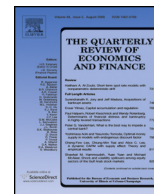




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## Casinos, casino size, and crime: A panel data analysis of Michigan counties



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### ABSTRACT

Growth in legal gaming in the United States over the past quarter century or so is well-documented. One important factor fueling this growth was the passage of the Indian Gaming Regulatory Act of 1988, which permitted Native American tribes to establish, under agreements or “compacts” with the states in which they are located, casinos offering what is known as Class III gaming: slot machines, blackjack, roulette, and other games. Since the passage of the Act, there have been 21 Native American casinos established in Michigan. Also, three non-Native American casinos opened in Detroit in 1999 and 2000. This growth in the number of casinos has sparked a wide-ranging debate over the social and economic impacts of casino development.

The purpose of this research is to focus on the crime issue in the broader casino debate. We investigate the impact of these Michigan casinos on the rates of burglary, robbery, larceny and motor vehicle theft (property crimes) in casino host counties as well as in nearby counties. We employ a panel data set with annual observations on all 83 Michigan counties for the period 1994–2010. The dataset includes crime rates taken from the FBI crime data series, variables for the presence of a casino in a county or in a nearby county, the scale of a casino's operations as measured by revenues, and a variety of control variables suggested by the broader literature investigating the factors that determine crime rates generally.

Our results suggest that in most cases the property crime rates studied are not affected by the presence or size of a casino in a county or in a nearby county. The largest such impact, which is negative, is for motor vehicle theft. The size of a casino does have a small positive effect on the motor vehicle theft rate.

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### 1. Introduction

Growth in legal gaming<sup>1</sup> in the United States over the past quarter century is well-documented. Two important factors behind this growth are the desire for state and local governments to find additional revenue streams and the passage of the Indian Gaming Regulatory Act of 1988 (IGRA). This Act permitted Native American tribes to establish, through compacts with the states in which they are located, casinos offering what is known as Class III gaming: slot machines, blackjack and other card games, craps, roulette,

and other games. The growth in the number of casinos and proposals to allow casino gambling in numerous locations have sparked a wide-ranging debate over the social and economic impacts of casino development. In this paper, we explore the link between the existence of casinos and rates of certain types of crime.

From the passage of IGRA through 2010, nineteen Native American casinos were established in Michigan, operating approximately 19,000 slot and electronic gaming machines along with many table games. In addition, three commercial (i.e., non-tribal) casinos opened in Detroit in 1999 and 2000; in 2011, Detroit was the 4th largest U.S. commercial gaming market (AGA, 2012b). This paper investigates the impact of these Michigan casinos on the rates of property crimes of various kinds in casino host counties and in nearby counties. The work is based on a panel data set with annual observations on all 83 Michigan counties for the 17-year period 1994–2010. The dataset, described at greater length below, includes numbers of crimes taken from the FBI's Uniform Crime Report Crime by County data set, variables for the presence of a casino in a county or in a nearby county, the scale of a casino's operations (here based on measures of gaming-related revenues),

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<sup>1</sup> In 2011, commercial (non-tribal) gaming revenue was \$35.6 billion in the U.S. (AGA, 2012a). We will generally use the term gaming as opposed to gambling; the latter would include state lotteries, which have also grown during the same period, but we wish to confine our attention to the subset of gambling activities that take place in casino-like venues. It is also the case that the industry prefers the term gaming, presumably because it sounds better than gambling, but we are not attempting to make any sort of value judgments by our choice of terms.

the age of each casino, and a variety of control variables suggested by the broader literature on the factors that generally affect crime rates.

Although the debate over the impact of casinos on local communities covers a variety of issues, it is fair to say that casino proponents emphasize the economic development benefits and tax revenue while detractors cite the negative impact of the potential for increased crime and problem gambling. The casino-crime link is important for two reasons. First, state and local officials need information to address the desirability of having a casino in their area.<sup>2</sup> Second, these officials would be interested in how a casino would affect the deployment of local government resources, particularly police and social services. For example, Calhoun County, Michigan, commissioned a study by the Upjohn Institute (Erickcek, Timmeney, & Watts, 2008) to explore the potential impacts of the pending establishment of an Indian casino in the county. This aspect is especially important in Michigan, since all of the compacts between the state of Michigan and the tribes require that tribes make annual payments (in lieu of taxes) to local governments equal to 2% of a tribe's net casino revenues (gross amounts wagered less winnings paid to patrons) from electronic gaming machines – slot machines, video poker, and the like. These so-called 2% payments to local governments are significant amounts, annually averaging \$15.4 million in the aggregate over the 1994–2010 period, and totaling \$26.2 million in 2010 alone (Michigan Gaming Control Board, 2012a, 2012b). If the presence of a casino does in fact result in higher crime rates, local governments would want to increase policing activities, but if not, funds could be more wisely directed to other uses, including increases in social services designed to deal with the effects of problem gambling or to meet road construction and maintenance costs associated with increased traffic levels.

## 2. Earlier research

Interest in the casino-crime link has grown in step with the spread of tribal and commercial casino gaming in the United States. Given the financial stakes as well as the strongly held moral misgivings that some have concerning gambling, it is not surprising that some research has been undertaken on behalf of either pro- or anti-gambling interests or by researchers with ties to such groups (e.g., Margolis, 1997). Miller and Schwartz (1998) provide an interesting review of the early research, concluding that much of it was characterized more by its rhetoric in defense of a particular position than by its probative value, and point out that there were many contradictory results. Walker (2007) also criticizes many studies of the casino-crime link on the basis of potential investigator bias, but there is also a substantial body of work done by neutral investigators.

Walker (2010) provides a comprehensive and detailed review of the casino-crime literature, critically examining 21 papers from the period 1985–2010. The studies are from a variety of locations and time periods and their results are mixed: some show that the presence of casinos increases crime while others do not. Walker's survey is highly recommended to researchers wanting to become acquainted with this literature, and we see no need to duplicate

it here. In the abbreviated literature review that follows, we concentrate on a handful of papers that are either recognized as being more important for some reason, or that have some commonality with the model we present and test below.

Researchers at the National Opinion Research Center at the University of Chicago, in their report (NORC, 1999) to the National Gambling Impact Study Commission, conclude that the presence of a casino is not a statistically significant predictor of the crime measures they examined: larcenies, burglaries, robberies, motor vehicle thefts, and assaults. They add that the effects are either too small to be identified or that such crime problems are offset by other casino effects. The U.S. General Accounting Office (2000) cites the NORC (1999) study and its own research on Atlantic City in concluding that, for various reasons, it is difficult to tie crime rates directly to the incidence of gambling.

In contrast, some studies do demonstrate a positive relationship between crime and the presence of a casino. Gazel, Rickman, and Thompson (2001) employ a county level panel data set for Wisconsin and find some increases in crime related to the presence of casinos. In a paper that is widely cited in academic writings as well as in the popular media (see, e.g., Dissell, 2011), Grinols and Mustard (2006) examined all counties in the U.S. over the 1977–1996 period and concluded that the presence of a casino in a county tends to affect some crime rates, and does so with a lag. They find that casinos increase many property and violent crimes and that this impact strengthens in the years following the establishment of a casino. Hyclak (2011) finds higher rates of car thefts and robberies on college campuses (in four Midwestern states) within 10 miles of a casino.

Walker, in a series of papers (2007, 2008a, 2008b, 2008c, 2010), offers several criticisms of casino-crime research generally and of Grinols and Mustard (2006) specifically. Two of these (Walker, 2008a, 2008b, 2008c) are part of an exchange with Grinols and Mustard (2008a, 2008b) that addresses three of Walker's primary criticisms of casino-crime research: not including a variable related to the scale of casino operations in addition to a dummy variable for the mere presence of a casino, the quality of U.S. crime data generally, and the correct measure of population to use in calculating crime rates.

Walker observes that earlier econometric studies of the casino-crime link use only a dummy variable to indicate the presence of a casino and therefore do not account for the level of gambling activity in an area. Grinols and Mustard (2006) called for a measure of either gross revenue or profit, but indicated that such data was not available. It seems possible that, if casinos are in fact associated with higher crime levels, the larger the scale of operations of a casino, either in absolute terms or relative to the size of the host community, the greater its impact would be on various crime rates. Alternatively one might argue that larger casinos represent greater employment opportunities (i.e., legal opportunities for earning income) and would therefore lead to reduced crime.

Wheeler, Round, Sarre, and O'Neil (2008), in a cross-section study of South Australia, found that rates of "income generating" crimes are positively related to the level of expenditures (wagers) on gaming machines in hotels and clubs (i.e., not in casinos). And Reece and William (2010) includes a turnstile count variable – essentially the number of patrons visiting a casino – and finds it to be negatively and statistically significantly related to the six crimes studied, although the effect is small. In this paper we include a measure of the scale of gambling activity as well as the more typical dummy variables associated with the mere existence of a casino in a given area. For tribal casinos we use a casino revenue number based on the volume of 2% payments made by tribes to local governments under the terms of the casino compacts, and for the three commercial casinos in Detroit we have tax payment records.

<sup>2</sup> Since Indian casinos are established on tribal lands pursuant to compacts between tribes and states, local governments' ability to influence the location of such casinos is, strictly speaking, negligible. States are required by the IGRA to negotiate compacts in good faith if the state "permits such [Class III] gaming for any purpose by any person, organization, or entity." (25 U.S.C. 2710). But establishing a commercial casino often requires local approval, perhaps including the passage of a local ballot measure.

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