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Casino Gambling Impacts on Crime and Public Safety: A Review of 30 Years of Research

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Abstract

This article offers a review of all available published studies that assess the impact of commercial casinos on crime and public safety in one or more jurisdictions. Since the 1980s, more than 30 studies have been carried out, and this review examines all studies that employed empirical data in their analysis (rather than mere speculation or opinion). In addition, this review notes the strengths and weaknesses of each study in terms of the methodologies used (e.g., pre-and-post casino design, comparison with other jurisdictions, and assessment of the risk of crime). All previous empirical investigations of the links between casino gambling and violent crime, property crime, white collar crime, and public safety were included. The similarities and differences among studies and their findings are evaluated, together with their strength and weaknesses. It concludes with recommendations to guide future efforts to examine these impacts, relying on the most exemplary methods used in the past.

Keywords: Casinos, Gambling, Crime, Public safety.

Introduction: Why conduct a Review?

The impacts of casino development on crime in local communities, and on the workload of police, have been a subject of debate. A number of studies have been carried out over the last the 30 years to examine these links. This study provides a review and assessment of prior work to elicit common themes, methods and findings, in order to provide a basis for future examinations of casino-crime impacts.

There are several important reasons to conduct a review and assessment. There are large numbers of publications, and findings can appear contradictory. A systematic review summarizes the body of work in the field to uncover consensus findings, reasons for the differences among studies, and identify the best research designs used in order to understand the past and help set the agenda for research in the future.

A review and assessment also place existing research findings in context, so that differences in scope, measurement, and design in prior research studies can be assessed for

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purposes of comparison. It also assesses their relative strengths and weaknesses in understanding the underlying question being asked (Bronson & Davis, 2012). That is to say, which kinds of studies and research methods are best to get at the underlying truth of the matter?

Method

Several tasks were undertaken to capture what has been learned from this body of research, which was carried out in many different jurisdictions. These tasks include accumulation of all available empirical studies, summarizing their methods and findings, and organization of this accumulated knowledge to provide guidance for future work in this area based upon the best work done to date. This research analyzes findings based on multiple dimensions:

- a. Geographic location of study
- b. Type of crimes or policing data gathered
- c. How the study was designed (the methods used)
- d. What findings were reported
- e. The strengths and limits of each study

This review comparatively examines all the available studies done on similar issues of casino-crime impacts, including violent crime impacts, property crime impacts, white collar crime impacts, and law enforcement impacts. In this way, the body of previous research is synthesized to:

1. Present "the state of the art" in the findings on casino, crime, and law enforcement studies carried out in multiple locations over the last 30 years.
2. Present specific recommendations for carrying out future assessments to assess these casino impacts, based on the best empirical work done in the past.

This analysis omits studies of public attitudes or perceptions, or those that include only the opinions. These data are not reliable indicators of what actually occurs in practice, so the focus here is on objective indicators of criminal activity and the response to it, rather than on perceptions or opinions about the crime situation.

Summary of the Studies

A total of 32 empirical studies were identified with the first published in 1985. These studies gathered and analyzed crime and casino-related data in different ways. A tabular presentation of the individual studies most clearly captures their similarities and differences. Studies have varied by the location involved, the specific crime focus, how the study was designed, the crimes measured, principle findings, and the study's particular strengths and limitations. A summary of all these studies is presented in Table 1 (located in the Appendix).

The major methodological differences among these studies are noted in Table 1, and summarized below in Table 2. More than a third of studies (38%) examined the impacts of casinos in a single jurisdiction. This approach limits the ability to generalize the findings

to other jurisdictions, because there is no basis for comparison to other locations with different local characteristics.

Half of all studies focused only on street crimes, i.e., crimes of assault – (rape, assault) – and crimes against property – (robbery, burglary, larceny, motor vehicle theft). Many of the remaining studies added measures of less serious crimes, such as disorderly conduct and other misdemeanor offenses.

Table 2. Features of Casino-Crime Studies

Features of Casino-Crime Studies	Total studies (N=32)	Percent of total
Single location study	12	38%
Street crimes only are measured	16	50%
Measured more than crimes reported to police	5	16%
Study accounted for police force growth	7	22%
Accounted for visitor population in calculating crime rates to determine risk	11	34%

The vast majority of studies (84%) focused solely on crimes reported to police (i.e., only 16% measured more than crimes reported). This has inherent limitations in that many victims of crime do not report it to the police believing there is nothing that can be done about it, or a property crime is discovered long after the fact, or the value of property lost was not great, or in the case of an assault, the victim knew the offender. Therefore, there are many reasons why crimes, even serious crimes, are not reported. Nevertheless, there are often few alternatives to relying on police statistics (crimes report to police), because there generally is no other systematic data collected about crime across local jurisdictions.

A few studies used arrests as a measure of criminal activity. Of course, there are many reasons why crimes may not be reported to police. When crimes are indeed reported, arrests are often not made. Therefore, arrests undercount the true extent of crime and do not capture a full picture of offending behavior (Albanese, 1995; Babinski, Hartsough, & Lambert, 2001; Piquero, Schubert, & Brame, 2014). However, arrests provide a good indicator of local police activity against crime. In the case of white-collar crimes, like embezzlement, forgery, and fraud, there is often convergence of the crime becoming known and the arrest, because once a person realizes a crime has occurred in these instances, they usually have a good idea who did it. Therefore, police make many arrests in cases that directly result from the victim's statement, once they realize they have been victimized. Therefore, arrests provide an indirect measure of crime, but a direct measure of police activity and enforcement priorities.

Few studies of casino impacts (22%) explicitly accounted for growth in the size of local police departments, which can contribute to both crime reporting and arrests. A larger police force can result in increases in reported crime not due to rising crime, but due to greater police presence in detecting existing crimes.

Perhaps most important is the fact that only a third (34%) of prior studies accounted for increases in the visitor population to the casino jurisdiction in calculating crime rates. Changes in the raw numbers of crimes do not account for any changes in the size of the local population, which greatly affects the degree of risk faced by an individual. Tourist and visitor destinations (such as casinos) raise the average daily population of a jurisdiction. This change in population size must be accounted for in determining crime rates (Lehti, 2015; Palanca-Tan, Garces, Purisima, & Zaratan, 2015; Walker, 2007). In most prior studies, however, only the census population is used in calculating crime rates, which omits visitors entirely. Crime measurement is meaningless unless a rate is calculated based on the number of persons in the jurisdiction at risk. This at-risk population must include both the resident population, as well as any visitors (accounting for their length of stay). Measuring risk, after all, is the purpose of counting crime.

Summarizing Findings of Prior Studies

The findings of prior empirical studies can be placed into three categories:

- a. Studies that found that crimes increased after casinos opened,
- b. Studies that found no crime impacts after the opening of casinos, and
- c. Studies that found a mixed effect.

Because all the studies examined multiple crimes (median of 7 crimes per study), a mixed effect is defined as an increase of more than one types of crime, even if the increase was offset by decreases in other crimes.

Table 3 summarizes these findings. Thirteen percent of studies found that crime increased, 28% found a mixed effect, and 59% found no impact on crime after the casino(s) opened. Several studies found the risk of crime actually to decrease, as visitor population increased faster than crime to lower the overall risk of crime in the jurisdiction. These were included the "no impact" category.

Table 3. Findings of Casino-Crime Studies

Findings of Casino-Crime Studies	Total studies (N)	Percentage of total
Crime increased after casino	4	13%
Mixed effect: some crimes up, others down	9	28%
No impact on crime after casino	19	59%
Totals	N=32	100%

A case can be made that the visitors attracted to casino venues might alternatively commit, or else be victimized by, street crimes (Grinols & Mustard, 2006; Grinols & Mustard, 2011; Stitt, Nichols, Giacompassi, 2003; Reece, 2010). However, the age of visitors makes a difference. Most offenders who commit street crimes are young, aged 16–24 (as shown by police statistics). Casino patrons are much older than this (average age over 40). Therefore, unlike other tourist destinations, such as theme parks or ski

destinations, which attract large numbers of young people, casino visitors are considerably older and much less likely to be involved in street crimes. This lower risk is due to their age and exposure (i.e., older people go out less often, come home earlier, and visit less dangerous places than do younger people).

It is not a surprise, demographically, that most empirical studies have not found a significant casino-crime impact. Given the typical age of casino patrons (median age is 47), casinos do not attract large numbers of young people (who commit most street crimes). Those under age 21 are also excluded from participation in U.S. casinos. In addition, casino patrons are well-educated (56 percent have some college education, 47 percent have earned a Bachelor's or graduate degree), and 41 percent hold white collar jobs (American Gaming Association, 2007; Morrison & Braunlich, 1996; Scott-Halsell, Palakurthi, Dunn, & Saiprasert, 2010). Therefore, casino patrons are at lower risk for involvement in street crimes, due to their age and backgrounds.

Best features of casino-crime impact studies

Examining all the prior empirical studies of casino-crime impacts (as summarized individually in Table 1), it is clear that the body of evidence regarding the impact of casino development on crime has been developed largely through a series of small-scale studies, which often examined casino-crime impacts at single or only a few locations. These studies are scattered in the localities they covered, the crimes addressed, time-periods considered, and in the nature of data gathered.

Unlike medical and other scientific research, which is guided by a consensus of national research priorities and funding agencies, research on commercial casino development has been conducted by investigators relying on a mix of private funding sources, university funding, and a few government-funded efforts, resulting in many small studies with a limited scope. As a result, we should know more about casino impacts than we do, given the length of our experience with casino development, but there has been no national push to generate systematic research findings. However, it is still possible to draw general conclusions when reviewing all the existing studies as a group.

The best aspects of existing studies can be identified, because these studies account for multiple factors that might explain crime in casino jurisdictions. As is the case with all scientific studies, the methods used must take clear measures to rule out alternative or competing explanations. For example, studies of disease must consider many influences (genetic, environmental, family history, personal history) before firm conclusions can be drawn about the causes of disease. Similarly, studies of casino-crime impacts must similarly account for all the influences that might affect or explain the data gathered.

It is not any more accurate to say "casinos cause crime" than it is to say "automobiles cause car accidents." This is because no single variable is responsible for any effect. There are always multiple causes, and it is the responsibility of researchers to identify these multiple causes and examine their relative contribution to undesirable outcomes. Doing research involves testing reality in order to determine how things are connected through observation (data).

Some public officials and private citizens have made published statements saying that crime has risen in casino jurisdictions, implicitly blaming the casinos for the crime increase. Researchers do not take these statements at face value; instead, they use scientific

research methods provide a check against personal values interfering with objective inquiry (Donovan & Hoover, 2014). Science (using research) is about figuring out the relationships between things we can observe, so measurement is a core requirement of science. When done correctly, research will have both validity (in measuring what it purports to measure), and reliability (can be replicated by others).

As a result, opinion or speculation can never substitute for research in determining the actual facts. Personal values or views have nothing to do with scientific findings, which have clear and replicable measures, methods and statistics to summarize results. Given the method and findings from prior studies of casino-crime impacts, several observations can be made:

a. Growth of police employees in casino jurisdictions

In many casino jurisdictions, the local police department was enlarged, often with funds provided by the casino developers. It is likely that more police will uncover more evidence of crimes---not necessarily because there are more crimes occurring, but because more police are on the job to detect them. A practical example is prostitution. If you add police to detect unlawful prostitution enterprises, there will be more cases of prostitution detected, simply because more effort is being devoted to it. Most studies done to date do not account for changes in police resources after the introduction of casinos. (See Table 2, only 22% of studies account for changes in police strength.)

b. Comparisons of multiple jurisdictions

Many casino-impact studies have focused on a single casino jurisdiction. This is likely because many of these studies are self-funded, or the investigator had limited access to funds, so the study was necessarily limited in scope. However, studies that include multiple jurisdictions allow for comparisons among jurisdictions, and provide a check against over-generalizing from the findings in a single jurisdiction to other jurisdictions. In the same way that medical studies are not based on single cases, research on casino impacts should endeavor to do the same in order avoid the potential pitfalls of generalizing from one case to other jurisdictions. (See Table 2, where 38% of studies focus on a single jurisdiction)

c. Changes in the average daily population of the jurisdiction

The purpose of counting crime is to assess risk. A town with a population of 100 citizens might experience 10 reported serious crimes in a year, so the probability of any one citizen being the victim of a crime is 1 in 10 (10 crimes in a town of 100). If the population of the town suddenly doubled to 200, it is likely that crime will also increase--because there are twice as many potential victims and offenders. If the number of crimes in town increased to 20, it would be incorrect to say that crime has doubled, because the crime rate (i.e., the risk of crime) would be exactly the same (1 in 10 = 20 in 200). Therefore, the risk of being victimized by crime can remain the same if both the local population and crimes increase at the same rate. It is crucial to measure changes in the average daily population of a jurisdiction (including visitors), if we are to evaluate the risk of crime victimization accurately. Measuring risk is the sole purpose of counting crime. (See Table 2, only 34% of studies account for visitors to the casino jurisdiction.)

d. Burglary rates must account for changes in the number of places able to be burglarized

Burglary is a crime against property and not against individuals; so only homes, apartments, hotel rooms, and business establishments can be burglarized. Therefore, an accurate assessment of the risk of burglary must account for local changes in the number of homes, apartments, hotel rooms, and businesses able to be burglarized. There is often an increase in hotel rooms and other places able to be burglarized following casino development; these changes must be accounted for in order to evaluate the risk of burglary. Very few studies have accounted for the unique characteristics of burglary.

Needs for the future of casino-crime impact studies

1. Larger studies that incorporate crime and development information over longer periods of time.

It is important to obtain a better understanding of casino impacts on a community as time goes on. There are very few studies that look at crime beyond a few years. Longer-term impacts may be different but they are largely unknown, as casinos change from being a new player in the community to an established business in the community. It is very likely that casinos, police agencies, and private interests learn lessons over the years, and that experience should be captured.

2. Crime impacts beyond street crimes should be studied.

Half of all the published research that looks at casino-crime impacts focuses on street crimes (see Table 2), which do not match the age and risk profiles of casino visitors. There are also few studies of white collar crime or organized crime, which have the potential for greater social and economic impact than street crimes, and which better match the age profile of casino patrons. The impacts on embezzlement, fraud, infiltration of business and related crimes has been sparsely studied, and not studied at all over long periods.

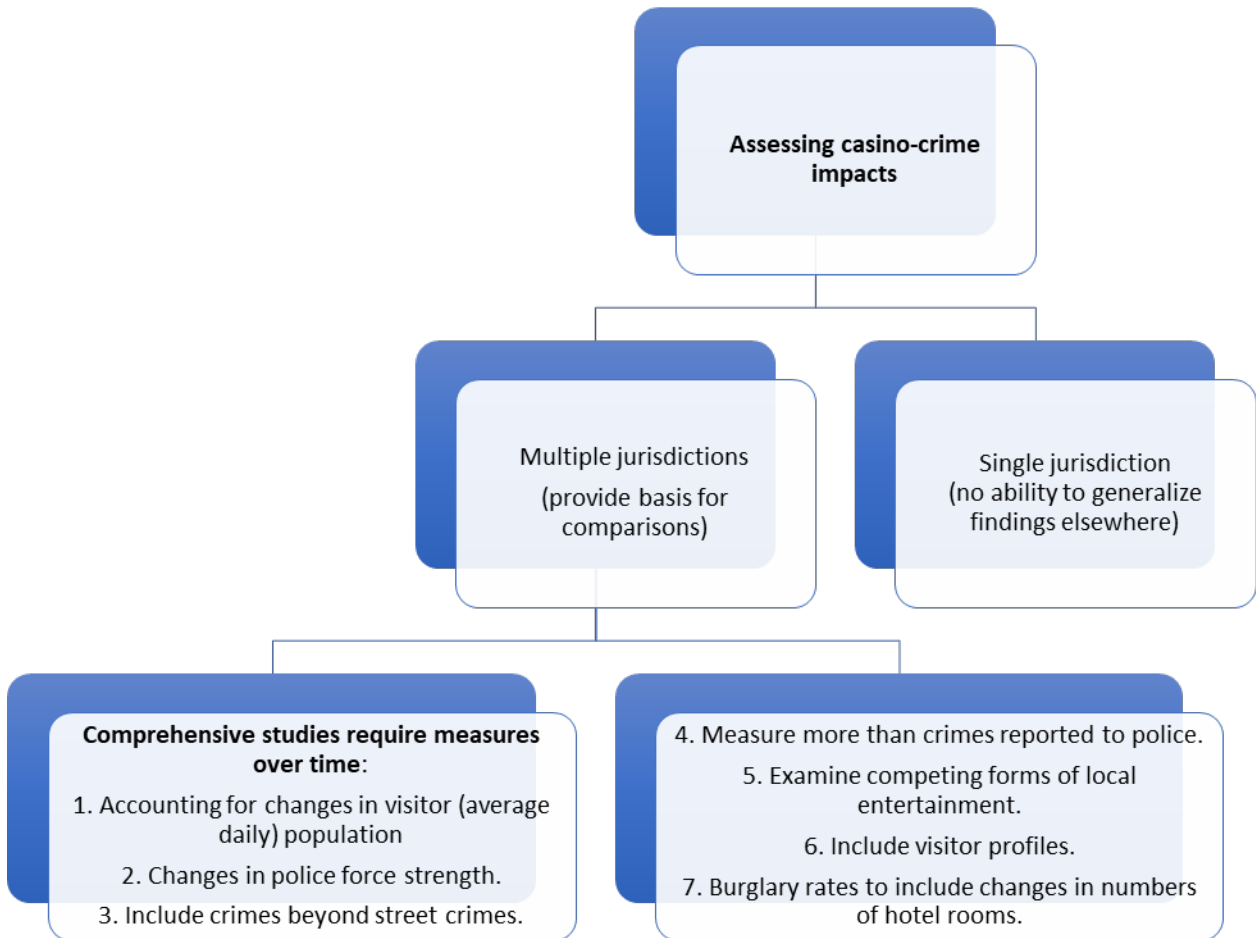
3. Important influences have not been measured.

There are many factors that might influence the impact of casinos on crime, but they are usually not measured. These factors include the size of the population within commuting distance to the casinos, the availability of competing forms of entertainment in the same area, the age composition/demographics of the local population (i.e., older and more likely to go to a casino, or younger and less so), the extent to which the casino draws its customers from far outside the local area, the length of stay of casino visitors, and the nature of employment and the income-level of casino customers.

These factors are all measurable, but systematic data is usually not available and would be expensive to gather. This is the reason why they have been omitted from most past studies. Precise counts of casino visitors, their origin and length of stay, age distribution and backgrounds, and perhaps their behavior upon their return home are difficult to track with accuracy within and across casino jurisdictions. Simply put, these intuitively important factors have not generally been measured reliably, and almost never measured over an extended period in order to assess trends. As a result, better measurement of potentially relevant factors would result in better studies of casino-crime impacts. More

comprehensive studies will provide more complete explanations of casino impacts, and they will require measures over time of factors too often missing in the existing research (summarized in Figure 1).

Figure 1. Illustration of the kinds of measurement required for more comprehensive studies of casino–public safety impacts by examining influences missing in many existing studies



Conclusion

This review of prior studies of casino–crime impacts has shown that the majority of studies conducted thus far have found no increase in the risk of crime to citizens in casino jurisdictions. When examining the methods used, the variables measured, and how they were measured, there are omissions in many existing studies in accounting for the visitor population in calculating crime rates, increases in the strength police forces, comparisons of multiple jurisdictions, and consideration of crimes beyond street crimes (which have more logical connections to casino visitors). These factors likely account for many of the

differences found among the findings of previous studies. Inclusion of other important demographic and economic factors, as noted above, would also improve the quality and scope of future studies in this area.

It is hoped that this review of research can be used to inform future studies of casino impacts. Through a more comprehensive choice of variables, using better measures, and research designs that incorporate more locations over a longer pre-post period of time, findings will result that will be more accurate and reliable as a basis for public safety and policy decisions regarding casino development. Opinion or speculation can never substitute for research in determining the facts. It is hoped that this article helps to establish some of the groundwork for increasingly comprehensive research in the future.

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APPENDIX

Table 1. Published Casino-Crime Studies, 1985-2014

Study	Area Studied	Crime focus	Study Design	Principal findings	Strengths / Limitations
Albanese (1985)	Atlantic City	Street crime: violent and property (murder, rape, robbery, aggravated assault, larceny, MV theft, burglary)	Pre- post data for 5 years of pre- post data on casino development, controlling for av. daily pop., police strength, state-wide crime rates	Atlantic City average daily population rose higher than crimes, reducing crime rates	Before-after study of casino impacts in Atlantic City permits controlled pre- and post- comparisons. First study to control for average daily pop. & hotel rooms. / One jurisdiction, and multiple casinos opening over time.
Hakim and Buck (1989) (same data as Friedman, Hakim, Weinblatt (1989))	Atlantic City	Index crimes	Compared Atlantic City with nearby communities, controlling for variables: unemployment, distance away, police force size, and population (but omitting visitors).	Found crime higher in post-casino years with communities closer to Atlantic City experiencing a greater increase in crime than cities further away.	Effort to observe impacts on surrounding communities, but without knowing where visitors come from. / Did not account for population at risk (visitors) in calculating crime rates. Focus on surrounding communities versus the casino area.
Friedman, Hakim, Weinblatt (1989)	Atlantic City	Index crime	Using same data as Hakim study, found similar findings in localities adjacent to Atlantic City	Crimes found to be higher in localities adjacent to Atlantic City. "Crime levels are higher than they would have been in the absence of casinos."	Effort to address spillover effect in adjacent communities. / Did not account for population at risk (visitors) in calculating crime rates. Focus on surrounding communities versus the casino area.
Curran and Scarpitti (1991)	Atlantic City	Index crimes	Examined crimes in Atlantic City, in New Jersey as a whole, and crimes inside casinos	No relation between casinos and crime, when tourists are counted in the population at risk. "It is inaccurate to argue that crime in the community has risen significantly since the legalization of	Identified crimes committed in or on the premises of the Atlantic City casinos and distinguished between casino-based and community-based crimes that occurred in Atlantic City. / One jurisdiction.

Study	Area Studied	Crime focus	Study Design	Principal findings	Strengths / Limitations
				gambling."	
Giacopassi and Stitt (1993)	Biloxi	Serious and non-serious crimes.	Crime rates examined before and after introduction of legalized gambling in Biloxi, Mississippi.	Larceny and auto theft were the only crimes that increased one year after casinos opened; no significant effect was found for violent crimes or less serious crimes.	Pre-post casino comparison. / Single jurisdiction. Only one-year post-casino follow-up.
Illinois Criminal Justice Authority (1994)	Joliet, Aurora, East Dubuque, Peoria	Impact of crimes in 3 riverboat casino jurisdictions over time.	Crimes either decreased or remained stable in each jurisdiction. Also, no increased burden on police with calls for service.	"The presence of riverboats in a city does not appear to have any substantial negative impact on overall criminal activity or calls for service in the host jurisdiction."	Incorporated police calls for service in additional to crime reports to police.
Sutphen, Grant, Ball (1994)	Card clubs in California	Examined multiple cities in California	Cities that had card clubs did not experience an increase in crime	"We could find no relation between the rate of crime and the existence of a card club."	Examined cities individually and in groups, interviewed local officials. / Matched cities not used for comparison.
Chang (1996)	Biloxi	87 serious and non-serious crimes in 11 categories, pre-post casinos	Crime fluctuation before and 2 years after casinos introduced.	"Overall, there was no increase in crime during the first two years of casinos."	Examined a large number of offenses. / Single jurisdiction. 2-year post-casino follow-up, difficult to tell short-term fluctuation from long-term effects.
Stokowski (1996)	Black Hawk and Central City, Colorado	Serious and non-serious crimes	Crimes compared to changes in tourist population since introduction of legal gambling.	Overall crime rates dropped when adjusting for visitors.	Effort to measure the risk of crime by accounting for the population at risk in historical and cultural context.
Thompson, Gazel & Rickman (1996)	Indian casinos in Wisconsin	serious and non-serious crimes	Compared 14 counties with casinos and 13 counties bordering 2 or more casino counties. Compared to the other counties in the state.	Counties with casinos, or near casino counties, experienced rates of major crimes 6.7% higher. Part II offense arrest rates were 12.2% higher in counties with casinos.	Multiple year comparison. / Difficulty in comparability of casino and non-casino jurisdictions.

Study	Area Studied	Crime focus	Study Design	Principal findings	Strengths / Limitations
Evart (1997)	4 cities: Deadwood (South Dakota), Davenport (Iowa), Joliet (Illinois), Gulfport MS	Examined calls for police service and crime (serious violent and property)	Examined calls for police service and crime data pre-post casinos	"there does not appear to be an overall definitive impact, either negative or positive, on police workload or crime statistics in the cities studied."	Multiple jurisdictions. / Only two to four years of elapsed time covered.
National opinion Research Center (1999)	100 communities ; 10 in-depth	Violent crime only	Examined 100 communities, based on distance to nearest casino. 10 community studies conducted to study the effect of casinos on communities.	There was no significant increase in per capita rates of violent crime, even in communities close to casinos.	Included crimes of fraud, embezzlement, public disorder crimes which "are more likely associated with gambling effects than are crimes such as aggravated assaults, armed robberies, or rapes." / Property crimes not included.
Stitt, Giacomassi, Nichols (2000)	Casinos in 7 jurisdictions	Tested time lag effects--whether crime changes over the years after casinos open.	Examined changes in crime rates in 1, 2, and 3 years after the first casino opening	No evidence that crime rates changed significantly after the casino were open for several years.	An effort to test the impact of casinos on crime over time.
Piscatelli and Albanese (2000)	Niagara Falls, Ontario, Canada	Denial of entry into Canada and offenses related to organized crime	Trends in total bridge crossings (USA-Canada) both before and after the opening of the casino, trends in criminals denied entry to Canada, and trends in proportion of criminals with convictions for offenses related to organized crime.	Rate of denials of entry to Canada due to criminal inadmissibility rose faster than did the border traffic in general, but a decline in the proportion of those with prior records for organized crime-related offenses.	Systematic information provided about trends in the number of criminally inadmissible persons seeking admission to Canada, and the precise points of entry used by criminally inadmissible individuals. / Relies on officer performance at the border to detect suspicious persons. Tourism traffic fluctuates due to non-casino tourism as well.
Wilson (2001)	Riverboat gambling in Indiana (Hammond and Rising Sun)	Index Crimes plus simple assaults	Interrupted time series design, plus interviews with local police to assess unmeasured factors.	"introducing casinos to Hammond and Rising Sun did not have an overall impact on crime." "..but were	Accounted for changes in police force size, which might increase reliance on them and crime reports. / Population at risk not used; no visitor counts

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				associated with increases in aggravated assaults and thefts in Rising Sun... riverboat casinos did not increase the overall frequency of individual offenses."	included. Causation of any impacts must be inferred.
Stitt (2001)	Eight new casino jurisdictions in IL, IA, MO, MS.	Both serious and non-serious crimes	Pre-post design with crime rates calculated using both the residential population of the community and the population at risk, which includes tourists in the crime rate population calculations. Also compared crime to 15 similar cities matched on demographic, economic, and social variables.	"The casinos do not appear to have any general or dramatic effect on crime, especially in communities that do not have a high concentration of casinos. The data indicate that minor crimes are more likely to increase in casino communities than are the index offenses."	Pre- post-comparison of crimes 4 years before and after casinos opened. / A comprehensive study that found inconsistent impacts: " the effects of casinos in a community are quite varied... we conclude that simple analyses and broad generalizations are not sufficient to capture the complexity of what occurs in communities when legalized casino gambling is introduced."
Stitt, Nichols, Giacomasi (2003)	Compared 6 casinos jurisdictions to controls (6 non-casino jurisdictions)	Both serious and non-serious crimes	Comparison of crime trends in 6 casino versus 6 non-casino jurisdictions, accounting for visitors to each. Pre-post-casinos with at least 4 years before and after.	Mixed results: crime up in some places, down in others: "the analysis of index and non-index crime rates for casino and non-casino communities leads to no definitive conclusion regarding the effect of casinos on crime."	Good effort to incorporate visitors and compare to similar non-casino jurisdictions, comparing 15 demographic, economic, and social variables. / Non-casino jurisdictions have multiple differences from casino locations (besides casinos).
Betsinger (2005)	Examined 144 counties in 31 states: 4 contained Native American bingo halls,	Serious crimes of assault and theft only.	Multivariate analysis of social factors on county-level crime in casino jurisdictions (census data) to assess: 1) the	Gambling venues in general was found to be associated with decreases in rape and serious assault rates. Simultaneously,	5 different types of gambling venues: Native American and commercial land-based casinos, racinos, riverboat casinos, and Native American bingo halls (although

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	8 racinos, 105 had Native American casinos, 21 had commercial land-based casinos, and 6 held riverboat boat casinos		impact of gambling venues in general on county-level crime rates, and 2) the impact of different types of gambling locations on crime at the county-level.	gambling locations were found to increase larceny and arson rates.	sample was dominated by Indian gaming venues). / Findings difficult to explain causally: how might casinos reduce serious assaults, yet increase arson? Suggests that other, unmeasured variables at work. Types and amounts of gambling offered used as a proximate measure for the volume of gaming. "the variables used to measure the volume of gambling at each venue were seriously flawed." Visitors not included in calculations. Small samples used for each type of casino venue.
Moufakkir (2005)	Detroit	Index crimes from 1996–2002	Examined crimes 3 years before and 3 years after opening of casinos	" Total Index Crime figures for Detroit show a steady decline from 1996 through 2002; clearly indicating that crime did not increase in the 3 years following casino development in the city."	Good discussion of the limits of crime data. Prostitution arrests increased as did arson, but all other crimes decreased. "Index offenses for the top six counties that feed Detroit's casinos were examined... there is no discernible trend that can indicate the direction of crime in these selected counties." / One jurisdiction. No clear conceptual connection between casinos and arson.
Grinols and Mustard (2006)	Data from every U.S. county from 1977 to 1996, controlling for over 50 social and economic	Assessed the impact of casinos on seven serious crimes.	Compared casino counties (N=178) to non-casino counties (N=3,165).	"The results suggest that the effect on crime is low shortly after a casino opens, and grows over time. Roughly 8% of crime in casino counties in 1996	Effort to examine casinos impacts over time. / Questions of method have been raised: "uses a crime rate that excludes the visiting population at risk," thereby "overstating

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	variables,			was attributable to casinos, costing the average adult \$75 per year."	the crime rate in casino counties " (Walker, 2008). Variations in police resources omitted. Crime decreased faster in non-casino than in casino counties. Likewise, crime rises after a few years are attributed to casinos w/o demonstrating it or ruling out other possible explanations.
Koo, Rosentraub, Horn (2007)	Michigan, Indiana, and West Virginia with casinos—and Ohio that borders these states.	Multiple crimes, but not clearly specified	Gathered data pre-post casino, as well as casino and non-casino jurisdictions, to examine multiple factors.	" The work reported here finds no significant negative changes in unemployment, bankruptcy, or crime rates after casinos opened."	Effort to place crime as one of multiple potential social impacts, measuring them in two ways. / Crimes not clearly specified.
Barthe and Stitt (2007)	Reno	Examined whether casinos (and the blocks surrounding them) are crime hot spots for crime.	Found that 22% of the city's crime occurred within 1000 feet of the major casinos	When accounting for population at risk, casinos are not hot spots, but have lower risk of crime to potential victims than other areas of city.	Close look at the precise locations of crimes within a city and its casinos. / One city with many casinos difficult to generalize.
Albanese (2008)	Casinos in 5 big city casino locations	"white collar" crimes of forgery, fraud, embezzlement	Compared arrest trends for 3 crimes in large casino jurisdictions over time to national trends	Net decreases in average annual arrests for white collar offenses in casino jurisdictions. Embezzlement arrests rose in Connecticut and in US overall, but declined in the other jurisdictions with casinos. Forgery arrests declined in casino jurisdictions, while increasing nationwide. Fraud arrests declined in casino jurisdictions, reflecting national trends.	One of only a few studies to look at crimes most often committed by age group (in their 40's) who frequent casinos. / Arrests more closely linked to incidents for these kinds of crimes, but still an imperfect measure.

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Barthe and Stitt (2009)	Reno	Examined police calls for service in 'hotspots' near casinos.	hotspot density maps created for 3 types of calls for service: property crimes, violent crimes, and disorderly conduct.	"crime hotspots near casinos do not appear to be very different (by crime type and temporal factors) from hotspots in other parts of the city."	Effort to examine specific localized areas around casinos, compared to other parts of the jurisdiction. / Police calls for service often not crime-related.
Barthe and Stitt (2009a)	Reno	Examined crimes in casino areas versus non-casino areas.	Violent crimes, property crimes, disorder crimes	"temporal trends in casino zones are not very different than those found in non-casino areas." "the majority of crimes do not exhibit substantial temporal variations across zones"	Targets precise locations of crimes within a casino jurisdiction.
Reece (2010)	State of Indiana, 1994-2004	Larceny, motor vehicle theft, aggravated assault, robbery, burglary	crime in Indiana in a county-level analysis	Greater casino activity reduced crime rates, except for burglary, where crime rates rose after a time lag.	Incorporated casino turnstile count and county hotel rooms as measures of casino activity and visitors. / Does not use visitors when calculating crime rates.
Hyclak (2011)	173 four-year colleges with residential campuses in IL, IN, IA and MO with casinos.	Burglary, larceny, car theft	Multivariate analysis that uses crimes, rather than crime rates, no population at risk measure.	Campuses within 10 miles of a casino had lower burglary rates, but higher car theft and robbery rates.	Attempts to connect casinos with local impacts. / Counts crimes, rather than crime rates. No effort to connect the crimes to the casinos. Covered only a 2-year period.
Park and Stokowski (2011)	Compared groups of counties with alternate forms of tourism: gaming, skiing, natural resource access, cultural tourist attraction counties.	Index crimes and total arrests	Compares crime rates in gaming tourism areas with crime rates in other tourism development (e.g., skiing, natural resource access, and cultural tourist attraction counties).	" this study found that ski counties had a significantly higher property crime rate than did gaming, natural resource access, and cultural tourist attraction counties." "Differences were significant even after controlling for such variables as police numbers, average traffic	Effort to control for levels of police, traffic, and growth.

Study	Area Studied	Crime focus	Study Design	Principal findings	Strengths / Limitations
				volume, time, and growth levels."	
Johnson and Ratcliffe (2014)	Philadelphia	violent street felonies, vehicle crime, drug crime or residential burglary	Single casino impact (SugarHouse in Fishtown)	" no evidence that the opening and operation of the casino had a significantly detrimental effect on the immediate neighborhood in terms of vehicle crime, drug activity, residential burglary or violent street felonies."	Time-series design comparing crime in casino area to local neighborhoods, using 7 years of pre-post data. / Not clear what role modest re-assignment of police resources made a difference.
Arthur, Williams, Bellanger (2014)	Alberta, Canada	the relationship between legal gambling availability and crime in Alberta	Self-reports of gambling-related crime among problem gamblers, taken from population surveys and gambling-related crime found in police incident reports.	"gambling-related crime constitutes a very small percentage of all crime; crime that is gambling related tends to be non-violent property crime; and increased legal gambling availability has significantly decreased rates of illegal gambling."	Multi-method approach which tries to measure crimes committed for gambling-related motivations. / Difficult to determine the extent to which crimes committed are gambling-related.
Humphreys and Soebbing (2014)	Alberta, Canada	Burglary, fraud, drugs, illegal gambling, prostitution, robbery, shoplifting.	The relationship between legal gambling (casinos and video lottery terminals (VLTs)) in bars and taverns in Alberta.	" the relationship between the presence of casinos in a community and crime in those communities is weak." Robberies up slightly, all other crimes no change or declined.	Examines wider array of crimes than most other studies. (Similar findings found for VLT locations.) / Does not measure gaming positions or business volume of casinos, only their number.
Falls and Thompson (2014)	Michigan casinos	Burglary, robbery, larceny and motor vehicle theft (property crimes) in casino host counties as well as in nearby counties.	Used panel data set with yearly observations on all 83 Michigan counties from 1994–2010.	"The regression results reported here indicate generally that the presence or size of a casino in or near a given Michigan county does not affect property crime rates."	Covered a long period of time with multiple casinos, accounting for several important variables. / Did not include visitor population.