent areas, there was no greater number of crime incidents in the peep show areas compared to the control areas than what would be expected by chance.

Crime Measurement and Null Findings in This Study

The results of this investigation suggest it may be best not to assume adverse secondary effects in the form of greater police activity and crime emanating from adult businesses such as peep show establishments. However, the null findings do not obviate the need for future research. Although the study found no statistically significant effects with the measures and tests employed here, there is no guarantee that an alternate means of measurement might not yield an association between adult businesses such as peep shows and adverse secondary effects.

Criminologists use a variety of measures of crime; each measure has advantages and disadvantages. All measures have error associated with them and may be biased. One procedure that might have contributed to the null findings

in the present study is the use of calls-for-service to the police as a measure of crime and disorder. Using calls-for-service as the outcome variable may have introduced error in detecting crime events. This error may potentially decrease the probability of finding a negative effect for peep shows in the community and increase the probability of accepting the null hypothesis of no effects.

Many criminologists have employed citizens' telephone calls-for-service (CFSs) to police dispatch centers to measure crime at the address (Sherman, Gartin, & Burger, 1989), neighborhood (Bursik, Grasmick & Chamlin, 1990; Warner & Pierce, 1993), and city (Bursik & Grasmick, 1993) levels. According to its proponents, the CFSs measure offers a more valid description of aggregate levels of crime than either police records collated in the FBI's Uniform Crime Reports (UCR) or victimization data collected in the National Crime Survey.

At least two factors contribute to measurement bias in UCR data: citizens' decisions about whether to notify the police about criminal activity and police decisions about whether to take reports when citizens inform them that crimes have occurred (e.g., Black, 1970). Sources of bias in victimization data include, but are not limited to, citizens' failure to report crimes to interviewers, as well as other problems that are common to survey research, such as errors associated with interviewer effects, interviewee memory problems, and other response biases (e.g., Bailey, Moore & Bailer, 1978; Biderman & Lynch, 1991).

The most serious source of bias in CFSs data is the process by which police discover crimes: many come to their attention via means other than phone calls to dispatch centers. For example, citizens sometimes report crimes directly to officers on patrol and at station houses. Further, officers often observe criminal activity while patrolling their beats (Reiss, 1971). Errors in CFSs crime counts also vary according to neighborhood. Dispatch data are more likely to undercount the total number of crimes that come to the attention of the police in neighborhoods where residents believe that officers respond more slowly to their calls, where residents are more fearful of crime, and where they experience more criminal victimization.

Calls-for-service to the police were used in this study because other studies have relied on this measure of police and crime activity. These studies are routinely used as a means of justifying legislation restricting adult businesses, or in the absence of negative effects, have been cited as evidence for a lack of secondary effects. The most important of these studies is the Fulton County Georgia police study. The 11th Circuit Court U.S. of Appeals has cited this study as one that is particularly applicable to the secondary effects debate. The statistical information included in that study was obtained through the Fulton County Police Department computerized incident and calls-for-service reporting program (*Flanigan's Enters. v. Fulton County*, 2002).

Further, it has been generally agreed upon by criminal justice researchers that CFSs are a valid measure of the uti-

lization of police resources. This is particularly true with regard to time utilization by police. Thus, the measure may be especially useful in an hours-of-operation study. Often police resources are limited late at night. This scarcity of police personnel has been used as a justification by governments for curtailing First Amendment-related sex communication businesses after hours. To the extent that the findings of this study are limited to police resource utilization, concerns about measurement error and null findings are probably unwarranted.

A suggestion for future secondary effects studies is that researchers also rely on incident data in addition to calls-for-service in order to reduce the possibility of mistakenly accepting a null finding due to crime measurement error. The U.S. Department of Justice is replacing its long-established Uniform Crime Reporting (UCR) system with the more comprehensive and potentially more valid National Incident-Based Reporting System (NIBRS). NIBRS collects a wide range of information on victims, offenders, and circumstances for a greatly increased variety of offenses. Moreover, NIBRS collects information on multiple victims, multiple offenders, and multiple crimes that may be part of the same episode. The use of these more rigorously collected and more comprehensive incident-based data may allow for more confidence to be placed in future null findings should they be obtained.

Condemnation of Sex-Related Communication Establishments, Public Space, Time, and Viewpoint Discrimination

What does the lack of empirical evidence of a relationship between sexually-oriented businesses in the community and secondary crime effects, both during regular and late-night hours in San Diego, mean regarding the city's underlying rationale for regulating sex oriented businesses? Were the city to press ahead with legislation despite a lack of empirical evidence of adverse secondary effects, it may be an incidence of what Justice Souter in the *City of Los Angeles v. Alameda Books, Inc.* (2002) has referred to as a weak demonstration of facts indicating viewpoint discrimination.

In *Alameda*, Justice Souter said sound empirical investigations of presumed adverse secondary effects are helpful in guarding against unconstitutional restrictions of freedom of sexual speech. Lacking empirical proof of its own, the city of San Diego may be engaging in disapproval of adult speech rather than attempting to regulate sex communication out of concern for adverse secondary effects.

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APPENDIX

Calls-for-service categories (CAD) used to compile data for the peep show establishment study by the San Diego Police Department data analyst.*

Description	Category	Description	Category
Arson in Progress	Arson	Disturbing Peace Noise Only	Disturbing the Peace
Arson Report	Arson	Disturbing Peace/Noise-Cost Rec	Disturbing the Peace
Battery	Arson	Preserve the Peace	Disturbing the Peace
Battery Report	Arson	Disturbing Peace w/Violence	Disturbing the Peace
ADW	Arson	Party Call	Disturbing the Peace
245 Suspect There Now	Arson	Drunk-Drugs/Alcohol	Drunk in Public
ADW Report	Arson	DWI	DUI
ADW-All Units Information	Arson	DWI With Cost Recovery	DUI
Threatening w/Weapon	Arson	DWI-All Units Information	DUI
Threatening w/Weapon Report	Arson	Indecent Exposure	Indecent Exposure
Tampering w/Veh in Progress	Auto Burglary	Indecent Exposure Report	Indecent Exposure
Vehicle Alarm/Audible	Auto Burglary	Murder	Murder
Vehical Caser	Auto Burglary	187 Suspect There Now	Murder
Tampering w/Veh Report	Auto Burglary	Murder-All Units Information	Murder
Auto Theft	Auto Theft	Ambulance Call, Overdose	Narcotics
Eval-Poss Unreported Car Theft	Auto Theft	Description	Category
Auto Theft (GPS Vehicle)	Auto Theft	Narcotics Activity	Narcotics
Car Theft Report	Auto Theft	Robbery	Robbery
Car Theft Recovery Report	Auto Theft	211 Suspect There Now	Robbery
Auto Theft All Units Info	Auto Theft	Robbery Alarm	Robbery
Stolen Veh-Lojack	Auto Theft	Robbery Caser	Robbery
Varda Alarm	Auto Theft	Robbery Car Jacking	Robbery
Prowler	Burglary	Robbery-Pronet	Robbery
Burglary in Progress	Burglary	Robbery Report	Robbery
459 Suspect There Now	Burglary	Robbery-All Units Information	Robbery
Burglary Alarm	Burglary	Assault-Sex Crime	Sexual Assault/Rape
Burglary Caser	Burglary	Assault-Sex Crime Report	Sexual Assault/Rape
Burglary Hot Prowl	Burglary	Rape	Sexual Assault/Rape
Burglary Report	Burglary	261 Suspect There Now	Sexual Assault/Rape
Child Molest	Child Molest	Rape Caser	Sexual Assault/Rape
288 Suspect There Now	Child Molest	Rape Report	Sexual Assault/Rape
Child Molest Caser	Child Molest	Discharging Firearms	Shooting at Home/Dwelling
Child Molest Report	Child Molest	Firing At Occupied Hse/Veh	Shooting at Home/Dwelling
Disturbing Peace	Disturbing the Peace	Firing At Occp'd Hse/Veh 1110	Shooting at Home/Dwelling
Dist Peace-Capp House	Disturbing the Peace	Firing At Unoccupied Veh	Shooting at Home/Dwelling
Domestic Vio/Occurring Now	Disturbing the Peace	Firing At Unoccupied Veh/Hse 1110	Shooting at Home/Dwelling
		Vandalism, In Progress	Vandalism
		Vandalism, Report	Vandalism
		Tagger	Vandalism

*There is no call type associated specifically with lewd conduct. These calls overlap with and are included in child molest or indecent exposure categories. Residential and commercial burglaries do not have separately defined call types in CAD. There is no call types associated with truancy in CAD.