

Using Crime Mapping to Measure the Negative Secondary Effects of Adult Businesses in Fort Wayne, Indiana: A Quasi-Experimental Methodology

by

Bryant Paul
Ph.D. Candidate
University of California at Santa Barbara
Department of Communication
Santa Barbara, CA 93106
long_time@msn.com
Phone: (805) 983-3887

Paper presented to National Institute of Justice's Crime Mapping Research Center's 2001 International Crime Mapping Research Conference: Dallas, Texas.

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Abstract

An empirical study of criminal activity surrounding exotic dance nightclubs in Fort Wayne, Indiana was undertaken. Unlike related previous studies, specific attention was given to fulfilling the requirements set out by the Supreme Court for the proper conduct of a social scientific inquiry.¹ A 1000 feet circumference surrounding each of eight exotic dance nightclubs in Fort Wayne was established. Comparison areas were selected in the city of Fort Wayne and matched to the club areas on the basis of demographic features and commercial property composition. The number of calls to the police from 1997-2000 in the areas surrounding the exotic dance nightclubs was compared to the number of calls found in the matched comparison areas. Our analysis showed little difference, overall, between the total number of calls to the police reported in the areas containing the exotic dance nightclubs and the total number of offenses reported in the comparison areas.

Acknowledgements

I would very much like to thank my graduate mentor Dr. Daniel Linz, in the Department of Communication at the University of California, Santa Barbara, for his guidance on this research project. I would also like to thank the City of Fort Wayne, Indiana's Police Department for providing me with the geocoded data on police calls for service.

¹ The Ft. Wayne clubs studied in this paper do not operate in a form of what is traditionally considered to be an "adult" entertainment business. The entertainers at these nightclubs perform wearing "pasties" and "g-strings" consistent with Indiana statute and the United States Supreme Court's decision in *Barnes v. Glen Theatre, Inc.*, 501 U.S. 560 (1991). For this reason, while we refer to previous reports and studies as attempting to analyze the relationship of "adverse secondary effects" and "adult" businesses, we generally refer to the studied facilities here either as "nightclubs" or "exotic dance" establishments.

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INTRODUCTION

Since 1976, the United States Supreme Court has decided a series of cases focusing on whether the free speech clause of the First Amendment allows cities and states to enact legislation controlling the location of “adult” businesses.² “Zoning” regulations (e.g., laws or ordinances that prevent a sex-related business from operating within a certain number of feet from residences, schools and houses of worship or a given distance from one another) have been predicated on the notion that cities and other municipalities have a substantial interest in combating so-called “negative secondary effects” on the neighborhoods surrounding exotic dance businesses. These secondary effects are generally said to include alleged increases in crime, decreases in property values, and other indicators of neighborhood deterioration in the area surrounding the exotic dance business. Typically, communities have either conducted their own investigations of potential secondary effects or have relied on studies conducted by other cities or localities.

In more recent years, the Court has considered the constitutionality of anti-nudity ordinances passed by municipalities or states that have relied on negative secondary effects to justify the legislation.³ In a fractured decision, the Court in *Barnes v. Glens Theatre Inc.* held that the State of Indiana could regulate public nudity.⁴ Justice Souter in a concurring opinion ruled that the government

² See e.g., *Young v. American Mini Theatres, Inc.*, 427 U.S. 50 (1976); *City of Renton v Playtime Theatres Inc.*, 475 U.S. 41 (1986).

³ See e.g., *Barnes v. Glens Theatre Inc.*, 501 U.S. 560 (1991); *City of Erie v. Pap's A.M.*, 529 U.S. 277 (2000).

⁴ *Barnes v. Glens Theatre Inc.*, 501 U.S. 560 (1991) [hereinafter *Barnes*].

could undertake such regulation on the basis of the presumed negative secondary effects on the surrounding community.⁵

Most recently, in *City of Erie v. Pap's A.M.* the Court again held that municipalities have the right to pass anti-nudity ordinances.⁶ And, again, the Court was fractured. However, three Justices agreed with Justice O'Connor's opinion that in conformity with Justice Souter's concurrence in *Barnes*, combating negative secondary effects associated with adult businesses was a legitimate basis for the imposition of anti-nudity regulations. Most notable for the current study, was Justice Souter's partial concurrence and partial dissent in the *Pap's* decision. He significantly revised the position he took regarding secondary effects in *Barnes*. In *Pap's*, Justice Souter admitted that the evidence of a relationship between adult businesses and negative secondary effects is at best inconclusive.⁷ He called into question the reliability of past studies that purported to demonstrate these effects and suggested that municipalities wishing to ban nudity must show evidence of a relationship between adult businesses and negative effects.⁸

In addition, writing on behalf of four of the other Justices in *Pap's*, Justice O'Connor noted that the nightclub at issue there "has had ample opportunity to contest the council's findings about secondary effects -- before the council itself, throughout the state proceedings, and before this [the Supreme] Court. Yet, to this day, [the club] has never challenged the city council's findings or cast any specific doubt on the validity of those findings." The four-member plurality of the Court therefore rejected the club's challenge to the assertion that the facility engendered adverse secondary effects, because the business itself had not submitted any evidence to refute such an asserted connection.

⁵ As will be discussed in depth below, restrictions on erotic dance have typically included requiring dancers to wear at least pasties and a G-string when performing.

⁶ *City of Erie v. Pap's A.M.*, 529 U.S. 277 (2000) [hereinafter *Pap's*].

⁷ *Id.* at 6-7 (Souter, D. concurring in part dissenting in part).

⁸ *Id.* at 5 n.3.

The purpose of the present study is to develop the type of evidence demanded by Justice Souter and noted to be relevant by Justice O'Connor and the other Justices, in order to determine if a relationship exists between the exotic dance clubs in Fort Wayne, Indiana and negative secondary effects. Further, this evidence is obtained in accordance with established methodological procedures so as to insure the highest levels of scientific reliability.

CONDUCTING SCIENTIFICALLY VALID STUDIES OF SECONDARY EFFECTS

Unfortunately, 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. Without such standards I have argued most cities that have passed legislation are relying on flawed databases.⁹

The basic requirements for the acceptance of scientific evidence for legal decision-making were prescribed by the Supreme Court in the 1993 case of *Daubert v. Merrell Dow*.¹⁰ In *Daubert*, Justice Blackmun, writing for the Court, held that there are certain limits on the admissibility of scientific evidence offered by "expert witnesses" in federal courts.

The Basic Requirements for the Acceptance of Scientific Evidence

In an attempt to prevent the proliferation in courtrooms of what Peter Huber has called "junk science," the Supreme Court in *Daubert* opined that scientific knowledge must be grounded "in the methods and procedures of science," and must be based on more than "subjective belief or unsupported speculation." Thus, the Court said, "the requirement that an expert's testimony pertain to 'scientific knowledge' establishes a standard of evidentiary reliability."¹¹ The Court observed that "[i]n a case involving scientific evidence, evidentiary reliability will be based upon scientific validity."

⁹ See, Bryant Paul, Daniel G. Linz, and Bradley J. Shafer. *Government regulation of adult businesses through zoning and anti-nudity ordinances: Debunking the legal myth of negative secondary effects*. Comm. L. & Pol'y 355-392 (2001).

¹⁰ *Daubert v. Merrell Dow*, 509 U.S. 579 (1993) [hereinafter *Daubert*].

¹¹ *Id.* at 590 n. 9.

Offering "some general observations" as to how this connection can be made, the Court provided a list of factors that federal judges could consider in ruling on a proffer of expert scientific testimony: 1.) The "key question" is whether the theory or technique under scrutiny is testable, borrowing Karl Popper's notion of falsifiability. 2.) Although publication was not an absolute essential, the Court noted that peer review and publication increased "the likelihood that substantive flaws in methodology will be detected." 3.) Error rate. 4.) Adherence to professional standards in using the technique in question. 5.) Finally, though not the sole or even the primary test, general acceptance could "have a bearing on the inquiry."¹²

While it may not be necessary to hold a single study of adverse secondary effects to each of these considerations when weighing the validity of evidence substantiating the existence of such effects, at least two factors, error rate and adherence to professional standards are indispensable. Before discussing those two elements, we will briefly address the other factors as well.

I presume that it is at least a testable position that secondary effects may exist, and may be connected to certain businesses, or else a study would not be undertaken in the first place. More to the point, however, in *Pap's*, both the opinion by Justice Souter and that authored by Justice O'Connor on behalf of four Justices (therefore constituting a combined majority of the Court) presume that such a connection or nexus is testable. In fact, Justice Souter states specifically that "[t]he proposition that the presence of nude dancing establishments increases the incidence of prostitution and violence is amenable to empirical treatment"¹³ In addition, the procedures and methodologies that we use here are no different than our previous review and critical analysis of the existing "secondary effects" literature; which itself has been both peer-reviewed and published. *See*, n.9, *supra*. Finally, the

¹² *Id.* at 593-594.

¹³ *Pap's*, 120 S.Ct. 1382, 1404 n.3 (Souter, J. concurring in part and dissenting in part).

analysis that we undertake here -- comparing specified locations with regard to calls for service -- is neither novel, unique, nor groundbreaking. It is a form of research that receives general acceptance in the scientific community. It is only the nature of the businesses that makes this study different.

The third and fourth factors, the calculation of an error rate and adherence to professional standards in using techniques or procedures are the most critical factors that need to be applied to any secondary effects study in order to ensure "evidentiary reliability." Without this reliability, there is no basis to determine whether there is a substantial or important governmental interest involved or whether a specific piece of legislation is "necessary" in order to further that interest, or whether it is "reasonable" for a municipality to rely upon such a study as a basis for enacting legislation.¹⁴

In a scientific study, the error rate refers to the probability of accepting a result as true, when in fact it is false.¹⁵ It is an indication of the reliability of a finding. An error rate is determined by first calculating an estimation of a population characteristic (a statistic) that summarizes the data that has been collected, and then asking how likely it is that that statistical value would be obtained by chance alone. 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 five percent or less (i.e., we will tolerate an error rate that 5 times out of 100, the results may be obtained by chance and that we may be wrong).¹⁶

¹⁴ These are the factors that the United States Supreme Court has established in order to analyze the constitutionality of legislation under what is known as "intermediate" scrutiny. In *United States v. O'Brien*, 391 U.S. 367 (1968), the Supreme Court established a four-part test for such scrutiny, which requires a court to analyze, for example, "whether the regulation furthers an important or substantial governmental interest," and "whether the incidental restriction on alleged First Amendment freedom is no greater than is essential to the furtherance of that interest." *Id.* at 377. In addition, when determining whether a regulation furthers an important or substantial governmental interest in the context of a "secondary effects" analysis, a municipality may rely upon previous studies "so long as whatever evidence the [government] relies upon is reasonably believed to be relevant to the problem that [it] addresses." *Renton v. Playtime Theatres, Inc.*, 475 U.S. 41, 51-52 (1986) (clarification added).

¹⁵ See, Robert R. Pagano, *Understanding Statistics in the Behavioral Sciences*. 215-216, 384 (5th ed. 1998). See also Geoffrey Keppel, *Design and Analysis: A Researcher's Handbook*. 164-165 (3rd ed. 1991); David C. Howell, *Statistical Methods for Psychology*. 349-350 (4th ed. 1997). See generally, Jacob Cohen & Patricia Cohen, *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*. 166-176 (2nd ed. 1983) (discussing causes of type I and type II error and ways to correct for each).

¹⁶ Jacob Cohen & Patricia Cohen, *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*. at 21 (2nd ed. 1983).

Unless certain assumptions are met, statistical tests cannot be applied to the data and an error rate cannot be calculated. Most important of these assumptions in regard to, for example, survey research, is that the units of analysis (e.g., survey respondents) are randomly selected from the population, or in regard to an experiment, that the units of analysis (e.g., subjects) are randomly assigned to experimental (or study) and control (or comparison) groups.¹⁷ The results of properly conducted experiments and surveys are always couched in terms of an error rate.

However, in many cases, especially in field research, it is not possible to randomly assign units of analysis to an experimental group and a control group.¹⁸ This is universally true of “secondary effects” studies.¹⁹ It is not feasible to randomly assign exotic dance nightclubs to some locations in the city and randomly assign other areas as control areas and then take account of whether crime increases or decreases around the clubs relative to the control areas.

When this is the case, adherence to a set of professional standards that have been devised by scientists in a particular area of inquiry to insure methodological integrity and thus the validity of a study is all the more necessary. These standards vary somewhat depending on the area of inquiry or social science discipline, but they are generally known as professional standards for conducting “quasi-experiments.”²⁰

CRITERIA FOR INSURING A SCIENTIFICALLY VALID STUDY OF SECONDARY EFFECTS

The majority of the secondary effects studies reviewed generally assume the following form. Researchers assemble crime statistics and calculate average property values and other general

¹⁷ Earl Babbie, *The Practice of Social Research*. 202-210 (8th ed. 1998). *See also*, Royce A. Singleton, Jr., Bruce C. Straits, & Margaret Miller Straits, *Approaches to Social Research*. 136-151 (2nd ed. 1993).

¹⁸ Donald T Campbell & Julian C. Stanley, *Experimental and Quasi-experimental Designs for Research*. 34 (1963).

¹⁹ Obviously, it is not possible to randomly assign certain businesses to some neighborhoods and hold other neighborhoods as controls.

²⁰ *See*, Campbell & Stanley, *supra* note 68 at 34-71.

measures of neighborhood quality or deterioration (e.g. residential turnover rate, local tax revenue, etc.) in the geographical area surrounding exotic dance entertainment businesses. In a few studies these measures are compared to other areas that do not contain an adult business. Another popular data gathering methodology is to perform a survey in which residents or business owners are asked for their opinions of the likely impact of adult entertainment businesses on their neighborhoods. The former type of study may be relevant to determining whether certain forms of establishments cause “adverse secondary effects” if conducted in accordance with sound scientific principles, while the latter does not provide any empirical validity whatsoever to this issue.²¹

In the present study, the impact of exotic dance clubs on the occurrence of crime is specifically considered. The discussion of acceptable scientific procedures is limited to those necessary to insure the proper implementation of such a crime study.

Three criteria are crucial in insuring that a scientifically valid study of secondary crime effects has been conducted. First, in order to insure accurate and fair comparisons, a control area must be selected that is truly “equivalent” to the area containing the exotic dance entertainment business(es).²² Since most analyses of secondary effects attempt to uncover increases in crime, professional standards dictate that the control (non-exotic dance) site must be comparable (matched) with the study (exotic dance) site 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. A concerted effort should also be made to include only comparison areas with similar real estate market characteristics such as proportion of commercial and industrial space in either area. The study and control areas should also approximately equal in total population. Finally, because of the effect of businesses that serve alcoholic beverages on crime and neighborhood deterioration, the study and control area should

²¹ See, n.9, *supra*.

be matched on the presence of alcohol serving establishments.²³ The reasons for these concerns are discussed later in this paper.

In summary, studies which employ a test group or area and a matched control group or area, are commonly referred to as “quasi-experimental” designs and the most important consideration in such a design is whether the comparison group or control group are well matched.

Second, a sufficient period of elapsed time, following the establishment of an exotic dance entertainment business, is necessary when compiling crime data in order to ensure that the study is not merely 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.²⁴

Third, the crime rate must be measured according to the same valid source for all areas considered.²⁵ Studies of secondary effects typically focus on two general types of crime in relation to exotic dance entertainment businesses. These two types of crime are "general criminal activity" (including, but not limited to, robbery, theft, assault, disorderly conduct, and breaking and entering) and "crimes of a sexual nature" (including, but not limited to, rape, prostitution, child molestation, and indecent public exposure). It is especially important that the measurement of these crimes is based on the same information source for both sites 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

²² See, Campbell and Stanley, *supra* note 68. See also, Babbie, *supra* note 67 at 213-214.

²³ See e.g., City of St. Paul, Minnesota, Neighborhood deterioration and the location of adult entertainment establishments in St. Paul. (1978).

²⁴ Royce A. Singleton, Bruce C. Straights, & Margaret M. Straights, *Approaches to Social Research*. at 213-241 (1993).

²⁵ See, Campbell & Stanley, *supra* note 68 at 5, 9.

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 exotic dance entertainment businesses in a particular community must also be noted. Obviously, increased surveillance of an area simply because an exotic dance club 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 exotic dance club in a particular area are confounded in this way, it is impossible to tell whether crime has increased due to the presence of the club or simply 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 five percent or less (i.e., we will tolerate an error rate of 5 times out of 100 the results may be obtained by chance).

STRENGTHS OF THE PRESENT STUDY

The following criteria were applied to insure that a scientifically valid quasi-experimental study of secondary effects would be conducted in the city of Fort Wayne. First, in order to insure accurate and fair comparisons, comparison areas were selected that were equivalent to the areas surrounding the exotic dance entertainment businesses. Second, a sufficient period of time (over three years) was employed when compiling the crime data used in this investigation in order to ensure that the study was not merely detecting a temporary and erratic pattern of criminal activity. Third, the crime rate was measured according to the same valid source for all areas of the city considered and the crime information source was a factually valid compilation of the calls for service supplied by the City of Fort Wayne. Statistical analysis is undertaken where appropriate and an error rate is calculated to determine if any differences found between club and comparison areas are due to chance or true differences.

METHODS

A Quasi-Experimental Approach

It was not possible to randomly assign units of analysis to an experimental group and a control group to perform a “true” experiment to test the hypothesis that exotic dance nightclubs in Fort Wayne engender negative effects. However, as noted above, there is a set of professional standards that have been devised by social scientists to insure “methodological rigor” (procedural validity) in this situation. These standards are generally known as professional standards for conducting “quasi-experiments.”

In order to insure accurate and fair comparisons, a control area must be selected that is truly “equivalent” to the area containing the adult entertainment business(es). Since in this study an attempt was made to uncover whether crime had increased in the areas surrounding the exotic dance nightclubs, professional standards dictate that the control (non-exotic dance) site must be comparable (matched) with the study (exotic dance) site on demographic and other variables that are generally regarded as being related to crime rates.

Matching club and comparison areas on demographic variables related to crime

In order to insure confidence in our results, it is particular importance that the study and comparison areas be matched for population ethnicity and age, two factors that are known to be related to crime rates. The socioeconomic status of individuals in both areas must also be considered and the study and comparison areas must be matched on these variables as well. For example, Cohen, Gorr, and Olligschlaeger²⁶ have found that crime hotspots tended to be in areas with higher levels of poverty.

²⁶ Jacqueline Cohen, Wilpen Gorr, and Andreas Olligschlaeger. *Modelling street-level illicit drug markets*. Working paper 93-64, The H. John Heinz III School of Pub. Pol. and Mngmt., Carnegie Mellon University, Pittsburgh (1993).

The number of female-headed households and total divorced residents in each area should also be taken into account. This is because Cohen, Gorr, and Olligschlaeger found that crime hotspots tended to be associated with low family cohesion.²⁷

The study and control areas should also be approximately equal in total population both in order to control for the effects of population density on crime and to correct for rate of crime.

A concerted effort should also be made to include only comparison areas with similar real estate market characteristics, such as proportion of commercial and industrial space in either area. Higher levels of crime tend to plague places with certain types of facilities and not others. In some cases, for example, crimes seem to be elevated by a target rich environment—for example, thefts of 24-hour convenience stores, auto thefts from large parking lots, or robberies from shoppers in heavily frequented commercial areas.²⁸ (Engstad 1975; Duffala 1976).

Finally, because of the effect of businesses that serve alcoholic beverages on crime and neighborhood deterioration, the study and control area should be matched on the presence of alcohol serving establishments such as bars and taverns. Certain activities such as alcohol consumption seem to contribute to levels of violence²⁹

All of these various attempts to “match” the subject and control areas are critical in order to insure that the results we obtain can be ascribed to the presence or absence of (in this case) an exotic dance nightclub, and not to some other irrelevant factor.

Establishing Matched Comparison Locations

²⁷ See, Id.

²⁸ P. A. Engstad. *Environmental opportunities and the ecology of crime*. Crime in Canadian Society. (1975); D. C. Duffala. Convenience stores, armed robber, and physical environmental features. *American Behavioral Scientist*, 20: 227-246. (1976).

²⁹ Dennis W. Roncek and M. A. Pravatiner. Additional evidence that taverns enhance nearby crime. *Sociology and Social Research*, 70; 185-188; Richard Block and Carolyn Block. Space, place, and crime: Hot-spot areas and hot places of liquor-related crime. In *Crime and Place*, edited by J.E. Eck and D. Weisburd. Vol. 4 of *Crime prevention studies*. Monsey, New York: Criminal Justice Press.

In order to insure that the research reported here utilized appropriately “matched” exotic dance club (study) and non-club (comparison) areas, a crime mapping approach was utilized. A 1000 feet area was identified as surrounding each of eight exotic dance nightclubs in Fort Wayne, Indiana.

Comparison areas, each 1000 feet in radius were selected by using a set of neighborhood demographic features that matched with the exotic dance business areas on the basis of demographic features known to be related to crime, and by further matching areas on the basis of commercial property composition.

The following demographic variables were chosen for matching control and exotic dance club sites because of their established empirical relationship with criminal activity: Number of female headed households, total population (1997), total number of white residents, total number of black residents, residents aged 18-29, total divorced residents and median household income. Each of these variables was identified at the U.S. Census block level.

The geographic information system computer program, Maptitude, was used to locate the census block within which each club was located. The values on each of the demographic variables were identified for the census block within which the exotic dance nightclub was located. A comparable block, matched for values on the crime variables, was then selected via Maptitude. When study or comparison areas fell across more than one census block, a mean for all of the blocks involved was calculated to determine the value of each demographic variable. All control areas were selected before the crime data was obtained and thus before any analysis of the crime data was undertaken.

Table 1 displays a comparison of the values for the demographic characteristics measured at the census block level for the club locations and the control locations to which they were matched. The average level of each variable (summed across locations) for the club areas and the control areas are presented in **Table 2**. Looking at the table reveals, for example, that the exotic dance nightclub

area census blocks had an average of 88 female-headed households, while the comparison or control area blocks had approximately 73 similar households. Or, to take another example from the Table, the 1997 median household income level for the comparison area was approximately \$34,270, while the club area income level was approximately \$33,505.

A statistical analysis was undertaken to insure that the eight club and eight comparison locations did not differ significantly from each other in terms of the demographic variables chosen for matching. A t -test for equality of means for independent samples was undertaken for the comparison and club areas for each demographic variable. None of these tests reached statistical significance ($p < .05$) (see **Table 3**) meaning that, on average, the comparison and exotic dance club areas did not statistically differ from one another, and were therefore well matched. This helps ensure that any differences that we might later uncover in the number of calls for service are the result of the presence or absence of these exotic dance clubs, and not the result of some other factor.

Figure 1 presents a map of the central Fort Wayne area and shows the location of the exotic dance clubs in the Fort Wayne area; including the 1000 feet radius around each club location. Also displayed in **Figure 1** are the areas located by Maptitude that are matched to the club areas by the demographic variables related to crime.

Measuring Crime

Calls for service for crimes that were presumed to be related to exotic dance establishments in several of the more methodologically sound studies conducted by other municipalities were included in our examination. These included: 1) Sex crimes (rape, molestation, indecent exposure, sexual battery), 2) aggression related non-sexual offenses (shootings, fights, non-sexual battery, disturbances), and 3) thefts, burglaries and robberies. Over 39,000 calls for service to the police for a three-year-ten-month period from January 1997 to October, 2000, were obtained from the City of Fort Wayne crime records

division and examined. Only those incidents for which calls for service were made and later not based on unfounded charges were included in the study. A listing of all crimes included in the study and their location are available by computer disk from the authors.

RESULTS

Table 4 displays the calls for service undertaken by the Fort Wayne police within a 1000 feet radius of the eight exotic dance nightclubs and the matched comparison areas. For two of the overall arrest categories, a) sex crimes, and c) thefts, burglaries and robberies, the number of calls for service were remarkably similar. The additional arrest category, aggression related non-sexual offenses, displayed a markedly different pattern.

Inspection of the table reveals that for crimes presumed to be especially likely to be related to exotic dance entertainment establishments, such as rape, molestation, indecent exposure and sexual battery, the number of crimes was nearly identical in the areas surrounding the exotic dance nightclubs and the comparison areas (a total of 42 in the club areas and 43 in the matched comparison areas).

In order to form a visual representation of the pattern of calls for service for sex-related crimes in Fort Wayne, generally, and the location of sex crime calls for service within the 1000 feet radius of the exotic dance clubs calls for service and in the matched comparison areas, the geographical location of the sex related calls for service were plotted on a map of the city. These locations are presented in **Figure 2**. A closer inspection of the street addresses for calls for service in the vicinity of an example club and its comparison area can be found in **Figure 3**.

For the aggression related non-sexual offenses, categories including shootings, fights, nonsexual battery and disturbances, the results indicated greater frequencies of arrest in the comparison areas compared to the club areas (a total of 111 in the club areas and 245 in the matched comparison areas). However, calls for service for thefts, burglaries and robberies were more

comparable to one another in the club and comparison areas (a total 467 for the club areas and 424 in the matched comparison areas).

Overall, summing across all of the crime categories there were a total of 620 calls for service in the exotic dance club areas and 712 calls for service in the comparison areas.

Table 5 displays the citywide total for calls for service within each crime category for the three-year period. It is useful to calculate the number of calls for service that are attributed to the exotic dance club areas as a percentage or proportion of the total number of calls for service for the city of Fort Wayne as a whole. Expressed this way, it may be noted that the areas surrounding the exotic dance clubs accounted for only 42 of a total of 1732 sex crimes in Fort Wayne, or approximately 2 percent of the total. The areas around the exotic dance clubs were locations for approximately four-percent of the total aggression related nonsexual offenses, while the comparison areas were the locations for twice as many calls for service over eight percent of the total calls for service in this crime category. Finally, the areas around the exotic dance clubs accounted for approximately three-percent of the total number of thefts burglaries and robberies in the city. This percentage was a similar proportion of the total as that accounted for by the comparison areas.

SUMMARY AND IMPLICATIONS

An empirical study of criminal activity surrounding exotic dance nightclubs in Fort Wayne, Indiana, was undertaken. The present investigation, unlike most others of adverse secondary effects, adhered to the basic requirements set out by the Supreme Court for the proper conduct of a social scientific inquiry. A quasi-experimental approach was undertaken in which areas surrounding the exotic dance clubs and comparison (control) areas were examined. In order to insure accurate, fair and useful comparisons, control areas were selected that were equivalent to the areas surrounding the exotic dance entertainment businesses. A sufficient period of elapsed time was employed when

considering arrest data to ensure that the study did not merely detect a temporary or erratic pattern of crime activity. To this end, information on calls for service for a three-year period was obtained from the City of Fort Wayne.

A 1000 feet circumference surrounding each of eight exotic dance nightclubs in Fort Wayne was examined for the number of police calls for service occurring over a three-year period. Comparison areas were selected in the Fort Wayne area and matched to the club areas on the basis of demographic features known to be related to crime.

The number of calls for service in the areas surrounding the exotic dance nightclubs was then compared to the number of calls for service found in the matched comparison areas. The crimes in our examination included: 1) Sex crimes (rape, molestation, indecent exposure, sexual battery); 2) aggression related non-sexual offenses (shootings, fights, non-sexual battery, disturbances); and 3) thefts, burglaries and robberies.

An analysis showed that for crimes presumed to be especially likely to be related to adult entertainment establishments, such as rape, molestation, indent exposure and sexual battery, the number of calls for service for such crimes was nearly identical in the areas surrounding the exotic dance nightclubs and the comparison areas. For the aggression related non-sexual offenses, the results indicated greater frequencies of arrest in the comparison areas compared to the club areas. In fact, the percentage of calls for service as a function of the total calls for service made in the city for these crimes was twice as high in the comparison areas as in the club areas. However, the thefts, burglaries and robberies arrest frequencies were more comparable to one another.

It must be concluded that there is no empirical evidence for the presence of adverse secondary effects, in the form of crime, surrounding exotic dance businesses in Fort Wayne. The assumption that

such effects exist and that a community may regulate these establishments on the basis of adverse secondary effects is therefore not substantiated in the present study.

In addition, it is further concluded that unlike the general types of alcohol facilities (bars and taverns) which do not present “adult” or exotic forms of entertainment, but which are generally associated with elevated levels of criminal activity, the exotic dance nightclubs in Fort Wayne do not demonstrate any empirical connection to the “adverse secondary effect” of elevated crime rates.

Social Theories of Crime Location

There is neither sound sociological theorizing nor empirical research to substantiate the idea that crime would occur disproportionately in the areas immediately surrounding “adult” businesses. Recent research in the area of geography and crime would suggest that exotic dance caberets are not necessarily prime locations for criminal activity to begin with.

Recently, there has been a resurgence of interest in crime “places”-- the geographical location of crime -- among criminologists. This interest spans theory from the perspective of understanding the etiology of crime, and practice from the perspective of developing effective criminal justice interventions to reduce crime. For example, in Routine Activities Theory, first introduced in Cohen and Felson (1979), later refined in Felson (1986, 1994), and extended to crime pattern theory in Brantingham and Brantingham (1993), location or “place” is central to an understanding of crime patterns. A particular geographical location may serve as a locus where motivated offenders come together with desirable targets in the absence of crime suppressors (who include guardians, intimate handlers (Felson 1986), and place managers (Eck, 1994). In this theorizing, the convergence of crime opportunities in certain places is facilitated by both physical and social features. These features provide a context or setting that is more or less conducive to crime (Clarke 1992).

The data obtained in the present study, consistent with these ideas about features of certain places and increased crime, indicate that there is little difference between the exotic dance nightclub areas and comparison areas especially in regard to sex-related crimes and property crimes. These clubs do not appear to be locations where, as criminologists term it, potential sex offenders gather to prey on desirable targets in the absence of crime suppressors, such as place managers.

The extensive management of the parking lots adjoining the exotic dance nightclubs, in many cases including guards in the parking lots, valet parking and other control mechanisms, reduces the possibility of disputes in the surrounding area. In addition, unlike other liquor serving establishments (bars and taverns), disputes in the areas surrounding these exotic dance clubs between men regarding unwanted attention by other males to dates or partners are minimal due to the fact that the majority of patrons attend the clubs without female partners. Further, security measures inside the clubs reduce the potential for skirmishes among customers.

The possibility of interpersonal aggression may be greatly reduced in the vicinity of exotic dance clubs, compared to most other locations where adults congregate, such as bars or taverns that do not feature exotic dancing. The finding of a greater frequency of calls for service for nonsexual offenses in the comparison areas, compared to the club areas, suggests that the control mechanisms found in the exotic dance locations that may prevent criminal activity may not be present in the comparison locations. Liquor serving establishments in the comparison areas may not maintain high levels of parking lot and other customer security measures. This lack of crime suppressing features for bars and taverns may account for the higher levels of arrest in the comparison areas.

Implications of the Pap's A.M. Decision

It has been demonstrated through this study that there is a sufficient basis for a serious challenge to the assumption that there is an empirical relationship between exotic dance businesses and

at least one kind of negative secondary effect, specifically increases in crime. Further, this conclusion is based on research procedures that adhere to long-standing and well-accepted methodological procedures for insuring sound scientific conclusions.

In *Pap's*, Justice O'Connor provides room for challenges, based on the collection of empirical evidence, to the assertions made by municipalities regarding a relationship between adverse secondary effects and nude dancing. She noted that the adult business in question in *Pap's* (Kandyland) could have challenged the city of Erie's assertion that nudity led to ill effects, but did not do so.²³ This leaves room for the introduction of secondary effects evidence, such as that collected in the present investigation, by businesses both in city council hearings and in any subsequent court litigation.

In order to remain consistent with the Supreme Court's holding in *Pap's*, lower courts will be required to consider the methodological legitimacy of evidence of a relationship between negative secondary effects and the subject businesses collected both by governments and by those business owners who attempt to challenge government ordinances restricting their establishments.

In evaluating the admissibility of this evidence, the courts are best served by turning to standards laid out in *Daubert* for the admissibility of scientific evidence. The study presented here meets such standards for admissibility. The application of such standards, bolstered by Justice Souter's opinion in *Pap's*, may force courts to reject studies that have been previously relied upon as evidence of negative secondary effects, and require new, more methodologically sound, studies to demonstrate the necessity for regulations directed at the exotic dance industry. The courts should be mindful of the criteria laid out above for collecting empirical evidence in a methodologically sound manner. Specifically, only evidence obtained using relatively closely matched comparison and study areas, or a comparable procedure, may be acceptable.

²³ *Pap's*, *supra* note 5 at 17 (plurality opinion).

Table 1: Comparison of the club locations and the matched control locations on the variables related to crime.

	CONDITON	FEMALE HEAD OF HOUSE HOLD	TOTAL POPULATION 1997	WHITE	BLACK	AGE 18-29	TOTAL DIVORCED IN POPULATION 1997	INCOME 1997
Brandy's	1.00	177.00	5503.00	5309.00	128.00	1005.00	579.00	37488.00
Brandy's control	.00	112.00	4055.00	3667.00	275.00	902.00	379.00	46716.00
Cagney's Showclub	1.00	61.00	2233.00	2103.00	78.00	350.00	164.00	38547.00
Cagney's Showclub control area	.00	70.00	1374.00	1516.00	104.00	211.00	137.00	34912.00
Eli's	1.00	20.00	1582.00	1426.00	90.00	456.00	172.00	39025.00
Eli's control area	.00	30.00	1455.00	1332.00	74.00	364.00	168.00	36973.00
Pair A Dice	1.00	82.00	895.00	453.00	411.00	145.00	83.00	27798.00
Pair A Dice control area	.00	71.00	897.00	364.00	492.00	141.00	77.00	26293.00
Poor John's	1.00	18.50	284.00	195.00	74.00	57.00	43.00	21900.00
Poor John's control area	.00	15.00	310.00	195.00	109.00	40.00	51.00	20190.00
Showgirl 1	1.00	177.00	5503.00	5309.00	128.00	1005.00	579.00	37488.00
Showgirl 1 control area	.00	112.00	4055.00	3667.00	275.00	902.00	379.00	46716.00
Showgirl 3	1.00	109.00	1649.00	1501.00	85.00	265.00	191.00	33147.00
Showgirl 3 control area	.00	119.00	1599.00	1449.00	93.00	125.00	212.00	31408.00
Stewie's	1.00	60.00	681.00	604.00	57.00	178.00	96.00	32647.00
Stewie's control area	.00	56.00	624.00	577.00	32.00	146.00	92.00	30959.00

Table 2. Average values (means) for demographic variables averaged across exotic dance nightclub and comparison areas.

	Condition	N	Mean	Std. Deviation	Std. Error Mean
Female Head of Household 1990	Comparison area	8	73.1250	39.0474	13.8053
	Club area	8	88.0625	62.4342	22.0738
Estimated 1997 population	Comparison area	8	1796.1250	1460.3971	516.3283
	Club area	8	2291.2500	2074.3695	733.4004
Number of households 1997	Comparison area	8	772.1250	583.7914	206.4014
	Club area	8	946.0000	824.2210	291.4061
WHITE	Comparison area	8	1595.8750	1372.9412	485.4080
	Club area	8	2112.5000	2069.7428	731.7646
BLACK	Comparison area	8	181.7500	154.4092	54.5919
	Club area	8	131.3750	115.7262	40.9154
People aged 18 - 29	Comparison area	8	353.8750	350.6783	123.9835
	Club area	8	432.6250	374.0424	132.2439
Divorced males and females in 1997	Comparison area	8	186.8750	129.1925	45.6764
	Club area	8	238.3750	216.0740	76.3937
1997 median household income	Comparison area	8	34270.8750	9247.0605	3269.3296
	Club area	8	33505.0000	6044.2528	2136.9661

Table 3. Statistical tests (t-tests) for demographic variables used to match club and comparison areas.

	t value	df	Sig. (2-tailed)	Mean Differenc e
Female Head of Household 1990	-.574	14	.575	-14.9375
Estimated 1997 population	-.552	14	.590	- 495.1250
Number of households 1997	-.487	14	.634	- 173.8750
WHITE	-.588	14	.566	- 516.6250
BLACK	.738	14	.472	50.3750
People aged 18 – 29	-.434	14	.671	-78.7500
Divorced males and females in 1997	-.579	14	.572	-51.5000
1997 median household income	.196	14	.847	765.8750

Table 4. Calls for service in the city Fort Wayne generally and in exotic dance nightclub and matched comparison areas by crime type.

Sex Crimes	Club	Comparison	City-wide Total
Rapes	6	10	432
Molesting	6	6	677
Indecent exposure	29	22	590
Sexual battery	1	5	33
Total	42	43	1732
Additional Aggression Related Non-sexual Offenses			
Shootings	2	6	284
Fights	14	75	341
Non-sexual battery	18	61	887
Disturbance	77	103	1398
Total	111	245	2910
Thefts, Burglaries & Robberies			
Theft from buildings	277	226	3476
Theft -bikes	10	16	1232
Burglaries	116	129	7238
Robberies w/ firearm	39	33	882
Robberies w/o firearm	25	20	1215
Total	467	424	14043
Overall Reported Offenses	620	712	18685

Table 5. Percentage of calls for service in club and comparison areas as a function of total calls for service for sex crimes; additional aggression related non-sexual offenses; and thefts, burglaries and robberies.

	Club	Comparison	Total
Sex Crimes			
Total	42	43	1732
Percentage of sex crimes total	2.4%	2.4%	
Additional Aggression Related Non-sexual Offenses			
Total	111	245	2910
Percentage of aggression related non-sexual total	3.8%	8.4%	
Thefts, Burglaries & Robberies			
Total	467	424	14043
Percentage of thefts, burglaries & robberies	3.3%	3.0%	
Overall Reported Offenses	620	712	18685
Percentage of overall reported offenses	3.3%	3.8%	

Figure 1. Location of the exotic dance clubs in the Fort Wayne area (including the 1000 feet radius around each club) and areas matched to the club areas by the demographic variables related to crime.

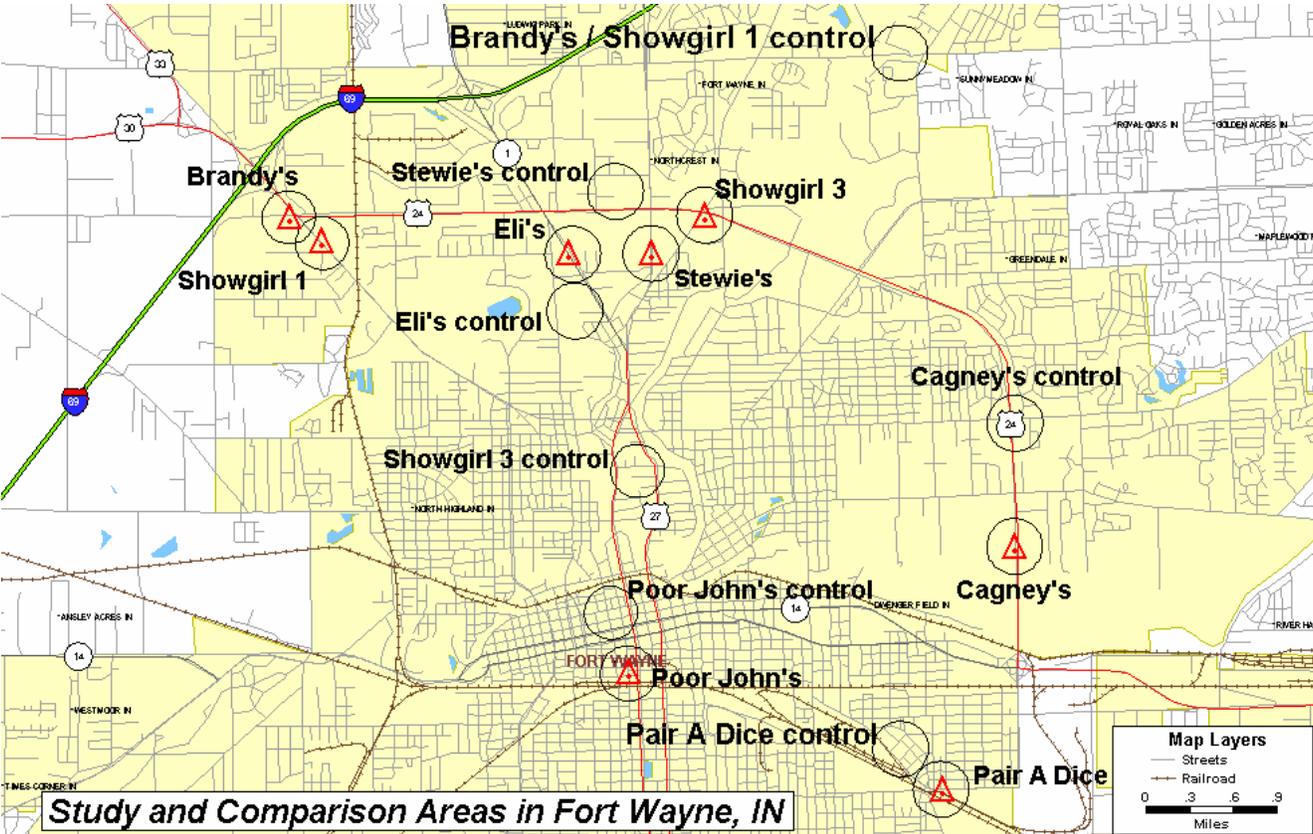


Figure 2. Geographical location of the of calls for service for sex-related crimes in Fort Wayne, generally, and the location of sex crime calls for service within the 1000 feet radius of the exotic dance clubs calls for service and in the matched comparison areas.

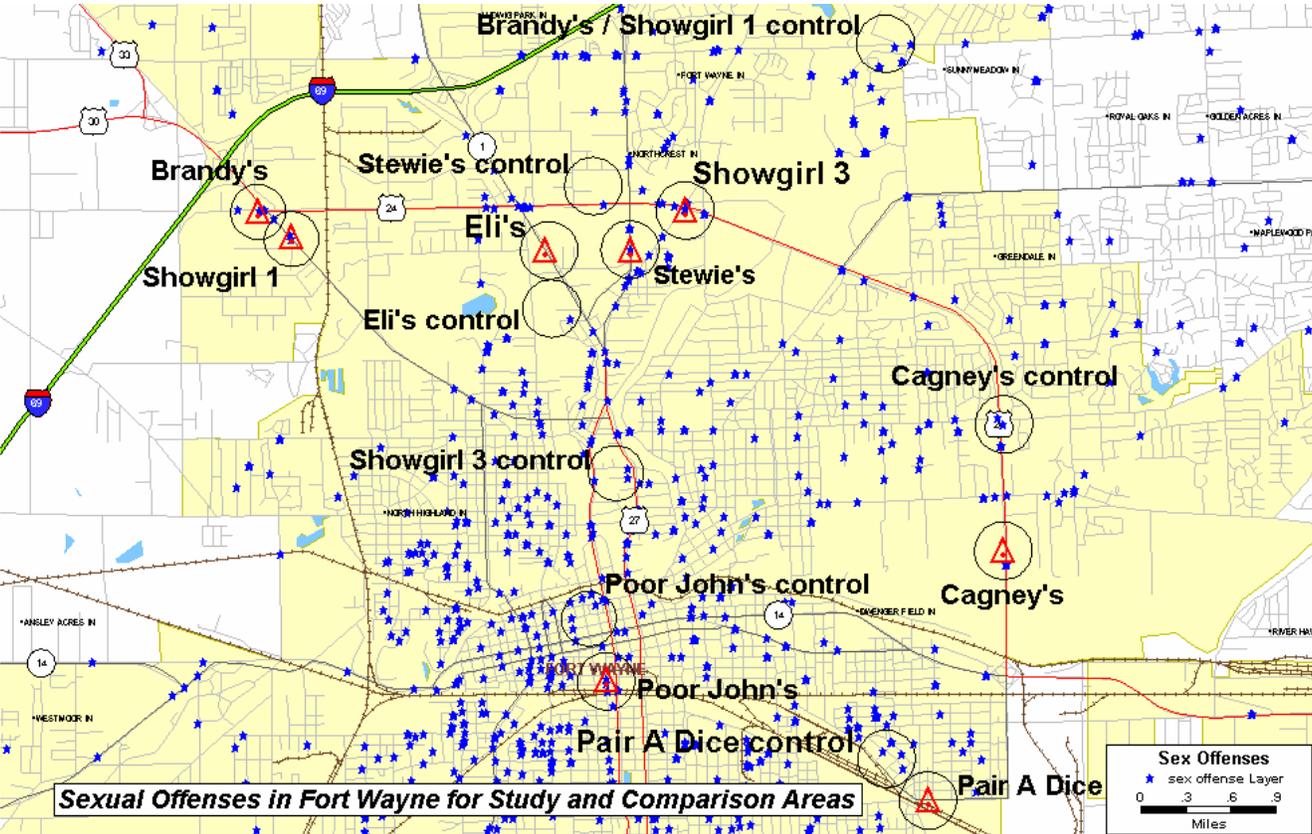


Figure 3. Geographical location of the calls for service for sex-related crimes in Fort Wayne for a selected exotic dance club and its matched comparison area.

