Secondary Effects of Sexually-Oriented Businesses
Testimony on Missouri House Bill 1551

Richard McCleary, Ph.D.

March 31st, 2010

1. My Qualifications

I am a Professor at the University of California, Irvine with appointments in three departments: Criminology, Environmental Health Science, and Planning. I hold a B.S. degree from the University of Wisconsin and an M.A. and Ph.D. from Northwestern University. I have taught graduate courses in statistics and criminology at the University of California, Irvine; the University of Minnesota; the University of Michigan; the University of New Mexico; Arizona State University; the State University of New York; and the University of Illinois. I have supervised more than two-dozen doctoral students in statistics and/or criminology. My students hold appointments at major research universities in the U.S. and U.K.

My scholarly contributions to criminology and statistics have been recognized by awards from Federal and state government agencies and scholarly societies. As an expert in these fields, I have served on Federal and state government task forces and panels and have served on the editorial boards of national peer-reviewed journals. I am the author or co-author of five books and more than 70 articles in these fields.

Throughout my career, I have applied my expertise in statistics and criminology to the problem of measuring site-specific public safety hazards, especially the hazards associated with sexually-oriented businesses ("SOBs"). These hazards are also called "ambient crime risks" or "crime-related secondary effects." I have advised local, county, and state governments on these problems for nearly 30 years.

2. My General Opinions

I have been asked to testify on the secondary effects of SOBs, particularly on the merits of Missouri House Bill 1551. "Secondary effects" include litter, noise, traffic, real estate values, crime, and the general quality of life. The category is so broad that it is often simpler to list the excluded effects. My testimony will focus on *public safety* or *crime-related* secondary effects for two reasons. First, compared to other secondary effects, crime is more common and, often, easier to measure. Second, crime is almost always correlated with other secondary effects. Areas with high crime rates are likely to have all of the other problems associated with SOBs. This implies that most of my opinions on crime-related secondary effects apply as well to the broader, category of secondary effects. Based on my background and research, I have three general opinions:

Opinion 1: The criminological theory of ambient crime risk, known as the "routine activity theory of hotspots," predicts that SOBs will generate large, significant crime-related secondary effects. The effect is the product of three factors. (1) SOBs draw patrons from wide

catchment areas. (2) Because they are disproportionately male, open to vice overtures, reluctant to report victimizations to the police, *etc.*, SOB patrons are "soft" targets. (3) The high density of "soft" targets at the site attracts predatory criminals, including vice purveyors who dabble in crime and criminals who pose as vice purveyors in order to lure or lull potential victims. The conjunction of these three factors generates an ambient public safety hazard in SOB neighborhoods.

Opinion 2: Although the "hotspot" model applies to all SOB subclasses, the qualitative nature of the hazard may vary by subclass. Qualitative differences can arise when the defining characteristic of a subclass creates opportunities for a particular type of crime to occur; or when the characteristic interferes with routine policing strategies that would otherwise mitigate the hazard. SOBs that offer on-site live entertainment and/or that serve alcohol illustrate this principle.

Opinion 3: In the last thirty years, empirical studies employing a wide range of quasi-experimental designs have corroborated the theoretical expectations. Given that secondary effects are predicted by a strong criminological theory, and given that the prediction is corroborated consistently by a diverse empirical literature, it is a *scientific fact* that SOBs pose ambient crime risks.

A fourth opinion relates specifically to the likely impact of Missouri House Bill 1551. Since House Bill 1551 incorporates many of the mitigation strategies suggested by the relevant criminological theory, and since House Bill 1551 is similar in many respects to legislation in other jurisdictions, in my opinion, it will mitigate the secondary effects of SOBs in Missouri.

My testimony begins with a necessary introduction to the criminological *theory* of secondary effects which explains *why* SOBs have secondary effects and *how* the effects can be mitigated by regulation. After developing the theory, I review some of the studies that my colleagues and I have conducted that corroborate the theory. Since 1975, the theory has been corroborated in all regions; in rural, urban, and suburban settings; and for virtually every SOB subclass. Given that the strong theoretical expectation has been tested and corroborated, the consensus finding that SOBs pose large, significant secondary effects is a *scientific fact*.

3. Criminological Theory of Secondary Effects

The consensus finding of the secondary effects literature is a *scientific fact* because it rests on a strong scientific theory. Applied to "hotspots of predatory crime," such as SOB sites, the routine activity theory (Cohen and Felson, 1979; Sherman, Gartin and Buergner, 1989) holds that as the number of crimes within 500-1000 feet of a site, is the product of four risk factors. This can be written as:

$$\textit{Ambient Crime Risk} = \frac{\textit{N of Targets} \times \textit{Average Value}}{\textit{Police Presence}} \times \textit{Offenders}$$

An increase (or decrease) in the number of targets at the site or in their average value yields an increase (or decrease) in ambient crime risk. An increase (or decrease) in police presence, on the other hand, yields a decrease (or increase) in ambient crime risk.

Targets. SOB sites are crime hotspots because they attract potential victims, or targets, from wide catchment areas. SOB sites are no different in that respect than tourist attractions and sporting events. Compared to the targets found at these better known hotspots, however, the targets found at SOBs are exceptionally attractive to offenders. This reflects the presumed characteristics of SOB patrons. The patrons do not ordinarily live in the neighborhood but travel long distances to the site. They are disproportionately male, open to vice overtures, and carry cash. Most important of all, when victimized, they are reluctant to involve the police. From the offender's perspective, they are "perfect" victims.

Offenders. The theory assumes a pool of offenders who move freely from site to site, choosing to work the most attractive site available. The offenders are "professional thieves" by Sutherland's (1937) definition. Some are vice purveyors (prostitutes, drug dealers, *etc.*) who dabble in crime. Others are predatory criminals who promise vice to lure and lull their victims. Despite their heterogeneity, the offenders share a rational decision-making calculus that draws them to adult business sites.

Shaw's (1930; Snodgrass, 1982) *Jack-Roller* is the earliest and best-known study of these offenders. Shaw's "Stanley" is a delinquent who lives with a prostitute and preys on her clients. Criminological thinking changed little in the next 80 years. To document the rational choices of predatory criminals, Wright and Decker (1997) interviewed 86 active armed robbers. Asked to describe a perfect victim, all mentioned victims involved in vice, either as sellers or buyers. Three of the armed robbers worked as prostitutes:

> From their perspective, the ideal robbery target was a married man in search of an illicit sexual adventure; he would be disinclined to make a police report for fear of exposing his own deviance (p. 69).

The rational calculus described by these prostitute-robbers echoes the descriptions of other predators (see Bennett and Wright, 1984; Feeney, 1986; Fleisher, 1995; Katz, 1988, 1991; Shover, 1996).

Police Presence. Controlling for the quantity and value of the targets at a site, rational offenders choose sites with the lowest level of visible police presence. In strictly physical terms, increasing (or decreasing) the number of police physically on or near a site reduces (or increases) ambient risk. However, police presence can also be virtual through remote camera surveillance and similar processes.

Whether physical or virtual, the *effectiveness* of police presence can be affected – for better or worse – by broadly defined environmental factors. For example, due to the reduced effectiveness of conventional patrolling after dark, crime risk rises at night, peaking around the time that taverns close. Darkness has a lesser effect on other policing strategies, which raises the general principle of *optimizing* the effectiveness of police presence. One theoretical reason why SOB subclasses might have qualitatively different ambient risks is that they have different optimal policing strategies.

Alcohol. Proximity to alcohol is a key component of the criminological theory of secondary effects. Alcohol aggravates an SOB's already-high ambient crime risk by lowering the inhibitions and clouding the judgments of the SOB's patrons. In effect, alcohol makes the soft targets found at the SOB site considerably softer. The available data corroborate this theoretical expectation in all respects. Predatory criminals prefer inebriated victims,[1] *e.g.*, and SOBs that serve alcohol or that are located near liquor-serving businesses pose accordingly larger and qualitatively different ambient public safety hazards. Governments rely on this consistent finding of crime-related secondary effect studies as a rationale for limiting nudity in liquor-serving businesses.

Mitigation Strategies. The routine activity theory points to strategies for mitigating the crime-related secondary effects of SOBs. The simplest, surest way to mitigate ambient crime risk is to assign more police to SOB neighborhoods. From the government's perspective, increasing the number of police patrols in a neighborhood is prohibitively expensive. From the perspective of the SOB and its patrons, police presence can be highly intrusive, bordering on "harassment."

In principle, fixed levels of police presence can be made more effective by fine-tuning *status quo* policing strategies. Police patrols can be made more visible, *e.g.*, by using uniformed officers in marked vehicles instead of plain-clothes officers in unmarked vehicles. Most police departments have already optimized their strategies, however. Police effectiveness can also be enhanced by incorporating rational enforcement policies into SOB codes. Several examples are described in subsequent sections.

Reducing the density of targets in an SOB neighborhood is a more economical, practical mitigation strategy. As a rule, the most problematic secondary effects are associated with dense concentrations of SOBs (*e.g.*, Boston's "combat zone" model). Accordingly, many governments require minimum distances between SOB sites (*e.g.*, the Detroit model). In addition to reducing per-site target density, thereby reducing aggregate risk, this model minimizes many obstacles to routine policing.

---

[1] See, *e.g.*, Wright and Decker (1997, p. 87): "[E]ach of (the armed robbers) expressed a preference for intoxicated victims, who were viewed as good targets because they were in no condition to fight back." (p. 70); "Several [armed robbers] said that they usually chose victims who appeared to be intoxicated because, as one put it, 'Drunks never know what hit them.'"

Figure 3 demonstrates the rationale for a related mitigation strategy. The vertical axis of this "risk-distance function" is calibrated in units of Part I personal crime (homicide, aggravated assault, robbery, and rape) risk, relative to the neighborhood risk, for 28 Greensboro SOBs for 1996-2005. The horizontal axis is calibrated in distance from an SOB. The unit of distance is a city block which, in the Greensboro neighborhoods from which these data are taken, is approximately 400 feet.

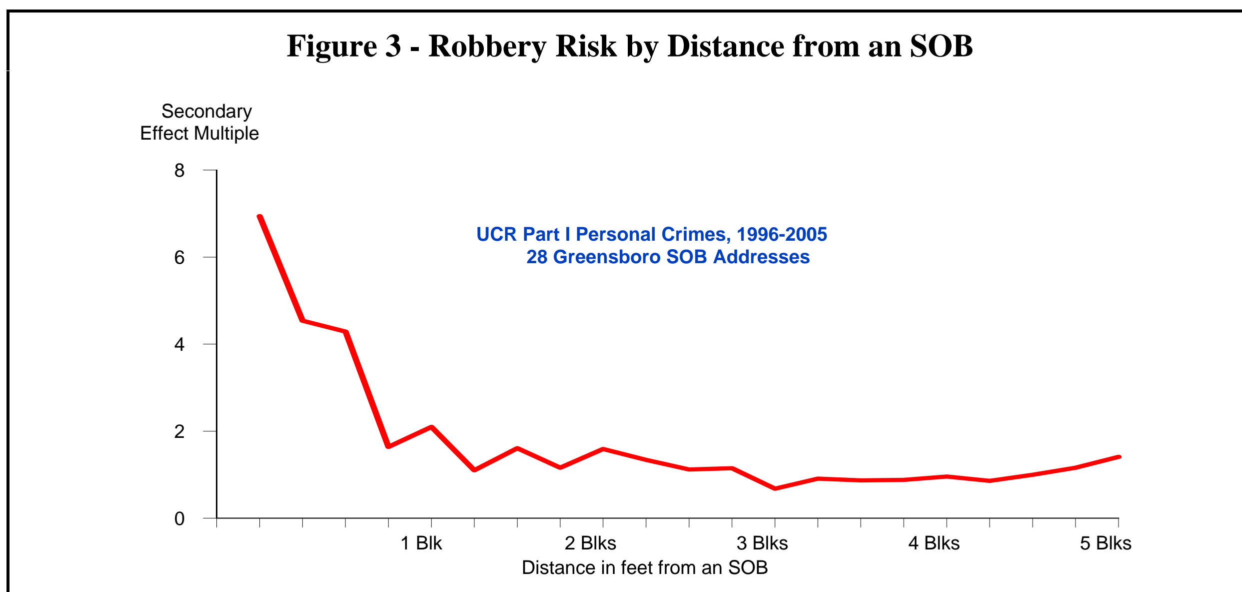


Figure 3 - Robbery Risk by Distance from an SOB

Governments can take advantage of the risk-distance relationship plotted in Figure 1 by setting minimum distances between SOBs and other sensitive land uses. SOB patrons have no choice but to "run the gauntlet." The victims of some ambient crime incidents are not SOB patrons, however, but rather, are neighborhood residents and by-passers. By setting minimum distances between SOBs and the land uses frequented by these people, the government mitigates the SOB's ambient crime risk secondary effect.[2]

Limited Hours of Operation. Another economical and practical strategy for mitigating the ambient crime risk of SOBs is to limit the hours of operation. Criminological theory reduces to the aphorism, "more targets, more crime." And in the overnight hours when businesses close and people go home, the crime rate drops. While the crime *rate* drops, however, the *per-target* risk rises. When a business stays open around-the-clock, its victimization risk rises steadily after

---

[2] I am often asked to specify a distance sufficient to fully mitigate an SOB's ambient crime risk. The correct answer to this question – "As far as possible" – is not helpful. Although the risk-distance function plotted in Figure 3 seems to answer this question, remember that it is the *average* of 28 SOB sites. By definition, some sites are "better," some "worse." Planners must assume a worst case scenario but, then, must balance this assumption with practical (and legal) considerations.

sundown, peaking in the early morning. Darkness softens a target, increasing its appeal to predatory criminals.

Several mechanisms operate here but the most salient is that routine policing is more difficult and less effective in darkness. When bars and taverns close, police resources are stretched thinner yet, making soft targets even softer. Governments typically mitigate this risk by closing high-risk public places (playgrounds, beaches, parks, *etc.*) from dawn to dusk; by imposing curfews on high-risk persons (teen-agers, parolees, *etc.*); and by limiting the operation of high-risk businesses (bars, SOBs, *etc.*) during times of acute risk. Not surprisingly, this theoretical prediction is confirmed by the empirical evidence.

"Hardening" SOB Sites.[3] In principle, ordinances can mitigate ambient crime risk requiring SOBs to "harden" their properties. Mandating outdoor lighting, parking lot surveillance cameras, and anti-"cruising" structures illustrate strategies for hardening the site's exterior. This list of exterior hardening options is short, unfortunately; and although the effectiveness of exterior hardening strategies depends to some extent on local circumstances and conditions, there is little evidence that any of the typical options can mitigate ambient crime risk.

Regulating the interior configurations of SOBs, in contrast, has a stronger rationale in criminological theory. Interior hardening strategies are often less costly moreover, more practical, and in theory, more effective. Three widely used strategies illustrate the general principle:

- Ordinances that eliminate interior blind spots
- Ordinances that prohibit closed viewing booths
- Ordinances that restrict entertainers to raised stage areas

Each of these strategies reduces the risk of on-premise victimization of patrons and employees.[4] In some respects, the risk reduction mechanism is obvious. Removing blind spots and opening up closed booths obviously reduces the opportunity for lewd behavior, *e.g.* Though less obvious, to the extent that patron-on-patron, patron-on-employee, and employee-on-patron confrontations are precipitated by lewd behavior, these strategies also reduce the risk of assault.

The risk of patron-on-patron, patron-on-employee, and employee-on-patron crime is most acute inside SOBs that feature live entertainment; and of course, alcohol aggravates the risk. The risk can be mitigated by separating patrons and entertainers. Ideally, separation is achieved by mandated structures, such as raised stages. By creating a tangible "wall" between employees and patrons, raised stages reduce unintentional (or intentional) "touching," thereby reducing the

---

[3] The classic statement on "hardening" is Oscar Newman's *Defensible Space: Crime Prevention Through Urban Design*. (New York: MacMillan, 1973).

[4] The strategies also facilitate routine enforcement while minimizing the risk of injury to police officers. Those topics are discussed separately in the next section.

risk of patron-on-employee and employee-on-patron crime.

Police Officer Safety. While assaults on police officers are rare, they are among the most serious crimes that occur inside SOBs. In theory, moreover, they are preventable. The risk of assault begins when officers enter the SOB and continues until they leave. Mitigation strategies aim at minimizing the number of times officers must enter SOBs and, having entered, the amount of time they must spend inside. Strategies that focus on the latter factor are more practical.

Police officers enter SOBs either in response to a reported crime incident or to inspect the premises as part of routine enforcement. By reducing the risk of on-premise crime incidents, the interior target-hardening strategies described in the preceding section reduce the number of times that officers must enter SOBs to respond to reported incidents. Otherwise, there are few options for reducing the number of times that officers must enter SOBs. Not withstanding the risk to officers, routine inspection can be an effective mitigation strategy. By focusing attention on SOB sites, routine inspection reduces ambient risk through a complex set of pathways referred to, collectively, as "broken windows."[5]

Regardless of how officers come to be inside an SOB, any strategy that minimizes the amount of time spent inside reduces the risk of injury. Ordinances aimed at improving interior visibility illustrate these strategies. In many instances, officers can accomplish their purpose with a quick visual inspection. If the interior of the SOB is well lit and obstacle-free, the inspection can be completed by one officer in a minute or two. If the interior is dark and/or labyrinthian, the same inspection may require two (or more) officers for a longer period of time.

In SOBs that feature live entertainment, a raised stage reduces the risk of injury to police officers through the same mechanism. If an ordinance mandates, say, a six-foot distance between patrons and entertainers, absent a raised stage, enforcing (and/or detecting willful violations of) the ordinance may require that several plainclothes officers spend an hour or more inside. With a raised stage, on the other hand, a comparable level of enforcement (and detection of violations) can be accomplished with shorter, more superficial inspections. Raised stages also facilitate self-enforcement. Ensuring that patrons and entertainers comply with a distance rule, absent a raised stage, demands constant attention and keen judgement by the SOB. A raised stage facilitates self-enforcement by the SOB, thereby reducing the risk of patron-patron and employee-patron confrontations.

Tailoring Regulations to Local Needs. The ideal SOB ordinance marries low compliance costs for the SOB to low enforcement costs for the government. To some extent, compliance and enforcement costs depend on local circumstances and conditions and these often dictate differences in codes and/or enforcement strategies. A code or strategy that is optimal for one set of circumstances may be less than optimal for another. If a local variation is aimed at

---

[5]The best known statement of this effect is "Broken windows: The police and neighbor-hood safety." by J.Q. Wilson and G.L. Kelling, *Atlantic Monthly*, 1982, 249:29-38.

rationalizing regulation and optimizing mitigation, it should be encouraged.

By definition, local conditions are too numerous to list. Nevertheless, the principle is straightforward. Legislatures adapt and modify codes to take advantage of local idiosyncracies. In most instances, modifications are designed to facilitate compliance and minimize enforcement costs. Toward that end, legislatures often consult local enforcement officers and, to the extent possible and appropriate, incorporate the views of experts into the regulations. I revisit this point in **§6** below in a discussion of the Sandy Springs Ordinance.

4. Garden Grove, 1991

In the late 1980s, Irvine colleague Jim Meeker and I conducted a secondary effect study in Garden Grove, CA that is considered to be the most scientifically rigorous secondary effects study in the literature.[6] Jim Meeker and I found that crime within 500 feet of a site rose when an SOB *opened* and fell when an SOB *closed*. In terms of Part I ("serious") UCR crime, the secondary effects averaged 67 percent at three SOB sites while crime at three "control" sites rose, on average, only six percent.

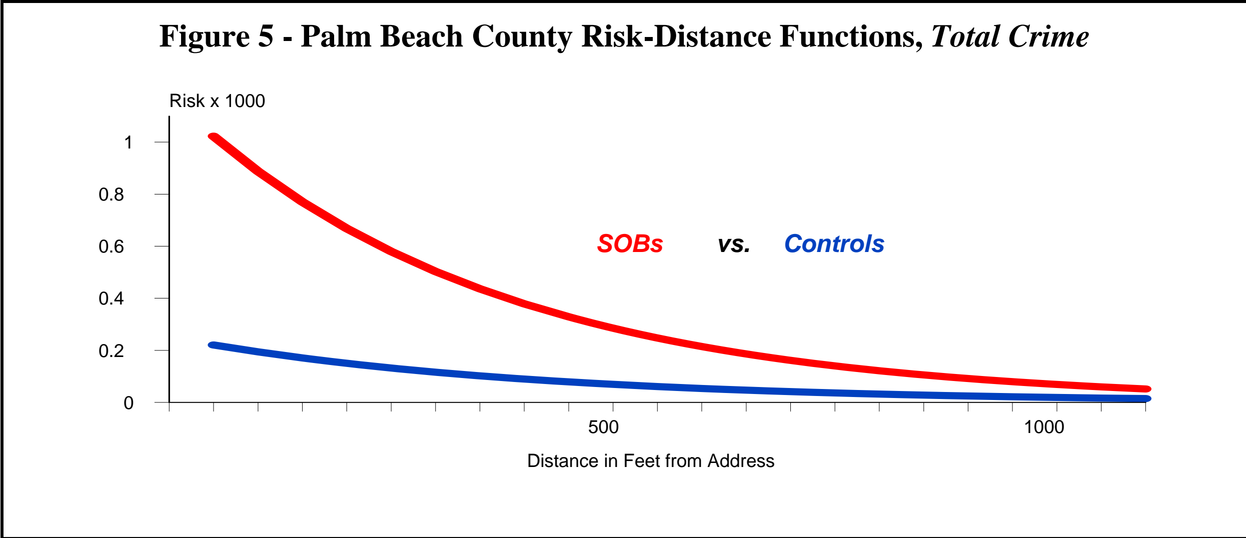
Our Garden Grove study produced another important finding. When a tavern opened less than 500 feet from an SOB site, compared to a "control" site, violent crime *quadrupled*. The clear, obvious interpretation of this finding is that the crime-related secondary effect of SOBs is aggravated by proximity to a liquor license. This interpretation is corroborated by secondary effects studies of adult cabarets.

5. Palm Beach County, 2004

In 2004, Irvine colleagues Valerie Jenness, Jim Meeker, and I compared ambient crime risk around nine adult and seven non-adult cabarets in Palm Beach County, Florida. Our results are plotted in Figure 5. SOBs (in red) and controls (in blue) are both risky. Moving toward an "average" site, whether SOB or control, victimization risk rises. Moving away, risk diminishes. With that said, compared to control sites, SOB sites are much riskier on average. How much riskier? At 500 feet, approximately one long city block, ambient risk at the SOB is four times greater. At 1,000 feet, the risk is substantially lower for all sites. But even at that distance, SOB sites are 3.5 times riskier than control sites.

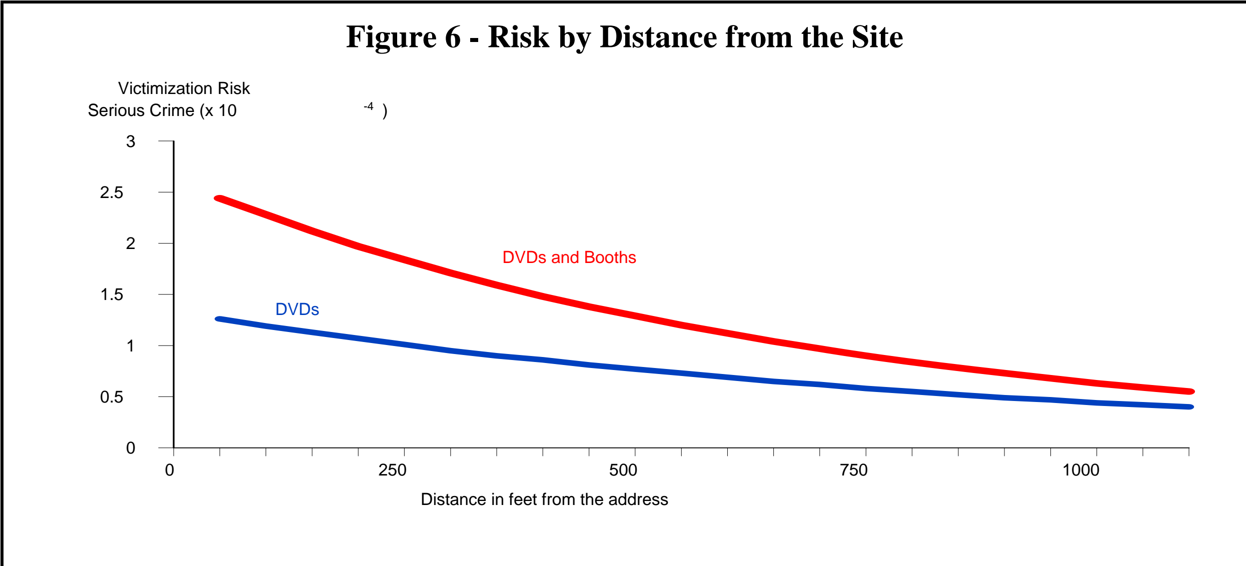
---

[6] *Final Report to the City of Garden Grove: The Relationship between Crime and Adult Business Operations on Garden Grove Boulevard.* October 23, 1991. Richard McCleary, Ph.D. and James W. Meeker, J.D., Ph.D.



6. Los Angeles, 2007

SOBs with coin-operated viewing booths pose special problems for governments. Figure 6 plots average risk-distance functions for twelve Los Angeles SOB bookstores with on-site viewing booths (in red) and seven bookstores (in blue) without booths Both SOB subclasses are risky. Walking toward an SOB, regardless of whether it has on-site booths, victimization risk rises. The risk gradient is steeper for SOB bookstores with viewing booths, however. Even at distances of 1,000 feet, adding booths to a bookstore triples its ambient risk.



The higher ambient risk associated with on-site viewing booths has two explanations. First, the privacy of booths creates opportunities for certain crimes. Second, more important, booths impede common policing strategies. Absent booths, policing SOB neighborhoods makes efficient use of routine drive-by patrols. The visibility of drive-by patrols is a deterrent *per se.*

In addition, routine patrols can keep watch for known offenders and suspicious activity. When problems are spotted, the routine patrol can forward the information to a specialized unit or, if necessary, handle it on the spot, requesting backup resources only as needed.

The optimal policing strategy for SOBs with booths requires, in contrast, that police inspect the interior. This policing strategy is more expensive, of course, and places officers at risk of injury. Needless to say, neighborhood patrols by plainclothes officers in unmarked cars would be inefficient. Whereas visibility is central to policing SOB bookstores, the presence of viewing booths requires invisible (plainclothes) police presence inside the SOB. The optimal policing strategies the two subclasses are incompatible. subclass requires specially training and equipment, prior intelligence, backup manpower, and other resources.

7. Sioux City, 2009[7]

SOBs without viewing booths are not without risk. Table 7 reports total crime before and after the opening of an SOB in Sioux City, IA. Advertising itself as a "lingerie boutique," *Dr. John's* sold a sexually explicit DVDs (as well as a full range of adult merchandise) but did not have on-site booths for viewing DVDs. Compared to a nearby "control" business, ambient crime more than doubled after *Dr. John's* opened. The interpretation of this effect is reinforced by the fact that the bulk of this secondary effect occurred after midnight when other businesses in the neighborhood closed while *Dr. John's* and the control business remained open.

Ignoring criminological theory, common sense might suggest that off-site SOBs have no secondary effects. SOB plaintiffs have made this argument, in fact, and some courts have found this argument plausible. Criminological theory holds otherwise, of course, and this Sioux City study corroborates the theory – as does the following study.

8. Montrose, 2003[8]

In 2004, an off-site SOB bookstore in rural Kansas argued that its sparsely-populated rural environment precluded the possibility of secondary effects. Because the local government had no evidence to the contrary, the U.S. Tenth Circuit Court of Appeals sided with the SOB. The relevant criminological theory applies to any accessible area, however – urban, suburban, or rural. A case study of Montrose, a village of 250 residents on I-70 in rural Illinois, corroborates the theory. While the SOB was closed, the village averaged 13.92 crimes per year. While it was open, the rate rose by 61 percent to 22.39 crimes per year.

---

[7] McCleary, R. and A.C. Weinstein. Do "off-site" adult businesses have secondary effects? Legal doctrine, social theory, and empirical evidence. *Law and Policy*, 2009, 31:217-235.

[8] McCleary, R. Rural hotspots: the case of adult businesses. *Criminal Justice Policy Review*, 2008, 19:1-11.

Aggregate annual rates obscure one important aspect of the secondary effect. Crime was more "serious" while the SOB was open. While the SOB was closed, Montrose's modal crimes were drive-off thefts from a gasoline station and vandalism at a motel. These incidents occurred in daylight and required no immediate response. While the open, a majority of crimes occurred at night and demanded immediate responses. The only armed robberies in the village's history were recorded during the two years that the SOB was open.

The relocation of adult businesses to rural areas parallels the post-war flight of inner-cities families. From the perspective of adult business proprietors, the urban environment has become hostile. Zoning codes force adult businesses into "ghettos" where their operations are strictly regulated and where competition with other adult businesses is fierce. Rural areas have few regulations, on the other hand, and little competition; access to interstate highway traffic is a bonus. As urban environments become more hostile, more adult businesses will relocate to rural areas, forcing state and county governments into policy decisions.

9. *Negativa Non Sunt Probanda*[9]

In the last five years, legislatures have been bombarded with studies commissioned by SOBs that report *null findings* – no secondary effects. Although experts retained by the SOBs interpret the null findings to mean that SOBs *have* no secondary effects, every null finding has at least two interpretations. A mundane analogy illustrates the dilemma. If I cannot find my car keys, I might interpret that fact to mean that my car keys do not exist. Alternatively, it is possible (and more likely) that I did not look hard enough or that I looked in the wrong place. By analogy again, the fact that a "quick and dirty" study finds no secondary effects can mean that there are no secondary effects or, alternatively, that the study was "too quick" and/or "too dirty."

Analyzing San Diego 911 calls, Linz, Paul, and Yao (2006) found that SOB areas had 15.7 percent more calls than control areas. The fiscal implications of a 15.7 percent increase in 911 calls boggles the mind, so this is a *substantively* large effect. The effect was not statistically significant, however, so ignoring its substantive size, Linz, Paul, and Yao argued that the *real* effect was zero – or in other words, that no real effects existed.

[9] This translates roughly to "Finding nothing proves nothing."

Figure 9a - Jury Trials and Hypothesis Tests

	But in Reality, the Defendant is ...	
	Guilty	**Not Guilty**
The Jury Convicts	**95% Confidence**	**5% False Positives**
The Jury Hangs	**?**	**?**
The Jury Acquits	**20% False Negatives**	**80% Power**

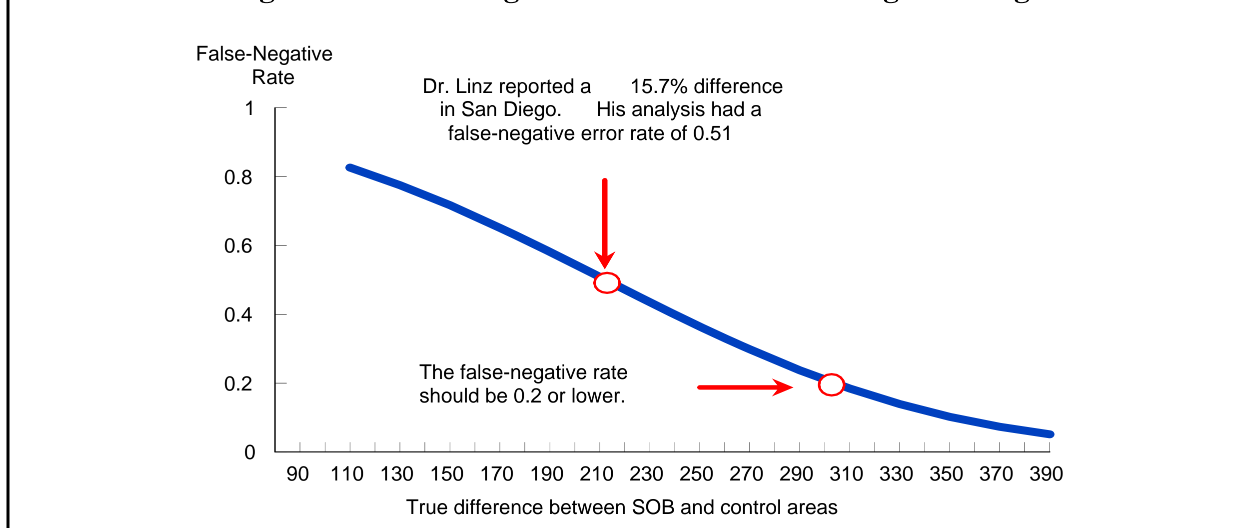
Figure 9a summarizes the principles of statistical hypothesis testing by analogy to a jury trial. Suppose that an SOB stands accused of posing an ambient crime risk. After hearing the evidence, the jury can convict, acquit, or hang. If the jury convicts, there is a small (but non-zero) probability that the jury convicted an innocent SOB; *i.e.*, a false-positive (or "Type I" or "α-type") error. If the jury acquits, on the other hand, there is a small (but non-zero) probability that the jury acquitted a guilty SOB; *i.e.*, a false negative (or "Type II" or "β-type") error. Finally, if the jury hangs, there was no decision and, hence, no possibility of error.

In real-world courtrooms, the probabilities of false-positive and false-negative verdicts is unknown. Courts enforce strict procedural rules to minimize these probabilities but we can only guess at their values. In statistical hypothesis testing, on the other hand, the values are set by rigid conventions, to five percent for false-positives and twenty percent for false negatives. Adopting these same values, to convict, the jury must be 95 percent *certain* of the SOB's guilt. To acquit, the jury must be 80 percent *certain* of the SOB's innocence. To ground the 95 and 80 percent certainty levels, we could try each case in front of a large number of independent juries. To convict, 95 percent of the juries would have to return the same guilty verdict; in the case of an acquittal, 80 percent would return the same not guilty verdict.

Correct decisions are painted blue in Figure 9a. Five percent of all convictions are false-positives and 20 percent of all acquittals are false-negatives. Incorrect decisions are painted red in Figure 9a. When the levels of certainty are too low to support conviction *or* acquittal, of course, the jury hangs. Non-decisions, painted yellow in Figure 9a, depend on factors such as the strength of evidence, credibility of witnesses, and so forth. So as not waste a jury's time, the prosecutor doesn't bring obviously weak cases to trial. Likewise, faced with strong evidence of guilt, the defense counsel seeks a plea bargain in order to avoid trial.

The analogy to statistical hypothesis testing is nearly perfect. If the false-positive rate for an effect estimate is smaller than five percent, the secondary effect hypothesis is accepted with 95 percent *confidence*. If the false-positive rate is larger than five percent, however, the false-negative rate is calculated and, if it is smaller than twenty percent, the alternative hypothesis is accepted with 80 percent *power*. But lacking *both* 95 percent confidence *and* 80 percent power, neither hypothesis is accepted; *the results are inconclusive*.

Figure 9b - False-negative Rates for the San Diego Finding



Jim Meeker and I calculated the false-negative error rates plotted in Figure 9b from statistics reported by Linz, Paul, and Yao (2006). As shown, the reported 15.7 percent secondary effect estimate has a false-negative rate of .508. What this means, simply, is that the reported null finding is more likely (51 percent) to be *in*correct than it is to be correct (49 percent). The effect would have to exceed 22.7 percent (304.5 calls) before it could be detected with the conventional level of 80 percent power.

The mathematics of statistical hypothesis testing is so demanding that few social scientists understand the concepts or their importance to research. The conventional 80 percent power level was proposed and adopted in the 1920s when statistical hypothesis testing was in its infancy. The convention has survived for eighty years because it serves two useful, crucial functions.

- Anyone with a modest background in research methods can design a study in a way that favors – or even guarantees – a null finding. The convention minimizes abuses by malicious investigators.

- Haphazardly designed “quick and dirty” studies favor the null finding. The convention minimizes the impact of spurious findings generated by naive (but benign) investigators.

Lay audiences, who must rely on common sense, cannot always distinguish between weak and strong designs or between benign and malicious investigators. Scientific conventions guard against both abuses. In this particular instance, the 80 percent power convention allows the lay audience to trust the validity of a null finding.

Recognizing the conventions, crime-related secondary effect studies can assigned to one

of three categories: studies that report secondary effects with 95 percent *confidence*; studies that report null findings with 80 percent *power*; and studies that are *inconclusive*. All of studies listed in Table 1 above either report large, significant secondary effects or else are *inconclusive*. No studies report null findings with the conventional 80 percent power. This reinforces a statement that I made in the introduction to my testimony: It is a *scientific fact* that SOBs pose large, significant ambient crime risks.

10. Concluding Remarks

My testimony began and ends with the criminological theory of hotspots which predicts, *without exception*, that SOBs will generate large ambient public safety hazards. This theoretical prediction is corroborated by a voluminous secondary effects literature. My own research shows that off-site adult bookstores in both rural and urban areas, bookstores with viewing booths, and adult cabarets all have secondary effects that differ only qualitatively. The theoretical prediction is corroborated by data, raising the consensus to the status of *scientific fact*.

The criminological theory of secondary effects also suggests regulatory strategies for mitigating the secondary effects of SOBs. These strategies are incorporated into Missouri House Bill 1551 and theory predicts, accordingly, that the Bill will ameliorate the secondary effects of SOBs in Missouri.

Experts commissioned by the SOB industry have produced studies to demonstrate that SOBs have *no* crime-related secondary effects or, sometimes, that SOBs have *salutary* public safety impacts on their neighborhoods. Because these findings have no basis in criminological theory, they demand special scrutiny. When the contrary findings of industry-sponsored studies are scrutinized, it appears in every case that they are an artifact of weak designs.

11. References

Bennett, T., and R. Wright. *Burglars on Burglary: Prevention and the Offender.* Gower, 1984.

Cohen, J. *Statistical Power Analysis for the Behavioral Sciences, 2nd Ed.* (L.E. Erlebaum Associates, 1988).

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

Danner, T.A. Violent times: A case study of the Ybor City Historical District. *Criminal Justice Policy Review*, 2003, 14:3-29.

Feeney, F. Robbers as Decision-Makers. Pp. 53-71 in Cornish D. and R. Clarke (eds.), *The Reasoning Criminal: Rational Choice Perspectives on Offending*. (Springer-Verlag, 1986).

Fleisher, M. *Beggars and Thieves: Lives of Urban Street Criminals.* (U Wisconsin Press, 1995).

Katz, J. *Seductions of Crime: Moral and Sensual Attractions in Doing Evil* (Basic Books, 1988).

Katz, J. The Motivation of the Persistent Robber. In Tonry, M. (ed.), *Crime and Justice: A Review of Research* (U Chicago Press , 1991).

\ McCleary, R. Rural hotspots: the case of adult businesses. *Criminal Justice Policy Review*, 2008, 19:153-163.

McCleary, R. and J.W. Meeker. *Final Report to the City of Garden Grove: The Relationship between Crime and Adult Business Operations on Garden Grove Boulevard.* October 23, 1991.

McCleary, R. and J.W. Meeker. Do peep shows "cause" crime? *Journal of Sex Research*, 2006, 43:194-196.

McCleary, R. and A.C. Weinstein. Do "off-site" adult entertainment businesses have secondary effects? Legal doctrine, social theory, and empirical evidence. Atlanta, GA, American Society of Criminology, November 15th, 2007.

Newman, O. *Defensible Space: Crime Prevention Through Urban Design*. MacMillan, 1973.

Shaw, C.R. *The Jack-Roller: A Delinquent Boy's Own Story*. University of Chicago Press, 1966 [1930].

Sherman, L.W., P.R. Gartin and M.E. Buerger. Hot spots of predatory crime: routine activities and the criminology of place. 1989, *Criminology*, 27:27–56.

Shover, N. *Great Pretenders: Pursuits and Careers of Persistent Thieves.* (Westview, 1996).

Snodgrass, J. *The Jack-Roller at Seventy*. Lexington, MA: Lexington Books, 1982.

Sutherland, E.H. *The Professional Thief*. Chicago: University of Chicago Press, 1937.

Wilson, J.Q. and G.L. Kelling. Broken windows: The police and neighbor-hood safety. *Atlantic Monthly*, 1982, 249:29-38.

Wright, R.T. and S.H. Decker. *Armed Robbers in Action: Stickups and Street Culture* Northeastern University Press, 1997.