DO CASINOS CREATE ECONOMIC DEVELOPMENT? A 15-YEAR NATIONAL ANALYSIS OF LOCAL RETAIL SALES AND EMPLOYMENT GROWTH

by

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DEDICATION

To Kimiko Cunningham Krutz, DNP, MSN, RN

An amazing partner for life

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ABSTRACT

Casino gambling has exploded across the United States over the past 30 years. Both the academic literature and gambling proponents agree that promises of economic development have driven casino policy decisions. While such claims are tempting to policy makers, the academic literature has been largely skeptical of both the methodologies and conclusions of the casino-sponsored research behind them. For such claims to be true, retail sales and employment must grow faster in local economies with casinos than in similar locations without them. Economic theory and academic research suggest that casinos do not attract new money to an area but instead cannibalize existing businesses, leaving the local economy, at best, no better off than before. This study provides a broad test of the economic development claim by measuring the substitution effect of casinos with regression and Growth Curve Model analyses. Census Bureau data allows comparison of growth rates of retail sales and employment between casino and non-casino micropolitan and metropolitan economic areas from 2002 to 2017. To isolate local casino economic impacts, the study excludes America's four destination-casino states as well as six other states where EGMs (electronic gambling devices, aka slot machines, source of 70 to 88 percent of casino revenues) operate separately from casinos. The study finds little evidence that casinos boost retail sales growth; instead, in the 2007 to 2012 period that includes the Great Recession, retail sales in casino economies shrank at a rate two to three times greater than in non-casino economies. The Growth Curve Model also shows that employment grew at a slower rate in casino economies than in non-casino economies across the entire study period.

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> *"Much of what Americans think they know about gambling turns out to be exaggerated or taken out of context. And much of the information in circulation is inaccurate or even false, although often loudly voiced by adherents"* (National Gambling Impact Study Commission Report, 1999, p. 1-6).

> *There is no consensus on whether the operation of casinos ... leads to economic development. Some studies have concluded that casinos ... create jobs and improve the regional economies in which they operate. Other studies, on the other hand, found that casinos ... simply alter the mix of employment and income among industries and do not lead to real economic growth* (Dadayan, 2016, p 5).

Public administration scholars Laswell and Lerner (1951) noted long ago that good analysis makes good policy. Such analysis requires good information. Theoretical historian Hayden White saw that "the facts do not speak for themselves" (1978, p. 125). Facts need to be discovered, interpreted, and shared, with sound debate to find the core realities that can serve public policy. The observation from the Harvard Shorenstein Center for Media, Politics, and Public Policy, that "Multiple published studies question the reliability of economic impact studies and note government officials often don't have the training to detect problems in the way data has been collected, analyzed or presented" (Ordway, 2021), is apt for the field of casino impacts, where Anders writes, "Sound public policy should match the intended outcomes with the actual results" (2002, p. 207). The first two chapters of this dissertation discuss evidence that the public policy decisions resulting in the past 30 years of explosive growth in casino gambling[1] across the United States rest on an "intended outcomes" claim--that casinos bring economic

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[1] This study follows McGowan, who notes, "There exists some controversy associated with the terms 'gaming' and 'gambling' .... scholarly researchers most often use the term 'gambling,' and this is the term selected for this dissertation" (2004, footnote 1).

development--which has not been demonstrated to be true in an "actual results" broad empirical analysis. Chapter Three presents the methodology and chapter Four the results of such a broad empirical analysis that seeks evidence of casino economic development effects by comparing the 15-year growth in employment and retail sales in local economies with and without casinos. A discussion of the implications of the study's results follows in Chapter Five, and the dissertation concludes in Chapter Six with a review of the limitations of this research and areas for future research.

This initial chapter provides background on casino gambling, including discussion of the electronic gambling machines (EGMs) that provide the bulk of casino revenues, and evidence that an economic development claim has driven casino growth across the country. The chapter then discusses four key elements necessary to understand the economic impacts of casinos: economic theory, substitution effects, destination casinos, and pro-casino economic projections (and their critics). The discussion identifies several reasons for concern about the accuracy of casino economic development claims and closes with a review of concerns raised about how casino interests may be affecting research in the field. The chapter concludes by noting the widespread recognition of the scarcity of credible research on casino economic impacts to set the stage for a review of the existing research in Chapter Two.

Background on 30 Years of Casino Expansion across the U.S.

Toward the end of the 1980s, legal casino gambling in America was limited to the state of Nevada and Atlantic City, New Jersey. The lifting of long-time casino restrictions across the rest of America began in large measure with the passage of the Indian Gaming Regulatory Act (IGRA) of 1988, which permitted casinos on tribal lands in states which allowed otherwise only minor forms of gambling, such as bingo, raffles, or charitable

casino nights. IGRA resulted in bingo-based slot machines in casinos on tribal reservations in states whose laws allowed traditional bingo games, often over those states' objections. States soon responded by loosening restrictions on commercial gambling, first on riverboats, then at racetracks and other locations, following a policy diffusion process that in many ways mirrored the earlier U.S. spread of lotteries chronicled by Berry and Berry (1990; see also, Eadington, 1995).

Since 1988, legal casino gambling has spread from two to 40 states, where 1,000 casinos now generate roughly $70 billion in annual revenue (American Gaming Association (AGA), 2018). Some 856,000 EGMs (electronic gambling machines, commonly known as slot machines) (AGA, 2021b, p. 124) produce 70 to 88 percent of casino revenues (Association of Gaming Equipment Manufacturers (AGEM), 2019; Gardner, 2005; Schüll, 2012; Schwartz, 2018; Thompson, 2015; Williams et al., 2011a). As Sulkunen et al., report, "EGMs are the mainstay of most present-day casinos" (2019, p. 95).

EGM technology has evolved concurrently with the geographic spread of casinos and, in turn, has helped drive that expansion. While still widely called slot machines, EGMs, including video lottery terminals (VLTs), have evolved far beyond their coin-drop mechanical predecessors to become highly profitable, rapid-bet (a new bet every few seconds), computer-based, video gambling devices. EGMs have incorporated several technological innovations to increase the "time-on-device" (Schüll, 2012, p. 3) which directly drives casino profits. Examples include: 1) losses disguised as wins, where machines use lights and sound to announce a "win" that is less than the amount bet, 2) virtual reel mapping, which shows gamblers near-miss results far more often than probability would suggest, reinforcing a gamblers' hope that they are on the cusp of a

jackpot, 3) the elimination of the use of coins and addition of credit-card-like player cards, and 4) the current transition to "cashless" gambling, whereby slot machines automatically pair with gambler's phones. Rapid-bet matters because faster forms of gambling are more addictive than slower forms of gambling (Breen, 2004; Breen & Zimmerman, 2002; Williams & Wood, 2004; Schüll, 2012). It should be noted that gambling addicts provide a significant percent of casino revenues: for example, a study of Alberta, Canada, concludes that "75% of reported gambling expenditure comes from roughly 6% of the population ... [and] 40.6% of them are problem gamblers" (Williams et al., 2011a, p. 280; see also, Council on Casinos, 2013).

Time-on-device matters because, since EGMs are programmed to return less money to gamblers than gamblers put in, the longer gamblers play, the more money they lose and the more casinos profit. Player cards matter because they eliminate the gambling step of feeding coins in or having to cash coins out, thus simultaneously speeding up play and increasing gambler time-on-device, with additional twin casino benefits of capturing personalized details of gambler habits for focused marketing and cutting from payroll the slice of workers who once managed a casino's coin inventory.

Economic Arguments Have Driven Decisions on Casino Policy

"Economic development" can be construed in various ways. Wenz notes, “The primary potential for economic development associated with casinos comes through improvement of the local business environment” (2014a, p. 4). This study focuses on two measures of such improvement that should be consistent with the economic development claims of casino proponents. First, from a business perspective, economic development should be demonstrated by increased business receipts, which are captured in retail sales data. Second, from a citizen perspective, economic development should be demonstrated

by increased employment opportunities, which are captured in employment data. A comparison of retail sales and employment growth rates between casino and non-casino economies, which this study provides, should reveal whether or not, as the AGA has succinctly expressed it, “Gaming is an engine of growth that powers economic development and job creation everywhere it operates” (2014, p. 1).

Economic impact claims like this are widely recognized in the academic literature as the driving force behind the rapid expansion of casinos across America (see, for example, Chhabra, 2007; Cotti, 2008; Farrigan, 2005; Lim & Zhang, 2017; Pierce & Miller, 2004; Sallaz, 2006; Schwartz, 2015; Walker & Jackson, 2007; Walker, 2013a). Other voices concur (for example, AGA, 2017a; MassGaming, 2021; Strategic Economics Group, 2014), including, according to an AGA survey, six in ten Americans (2019). Related arguments--for example, support tribes, keep money from leaving the area, or provide tax funding for a specific local purpose--have also impacted casino policy debates. Central to them all, however, as Mallach's review of the casino economic and social impact literature concludes, “Many, if not most, communities would not entertain the idea of legalizing casino gambling were it not for the anticipated economic benefits”; that reality, he continues, “emphasizes the importance of trying to establish whether these benefits exist” (2010, p. 6), which is the goal of this study.

Three principal considerations lead to a belief that casinos bring economic development. First, some are persuaded that a casino's revenues and jobs are direct evidence of economic development--that since the casino revenues and jobs did not exist before, they must be new to the economy. However, as detailed in the next section, a deeper analysis into economic theory and the "substitution effect," wherein the new revenues and jobs of the casino displace previously existing spending and jobs at local

businesses, is needed before that conclusion can be drawn. Part of that analysis includes recognition of the distinction between destination and non-destination casinos, as also addressed in the next section. Second, some are persuaded by economic projections from consultants paid by pro-casino interests, though such reports have often been challenged for their methodological limitations. The consultant models and their critics are discussed in the section after next.

A third reason some think casinos bring economic development is because casinos situated on a political border can attract gambling dollars to the economy on their side of the border at the expense of the economy across the border. These include casinos on state borders, like the Council Bluffs, Iowa, casinos within the Omaha, Nebraska, metropolitan area, and casinos on tribal ground within a larger economy, like the Mystic Lake Casino in the Minneapolis-St. Paul metropolitan area. This present study focuses on casino economic impacts at the local-economy level and does not address such divisions in those local economies, although other studies have. Wenz (2014b) and Williams et al. (2011a), for example, find that tribes see some economic benefit from their casinos at the expense of the local economies of which those casinos are a part.

Economic Theory and Evidence of a Substitution Effect from Casino Gambling

Economic theory, itself, does not recognize gambling as an economic driver (Grinols & Omorov, 1996, p. 11). Often cited in the literature is Nobel Prize-winning economist Paul Samuelson's concise summation that there is a "substantial economic case ... against gambling ... it involves simply the sterile transfer of money or goods between individuals, creating no new money or goods .... When pursued beyond the limits of recreation … gambling subtracts from the national income" (1976, p. 425). Similarly, University of Nevada Las Vegas Professor William Thompson told PBS' Frontline,

“Gambling is not a productive industry. There is no product. After a person's gone through the gambling experience, their labor and their time spent has not added to the wealth of society” (Thompson, 1997).

In 1996, consistent with such views, 40 economists in Nebraska signed a statement, saying “We, the undersigned Nebraska economists, are opposed to the expansion of gambling in Nebraska because the additional direct and indirect costs are likely to far outweigh the additional direct and indirect benefits for the state as a whole” (Dorr, 1996, p 40)--with the term "likely" chosen because no credible studies then existed. Researchers (See, for example, Grinols, 2004; SACES, 2008; Walker, 2007a) have noted that the positive utility that gamblers experience as they gamble counts as a benefit of casinos, although it gets confounded by the hard-to-measure loss of utility experienced by gambling addicts and by those they affect through, for example, divorce and broken families. More on this discussion appears in Chapter Two.

Related to the economic observation that casinos do not create wealth in an economy is the issue of the substitution effect, simply illustrated by Speyrer's question: “There’s not new money falling from the heavens waiting to be spent at casinos. The question is: Where are you going to take it from?” (PapaJohn & Reardon, 1994, p. 1). When consumers spend dollars in a casino, those dollars are not spent at other area businesses, whose revenues then decrease, erasing or even reversing any overall job-creation or economy-expanding benefits a casino might bring to a local economy. This substitution effect, sometimes called cannibalization or displacement, recognizes that a dollar spent in one business (a casino) is a dollar not spent in others (nearby stores for hardware, groceries, used cars, appliances, etc.), and when revenues drop at those stores, the lower revenues lead to lay-offs of as many employees as the casino has hired, or even

more. In short, the economic observation is that casinos, like other local businesses, do not bring new wealth into an economy; they just move existing wealth around.

Concerns about a casino substitution effect are not new, as three examples over time suffice to demonstrate. In 1719, Samuel Sewall, Salem merchant, wrote, “I dined with the Court [the Massachusetts legislature] last Friday, where many expressed their dislike of … Gambling for Money … as being really pernicious to trade” (as cited in Pierce & Miller, 2004, p. 12). In 1994, Donald Trump told the Miami Herald, "As a resident of Florida, I'm very concerned about the effect casinos would have in the state…. Local business will suffer because they'll lose customer dollars to the casinos” (Faiola, 1994). In 2021, Massachusetts State Senator Jamie Eldridge said, “with people’s limited dollars for entertainment and for recreation, if it all goes into a casino then that’s money that’s not spent at the local restaurant or museum or in the community” (Young, 2021).

Likewise, four documented small-scale examples suffice to further illustrate substitution effects experienced within a year of a casino opening in a local economy: a half million dollar drop in sales tax revenues in Ulster County, New York (Doxsey, 2019); an immediate 15 percent drop in an Omaha grocer’s sales and the flattening of sales on Social-Security-check days (Meredith, 2001); lower sales “by as much as a third” in Louisiana, according to *Wall Street Journal* interviews with local business leaders (Wartzman, 1995, p. A1); and a ten to 20 percent decline in sales reported by 70 percent of businesses in Natchez, Mississippi (Goodman, 1995, p. 31). In some cases, businesses most concerned about losing consumer revenues to casinos become vocal opponents of legalized gambling in their areas, notably the amusement parks Silver Dollar City in Southeast Missouri and Disney World in Florida.

Despite these anecdotal examples, what the Strategic Economics Group reports remains accurate: “On the substitution/cannibalization effect, overall there is little empirical evidence on either side of the debate” (2014, p. 19). The few studies that have attempted in some way to measure casino substitution effects are reviewed in the next chapter, followed in subsequent chapters by the research of this dissertation, which focuses on exactly this key issue.

Substitution Effects Differ in Destination vs. Non-Destination Casino Areas

The substitution effect is masked in America’s few “destination” casino areas in Nevada, New Jersey, and Mississippi (Eadington, 1998, 1999; Garrett & Nichols, 2005) whose casinos attract significant revenue from visiting gamblers from outside of the casinos' local economies, while sending most social costs associated with the visiting gamblers back home with them.[2] Like the Atlantic City casinos that profit primarily from visiting gamblers from New York City and other nearby but non-local urban areas, Connecticut’s Foxwoods and Mohegan Sun tribal casinos also fit the "destination" category: the dollars that make them among the world's largest casinos are not coming primarily from Connecticut gamblers. Since they attract significant revenues from outside of their local economies, these few destination casinos can create positive local economic impacts that mitigate the substitution effect and are not typical of most casinos. Most tribal casinos (Evans & Topoloski, 2003), and most casinos overall (Brome, 2006; Eadington, 1998), even though they may label themselves as "destination resorts," draw 50 percent or more of their revenue from local gamblers (Grinols, 2004; Rephann et al., 1997; Thompson, as quoted in Passell, 1994). Eadington calls these non-destination

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[2] Garrett and Nichols find, for example, that casinos export bankruptcy costs to the places where bankrupt gamblers live (2005)

casinos, "casinos of convenience," and expects that "jobs created and revenues generated in the casinos would be offset by jobs lost and revenue shortfalls elsewhere in the region" (1995, p. 52); in other words, that these non-destination casinos of convenience would create substitution effects.

To illustrate these typical convenience casinos: Eighty to 90 percent or more of Illinois casino revenues come from Illinois residents (Grinols & Omorov, 1996). Ninety-four percent of Arizona casino gamblers are Arizona residents (McKinnon, 2001, cited in Anders, 2002). In Wisconsin more than half of gamblers live within 50 miles and 73 percent within 100 miles of the casinos they patronize (Thompson et al., 1995). Pennsylvania casino executives in Bethlehem, Chester, and Philadelphia report that their average customer visits their casinos four to five times per week (Thompson, 2011, p. 7), a frequency that identifies their gamblers as locals, not short-term visitors from elsewhere. Roughly 80 percent of convenience-casino revenues come from within a 35-mile "feeder market" (Kindt, 2003c; see also, Williams, Belanger, & Arthur, 2011), while, by contrast, in destination-casino Tunica, Mississippi, casino employment is greater than the population of the county (Garrett, 2004), a result not sustainable without a revenue stream from non-local gamblers. Grinols reports that casino demand falls 30 to 35 percent when distance from a casino doubles (2004).

Since most of the money lost in non-destination casinos comes from local gamblers, that money is not new money that expands the local economy; instead, local consumers substitute their previous local spending for spending at the local casino. In such cases, little change should be expected in overall spending levels in a local economy. Grinols and Omorov (1996; echoing Eadington, 1995, and discussed by others from Rose, 1998, to Walker, 2013b) aptly characterize this economic difference between

destination and non-destination casinos as whether a casino acts like a factory, bringing outside money into an economy, or like a restaurant, attracting only local dollars and creating substitution effects.

It should be noted, as Walker (2007, 2013b) and Grinols (2004) agree, that substitution effects are neither unusual nor bad for an economy. Competition in a free market leads businesses to open and close routinely as consumers change their choices about where to direct their spending. However, the point of concern is not whether a substitution effect is normal; the question is whether it is factored into casino economic projections--and whether policy makers are being swayed by economic claims that do not adequately take the substitution effect into consideration for decision-making. This study provides a clear, broad measure of the casino substitution effect to help inform policy makers as they consider future casino policy decisions.

Consultant Economic Projections and Their Critics

To make their case that casinos bring economic development and jobs, proponents of casinos hire consultants to prepare econometric Input-Output reports that measure such things as "direct impacts" (spending by casinos and their suppliers), "indirect impacts" (spending by suppliers to their suppliers) and "induced impacts" (spending by casino and supplier employees). These reports use standard multipliers to project, for instance, how much of a project's payroll and procurement budget will be spent in its local economy, then they build those projections into overall economic impact forecasts of the project. Such a projection for all U.S. casinos by the AGA compellingly concludes, "The U.S. gaming industry supported a total economic impact of $261.4 billion of output, with 1.8 million jobs and $40.8 billion in tax revenue," (AGA & Oxford Economics, 2018, p. 3)– impacts that sound impressive in the absence of substitution effect considerations.

Consultants have prepared scores of such casino economic impact reports (see, for examples: AGA, 2018; Arthur Andersen LLP, 1996 & 1997; Beacon Economics, 2014; Econsult Corporation, 2006; Ernst & Young LLP, 2021; Holley, 2015; Meister, 2017; Spectrum Gaming Group, 2013; Strategic Economics Group, 2014; Taylor, 2012; Washington Economics Group, 2021; Weinstein, Clower, & Associates, 2013; and additional examples in Williams, Rehm, & Stevens, 2011, p. 10) in support of various local and state casino legalization efforts.

These reports use Input-Output multiplier modeling tools of companies like IMPLAN (implan.com; Beacon Economics, 2014, provides a detailed explanation of IMPLAN) and REMI (remi.com) that build-in assumptions developed from results of related projects to predict how a development project will affect local economies and jobs. While Williams et al. note the quality of some consultant studies (2011b), other parts of the literature (Anders, 2002, p. 208; Collins, 2003, p. 11-12; Farrow & Carter, 2013, p. 168; Goss, 2002, p. 7; Grinols, 2004, p. 71; Kindt, 2003a; Rose, 1998; Walker, 2013a, p. 110) have been generally critical of casino consultant studies, pointing out that their for-profit nature invites skepticism over their choices of assumptions, variables, multipliers and analyses and concluding that their results are often based more on reaching conclusions sought by the funder than on providing a balanced impact assessment.

Four specific issues of these casino studies limit their effectiveness for policy makers and contribute to public misperceptions. First, because many casino reports do not discuss or account for substitution effects (for examples, Beacon Economics, 2014; Cornell & Taylor, 2001, as cited in Anders, 2002; Econsult Corporation, 2006, as cited in Mallach, 2010; Holley, 2015; KPMG, 1995; Washington Economics Group, 2021), they

create a false impression that projected casino economic impacts will be a new addition to an economy. Second, some consultant reports follow the lead of the AGA-financed Arthur Andersen[3] studies (Arthur Andersen, 1996 & 1997) that leave out any social cost measures (Kindt, 2003a; Walker, 2007a; Williams, Rehm, Stevens, 2011) but, nonetheless, are featured in the 1999 National Gambling Impact Study Commission Report and helped fuel the expansion of casinos across the Midwest. Third, justification for the choice of multipliers used by Input-Output models is seldom offered: Corfe et al. (2021) suggests that, because of their short supply chains, gambling operations have such low economic multipliers compared to most other forms of economic activity that eliminating gambling would likely boost an economy. Fourth, some consultant reports fail to control for broader economic trends, like the 1996 report for International Game Technology by The Evans Group, which, Grinols points out, credits Illinois casinos with a rate of job creation in their counties from 1991 to 1996 that simply matches the job creation results of comparable non-casino Illinois counties during that period's national economic expansion (2004, p. 88-89). Such inadequacies in consultant studies are of particular concern for public policy because these types of studies (see discussion of the Arthur Andersen reports earlier in this paragraph) steer the debate: as has been said of the fossil fuel industries, “significant financial resources … permit the expensive and expansive circulation of their rhetoric" (Schneider et al., 2016, p 6), while critiques, if any, often come only after the fact and do not reach the public eye.

Questionable consultant reports are not just an issue of the casino industry. The Harvard University Shorenstein Center on Media, Politics, and Public Policy devoted an

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[3] Unethically cozy relationships with Enron and other clients soon imploded this Big 5 accounting firm, brought the term "Andersen Effect" into the financial services lexicon, and led to the financial regulations of the 2002 Sarbanes-Oxley Act.

issue of *The Journalist's Resource* to the problem of economic impact studies related to sports stadiums, tourist attractions, and public universities that summarizes several critical studies (Ordway, 2018). Concerns include the inability of the public and public officials to detect study deficiencies (Wassmer, 2016) and the commissioning of authors to legitimize a political position rather than to seek the truth (Crompton, 2006). Coates and Humphreys (2008) find, for example, that a consensus of academic economists disagree with studies claiming that professional sports franchises and facilities bring economic development. Evidence that the field of econometrics is skeptical of itself can be found in its book titles: for example, Mostly Harmless Econometrics (Angrist & Pischke, 2007) and Econometrics as a Con Art, which concludes, "econometrics … can be used to prove almost anything" (Moosa, 2017, p 3).

Additional Concerns Raised about Casino Interests Tainting Research

In the area of casino impacts, the research concerns go even deeper. Beyond just commissioning and publicizing questionable economic forecasts, gambling proponents have come under fire for actively working to taint academic research focused on gambling impacts, following the model of tobacco companies (Cassidy & Pisac, 2013; Cassidy & Livingstone, 2014; Ferrell & Gold, 1998; Kindt, 2001, 2003b, 2009; Livingston et al., 2018; Nikkinen, 2019). Activities noted in these articles include intimidation of those involved with the National Gambling Impact Study Commission and of other researchers,[4] creation and direction of ostensibly neutral oversight

[4] The Los Angeles Times reports, "On several occasions after he released studies on gambling's social impacts, [University of Nevada Las Vegas Professor William] Thompson says, he picked up the phone only to hear Mirage CEO Steve Wynn screaming profanities." (Ferrell & Gold, 1998, p. A24).

organizations,[5] concentration of funding into research focused on gamblers (60 percent of peer-reviewed literature) rather than on the economic (10 percent of peer-reviewed literature) or other impacts of gambling operations (Nicoll & Akcayir, 2020; see also Walker, 2013b, p. 257, footnote 3), and disruption of legitimate research into the broader effects of gambling, as evidenced by exchanges between Grinols, Mustard and Kindt, who have been generally critical of gambling expansion, and Eadington, Walker,[6] and Jackson, who have been generally supportive of and at least occasionally funded by it; sparring that goes beyond substantive research critiques to question the legitimacy of the others' research motivations (see, for examples, Eadington, 2004; Grinols & Mustard, 2008; Kindt, 2001; Walker, 2004 and 2008a). This tainted research environment likely contributes to what Walker and Jackson note as the "surprising paucity" (2007, p. 595) of casino economic impact studies, a lack identified by many (Economopolis, 2015; Farrow & Carter, 2013; Li, 2010; Nichols, 2015; Strategic Economics Group, 2014; Walker, 2013; NGISC, 1999; Wenz, 2014).

Chapter Summary

This chapter provides background on casinos, their dependence on EGM revenues, and their rapid expansion across the U.S. since the late 1980s, fueled by technical EGM innovations. After showing evidence that claims of economic development have driven that expansion, the chapter then discusses four key factors in casino policy analysis: economic theory, the substitution effect, destination casinos, and

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[5] Kindt notes, "Professor Henry R. Lesieur and Dr. Richard Rosenthal terminated their relationship with the [the gambling-funded National Center for Responsible Gaming] due to concerns with the NCRG's research agenda" (2009, p. xlii).

[6] Goss notes the "slim analyses" of Walker's 2007 *The Economics of Gambling*, and concludes, "From the beginning to the end of his book, Professor Walker is unable to mask his adulation of the casino industry as an economic engine delivering, as he sees it, mostly positive changes to the economy" (2007, p. 748).

consultant studies. In those discussions, three reasons are identified to explain why casino economic development beliefs are so prevalent: first, an accepted but suspect narrative that casino money is new money in an economy (possibly true for a few destination casinos but not demonstrated for the vast majority of casinos); second, questionable economic projections promoted by profit-seeking gambling interests; and, third, casino effects in border areas.

To provide policy makers with a true measure of whether economic results support the perception that casinos bring economic development, this study takes a broad look at 613 local economies across 39 states over 15 years. This study is needed because casino policy decisions based on a trade-off between economic benefits and social costs will likely be different if the economic benefits are not real. Policy makers need to accurately understand the economic impact of casinos, "especially," as Cotti notes, "when one considers recent literature, which finds evidence that casinos may lead to increases in local crime, bankruptcy, and assortment of other social problems, such as suicide or divorce" (2008, p. 17-18). Before delving into the research of this present study, however, Chapter 2 offers a review of the existing research into the economic impacts of casinos.

CHAPTER 2: LITERATURE REVIEW

This chapter reviews research that has been done in the field of casino economic impacts. It begins with a look at casino cost-benefit analysis efforts and the debate over the appropriateness of such an approach before focusing on the more modest aim of this current study: to test the claimed economic development impact of casinos. Quality criteria for casino economic impact studies are reviewed, drawing on two systematic review articles, Williams et al. (2011b) and Marionneau and Nikkinen (2020), which seek to identify credible research in the field. The methods, results, and limitations of 19 studies highlighted for their quality in the systematic review articles are then discussed, followed by a review of other relevant research and specific gaps identified by authors in the field. The chapter closes by summarizing the research approach of this study and how it will add to the body of knowledge on casino economic impacts.

The Cost-Benefit Approach

Developing an accurate measure of casino economic impacts has proven to be difficult. As casinos spread rapidly across the country during the 1990s, positive economic projections like the flawed Arthur Andersen studies discussed in Chapter One contended in public policy debates with initial piecemeal estimates of negative impacts in such areas as employment (Grinols, 1994), business (Grinols & Omorov, 1996), and bankruptcy (Thompson et al., 1997). No comprehensive studies demonstrated the extent to which casinos were good or bad for an economy, although some (Goodman, 1994, 1995; Eadington, 1995, 1998) highlighted key issues involved. Recognizing the uncertainties, Congress and President Clinton appointed the two-year National Gambling

Impact Study Commission (NGISC), which held hearings and commissioned a research review (Rose, 1998) and also new research (Gerstein et al., 1999) from the National Opinion Research Center (NORC). Despite this unprecedented effort, the Commission failed to clarify the picture, concluding, "It is currently impossible to obtain even a rough approximation of a true cost-benefit calculation concerning the economic impact of legalized gambling," (NGISC, 1999, p. 7-29) and calling for "a pause in the expansion of gambling in order to allow time for an assessment of the costs and benefits" (p. 1-7).

No one was tasked to complete an assessment, however, and no pause happened.

Five years later, in 2004, University of Illinois economist Earl Grinols, building on his earlier theoretical framework (Grinols & Mustard, 2001), published what remains the most comprehensive cost-benefit analysis of U.S. casinos to date in his book *Gambling in America: Costs and Benefits*. Grinols draws on a wide range of studies to attempt to economically quantify a list of casino impacts, including as benefits "profits, taxes, distance consumer surplus, consumer surplus, induced capital gains, and elimination of transactions constraints" (p. 111), but not the overall quantity of jobs, which his theory expects are not much affected by the entry and exit of individual firms from local labor markets (see also, Grinols, 2011; Wenz, 2014b); and as costs, "crime, business and employment costs such as lost time on the job, bankruptcy, suicide, illness, [social service costs], direct regulatory costs, family costs such as child neglect and abuse, and abused dollars" (p. 132).[7] He calculates the benefits to be $46 per adult and the costs to be between $180 and $289 per adult (p. 182), concluding, "The long-term cost-to-benefit ratio from introducing casinos to a region … is greater than 3:1" (p. 176).

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[7] See also Corfe et al. (2021, Chapter 2) for a more recent comprehensive discussion of the categories of costs of gambling to society.

Challenges to the Cost-Benefit Approach

Grinols' methods and conclusions are challenged by Walker (2007, 2007b, 2013b) on three general grounds. First, Walker suggests that some costs Grinols identifies are not costs at all but are either wealth transfers (like bankruptcy or theft) or costs only to individuals. Second, Walker argues that consumer surplus, the "utility" or value that gamblers get from gambling, should receive more weight on the benefit side of the equation; in this Walker adopts a "rational addiction" (2013b, p. 187) position[8] that all gambling is consensual and that whenever gamblers choose to gamble, they do so because it increases their utility. Grinols, on the other hand, ascribes a consumer surplus benefit only to those whose gambling is motivated by entertainment rather than addiction. Third, Walker asserts (with, unfortunately, little documentation) that the studies Grinols cites have been shown to be flawed in the literature and that Grinols ignores literature that suggests casinos provide jobs or economic development.

At a more fundamental level, Anielski and Braatan (2008) as well as Walker (2013b), question whether a cost-benefit analysis can ever overcome the subjectivity necessarily involved in converting difficult-to-quantify impacts like consumer surplus, divorce, or broken families into dollar impacts. This line of thinking follows from discussions at the 2000 International Symposium on the Economic and Social Impacts of Gambling (papers in *Journal of Gambling Studies,* 2003, vol. 19) and the 2006 Alberta Conference on Gambling Research and is adopted and refined by Williams et al. (2011b) in their exhaustive systematic review article. However, that article's recommendation that researchers discuss economic and social "impacts" rather than "costs and benefits" (p. 13)

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[8] Goss notes of Walker, "he tends to portray all gambling transactions as a free exchange of entertainment for cash" (2008, p 748).

seems simply to encourage a weaker, "cost-benefit-light," approach. This is borne out in Williams concurrent study of Alberta, Canada (Williams et al., 2011a). The study discusses but declines to quantify some of the items identified as "impacts" that lead to their conclusion, "there would appear to be minor economic benefits to gambling in Alberta that are offset by minor economic costs" (p. 281); however, this sidestepping of the critical, albeit challenging, task of quantifying the impacts makes the overall import of their results more uncertain than would a best-valuing of impacts for robust discussion.

While these authors and others (Mallach, 2010; Walker, 2013a) appropriately call on researchers to avoid applying arbitrary monetary values to impacts that are clearly non-monetary in nature, and to recognize that assessing qualitative impacts involves subjectivity, such concerns are not reason to reject attempts at better measures. Movement along the continuum between arbitrary guesses and unambiguous measures often involves successive approximations. No one knows, for example, how much gambling-related divorce costs a community, and researchers may not agree on estimate measures, but scientific enquiry would suggest a further discussion of distinctions between better and worse methods and the continued refinement of measures rather than abandonment of the quantification of such impacts entirely.

As a reaction to the cost-benefit debate, Wenz (2014b) offers a different approach, adopting a Rosen–Roback quality-of-life model to measure casino impacts. This spatial equilibrium approach, used more commonly to estimate environmental impacts, compares the change over time of two variables--average housing price and average wage--between areas that have, and have not, experienced an amenity (like improved air quality or the addition of a stadium, for example) on the theory that the new amenity influences worker migration in ways that can be measured by those variables. Wenz uses

1990 and 2000 Census data to compare 1,808 Census PUMAs (Public Use Micro Areas: contiguous geographic areas of 100,000 people or more within states), 168 of which had casinos during all or part of that period. Wenz's overall finding of no casino economic development impact masks a mild division between results for areas with (more-rural) Native American casinos, which he finds experience new economic activity, and other (more-urban) casino areas, where he instead notes substitution effects--similar to results reported for Alberta, Canada, by Williams et al. (2011a). In his data set Wenz screens out Nevada and New Jersey (not as destination casino areas but as long-time casino areas) but mixes into the analysis the atypical economic impacts from the destination-casino areas of Connecticut and Mississippi, as well as from areas with non-casino EGMs, thus rendering the study's results less reliable. Wenz notes that a study with just two time periods is quite short for a spatial equilibrium analysis, but he recognizes that because of the approach's reliance on housing values, the housing crash of 2007 creates difficulties for extending it further.

Further Cost-Benefit Research

While Farrow and Carter (2013) outline the theoretical issues of a cost-benefit analysis of slot machines and Mallach (2010) discusses the cost-benefit literature as it applies to casino expansion in Pennsylvania, no one in the U. S. has attempted to improve on Grinol's 2004 comprehensive cost-benefit measures. However, three studies from outside the country have done credible work in this area. While their gambling environments differ in significant ways from that of the U.S. (for example, all three areas feature EGM availability separate from casinos), these analyses provide additional models of the cost-benefit approach. Discussion of the first study, of Alberta, Canada (Williams et al., 2011a), appears earlier in this chapter.

The second study focuses on the impact of casino and non-casino EGMs in the Australian state of Tasmania. Published by the South Australian Centre for Economic Studies (SACES, 2008), it finds no evidence that EGMs there increase either overall consumption (retail sales) or employment. Repeated by law every three years, the similar 2011 study of Tasmania (Allen Consulting et al.) reports an economic contribution that is "small, if not negligible" (p. 22) and follows the cost-benefit-light approach of declining to make a net social impact conclusion that incorporates problem gambling costs. Repeated again in 2014, the report (Acil Allen Consulting et al.) applies a multi-regional, dynamic Computable General Equilibrium (CGE) model of the Australian economy to find that the economy would shrink if all Tasmanian gambling happened elsewhere, if all Tasmanian gambling were diverted into other spending in Tasmania, or if the number of problem gamblers was halved; however, while the report recognizes that economic costs related to gambling addiction are "likely to be significant" (p. 147), it does not factor them into the CGE model. The 2017 report (Acil Allen Consulting et al.) transitions to an input-output analysis that finds a positive economic footprint for gambling but makes no attempt to account for either substitution effects or social costs. Most recently, however, the 2021 report (SACES) returns to a cost-benefit approach by comparing social cost estimates against a CGE analysis of economic impacts and reporting an overall annual range of Tasmanian gambling impacts (primarily from EGMs) of between -A$36.2 million and A$158.9 million (-$26 million and $114.2 million U.S.). It then projects that eliminating gambling would result in a short-term decrease and long-term increase in Tasmanian economic activity and employment.

The third foreign cost-benefit-related study, by Public Health England (2021a), roughly the English equivalent of the U.S. Centers for Disease Control and Prevention

(CDC), provides an analysis of gambling-related harms (the cost side of a cost-benefit study) that includes estimates of treatment and enforcement costs involved with managing gambling addiction as an illness in the areas of homelessness, suicide, depression, alcohol dependence, illicit drug use, unemployment, and imprisonment. While noting that evidence is still lacking to quantify some of the harms identified, for example harms experienced by those affected by gambling addicts, the study concludes that the public health harms that have been measured cost England at least 1.27 billion English pounds ($1.72 billion U.S.) per year, and notes "there is a clear gap in the assessment of the true scale of the total economic burden of gambling" (p. 12).

Studies Focused on Casino Economic Impacts

The Central Economic Impact Claims of Casinos Have Not Been Demonstrated

This present study does not offer a comprehensive cost-benefit analysis but rather takes a narrower focus on a critical part of that effort. The debate over methodological approaches for such things as estimates of social costs and whether and how much consumer surplus should enter the equation, while important, has distracted the field from addressing head-on what should be recognized as the core public policy concern regarding the expansion of casino gambling across the U.S.: the lack of credible empirical support for the common, benefit-side, belief that casinos bring economic development.

As recently as July of 2021 a panelist at the Chicago Summer Meeting of the National Council of Legislators from Gaming States told a roomful of policy makers, regulators, and influencers (including this author), "Nobody doesn't believe that casinos bring economic development" (Geller, 2021), yet, as the next section demonstrates, the academic literature contains no credible broad study to support this belief. This present

study, serving as a test of Garrett's succinct observation, "The perceived benefits of casinos are increased employment ... and retail sales growth" (2003, p. 9), is designed to broadly measure whether U.S. casino economies actually experience these benefits, or whether, instead, substitution effects leave local casino economies no better off (or worse off) than they would have been without casinos.

Review of 19 Casino Economic Impact Studies the Literature Identifies as High Quality

Williams et al. (2011b) and Marionneau and Nikkinen (2020: hereafter, "M&N"), following the lead of Rose (1998), provide a service to the field with their systematic review articles of casino social and economic impact studies dating back to the mid-1970s, the former annotating 492 studies, 293 of which are empirical, the latter more narrowly identifying 44 studies specific to casino impacts on other business activity.[9] Both of these systematic review articles, in addition to noting the scarcity of gambling impact research compared with the abundance of studies into problem gambling,[10] provide an additional service to the field by discussing and applying criteria to assess the quality of the studies that they identify. Criteria they have in common include the use of control areas, a large sample size, and longitudinal analysis. M&N also seek "statistical rigor," while Williams et al. also consider pre/post and micro/macro comparisons, original data vs. secondary sources, and measurement of multiple impacts simultaneously. These sensible criteria, though they do not include a funding

[9] The 134-entry annotated bibliography of Gardner, Kalt, and Spilde (2005) for the National Indian Gaming Association (NIGA) provides a related resource, although more than half the studies provide no research (Connor, 2009) and its selections and research summaries reflect NIGA's bias in favor of tribal gambling.
[10] See, for example, McGowan et al. (2000)'s comprehensive annotated bibliography of 264 primarily-problem-gambling-related socio-cultural gambling studies that appeared in the scientific literature from 1980 to 2000.

transparency element which is of growing importance in scientific research, are used by the authors to highlight the most credible studies.

Of the 44 studies that Williams et al. (2011b) identify as "good" or "excellent," seven address casino business impacts and ten address casino employment impacts. Of the 15 studies that meet at least three of M&N's four quality criteria, eight address casino business impacts; M&N does not address employment impacts. Thirteen of the 32 articles appear on both lists, leaving a combined total of 19 studies identified as providing the most credible results related to impacts of casinos on business and employment. These studies are summarized in Table 2.1. It should be noted that, while the filtering provided by the two systematic review articles is useful, it is not airtight. M&N include one relevant study--Rephann, 1997--left out of the 492 studies in the other annotated bibliography. M&N also identify some studies in the Williams et al. bibliography to be relevant to employment or business impacts or conducted above a quality threshold that Williams et al. did not. Discussion of additional studies that escaped the notice of both systematic review articles follows a review of the 19 select studies.

Table 2.1 Nineteen quality studies of casino impacts on business/employment

Meet Williams et al. (2011b) good/excellent or at least 3 of 4 M&N (2020) quality criteria						
Author (Date)	**Type**	**Study #* from 2011 annotated bibliography**	**Scope**	**Data Years**	**Economic Impacts**	**Jobs Impacts**
Anders, 2002	Book chapter	24	Arizona tribal casinos	1991 to 2000	Negative for state; positive for tribes	Not assessed
Connor & Taggart, 2009	Article, Social Sciences Quarterly	94	New Mexico tribes with vs without casinos	1990 and 2000	Not assessed	Reduced unemployment for casino tribes
Cotti, 2008**	Article, Journal of Gambling Business and Economics	97	161 casino counties vs all U.S. counties; excludes NV and Atlantic City	1990 to 1996	Positive in low-population areas	Positive in low-population areas, but fades over time
Evans & Topoleski, 2003**	Consultant, National Bureau of Economic Research	131	All U.S. tribes in lower 48 states with vs. without casinos	Primarily 1989 to 1999 in 2-year intervals	Positive for casino tribes	Positive for casino tribes
Farrigan, 2005**	Dissertation, Penn State U College of Earth and Mineral Sciences	133	Tunica, MS	1990s	No cannibalization	Positive
Fenich & Hashimoto, 2004**	Article, Gaming Law Review	139	Atlantic City, NJ, Deadwood, SD, and two CO casino counties	1970-1995	No bar and restaurant cannibalization	Food and beverage employment increases
Gardner, 2005	Consultant, Center for Governmental Research	149	Niagara Falls, NY	2003-2005	No impact on business revenue	Inconclusive to positive
Garrett, 2003**	St. Louis Federal Reserve Report	152	Six casino counties in IA, IL, MO, and MS	1986-2001	Discussed but not assessed	Increased employment in rural areas
Garrett, 2004**	Article, Federal Reserve Bank of St. Louis Review	153	Six casino counties in IA, IL, MO, and MS	1986-2001	Discussed but not assessed	Increased employment in rural areas
Gerstein et al. (NORC), 1999**	Consultant, NORC for the NGISC	316	100 communities: 5 near casino in 1980; 45 in 1997	1980-1997	Not assessed	Unemployment rates decline

Meet Williams et al. (2011b) good/excellent or at least 3 of 4 M&N (2020) quality criteria						
Author (Date)	**Type**	**Study #* from 2011 annotated bibliography**	**Scope**	**Data Years**	**Economic Impacts**	**Jobs Impacts**
Grinols and Omorov, 1996	Article, Illinois Business Review	182	8 Illinois casino cities	1987-1994	Decrease in some retail sales categories	No impact in 6 areas; increase in 2 rural areas
Hicks (2003)**	Article, National Tax Association Annual Conference Proceedings	200	15 casino counties, (random select) and 15 control counties	1969-2001	Large loss in retail; no effect on aggregate economic performance	No impact on employment
Koo et al., 2007	Article, Journal of Urban Affairs	240	318 counties (25 with casinos) in MI, WV, IN, OH	1991-2003	Not assessed	No clear relationship between casinos and unemployment
KPMG, 1995	Consultant, Ontario Casino Corp.	245	Windsor, Canada	1994-1995	Positive	Positive
Rephann et al., 1997**	Article, Tourism Economics	Not in Williams et al., 2011b	68 casino counties and 68 control counties	1987-1993	Positive	Positive
SACES, 2008**	Consultant, Department of Treasury and Finance Tasmania	398	Tasmania, Australia	1984-2006	Not increase consumption	Not increase employment
Stokowski, 1996	Book	409	Two CO mountain towns	1984-1995	Positive	Positive
Taylor et al., 2000**	Consultant, Malcolm Weiner Center for Social Policy	419	The 16 NORC communities near tribal casinos	1980-1997	Negative impact on retail trade	Reduction in unemployment
Williams et al., 2011a**	Consultant, Alberta Gambling Research Institute	483	Alberta, Canada	1987-2009	No significant differences	No significant difference
* Article number in the annotated bibliography of Williams et al. (2011b), for reference ** Includes all or some destination-casino and/or non-casino-EGM areas, making results less precise						

Limitations of the 19 Studies Identified as High Quality

Although the 19 studies shown in Table 2.1 have been identified as the highest quality studies available, there are three broad concerns evident from the table that are worth noting. First, all of the studies except Gardner (2005) are based on data that is at

least 20 to 30 years old. Second, in none of the studies do the research designs cleanly separate the few economically atypical "destination casino" areas from the analysis of convenience casino areas. This indistinction leads to contaminated results for the 12 studies (noted in Table 2.1 with two asterisks) whose geographic coverage includes destination casino areas. Third, only five studies (Cotti, 2008; Gerstein et al., 1999; Koo et al., 2007; Rephann et al., 1997; and Evans & Topoleski, 2003) have broad enough geographic coverage to be generalizable to the U.S. as a whole, and the last of these focuses only on tribal casinos; the remaining studies look at one state, a few counties, or some smaller area. Between these concerns, none of the 19 quality studies identified by the two systematic review articles accomplishes the goals of this present study.

Beyond the three general concerns, the following study-specific issues are also worth noting. Connor and Taggart (2009) report no statistically significant results. Cotti (2008) recognizes substitution-effect concerns, but then to test for them, limits his analysis of casino impacts on employment and earnings only to subsectors of the entertainment and hospitality sectors, as if other sectors would not be affected, thus failing to measure casino impacts more broadly on the local business community and rendering his conclusion that casinos provide an economic boost to smaller communities unsubstantiated. Evans and Topoleski (2003) report their results as an average of all tribal casinos without separating out the massive destination casinos of Connecticut, both of which are tribal. Fenich and Hashimoto (2004), in addition to including a destination casino economy in their sample, treat two Colorado towns as independent of the metro areas of which they are a part. Gardner (2005) offers not a study but projections and recommendations for future Niagara Falls casino operations, with black-box claims derived from "calculations developed expressly for this study by Gaming & Resort

Development, Inc." (p. 5); further, Gardner (2005), like Cotti (2008), measures substitution ("displacement") effects only on entertainment spending, as if retail spending is unaffected by casino operations.

Garrett (2003, 2004), in two related publications, selects a sample of six casino counties, including destination-casino-county Tunica, MS, with no explanation for the choices, and estimates their local employment trends up to the point of their first casino opening, then compares actual employment data against a continuation of those trends to determine that casinos expand employment. Unfortunately, despite controlling for business cycle effects in the two urban counties (which may account for Garrett's inconclusive results for those counties), Garrett's analysis includes no non-casino-county comparison measures to control for the U.S. economic expansion of the 1990s, which may well be responsible for most if not all of the effects Garrett reports. Koo et al. (2007), similarly, uses trend analysis on unemployment in four states. They then show results for only one state (Michigan) as "representative" of the others with "no significant differences found" (p. 374) but come to no meaningful conclusions regarding the results. Their panel data regression analysis approach on crime and bankruptcy rates is commendable, but for technical reasons they elect not to extend it to their analysis of unemployment.

The most promising effort on the list, Gerstein et al. (1999) (NORC), funded by the National Gambling Impact Study Commission of the U.S. government, selects a sample of 100 U.S. communities with and without casinos and constructs a multi-level analysis with years nested into areas, but then, apparently unable to find measures of local business activity to compare, applies the analysis only to per capita casino spending--which, unsurprisingly, it finds to be higher in casino communities. In line with

consultant reports discussed in Chapter One, the KPMG (1995) econometric projections include no measures of social costs and fail to measure or report substitution effects on the local economy, despite explicitly measuring substitution effects on other local gambling activities. The KPMG (1995) conclusion that "most retailers report an increase in sales" (p. 32) rests on interviews with just seven retailers, five of whom "report a slight increase in customer traffic, but attribute this increase to the general recovery in the economy rather than to *Casino Windsor* patrons or employees" (p. 43). Rephann et al. (1997) uses REIS (Regional Economic Information System) 1987-1993 data from the U.S. Department of Commerce and a carefully defined control group of non-casino counties to compare with 68 casino counties on several variables including employment and retail trade employment, but not retail sales, and finds increases in employment and in retail employment in casino counties.

Stokowski (1996) focuses on the hyper-local economies of two small towns in the Denver metropolitan area without reference to the larger local economy of which they are a part. Taylor et al. (2000) use the NORC data set to measure casino-related changes in the 16 of NORC's sample of 100 counties within 50 miles of a tribal casino. The small sample size calls the validity of their analysis into question. SACES (2008) and Williams et al. (2011a) are discussed earlier in this chapter; Williams et al. (2011a) finds "no obvious declines in other businesses" (p. 277), not by looking at business receipts, but at self-reported consumer survey data and at employment numbers, numbers of businesses, and numbers of business failures.

Review of Additional Casino Economic Impact Studies

There are several reasons relevant research may have been left out, or not highlighted, in the two systematic review articles cited above. Some studies appeared

later than the 2011 survey effort, like Anders (2013), Economopoulos (2015) Geisler & Nichols (2015), and Lim & Zhang (2017). The quality criteria in the systematic reviews may not have been applied consistently across the studies identified. Earlier relevant research like Grinols and Mustard (2001) and Wenz (2007) find a more complete expression in their later work, Grinols (2004) and Wenz (2014b). State-specific studies like Deloitte & Touche (1998) and Fairchild et al. (2004) may have escaped wider notice. Whatever the reasons, it is worth reviewing a number of additional relevant studies before turning to a discussion of methods.

Several small-scale studies offer additional mixed results about casino impacts on, for instance, crime, employment, income, housing, or state revenues (Chhabra, 2007; Gallagher, 2014; Humphreys & Soebbing, 2014; Reece, 2010). Walker concludes, to his surprise, "Casino gambling probably does not have a positive effect on state revenues" (2013a, p. 117), a conclusion that finds support from Dadayan (2016) and Rephann (1997). Geisler and Nichols (2015) look at riverboat casino counties in six states from 1984 to 2009 (including destination casino counties in Mississippi) and find an increase in per capita income and labor force participation in rural but not urban counties, and a reduction in unemployment across all studied counties. Economopoulos (2015) includes impacts on counties that neighbor casino counties in an analysis of Mid-Atlantic states, (which includes Atlantic City, whose destination-casino data skews the analysis), that finds positive employment impacts, including retail employment, and per capita income impacts that are negative in rural areas and positive in urban areas, with the positive impacts fading over time. Irlmeier (2014b) uses ordinary least squares (OLS) regression to look at eight Midwestern states from 1990-2012 and concludes that casinos are associated with lower unemployment rates. The Double or Nothing? Report of The Social

Market Foundation in London recognizes that gambling creates jobs and adds to direct economic output, but concludes, “it seems very unlikely that this economic contribution is truly additional to what would have taken place if gambling did not exist” (Corfe et al., 2021, p 7).

In broader analyses, Morse & Goss (2007) report generally positive casino impacts on employment from 1995 to 2002 across all U.S. counties (excluding Nevada and New Jersey but not excluding destination casino states Connecticut and Mississippi), and they and Walker and Jackson (2007) find a negative casino effect on per capita income, though Walker later, in a 21-year analysis over 12 states (that include destination casino states Nevada and New Jersey), finds a positive effect (2013a), confirming Rephann (1997). Lim and Zhang (2017) use a 48-state county-level data set to provide a broad view of casino impacts on two economic development indicators: jobs and per capita income growth. They control for non-casino EGMs and for spatial effects of nearby counties but not specifically for destination casinos. Their use of NAICS (see page 39) categories to meet the challenge of differentiating between casino and non-casino counties results in screening out hotel and racetrack casinos from their analysis. They find a small, positive effect on jobs in counties with large casinos and, after controlling for spatial effects, no effect on per capita income growth, confirming findings of others (Cotti, 2008; Garrett, 2004; Humphries & Marchand, 2013; Morse & Goss, 2007; Walker & Jackson, 2007).

Finally, three anthologies would appear to contribute to the debate; however, only four of the 52 chapters in two anthologies on the economics of gambling edited by Vaughn Williams (2002 and 2013) focus on the impact of casinos on their economies;

each of those four chapters is cited elsewhere herein. A third anthology (Hsu, 1999) discusses casino economic impact issues but offers no new research.

Little in the literature reviewed thus far provides firm substantiation of the claim that casinos create economic development; however, some studies conclude just the opposite. What Walker and Jackson speculate in 2007, “In effect, as the casino industry expands, other businesses and industries may contract” (p. 603), Walker later confirms in his state-level study of tax revenues, concluding, “Casino expenditures come at the expense of non-casino expenditures to such a large extent that, despite the high tax rates applied to casino revenues, the reductions in non-casino spending lead to declines in sales tax revenues that are even larger” (2013a, p. 117). Anders (2013) runs a regression analysis on casino impacts on employment across 11 states (limited due to data availability resulting from changes in U.S. government classification systems) from 1990 to 2004 using Bureau of Economic Analysis (BEA) data and finds that "the overall employment effect ... is quite possibly negative" (p. 14). Studies from Tasmania (Mangan, 2017) and South Dakota (Deloitte & Touche, 1998; Madden, 1991) conclude that if EGMs were removed from those areas their economies would expand and the number of jobs would increase. More broadly, Kindt (2003c) applies the cost-benefit conclusions of Grinols and Mustard (2001) to the U.S. economy as a whole to conclude that recriminalizing gambling activities in 2002 would have created a net *increase* of at least $55 billion in overall U.S. consumer spending at the time. More recently, Corfe et al. (2021) report similar conclusions, finding that “Consumer spending on gambling does little to create activity elsewhere in the economy, with a relatively high amount of gambling spend absorbed by the industry, itself,” (p 6) and notes, “far from having a negative economic impact, a reduction in gambling expenditure … would be a net

positive for the economy … as households would spend money on other goods and services with higher 'economic multipliers'" (p 5) (see related theoretical discussion in Economopoulos, 2015). A similar conclusion is reached in a study co-written by this author that uses regression analysis to measure the casino substitution effect by comparing changes in taxable retail sales over time for Iowa cities with and without casinos. It concludes that casinos create "a measurable drain" on local Iowa retail sales, though the sample sizes were small and no control variables were included in the analysis (Fairchild et al.., 2004, p. 2).

Research Methodologies and Gaps Identified in the Literature

This review of the literature identifies a variety of research methods to measure the impact of casinos on economic development. The limitations of some models, like input-output analysis and cost-benefit analysis, are detailed above. Spatial equilibrium analysis looks at average housing prices and average wages to tease out how resident preferences change over time between areas with and without casinos; however, as Wenz (2014b) notes, the collapse of U.S. housing prices in 2007 makes a key component of that analysis unreliable for more recent analysis. Self-reports through surveys that capture stakeholder perceptions of gambling impacts (NORC, 1998; SACES, 2008; Williams et al., 2011a) are not well suited for accurate economic analyses: for example, administrative data shows that Tasmanian gamblers lose five times as much as indicated by their self-report survey results (SACES, 2008). The optimal analysis for this present study combines 1) trend analysis to see how casinos affect the before-after temporal trajectory of key variables, 2) regression analysis to identify whether changes over time are likely due to chance, and 3) the use of control areas to account for difference-in-difference effects, that is, differences in outcomes across the casino and non-casino areas

over time. Following Lim and Zhang (2017), such a multi-level panel data approach incorporates effects of time and space across the analysis and also meets the criteria for quality studies established in the two systematic review articles cited above.

Many authors have recognized specific gaps in the literature that this present research helps to address, including: empirical analysis of the economic growth effects of casinos (Walker & Jackson, 2007, p. 595); local-level casino fiscal impact (Nichols, 2015, p. 756); detailed data across different economic sectors in a variety of casino locales (Boger et al.., as cited in Hsu, 1999, p. 172); how economic benefits and costs vary based on the size, scope and nature of a gaming establishment (Kearney, 2005); casino impacts in an economic slowdown (Garrett, 2004, p. 21); the economic effects of casinos and whether casinos stimulate economic growth (Walker, 2013a, p. 110; 2013b, p. 261); the effect of new casinos on labor markets (Walker, 2007b, p. 830; 3013b, p. 261); casino impacts to local host communities (Central Atlanta Progress, 2017, p 4); the heterogeneity of casino impacts (Wenz, 2014a); effects of casinos on related industries and on urban-rural differences (Cotti, 2008, p. 20); large panel tests below the state level (Hicks, 2003); and whether casinos (and their related tax revenues) are recession-proof (Garrett, 2004).

The Research Approach of this Study

This study addresses many limitations of the research reviewed above in order to provide the broadest measure of the economic development impact of casinos to date. It compares the growth rates of both retail sales and employment in 613 local U.S. economies with and without casinos across 39 states over 15 years, using both regression analysis and growth curve modeling. While casino impacts on retail sales have been analyzed at the state level (Anders et al., 1998; Fairchild et al., 2004; Grinols & Omorov,

1996; Siegel & Anders, 1999; Walker, 2013a) this study is the first to analyze retail sales growth comparisons across 39 states in a broad test of the economic development expectation that retail sales in casino areas will rise at a faster rate than retail sales in areas without casinos. Retail sales report both the consumer and the business sides of economic development. When local stores sell more, that is a direct expression that the local economy is growing and economic development is happening. Likewise, growth in consumer purchases, also measured by retail sales, are a solid proxy indicator that economic development has improved consumer quality of life. If casinos bring economic development to an area, retail sales (consumer spending) in that area will grow; conversely, if retail sales in an area stay level or fall, then casinos do not bring economic development to that area.

It is not enough to simply point to growth in an area and attribute it to a casino, however, as some studies have done. In the U.S. for most periods, the rising tide of the national economy has continued to lift all boats, with most local economies experiencing growth over most periods. As Williams et al. (2011b) notes, a credible casino impact study must compare casino and non-casino areas over time. By comparing local economies with and without casinos over the same period, a study holds constant the changes in the larger national economy, like inflation, recession, or consumer confidence, which affect both casino and non-casino areas alike. Other factors, most notably population growth, also need to be held constant for a fair comparison to be drawn.

This present study applies the methodological approach of Lim and Zhang (2017) to the analytical framework of the Iowa retail sales study of Fairchild et al. (2004). It expands the data set and timeframe; adds regression control variables for rates of change in population, minority population, poverty, education, and unemployment to account for

their influences; and adds a growth curve model analysis to control for state-level variation. This study also excludes the few states with economically atypical destination casinos as well as states with non-casino EGMs in order to isolate the effect of typical local convenience casinos on their local economies: as has been discussed, failure to account in some way for these factors has made the results of some previous studies less reliable. The study repeats its analysis using employment growth as the dependent variable to specifically explore the claim that casinos create jobs. Inclusion of employment also allows a test of the suggestion of Williams et al. (2011b) that studies may find an employment effect in a narrow a geographic area like a city that does not appear at a county or wider area level, like this study's microeconomic and macroeconomic areas.

Chapter Two Summary

This chapter reviews research that has been done in the field of casino economic impacts. It begins with a look at casino cost-benefit analysis efforts and the debate over the appropriateness of such an approach before focusing on the more modest aim of this study: to conduct a broad test of the claim that casinos create economic development and jobs--research that is missing in the literature. This chapter then reviews quality criteria for casino economic impact studies, drawing on two systematic review articles which sought to identify credible research in the field. The 19 studies thus identified, along with others overlooked, then receive discussion and a review of their methods, results, and limitations. After identifying gaps in the literature, the chapter closes by previewing the research approach of this study, building on the models of previous research. Details of the data and methodology of this study follow in Chapter 3.

CHAPTER 3: DATA AND METHODOLOGY

This study compares the rates of change in employment and in retail sales of casino and non-casino economies in both micropolitan and metropolitan areas across 39 states from 2002 to 2017. This chapter details the data sources, the data exclusions and adjustments, and the statistical analysis measures of this study. The data supporting the findings of this study can be found included within this publication or accessed through data sets of the U.S. Census Bureau. Notification of IRB (Institutional Review Board) exemption for this research was received from the Boise State Office of Research Compliance on October 30, 2020.

Data Sources

This study follows other researchers (Anders et al., 1998; Fairchild et al., 2004; Grinols, 1996; Siegel & Anders, 1999) in selecting retail sales as an apt measure of economic development. Data for retail sales, the study's first dependent variable, were taken from the 2002, 2007, 2012, and 2017 Economic Census of the U.S. Census Bureau, which surveys businesses every five years. Retail sales were reported by the Economic Census using the retail sales codes (44 and 45) of the North American Industry Classification System (NAICS), whose codes are used across federal statistical agencies[11]

[11] Retail Trade encompasses the sales of goods to consumers (including the general public, firms, and governments) through a range of outlets including convenience stores, grocery stores, specialty retailers, clothing stores, automotive and mobile home dealerships, gas stations, home furnishings stores, drug stores, department stores, markets, discount stores, office supply stores, computer and software stores, building materials dealers, plumbing and electrical supply stores, direct sales catalogs, mail-order companies, and e-commerce, as well as enterprises offering after-sales services, like auto repairs or musical instrument repairs. See https://www.naics.com/naics-code-description/?code=44-45.

and adopted by others in the gambling-impacts field (Cotti, 2008; Lim & Zhang, 2017). The Economic Census aggregates county-level data into areas that have "a high degree of economic and social integration" with a core population; for micropolitan areas the core is 10,000 to 50,000 people; for metropolitan areas the core is 50,000 or more people (U.S. Census Bureau, 2020). The micropolitan and metropolitan areas function similarly to Lim and Zhang's (2017) spatially-corrected county-level data or NORC's (1998) Census Designated Places data but provided a better geographic fit for this research, since the micropolitan and metropolitan borders were designed to correspond more closely with actual local economic activity, addressing the concern of county-level data noted by Lim & Zhang (2017), "The boundary itself does not reflect the nature of the sample data" (p. 414). Comparative analysis using this geographic data has not appeared in the literature prior to this point. In addition, the ability to easily differentiate between larger (metropolitan) and smaller (micropolitan) economies allows consideration of a theory (Anders, 2002; Garrett, 2003, 2004; Geisler and Nichols, 2015; Lim and Zhang, 2017) that the effects of a casino within a larger economy would be less evident than the same effects within a smaller economy.

Data for employment, the study's second dependent variable, were taken from estimates of the U.S. Census Bureau for the years of the study. The 2000 decennial census counts were used as a proxy for the 2002 data point, and the 2007, 2012, and 2017 values were computed from the American Community Survey (ACS) for the periods spanning the five years centered on the respective target years: 2007, 2012, and 2017, which correspond with the five-year reporting years of the Economic Census data. The Census data were extracted at the county level, allowing estimates for the micropolitan and metropolitan areas of the Economic Census using population-weighted averages

across all counties included in the respective areas (R Core Team, 2021; Wickham et al., 2019; Walker & Herman, 2021). The specific Census variable codes used to compute the estimates are provided in Appendix B. Employment serves as a useful proxy measure of economic development. Comparing employment growth between casino and non-casino areas over time allows a legitimate test of the claim that casinos create jobs. Certainly, one part of casino impacts on jobs is the number of casino employees hired, but that commonly claimed job impact number is incomplete without also taking into consideration casino employment substitution effects (see substitution-effect discussion above). This study will test whether overall employment grows faster in local economies with casinos, as it must if claims of casinos as drivers of job creation are accurate.

Control variables for population, minority population, poverty, education, and unemployment were included in the analysis to control for possible unobserved area-specific demographic effects. Data for the control variables were obtained from the same sources as the employment dependent variable, following the processes for that variable as described in the paragraph above.

Casino presence, the study's central independent variable, was established from several sources. To the best of the knowledge of the author, no complete database of casino locations and opening dates for the states in this study was available. The 2013 Florida Gaming Report confirms, "there is no known data set that identifies an annual … list of counties in which casinos are operating" (Spectrum Gaming Group, p. 365). Following the example of Evans and Topoleski (2003), the author created a data set of casinos by county with opening and closing dates from the sources detailed below. The full data set appears in Appendix A for others' research in the field. Since the focus of this research was specifically on the impact of casinos, driven by their high-revenue-

producing EGMs, as discussed earlier, the data set excluded relatively low-dollar gambling venues like bingo halls, horse tracks, and card rooms, except for years when such locations also operated EGMs. It also excluded the few EGM casino boats ("cruises to nowhere") based in Florida and a few other coastal states, whose limited-access gambling would have muted their impact on their local economies. Building from incomplete listings in the commercial World Casino Directory (www.worldcasinodirectory.com), data were cross-checked for accuracy and opening dates against several sources, including annual AGA State of the States reports as well as reports of the National Indian Gaming Association, Casino City's Indian Gaming Industry Report (2009-2019), listings in the book Governing Fortune (Morse & Goss, 2007), the Spectrumetrix database of Spectrum Gaming and Management Science Associates, Tiller's Guide to Indian Country (2015), and (following Rephann et al., 1997) the annual consumer-targeted American Casino Guide (1995 published as Casino/Resort Riverboat & Fun Book Guide, 1996, 1997, 2001, 2008, 2014, 2018), as well as Wikipedia's List-of-Casinos-in-the-United-States (accessed 9-16-19). Academic sources (Irlmeier, 2014a, includes seven state-level sources); state-specific reports from Iowa (Strategic Economics Group, 2014) and other states; and contemporary local newspaper accounts were also used to verify opening dates. Casinos for which only the year of opening could be identified were assigned a July 1 opening date for that year. Once assembled, the casino database was merged with the Economic Census data using the US Census Bureau "Metropolitan and Micropolitan Population Density by Census Tract: 2010" map at https://www.census.gov/data-tools/demo/metro-

micro/thematic_maps.html)[12] to accurately locate casinos within their appropriate micropolitan and metropolitan areas, allowing the study to differentiate casino areas from non-casino areas.

Data Exclusions and Adjustments

This study excludes four states home to destination casinos, seven states with widespread non-casino neighborhood EGMs, (including one of the destination-casino states), and one state with intermittent casino operations, as detailed in this paragraph. The four "destination casino" states of Connecticut, Mississippi, Nevada, and New Jersey (Eadington, 1998, 1999; Garrett and Nichols, 2005; see also discussion in Chapter One) were excluded because the focus of this study is on the many casinos whose revenues are drawn primarily from their local economic areas rather than the few casinos that attract significant revenue from afar. The seven states where EGMs operated during this study separately from casinos, often as "video lottery terminals," were likewise excluded from this study: Illinois, Louisiana, Montana, Nevada (again), Oklahoma (Meister 2009, p 15), Oregon, and South Dakota. Because the focus of this study is on casino impacts, which are overwhelmingly EGM-driven, as discussed in Chapter One, these states were excluded because EGMs operating outside of casinos would have distorted the casino impacts being measured. Finally, one state, Alabama, was excluded because of litigation-filled intermittent operation of tribal casinos against state wishes. Such on-again, off-again casino operations would have disrupted the economic impacts this study analyzes.

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[12] According to the Census Bureau, "The Metropolitan/Micropolitan Population Map Viewer has been temporarily decommissioned on 12/17/2020. The new version of the application will be released in 2021." https://www.census.gov/content/census/en/programs-surveys/metro-micro/data/tools.html

Table 3.1 Numbers of Economic Census Geographic Areas

Year	39 Study-Included States	11 Study-Excluded States	All States
2002	751 = 446 micro + 305 metro	171 = 114 micro + 57 metro	922 = 560 micro + 362 metro
2007	762 = 456 micro + 306 metro	177 = 120 micro + 57 metro	939 = 576 micro + 363 metro
2012	754 = 434 micro + 320 metro	163 = 102 micro + 61 metro	917 = 536 micro + 381 metro
2017	764 = 444 micro + 320 metro	169 = 107 micro + 62 metro	933 = 551 micro + 382 metro

The final data set for this study includes 613 of the economic areas identified by the Economic Census (347 micropolitan and 266 metropolitan) in the 39 states of this study. When the 2002, 2007, 2012, and 2017 data for the micropolitan and metropolitan economies of the 39 states included in this study (see Table 3.1), were merged into the final data set, areas were excluded for the following reasons: in one or more of the study years an area did not exist, did not have complete data, changed micro-metro status (which indicates a potentially unusual situation that may have affected the analysis), or had a casino in a different state than its population center (which would have affected this study's state-level analysis). Only one area (Texarkana, whose population is almost evenly matched on each side of the Arkansas-Texas border) changed its Census state designation during the period of the study; that change was adjusted back in this study's database for analytic consistency. After these adjustments, three of the 39 states in the study, Delaware, Massachusetts, and Rhode Island, had no micropolitan areas included in the study, while two states, Hawaii and Vermont, had no metropolitan areas included in the study. Also note that this study excludes areas outside of micropolitan and metropolitan economies since the Economic Census does not record data for rural areas.

Table 3.2 Numbers of Study-Included Areas with and without Casinos

	Never Casino 2002-17	Always Casino 2002-17	Total Never + Always	Added Casino 2002-07	Added Casino 2007-12	Added Casino 2012-17	Total Added Casino 2002-17	Total Casino Areas	Total Areas in Analysis
Micro + Metro	494	73	567	20	16	10	46	119	613
Micropolitan	311	26	337	4	3	3	10	36	347
Metropolitan	183	47	230	16	13	7	36	83	266

The study included 613 local economic areas across 39 states from 2002 to 2017 (see Table 3.2). Of these, 494 areas (311 micro and 183 metro) did not have a casino during the years of the study while 119 areas (36 micro and 83 metro) had at least one casino for at least one year of the study. Of the 119 casino-areas, 73 areas (26 micro and 47 metro) had casinos throughout the years of the study, while 46 areas (ten micro and 36 metro) added their first casinos during the study period: 20 (four micro and 16 metro) between 2002 and 2007, 16 (three micro and 13 metro) between 2007 and 2012, and ten (three micro and seven metro) between 2012 and 2017.

Statistical Analysis Measures

This study compared the retail-sales and employment growth rates of economic areas without casinos against economic areas with casinos, using data from 2002, 2007, 2012, and 2017. Several steps were taken to isolate the casino impacts. First, areas with and without casinos were compared over the same time periods to minimize trends in the larger economy as an influence. Second, demographic control variables were included in the regression and Growth Curve Model analyses to minimize variation due to differences in the growth rates of population, minority population, poverty, education,

and unemployment. Third, the nesting of areas by state in the Growth Curve Model allowed variation between and within states to be addressed in the analysis.

Each analysis first calculated the means of the growth rates to illustrate the initial relationships between the dependent and independent variables. Second, bivariate t-tests and regressions checked for statistical significance, incorporated effects of the control variables, and identified the scale of the measured results. Third, Growth Curve Model (GCM) analysis captured the impacts of the change-over-time of the variables as well as accounting for between-state and within-state variation. The statistical analyses were run for all economies in the study and for only-micropolitan areas and only-metropolitan areas. Finally, a secondary analysis applied the same analysis steps to compare areas that added a casino for the first time during the 15-year study period to areas that did not change their casino status (areas that either always or never had a casino) in order to explore the impact of adding a casino to an economy (see Appendix D). Because of the small number of areas involved, this secondary analysis could only be conducted on the full data set with no separate analysis of only-micropolitan or only-metropolitan areas.

Descriptive Statistics

Counts of totals and subsets of the data were recorded. These included numbers of areas, micropolitan areas, and metropolitan areas, each with and without casinos. To check the model for best fit, the chi-square test was run to compare linear, squared, and cubed timeframes by state and across all states and the Likelihood Ratio test was run to check random compared to fixed slope and random compared to fixed intercept. Growth-rate-percentage-change variables were generated from the independent, dependent, and control variables for comparison in the regression analysis. This was done for retail sales, employment, and population by subtracting their number in each area in 2002 from the

number in 2007 and dividing by the later number, and doing likewise between 2007 to 2012, 2012 to 2017, and 2002 to 2017. For example, if the retail sales total in an area in 2002 was $100 million and in 2007 was $102 million then the growth-rate percentage change for that area and period would have been calculated in two steps: 1) $102 million minus $100 million = $2 million, and 2) $2 million divided by $100 million = .02. Since the control variables for minority, poverty, education, and unemployment were reported by the Economic Census as percentages of the population already, their conversion to growth-rate-percentage-change variables was accomplished by subtracting their earlier percent from their later percent for each of the time intervals of the study.

Bivariate and Regression Analysis

Bivariate t-tests and full regression analysis with diagnostics were used to check the extent and statistical significance of the difference in retail sales growth first, and then in employment growth rates, between areas with and without casinos, to measure the impacts of the control variables, and to test for statistical issues of collinearity, VIF (Variance Inflation Factor), skew, and kurtosis. Unemployment was not included as a control variable in the analysis of employment as a dependent variable because of potential correlation and multicollinearity issues between the two variables.[13]

[13] Although it appears that "employment" and "unemployment" data would be inverses of each other, their relationship is looser than that. The employment variable measures the number of people employed in an area at a specific time, while the unemployment variable measures not the number who are not working, but the number who are actively looking for work in that area at that time, which can expand and shrink separately from the number employed. The VIF statistics did not indicate a multicollinearity issue with unemployment as a control variable for the employment analysis (in all analyses, max VIF remained under two); however, the high r-square result (See Appendix C, Table C1) for the model using unemployment as a control variable suggests that some of the explanatory power of the model with regard to employment is being inflated by the inclusion of the unemployment variable. For this reason, the final model adopted for this study was built without unemployment as a control variable for the employment analysis. For comparison, however, Appendix C provides results for the employment analysis with the inclusion of unemployment as a control variable.

Growth Curve Model

A hierarchical linear Growth Curve Model was used, nesting individual geographic areas within their states (to control for within-state and between-state variation in the effects of the independent variables) over the 2002 to 2017 period of the study. In all cases, the GCM analysis found that there were significant differences in the impact of independent variables on the dependent variable from state to state and area to area (all analyses returned a statistically significant ($p < .05$) result for state and area impacts). Previous research in the field has rarely taken such differences into account. While the regression analyses compared changes over time between two specific time points, GCM allowed the analyses to consider time-varying covariates across the entire time of the study. This panel-data approach controlled for natural difference-in-difference changes not related to the presence of casinos, and follows the multilevel models adopted by NORC for the *Gambling Impact and Behavior Study for the National Gambling Impact Study Commission* (Gerstein et al., 1999, p. 67-69); by Lim and Zhang (2017, p. 410); and by Evans and Topoleski in their study of tribal casino economic impacts (2002, p. 18). For this study, observations measured by year are nested in areas and areas are nested in states.

CHAPTER 4: RESULTS

This chapter presents the results of the analysis outlined in the previous chapter. It begins by presenting bivariate, regression, and Growth Curve Model results on the relationship between casino presence and local-economy retail sales growth rates, with the analysis including results for micropolitan areas, metropolitan areas, and the whole data set together (micro + metro). It then provides results from the same analyses run on the relationship between casino presence and local-economy employment rates. It concludes with a summary of the analysis results on the control variables of the study.

Casinos and Retail Sales Growth Rates

Bivariate Analysis on Retail Sales

Bivariate t-tests of retail sales growth rates across all (micro + metro) casino economic areas compared to all non-casino economic areas (see Table 4.1) do not return statistically significant results for 2002 to 2007 ($p = .569$), 2012 to 2017 ($p = .731$) or 2002 to 2017 ($p = .268$). However, for the period between 2007 and 2012, which includes the Great Recession, bivariate analysis finds a statistically significant difference between the mean percent change in retail sales in casino areas compared to the mean percent change in retail sales in non-casino areas. Non-casino areas had a mean growth rate in retail sales that was 126 percent higher than the mean growth rate of areas with casinos (non-casino n = 494, mean = .086, SE = .008; casino n = 73, mean = .038, SE = .012; $p = .012$; .086/.038 – 1 = 126%). For micropolitan areas the results are similar. Bivariate t-tests of retail sales growth rates in casino areas compared to non-casino areas do not return statistically significant results for 2002 to 2007 ($p = .396$), 2012 to 2017 ($p = .663$),

or 2002 to 2017 (p = .307). However, for 2007 to 2012, which includes the Great Recession, bivariate analysis finds a statistically significant difference between the mean percent change in retail sales in casino areas compared to the mean percent change in retail sales in non-casino areas. Non-casino areas had a mean growth rate in retail sales that was 242 percent higher than the mean growth rate of areas with casinos (non-casino n = 311, mean = .082, SE = .010; casino n = 26, mean = .024, SE = .009; p = .048; .082/.024 - 1= 242%).

Table 4.1 Retail Sales Growth Rates, Mean and Bivariate T-Test Results

	2002 to 2007				2007 to 2012				2012 to 2017				2002 to 2017			
Micro + Metro, n = 567	n	Mean	SE	SD	n	Mean	SE	SD	n	Mean	SE	SD	n	Mean	SE	SD
NonCasino	494	.283	.008	.181	494	.086	.008	.175	494	.125	.014	.301	494	.568	.026	.567
Casino	73	.287	.018	.150	73	.038	.012	.099	73	.147	.011	.096	73	.526	.026	.225
	p = .569; t = -.175				p = .012; t = 2.280				p = .731; t = -.616				p = .268; t = .620			
Micropolitan, n = 337																
NonCasino	311	.278	.011	.196	311	.082	.010	.172	311	.112	.021	.364	311	.593	.036	.631
Casino	26	.267	.025	.130	26	.024	.009	.169	26	.143	.021	.105	26	.470	.037	.188
	p = .396; t = .264				p = .048; t = 1.667				p = .663; t = -.422				p = .307; t = .504			
Metropolitan, n = 230																
NonCasino	183	.291	.011	.151	183	.093	.013	.180	183	.148	.010	.135	183	.626	.032	.433
Casino	47	.297	.023	.160	47	.046	.012	.085	47	.150	.013	.091	47	.557	.035	.240
	p = .597; t = -.245				p = .041; t = 1.752				p = .542; t = -.106				p = .145; t = 1.062			

For metropolitan areas the results are also similar. Bivariate t-tests of retail sales growth rates in casino areas compared to non-casino areas do not return statistically significant results for 2002 to 2007 (p = .597), 2012 to 2017 (p = .542), and 2002 to 2017 (p = .145). However, for 2007 to 2012, which includes the Great Recession, bivariate analysis finds a statistically significant difference between the mean percent change in retail sales in casino areas compared to the mean percent change in retail sales in non-casino areas. Non-casino areas had a mean growth rate in retail sales that was 102 percent higher than the mean growth rate of areas with casinos (non-casino n = 183, mean = .093, SE = .013; casino n = 47, mean = .046, SE = .012; p = .041; .093/.046 – 1 = 102%).

Regression Analysis on Retail Sales

Since all variables are reported on the same years across time with no missing data points, a linear model provides appropriate fit. No collinearity (VIF statistics all well below 10) or heteroskedasticity issues are indicated. The analysis shows no significant skewness issues but there are issues with kurtosis (see Table 4.2). To account for kurtosis and heteroskedasticity, the models incorporate robust standard errors (Gravetter, 2020).

Table 4.2 Retail Sales Statistical Tests

	2002 to 2007	2007 to 2012	2012 to 2017	2002 to 2017
Micro + Metro				
Skew	1.148	4.157	14.849	7.755
Kurtosis	10.583	41.658	295.359	97.234
Max VIF	1.16	1.30	1.26	1.38
Micropolitan				
Skew	1.457	2.315	13.120	8.249
Kurtosis	11.947	15.725	211.626	95.900
Max VIF	1.16	1.26	1.25	1.27
Metropolitan				
Skew	.282	7.043	2.044	3.892
Kurtosis	4.123	82.662	15.357	32.370
Max VIF	1.12	1.59	1.39	1.45

Regression analysis utilizing the full data set of micropolitan and metropolitan areas with and without casinos controlling for local changes over time in population, minority population, poverty, education, and unemployment rates (see Table 4.3), finds a statistically significant negative association of the presence of casinos with retail sales growth rates for 2007 to 2012 (b = -.037, RSE = .015 , p = .013), a negative association approaching statistical significance for 2002 to 2007 (b = -.027, RSE = .16, p = .087) and for 2002 to 2017 (b = -.053, RSE = .029, p = .067), and no statistically significant association for 2007 to 2012 (p = .421). Regression on the metropolitan areas finds a statistically significant negative association for 2007 to 2012 (b = -.035, RSE = .017, p = .037) and no statistically significant association for 2002 to 2007 (p = .336), 2012 to 2017 (p = .502), or 2002 to 2017 (p = .153). Regression on the micropolitan areas finds no

statistically significant results for 2002 to 2007 (p = .386), 2007 to 2012 (p = .237), 2012 to 2017 (p = .438), or 2002 to 2017 (p = .404).

For all areas, regression analysis finds the following relationship of retail sales growth with each control variable. Population growth has a statistically significant positive association across all time periods: 2002 to 2007 (b = .914, RSE = .090, p < .001), 2007 to 2012 (b = .618, RSE = .210, p = .003), 2012 to 2017 (b = .904, RSE = .323, p = .005), and 2002 to 2012 (b = 1.029, RSE = .107, p < .001). Minority population growth has a statistically significant negative association for 2002 to 2007 (b = -.010, RSE = .003, p = .001) but no statistically significant association for 2007 to 2012 (p = .939), 2012 to 2017 (p = .663), or 2002 to 2017 (p = .672). Poverty growth has a statistically significant negative association for 2002 to 2007 (b = -.024, RSE = .003, p < .001), 2007 to 2012 (b = -.011, RSE = .004, p = .002), and 2002 to 2012 (b = -.034, RSE = .015, p = .027), but no statistically significant association for 2007 to 2012 (p = .189). Education growth has a statistically significant negative association for 2002 to 2007 (b = -.018, RSE = .005, p < .001) and no statistically significant association for 2007 to 2012 (p = .192), 2012 to 2017 (p = .121), or 2002 to 2017 (p = .938). Unemployment growth has a statistically significant negative association for 2007 to 2012 (b = -.008, RSE = .003, p = .013) and no statistically significant association for 2002 to 2007 (p = .258), 2012 to 2017 (p = .595), or 2002 to 2017 (p = .113).

Table 4.3 Retail Sales Growth Rate Regression Results

	2002 to 2007				2007 to 2012				2012 to 2017				2002 to 2017			
Micro + Metro, n = 567	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**
Casino Presence	-.027	.016	.087	-.051	-.037	.015	.013	-.073	.012	.015	.421	.014	-.053	.029	.067	-.033
Population	.914	.090	.000	.387	.618	.210	.003	.167	.904	.323	.005	.124	1.029	.107	.000	.292
Minority (Nonwhite)	-.010	.003	.001	-.187	-.000	.002	.939	-.003	.001	.002	.663	.009	.002	.005	.672	.022
Poverty	-.024	.003	.000	-.297	-.011	.004	.002	-.157	-.021	.016	.189	-.153	-.034	.015	.027	-.168
Education	-.018	.005	.000	-.149	-.006	.004	.192	-.048	.008	.005	.121	.044	-.001	.013	.938	-.004
Unemployment	.001	.001	.258	.046	-.008	.003	.013	-.073	-.004	.007	.595	-.031	.009	.006	.113	.101
Constant	.312	.028	.000	.	.128	.020	.000	.	.050	.012	.000	.	.369	.091	.000	.
	p < .001; R-sq = .269				p = .001; R-sq = .094				p < .001; R-sq = .058				p < .001; R-sq = .126			
Micropolitan, n = 337	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**
Casino Presence	-.024	.028	.386	-.033	-.035	.030	.237	-.055	.025	.032	.438	.019	-.044	.052	.404	-.019
Population	.867	.178	.000	.266	.527	.330	.112	.138	.719	.537	.182	.060	.899	.211	.000	.164
Minority (Nonwhite)	-.011	.005	.016	-.199	-.003	.003	.297	-.057	-.000	.004	.909	-.003	.003	.008	.672	.028
Poverty	-.023	.004	.000	-.305	-.012	.004	.006	-.187	-.025	.020	.206	-.169	-.036	.019	.058	-.178
Education	-.015	.006	.011	-.130	-.008	.005	.080	-.080	.007	.007	.323	.033	-.008	.016	.588	-.033

Unemployment	.002	.001	.164	.070	-.008	.004	.051	-.120	-.01	.009	.902	-.008	.013	.007	.081	.141
Constant	.305	.032	.000	.	.131	.023	.000	.	.052	.015	.000	.	.358	.106	.001	.
	$p < .001$; R-sq = .209				$p = .001$; R-sq = .111				$p < .001$; R-sq = .040				$p < .001$; R-sq = .076			
Metropolitan, n = 230	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**
Casino Presence	-.018	.019	.336	-.048	-.035	.017	.037	-.086	.008	.012	.502	.026	-.049	.034	.153	-.049
Population	1.086	.109	.000	.572	.828	.236	.001	.210	1.296	.235	.000	.417	1.181	.109	.000	.488
Minority (Nonwhite)	-.008	.003	.013	-.158	.006	.002	.008	.102	.003	.003	.271	.058	-.001	.004	.901	-.006
Poverty	-.029	.005	.000	-.284	-.007	.007	.302	-.072	-.003	.005	.595	-.032	-.028	.009	.002	-.129
Education	-.020	.007	.006	-.144	.003	.009	.707	.022	.009	.006	.110	.083	.018	.015	.252	.092
Unemployment	-.002	.002	.334	-.051	-.010	.004	.027	-.101	-.016	.006	.006	-.201	-.007	.006	.259	-.069
Constant	.347	.045	.000	.	.100	.034	.004	.	.045	.019	.016	.	.469	.166	.005	.
	$p < .001$; R-sq = .445				$p < .001$; R-sq = .092				$p < .001$; R-sq = .278				$p < .001$; R-sq = .339			

For metropolitan areas, regression analysis finds the following relationship of retail sales growth with each control variable. Population growth has a statistically significant positive association across all time periods: 2002 to 2007 (b = 1.086, RSE = .109, p < .001), 2007 to 2012 (b = .828, RSE = .236, p = .001), 2012 to 2017 (b = 1.296, RSE = .235, p < .001), and 2002 to 2012 (b = 1.181, RSE = .109, p < .001). Minority population growth has a statistically significant negative association for 2002 to 2007 (b = -.008, RSE = .109, p = .013) and 2007 to 2012 (b = .006, RSE = .002, p = .008), but no statistically significant association for 2012 to 2017 (p = .271), or 2002 to 2017 (p = .901). Poverty growth has a statistically significant negative association for 2002 to 2007 (b = -.029, RSE = .005, p < .001) and 2002 to 2012 (b = -.028, RSE = .009, p = .002), but no statistically significant association for 2007 to 2012 (p = .302) or 2012 to 2017 (p = .595). Education growth has a statistically significant negative association for 2002 to 2007 (b = -.020, RSE = .007, p = .006) but no statistically significant association for 2007 to 2012 (p = .707), 2012 to 2017 (p = .110), or 2002 to 2017 (p = .252). Unemployment growth has a statistically significant negative association for 2007 to 2012 (b = -.010, RSE = .004, p = .027) and 2012 to 2017 (b = -.016, RSE = .006, p = .006) but no statistically significant association for 2002 to 2007 (p = .334), or 2002 to 2017 (p = .259).

For micropolitan areas, regression analysis finds the following relationship of retail sales growth with each control variable. Population growth has a statistically significant positive association for 2002 to 2007 (b = .867, RSE = .178, p < .001) and 2002 to 2017 (b = .899, RSE = .211, p < .001) but no statistically significant association for 2007 to 2012 (p = .112) or 2012 to 2017 (p = .182). Minority population growth has a statistically significant negative association for 2002 to 2007 (b = -.001, RSE = .005, p =

.016) but no statistically significant association for 2007 to 2012 (p = .297), 2012 to 2017 (p = .909), or 2002 to 2017 (p = .672). Poverty growth has a statistically significant negative association for 2002 to 2007 (b = -.023, RSE = .004, p < .001) and 2007 to 2012 (b = -.012, RSE = .004, p = .006) but no statistically significant association for 2012 to 2017 (p = .206) or 2002 to 2017 (p = .058). Education growth has a statistically significant negative association for 2002 to 2007 (b = -.015, RSE = .006, p = .011) but no statistically significant association for 2007 to 2012 (p = .080), 2012 to 2017 (p = .323), or 2002 to 2017 (p = .588). Unemployment growth has no statistically significant associations: 2002 to 2007 (p = .164), 2007-2012 (p = .051), 20012 to 2017 (p = .902), or 2002 to 2017 (p = .081).

Growth Curve Model Analysis on Retail Sales

Since the model fit between fixed-slope and random-slope models was shown to differ in the LR test (LR chi2 = 41.41, p < .001), a fixed slope approach is used on the expectation that the impact of the year variable on retail sales would be similar from place to place. The LR test found that the nested GCM provides a better fit to the data than the non-nested GCM analysis [(Wald chi2: fixed = 8.16 (p = .004); random = 150.46 (p < .001)]. Likelihood ratio tests indicate a slightly better fit to the data for a model with fixed-intercept nested in random-intercept (LR chi2 = 4,200.71; p < .001).

Table 4.4 Growth Curve Model Results on Retail Sales, 2002 to 2017

	Micro + Metro			Micropolitan			Metropolitan		
Retail Sales	λ	RSE	p	λ	RSE	p	λ	RSE	p
Casino Present	-269,431	217,703	.216	24,757	38,306	.518	-320,908	286,749	.263
Year	64,554	9,910	.000	8,947	982	.000	142,367	20,037	.000
Pop (per mil)	14,074,640	244,571	.000	12,495,540	678,555	.000	14,082,360	270,228	.000
Minority	-4,561	3,253	.161	-252	592	.670	-8,593	9,014	.340
Poverty	-11,583	8,240	.160	-7,346	1,927	.000	-56,429	22,358	.012
Education	19,765	12,321	.109	7,148	1,734	.000	41,260	21,615	.056
Unemployment	-7,359	2,917	.012	2,166	439	.000	-15,328	7,503	.041
Constant	130,000,000	20,000,000	.000	18,000,000	1,953,833	.000	-286,000,000	40,400,000	.000
Rand Eff: State									
SD of Intercept	75,978	79,841	<.05	110,809	41,373	<.05	.055	.295	<.05
Rand Eff: Area									
SD of Intercept	655,319	143,495	<.05	129,820	8,293	<.05	978,537	179,163	<.05
SD of Slope	1,339,710	225,634	<.05	111,608	18,924	<.05	2,004,276	296,009	<.05

(Prob>chi2 < .001 in all cases)

The Growth Curve Model analysis (see Table 4.4) finds no statistically significant difference between retail sales in casino areas compared to non-casino areas for all areas (p= .216), micropolitan areas (p= .518), or metropolitan areas (p= .263). For all areas, population (per million) has a positive association with retail sales (λ = 14,074,640, RSE = 244,571, p < .001); unemployment has a negative association with retail sales (λ = -7,359, RSE = 2,917, p = .012); and minority (p = .161), poverty (p = .160), and education (p = .109) have no statistically significant association with retail sales amounts. For micropolitan areas, population (λ = 12,495,540, RSE = 678,555, p < .001), education (λ = 7,148, RSE = 1,734, p < .001), and unemployment (λ =2,166, RSE = 439, p < .001) have a statistically significant positive association with retail sales; poverty (λ = -7,346, RSE = 1,927, p < .001) has a statistically significant negative association with retail sales amounts; and minority population (p = .670) has no statistically significant association with retail sales amounts. For metropolitan areas, population (λ = 14,082,360, RSE = 270,228 p < .001) and education (λ = 41,260 , RSE = 21,615 , p = .056) have a positive association with retail sales at or approaching statistical significance; poverty (λ = -56,429 , RSE = 22,358, p = .012) and unemployment (λ = -15,328, RSE = 7,503, p = .041) have a statistically significant negative association with retail sales amounts; and minority population (p = .340) has no statistically significant association with retail sales amounts.

The hierarchical linear Growth Curve Model, nesting variables by state and local area to adjust for state- and area-level differences in variable change over time, finds significant differences in the impact of independent variables on the dependent variable from state to state and area to area (all analyses returned a statistically significant (p < .05) result for state and area impacts).

Casinos and Employment Growth Rates

Bivariate Analysis on Employment

Bivariate t-tests of employment growth rates across all (micro + metro) casino economic areas compared to all non-casino economic areas (see Table 4.5) do not return statistically significant results for any of the time periods: 2002 to 2007 (p = .929), 2007 to 20012 (p = .157), 2012 to 2017 (p = .102), or 2002 to 2017 (p = .697) (non-casino n = 494, casino n = 73). For micropolitan areas, bivariate t-tests of employment growth rates in casino areas compared to non-casino areas do not return statistically significant results for 2002 to 2007 (p = .889) or 2002 to 2017 (p = .297). However, for 2007 to 2012, which includes the Great Recession, and for 2012 to 2017, bivariate analysis finds a statistically significant difference between the mean percent change in employment in casino areas compared to the mean percent change in employment in non-casino areas. For 2007 to 2012, non-casino areas had a mean growth rate in employment that shrank 22 percent less than the mean growth rate of areas with casinos (non-casino n = 311, mean = -.062, SE = .002; casino n = 26, mean = -.079, SE = .008; p = .020; -.062/-.079 - 1 = 22%). Likewise, for 2012 to 2017, non-casino areas had a mean growth rate in employment that shrank 88 percent less than the mean growth rate of areas with casinos (non-casino n = 311, mean = -.002, SE = .002; casino n = 26, mean = -.016, SE = .009; p = .044; -.002/-.016 - 1 = 88%). For metropolitan areas, bivariate t-tests of employment growth rates do not return statistically significant results for any of the periods: 2002 to 2007 (p = .712), 2007 to 2012 (p = .729), 2012 to 2017 (p = .210), or 2002 to 2017 (p = .702).

Table 4.5 Employment Growth Rates, Mean and Bivariate Results

	2002-2007				2007-2012				2012-2017				2002-2017			
Micro + Metro n = 567	n	Mean	SE	SD	n	Mean	SE	SD	n	Mean	SE	SD	n	Mean	SE	SD
Non-Casino	494	.127	.004	.100	494	-.062	.002	.036	494	.000	.002	.035	494	.056	.005	.100
Casino	73	.144	.008	.068	73	-.066	.004	.034	73	-.005	.004	.035	73	.063	.010	.083
	p = .929; t = -1.467				p = .157; t = 1.007				p = .102; t = 1.270				p = .697; t = -.516			
Micropolitan, n = 337	n	Mean	SE	SD	n	Mean	SE	SD	n	Mean	SE	SD	n	Mean	SE	SD
Non-Casino	311	.122	.006	.100	311	-.062	.002	.040	311	-.002	.002	.040	311	.050	.006	.102
Casino	26	.146	.011	.057	26	-.079	.008	.043	26	-.016	.009	.044	26	.039	.015	.015
	p = .889; t = -1.225				p = .020; t = 2.055				p = .044; t = 1.709				p = .297; t = .534			
Metropolitan, n = 230	n	Mean	SE	SD	n	Mean	SE	SD	n	Mean	SE	SD	n	Mean	SE	SD
Non-Casino	183	.135	.007	.099	183	-.062	.002	.026	183	.004	.002	.024	183	.068	.007	.097
Casino	47	.143	.011	.075	47	-.060	.004	.025	47	.001	.004	.027	47	.076	.012	.085
	p = .712; t = -.560				p = .729; t = -.609				p = .210; t = .808				p = .702; t = -.532			

Regression Analysis on Employment

Since all variables are reported on the same years across time with no missing data points, a linear model provides appropriate fit. No collinearity (VIF statistics all well below 10) or heteroskedasticity issues are indicated. The analysis shows no significant skewness issues but there are issues with kurtosis (see Table 4.6). To account for kurtosis and heteroskedasticity, the models incorporate robust standard errors.

Table 4.6 Employment Statistical Tests

	2002 to 2007	2007 to 2012	2012 to 2017	2002 to 2017
Micro + Metro				
Skew	2.776	-.173	.948	2.624
Kurtosis	17.512	5.986	9.054	15.720
Max VIF	1.12	1.05	1.09	1.23
Micropolitan				
Skew	2.406	-.153	1.190	2.725
Kurtosis	14.667	5.426	8.600	16.651
Max VIF	1.10	1.05	1.04	1.19
Metropolitan				
Skew	3.43	-.084	-.192	2.605
Kurtosis	22.286	3.649	3.445	14.972
Max VIF	1.10	1.13	1.21	1.31

Regression analysis over the full data set controlling for local change over time in population, minority population, poverty, education, and unemployment rates (see Table 4.7), finds a negative association approaching statistical significance of casinos with employment growth rates for 2012 to 2017 ($b = -.007$, RSE = .004, $p = .094$) but no statistically significant association for 2002 to 2007 ($p = .180$), 2007 to 2012 ($p = .491$),

or 2002 to 2017 (p = .541). Regression on the metropolitan areas finds a statistically significant positive association for 2007 to 2012 (b = .007, RSE = .004, p = .041) and no statistically significant association for 2002 to 2007 (p = .435), 2012 to 2017 (p = .415), or 2002 to 2017 (p = .859). Regression on the micropolitan areas finds a positive association approaching statistical significance for 2002 to 2007 (b = .023, RSE = .014, p = .098), a negative association approaching statistical significance for 2012 to 2017 (b = -.016, RSE = .008, p = .056) and no statistically significant association for 2007 to 2012 (p = .485) or 2002 to 2017 (p = .840).

Table 4.7 Employment Growth Rate Regression Results

	2002 to 2007				2007 to 2012				2012 to 2017				2002 to 2017			
Micro + Metro, n = 567	b	RSE	p	B	b	RSE	p	B	b	RSE	p	B	b	RSE	p	B
Casino Presence	.012	.009	.180	.041	.002	.004	.491	.023	-.007	.004	.094	-.064	.007	.011	.541	.023
Population	.115	.049	.018	.090	.117	.029	.000	.151	.019	.042	.648	.021	.050	.024	.041	.078
Minority (Nonwhite)	-.003	.001	.029	-.107	-.001	.001	.035	-.104	.000	.001	.815	.014	-.004	.001	.000	-.197
Poverty	-.013	.002	.000	-.301	-.007	.001	.000	-.452	-.007	.001	.000	-.441	-.011	.002	.000	-.286
Education	-.009	.004	.035	-.147	.002	.001	.019	.093	.001	.001	.374	.045	.002	.002	.355	.044
Constant	.172	.014	.000	.	-.056	.003	.000	.	-.017	.003	.000	.	.067	.013	.000	.
	p < .001; R-sq = .117				p < .001; R-sq = .281				p < .001; R-sq = .206				p < .001; R-sq = .167			
Micropolitan, n = 337	b	RSE	p	B	b	RSE	p	B	b	RSE	p	B	b	RSE	p	B
Casino Presence	.023	.014	.098	.064	-.005	.008	.485	-.035	-.016	.008	.056	.-.104	-.004	.019	.840	-.010
Population	.175	.103	.090	.106	.152	.045	.001	.167	-.016	.085	.853	-.012	.078	.060	.197	.087
Minority (Nonwhite)	.000	.002	.934	.005	-.001	.001	.115	-.100	-.001	.001	.673	-.035	-.002	.001	.011	-.153
Poverty	-.013	.002	.000	-.344	-.007	.001	.000	-.434	-.007	.001	.000	-.443	-.011	.003	.000	-.327
Education	-.009	.006	.116	-.154	.002	.001	.112	.076	.000	.001	.961	.003	.001	.003	.669	.028

Constant	.164	.016	.000	.	-.057	.003	.000	.	-.016	.004	.000	.	.063	.017	.000	.
	p < .001; R-sq = .141				p = .001; R-sq = .271				p < .001; R-sq = .205				p < .001; R-sq = .184			
Metropolitan, n = 230	b	RSE	p	B	b	RSE	p	B	b	RSE	p	B	b	RSE	p	B
Casino Presence	-.008	.010	.435	-.035	.007	.004	.041	.112	-.003	.004	.415	-.050	.002	.013	.859	.010
Population	.000	.061	.999	.000	.064	.034	.057	.104	-.041	.044	.352	-.068	-.028	.029	.333	-.050
Minority (Nonwhite)	-.009	.002	.000	-.304	-.001	.000	.005	1.118	.001	.001	.078	.112	-.006	.001	.000	-.301
Poverty	-.014	.004	.000	-.224	-.008	.001	.000	-.497	-.008	.001	.000	-.480	-.013	.003	.000	-.248
Education	-.016	.005	.003	-.185	.003	.002	.027	.133	.004	.001	.002	.187	.001	.003	.708	.025
Constant	.209	.023	.000	.	-.054	.004	.000	.	-023	.004	.000	.	.104	.023	.000	.
	p < .001; R-sq = .161				p < .001; R-sq = .349				p < .001; R-sq = .272				p < .001; R-sq = .165			

For all areas, regression analysis finds the following relationship of employment growth with each control variable. Population growth has a statistically significant positive association for 2002 to 2007 (b = .115, RSE = .049, p = .018), 2007 to 2012 (b = .117, RSE = .029, p < .001), and 2002 to 2017 (b = .050, RSE = .024, p = .041) and no statistically significant association for 2012 to 2017 (p = .648). Minority population growth has a statistically significant negative association for 2002 to 2007 (b = -.004, RSE = .001, p = .010), 2007 to 2012 (b = -.001, RSE < .000, p = .012), and 2002 to 2017 (b = -.004, RSE = .001, p < .001) but no statistically significant association for 2012 to 2017 (p = .651). Poverty growth has a statistically significant negative association for 2002 to 2007 (b = -.013, RSE = .002, p < .001), 2007 to 2012 (b = -.007, RSE = .001, p < .001), and 2002 to 2017 (b = -.011, RSE = .002, p < .001) but no statistically significant association for 2012 to 2017 (p = .815). Education growth has a statistically significant negative association for 2002 to 2007 (b = -.009, RSE = .004, p = .035) and 2007 to 2012 (b = -.002, RSE = .001, p = .019), but no statistically significant association for 2012 to 2017 (p = .374), or 2002 to 2017 (p = .355).

For metropolitan areas, regression analysis finds the following relationship of employment growth with each control variable. Population growth has a positive association approaching statistical significance for 2007 to 2012 (b = .007, RSE = .004, p = .057) but no statistically significant association for 2002 to 2007 (p = .999), 2012 to 2017 (p = .352), and 2002 to 2017 (p = .333). Minority population growth has a statistically significant negative association for 2002 to 2007 (b = -.009, RSE = .002, p < .001), 2007 to 2012 (b = -.001, RSE < .000, p = .005), and 2002 to 2017 (b = -.006, RSE = .001, p < .001), and a positive association approaching statistical significance for 2012 to 2017 (b = .001, RSE = .001 p = .078). Poverty growth has a statistically significant

negative association for 2002 to 2007 (b = -.014, RSE = .004, p < .001) and 2007 to 2012 (b = -.008, RSE = .001, p < .001), 2012 to 2017 (b = -.008, RSE = .001, p < .001), and 2002 to 2017 (b = -.013, RSE = .003, p < .001). Education growth has a statistically significant negative association for 2002 to 2007 (b = -.016, RSE = .005, p = .003), a statistically significant positive association for 2007 to 2012 (b = -.003, RSE = .002, p = .027) and 2012 to 2017 (b = 004, RSE = .001, p = .002), but no statistically significant association for 2002 to 2017 (p = .708).

For micropolitan areas, regression analysis finds the following relationship of employment growth with each control variable. Population growth has a positive association at or approaching statistical significance for 2002 to 2007 (b = .175, RSE = .103, p = .098) and 2007 to 2012 (b = .152, RSE = .045, p = .001) but no statistically significant association for 2012 to 2017 (p = .853), or 2002 to 2017 (p = .197). Minority population growth has a statistically significant negative association for 2002 to 2017 (b = -.002, RSE = .001, p = .011), but no statistically significant association for 2002 to 2007 (p = .934), 2007 to 2012 (p = .115), or 2012 to 2017 (p = .673). Poverty growth has a statistically significant negative association for 2002 to 2007 (b = -.011, RSE = .002, p < .001), 2007 to 2012 (b = -.001, RSE = .001, p = .016), 2012 to 2017 (b = -.001, RSE < .000, p = .020), and 2002 to 2017 (b = -.009, RSE = .003, p = .001). Education growth has no statistically significant association for 2002 to 2007 (p = .116), 2007 to 2012 (p = .112), 2012 to 2017 (b = -.961), or 2002 to 2017 (p = .669).

Growth Curve Model Analysis on Employment

Although the model fit between fixed-slope and random-slope models was not shown to differ in the LR test (LR chi2(1) = .95; p = .331), no evidence of a significantly better fitting model between fixed or random slope was found. A fixed slope approach is

used on the expectation that the impact of the year variable on retail sales would be similar from place to place, which also mirrors the retail sales analysis. The LR test found that the nested GCM provides a better fit to the data than the non-nested GCM analysis [Wald chi2: fixed = 12.96 ($p < .001$); random = 46.37 ($p < .001$)]. Likelihood ratio tests indicate a slightly better fit to the data for a model with fixed-intercept nested in random-intercept (LR chi2(2) = 1,736.57; $p < .001$).

Table 4.8 GCM Results on Employment across 2002, 2007, 2012 and 2017

(Prob>chi2 < .001 in all cases)

	Micro + Metro			**Micropolitan**			**Metropolitan**		
	λ	**RSE**	**p**	**λ**	**RSE**	**p**	**λ**	**RSE**	**p**
Casino Present	-.009	.003	.001	-.011	.005	.031	-.012	.004	.004
Year	-.000	.000	.079	-.001	.000	.027	-.000	.000	.402
Pop (per mil)	.001	.011	.255	-.100	.060	.093	.002	.002	.165
Minority	-.001	.000	.000	-.005	.000	.000	-.001	.000	.001
Poverty	-.001	.001	.054	-.002	.001	.005	-.000	.001	.589
Education	.004	.000	.000	.005	.000	.000	.004	.000	.000
Constant	1.265	.474	.008	1.625	.536	.002	.959	.633	.130
Rand Eff: State									
SD of Intercept	.023	.003	<.05	.023	.004	<.05	.021	.003	<.05
Rand Eff: Area									
SD of Intercept	.018	.002	<.05	.018	.002	<.05	.014	.004	<.05
SD of Slope	.030	.001	<.05	.030	.002	<.05	.029	.001	<.05

The Growth Curve Model analysis (see Table 4.8) finds a statistically significant negative association between casinos and employment for all areas ($\lambda = -.009$, RSE = .003, $p = .001$), for micropolitan areas ($\lambda = -.011$, RSE = .005, $p = .031$), and for

metropolitan areas (λ = -.012, RSE = .004, p= .004). For all areas, education has a statistically significant positive association with employment (λ = .004, RSE < .000, p < .001) and minority population (λ = -.001, RSE < .000, p < .001), while poverty (λ = -.001, RSE = .001, p = .054) has a negative association approaching statistical significance with employment, and population (p = .255) has no statistically significant association with employment. For micropolitan areas, education (λ = .005, RSE < .000, p < .001) has a statistically significant positive association with employment, while population (λ = -.100, RSE = .060, p = .093), minority (λ = -.005, RSE < .000, p < .001) and poverty (λ = -.002, RSE = .001, p = .005) have a negative association with employment at or approaching statistical significance. For metropolitan areas, education (λ =.004, RSE < .000, p < .001) has a statistically significant positive association with employment, minority (λ = -.001, RSE < .000, p = .001) has a statistically significant negative association with employment, and population (p = .165) and poverty (p = .589) have no statistically significant association with employment.

The hierarchical linear Growth Curve Model, nesting variables by state and local area to adjust for state- and area-level differences in variable change over time, finds significant differences in the impact of independent variables on employment from state to state and area to area: (all analyses returned a statistically significant (p < .05) result for state and area impacts).

Control Variable Results Summary

The control variables had generally expected associations with the dependent variables (retail sales and employment) across the years of this study (see Table 4.9 for regression models on retail sales and employment, Table 4.4 for GCM on retail sales, and Table 4.8 for GCM on employment). Population growth showed an expected statistically

significant positive association with retail sales growth across all areas and analyses, but with employment only for regression on the micro + metro data set; all other employment results failed to achieve statistical significance, although the GCM found an unexpected negative association approaching statistical significance for micropolitan areas.

Table 4.9 OLS Regression Models of Retail Sales and Employment, 2002 to 2017

	Micro + Metro				Micropolitan				Metropolitan			
Retail Sales	b	RSE	p	B	b	RSE	p	B	b	RSE	p	B
Casino presence	-.053	.029	.067	-.033	-.044	.052	.404	-.019	-.049	.034	.153	-.049
Population	1.029	.107	.000	.292	.899	.211	.000	.164	1.181	.109	.000	.488
Minority	.002	.005	.672	.022	.003	.008	.672	.028	-.001	.004	.901	-.006
Poverty	-.034	.015	.027	-.168	-.036	.019	.058	-.178	-.028	.009	.002	-.129
Education	-.001	.013	.938	-.004	-.008	.016	.588	-.033	.018	.015	.252	.092
Unemployment	.009	.006	.113	.101	.013	.007	.081	.141	-.007	.006	.259	-.069
R-squared	p < .001; R-sq = .126				p < .001; R-sq = .076				p < .001; R-sq = .339			
Employment												
Casino presence	.007	.011	.541	.023	-.004	.019	.840	-.010	.002	.013	.859	.010
Population	.050	.024	.041	.078	.078	.060	.197	.087	-.028	.029	.333	-.050
Minority	-.004	.001	.000	-.197	-.002	.001	.011	-.153	-.006	.001	.000	-.301
Poverty	-.011	.002	.000	-.286	-.011	.003	.000	-.327	-.013	.003	.000	-.248
Education	.002	.002	.355	.044	.001	.003	.669	.028	.001	.003	.708	.025
R-squared	p < .001; R-sq = .167				p < .001; R-sq = .184				p < .001; R-sq = .165			

Minority population growth showed no statistically significant association with retail sales growth for any areas or analyses, but it found a statistically significant negative association with employment growth across all areas and analyses. Growth in poverty returned an expected statistically significant negative association with both retail sales and employment growth for each set of areas across the regression and GCM analyses, with two GCM exceptions that did not meet statistical significance: the micro +

metro data set for retail sales and the metropolitan data set for employment. Growth in education did not return a statistically significant association with either dependent variable for any set of areas in the regression analyses but had a statistically significant positive association with both dependent variables in the GCM analyses for all sets of areas except the micro + metro data set analysis on retail sales, which did not return a statistically significant result. Unemployment growth analyses returned an expected statistically significant negative association with retail sales growth in the GCM analyses for micro + metro areas and for metropolitan areas, but, surprisingly, a positive association for micropolitan areas in the regression and GCM analyses (see footnote 13 discussion, above). Unemployment was not used as a variable in the employment analyses.

Chapter Four Summary

This chapter presents the results of the analysis described in Chapter Three. It begins by presenting bivariate, regression, and Growth Curve Model results that compare retail sales growth rates between casino and non-casino economies, including results for micropolitan areas, metropolitan areas, and the whole data set together (micro + metro). It then provides results from the same analyses run on the relationship between casino presence and local-economy employment rates. It concludes with a summary of the analysis results on the control variables of the study.

CHAPTER 5: DISCUSSION AND IMPLICATIONS

Claims of economic development and job creation have driven public policy decisions on casino legalization for the past 30 years, as demonstrated in Chapter One. This study offers a broad test of such claims by looking at retail sales and employment growth rates in 567 local economies with and without casinos across 39 states from 2002 to 2017, excluding states with confounding economic factors: four destination resort casino states, six other states with widespread non-casino EGMs, and one state with intermittent casino operations. The study also offers a secondary analysis involving another 46 local economies that added casinos during the time of the study, to measure the before-and-after casino impact on retail sales and employment. This chapter summarizes the findings of the study in brief in the next section and in more detail in the following sections. The chapter concludes with a discussion of the public policy implications of these results.

Results in Brief: Casinos Are Not Engines of Economic Development

The main conclusion of this research, that local casinos do not drive economic development, will be unsurprising to any researcher in the field of gambling impacts. As documented in Chapter One, the substitution effect of casinos has been well-recognized by researchers throughout the current 30-year casino expansion across the U.S., starting with Eadington, who, "almost single-handedly created the 'economics of gambling' field" (Philander and Walker, 2012, p. 9). This present study demonstrates that a local casino functions much more like a restaurant than a factory (Eadington, 2004; Grinols & Omorov, 1996), shifting spending around within a local economy without increasing

either retail sales or employment. The substitution effect is evident. The economic development effect is not.

This study failed to find evidence that casinos are associated with an expansion of growth in retail sales or employment in a local economy; that is, retail sales and employment in casino areas did not experience higher growth rates than in non-casino areas. To the contrary, the study found statistically significant evidence that 1) from 2007 to 2012 (which includes the Great Recession) retail sales in economies without casinos grew twice as fast in metropolitan areas and three times as fast in micropolitan areas than retail sales in economies with casinos, and 2) across the full period of the study (2002 to 2017) casino economies experienced lower employment growth across all areas: micro + metro, micropolitan, and metropolitan. This study has found that casinos in the included economies are associated with little evidence of retail sales growth and clear evidence of deeper negative recessionary impacts on retail sales, and with the creation of fewer jobs over time than economies without casinos. These results directly refute the central casino legalization claim that casino gambling is "an engine of growth that powers economic development and job creation everywhere it operates" (AGA, 2014, p. 1).

This study's secondary analysis that looked at areas that *added* casinos during the study period (see Appendix D) found no evidence of new-casino impact, with one exception: the 16 areas that added casinos between 2007 and 2012 (which includes the Great Recession), did see a statistically significant higher growth in retail sales and employment in that period than areas that did not change their casino status, possibly due to their addition of casino construction effects during a time of economic downturn. Finally, this study found mixed results over whether casino impacts would be more

evident in smaller rather than larger economic areas, finding it more unlikely with the retail sales analyses and more likely with the employment analyses.

Results in Detail

Retail Sales: Casinos Not Associated with Higher Growth, Make Recessions Deeper

This study compared retail sales growth rates in 73 areas with casinos against 494 areas without casinos across 39 states from 2002 to 2017 and found no statistically significant evidence in the bivariate, regression, or Growth Curve Model analyses to indicate that retail sales grew faster in economies with casinos than in economies without casinos from 2002 to 2017, as would have otherwise been expected if casinos created economic development. Since the areas included in this study were not drawn from a larger sample, but, instead, represent the complete data set of micropolitan and metropolitan areas available for retail sales analysis for the time periods of the study, this lack of a relationship demonstrates that local casino economies do not experience higher retail sales growth rates than similar non-casino economies. This finding that no statistically significant difference exists between the retail sales growth rates of economies with casinos and those without casinos supports the substitution effect theory and contradicts the theory that casinos generate economic development in areas where they operate.

While bivariate analysis returned no statistically significant relationship between casinos and retail sales growth during three of the four periods in the study, from 2007 to 2012 (including the Great Recession) the analysis did find that retail sales in non-casino economies grew a statistically significant two to three times faster than in casino economies: the full data set (micro + metro) experienced a mean growth rate of 8.6 percent for non-casino economies but only 3.8 percent for casino economies;

micropolitan areas experienced a mean growth rate of 8.2 percent for non-casino economies but only 2.4 percent for casino economies; and metropolitan areas experienced a mean growth rate of 9.3 percent for non-casino economies but only 4.6 percent for casino economies. Similarly, regression analysis reported a statistically significant negative association between casinos and retail sales growth for the 2007 to 2012 period across all areas (micro + metro) (-3.7 percent) and for the metropolitan-only areas (-3.5 percent), as well as a negative association approaching statistical significance for the full data set over the 2002 to 2007 period (-2.7 percent; $p = .087$) and across the entire 2002 to 2017 period (-5.3 percent; $p = .067$). Regression results for the other areas and periods were not statistically significant and the Growth Curve Model, which controls for the trajectory of economies, also failed to report any statistically significant relationship between casino presence and retail sales growth.

Employment: Casino Areas Associated with Lower Growth

This study found statistically significant results in the most complete statistical analysis, the Growth Curve Model, that employment grew slower in areas with casinos than in areas without casinos for all areas (micro + metro) (by .9 percent), micropolitan areas (by 1.1 percent), and metropolitan areas (by 1.1 percent). This evidence refutes the theory that casinos create jobs and supports the substitution effect theory that casino jobs come not in addition to, but at the expense of, other jobs in a local economy.

The balance of results in the simpler bivariate and regression analyses also support the conclusion that employment does not grow faster in economies with casinos. Like the retail sales analysis, for most areas (micro + metro, metropolitan, and micropolitan) and periods, these analyses on employment returned no statistically significant results. Since the areas included in this study were not drawn from a larger

sample, but, instead, represent the complete data set of micropolitan and metropolitan areas available for employment analysis for the time periods of the study, this lack of a relationship demonstrates that local casino economies do not generally experience higher employment growth rates than similar non-casino economies, as has been claimed. This finding that no statistically significant difference exists between employment growth rates of economies with casinos and those without casinos supports the substitution effect theory and does not support the theory that casinos generate economic development in areas where they operate.

The bivariate analysis for micropolitan areas adds additional support to these conclusions, finding that when micropolitan areas experienced negative employment growth from 2007 to 2017, non-casino areas fared better than casino areas, with statistical significance: the employment rate shrank 6.2 percent in non-casino economies but 7.9 percent in casino economies from 2007 to 2012 and .2 percent in non-casino economies but 1.6 percent in casino economies from 2012 to 2017.

Regression analysis on employment mostly failed to return statistically significant results, with the following four mixed exceptions. From 2012 to 2017, regression across all areas (micro + metro) and for micropolitan-only areas reported results approaching statistical significance that employment grew slower in casino economies by .7 percent (all areas; $p = .094$) and .8 percent (micropolitan areas; $p = .056$). On the other hand, regression analysis found that casino economies were associated with a growth rate that was a statistically significant 2.2 percent higher in micropolitan areas from 2002 to 2007 and .4 percent higher in metropolitan areas from 2007 to 2012 than those without casinos.

The Introduction of a Casino Offers Little Evidence of Positive Economic Impact

The main analyses of this study used a data set of U.S. micropolitan and metropolitan economies that, from 2002 to 2017, either had or did not have a casino. A secondary analysis (see Appendix D) was also conducted to compare economies that added casinos between 2002 and 2017 against the collective always-casino and never-casino economies of the main data set. The analyses could not be run at the micropolitan or metropolitan levels because of the small numbers of new-casino economies involved. The precision of the results is also hampered by the nature of this study's data analysis periods, which aggregate data for new-casino areas within five-year spans. As a result, for example, areas are treated the same whether they introduced their first casino in 2003 or 2007, though that difference in years may change how the casino introduction affects the data.

For retail sales, with two exceptions noted in the next paragraph, none of the analyses (bivariate, regression, and Growth Curve Model) returned statistically significant results, as would have otherwise been expected if casinos create economic development. Since the areas included in this study were not drawn from a larger sample, but, instead, represent the complete data set of micropolitan and metropolitan areas available for retail sales analysis for the time periods of the study, this lack of a relationship demonstrates that the introduction of a casino into a local economy does not result in higher retail sales growth rates than those experienced in other local economies. This finding that, for the most part, no statistically significant difference exists between the retail sales growth rates of new-casino economies and other economies supports the substitution effect theory and contradicts the theory that casinos generate economic development in areas where they operate.

For 2007 to 2012 (which includes the Great Recession), however, the 16 new-casino areas did experience a statistically significant positive association with retail sales growth in the bivariate analysis (by 9.6 percent) and in the regression analysis (by 8.5 percent). Likewise, these new-casino areas experienced a statistically significant positive association with employment growth in the regression analysis (by .7 percent). These results may be evidence of the impact of temporary initial investments into the local economy to build and launch a casino, as some have suggested (Economopoulos, 2015; Humphreys & Marchand; 2013; Walker & Jackson, 2007; Williams, Rehm, and Stevens, 2011). The impact of such investments may have emerged more strongly in this period than others because of the overall depression of typical retail sales and employment growth rates in most areas during the concurrent national economic downturn.

Like the analysis on retail sales, the Growth Curve Model, regression, and bivariate analyses on employment growth returned results that were not statistically significant, with two exceptions, one detailed in the paragraph above and one in the paragraph that follows. Since the areas included in this study were not drawn from a larger sample, but, instead, represent the complete data set of micropolitan and metropolitan areas available for employment analysis for the time periods of the study, this general lack of a relationship demonstrates that the introduction of a casino into a local economy does not result in higher employment growth rates than those experienced in other local economies. This finding that little statistically significant difference exists between the employment growth rates of new-casino economies and other economies supports the substitution effect theory and contradicts the theory that casinos generate economic development in areas where they operate.

While the Growth Curve Model for 2002 to 2017 did not find a statistically significant result for employment growth in new-casino areas, the less rigorous regression analysis for this period returned a statistically significant positive (by 1.7 percent) association of the introduction of a casino to an area compared to other areas. Such a result may be evidence of the impact of temporary initial investments into the local economy to build and launch a casino, as some have suggested (Economopoulos, 2015; Humphreys & Marchand; 2013; Walker & Jackson, 2007; Williams, Rehm, and Stevens, 2011).

Results Mixed on Whether Casino Impacts are More Evident in Small Economies

This study took advantage of the availability of Economic Census retail sales data at micropolitan and metropolitan levels to explore whether casino impacts may be more evident in smaller economies than in larger economies, as some have suggested (Anders, 2002; Garrett, 2003, 2004; Geisler and Nichols, 2015; Lim and Zhang, 2017). The retail sales analyses did not find evidence of this, finding mostly similar results across micropolitan and metropolitan economies, with only a few exceptions: bivariate analysis returned the same number of statistically significant results across all areas, while regression analysis returned one more statistically significant result for metropolitan areas than micropolitan areas and two more results approaching statistical significance ($p = .087$ and $p = .067$) for all areas (micro + metro) than for either micropolitan-only or metropolitan-only areas. These results suggest that economic analyses of casino impacts are likely to provide more complete results if they are not limited only to smaller economies, encouraging future researchers to encompass larger as well as smaller economies in their data sets.

Employment analysis results were mixed on whether casino impacts are more evident in smaller economies, with some evidence suggesting that casino impacts may be more evident in micropolitan than metropolitan areas. Bivariate analysis on employment returned statistically significant results for micropolitan areas over two time periods but not for any time periods for metropolitan areas or for the micro + metro data set. Likewise, regression analyses on employment returned statistically significant results in micropolitan areas over two time periods but only for one period each in metropolitan areas and in the full data set. The Growth Curve Model returned statistically significant measures across all areas (micro + metro) for the full period of the study. These results provide some evidence that casino impacts on employment may emerge more clearly in smaller economies than in larger economies.

Limitations of Previous Studies Addressed

As noted in Chapter Two, previous research on the economic impacts of casinos has been limited by several factors, including the use of data prior to 2000, a focus on areas too small to be broadly generalizable, an intermixing of data from destination and non-destination casino areas despite widely noted differences between the economic experiences of the two disparate groups, failure to address effects of non-casino EGMs, and methodological concerns like the failure to control for broader economic trends or to compare casino-area results with similar non-casino areas. This present study has addressed each of these issues.

Public Policy Implications of These Results

This study measured the impact of casinos on economic development through analysis of retail sales and employment data. It found that casinos generally failed to demonstrate an association with higher growth rates in either retail sales or employment

in local economies. Such findings have significant public policy implications. As discussed in Chapter One, governments and citizens have made the choice to legalize casinos across the United States based primarily on the attraction of claims of positive economic and employment effects, claims which this research does not substantiate. If anything, these results add to evidence (Corfe et al., 2021; Fairchild, 2004; Kindt, 2003c; Deloitte & Touche, 1998) indicating that local economies perform better without casinos. These results also suggest that current casino legalization campaigns in Alabama, Alaska, Georgia, Nebraska, Virginia, and elsewhere continue to be promoted on economic development grounds not because of the veracity of the claims, but because of the receptiveness of the ears that hear them.

If casinos were like restaurants in their social cost effects, this study would be just an academic exercise; however, this present study matters because, as discussed further in the sections below, casinos cause harm to individuals (including gambling addicts and those they affect), to communities (including, as this study demonstrates, to local retail businesses), and to good governance. Without the narrative of casino economic development to drive the casino legalization debate, consideration of such harms would likely have led to different public policy outcomes in communities across the country. A brief review of these gambling harms is needed to put the results of this study into a broader public policy context.

Casino Gambling is Addictive

In the academic debate over how to measure the costs casinos bring to their communities (see Chapter Two), nobody suggests that casino gambling is a benign activity. Casinos are like restaurants in their lack of economic development impacts, but unlike restaurants in their dependence on addicts for revenue (Allami et al., 2021; Breen,

2004; Breen & Zimmerman, 2002; Council on Casinos, 2013; Dowling, 2005; Griffith, in Prewitt, 2021, p 38; Schüll, 2012). Because gambling speed and proximity increase addiction levels and impacts, as discussed in Chapter One, EGM-driven local casinos are centers of gambling addiction. Williams and Wood conclude that rapid-bet EGMs (the source of 75 to 90 percent of casino revenues) draw 60 percent of revenues from addicted gamblers (2004, p. 40). The NGISC Report (1999, p. 4-4; based on NORC, 1999, p. 28) concludes that addiction rates double within 50 miles of a casino. More recently Welte et al. report a problem gambling rate of 3.9 percent for those within 30 miles of a casino compared with 2.7 percent for those farther away (2016). While most people do not gamble, and many who do gamble do not get addicted, those who become addicted to EGMs provide 42 to 68 percent of casino EGM revenues, according to a summary of 11 studies by the Institute for American Values (Council on Casinos, 2013; see also Sulkunen et al., 2019, pp. 31, 84; NORC, 1999, p. 34, which reports 15 percent; and SACE, 1999, p. 100, which reports 41 percent). Collectively these studies suggest that possibly half of a casino's revenue comes from the EGM-addicted 3.9 percent of the population within 30 miles of the casino. Williams et al. (2011a) provide another perspective from their study in Alberta, Canada, finding that 21 percent of adults provide 71 percent of EGM revenue (p. 102) and that three fourths of EGM revenue comes from gamblers with an addiction problem (rated at CGPI 5+[14]) (p. 110).

Casino Gambling Hurts People and Communities

Just as the addictive nature of casino gambling has been demonstrated, the harms that accompany that addiction have also been shown. Most recently and comprehensively

[14] For explanations and challenges about how gambling addiction is measured and the terminology with which it is reported, see Gerstein et al. (NORC) 1999, chapter 2; Williams et al., 2011b, p 163+; and Public Health England, 2021b.

a 2021 British study of bank transactions involving 6.5 million individuals over seven years finds that gambling is associated with higher financial distress and lower financial inclusion and planning, and with negative lifestyle, health, well-being, and leisure outcomes, as well as with higher rates of future unemployment and physical disability and, at the highest levels, with substantially increased mortality (Muggleton et al., 2021). In addition to and separate from the harms to gamblers and their families are the harms to society for such things as gambling-related theft, drunk driving, embezzlement, money laundering, and more, as Grinols (2004) details. A new Canadian study identifying characteristics most strongly associated with problem gambling concludes, “Effective prevention requires a multifaceted approach, but constraints on the availability and operation of EGMs would likely have the greatest single public health benefit” (Williams et al., 2021, p 521).

Social Construction Theory May Explain the Disconnect

Casino proponents have been successful promoting a policy narrative that economic benefits of casinos outweigh casino harms. Social Construction Theory (SCT) (Schneider et al., 2014) helps explain how this could happen, building from the observation, "Much of politics is related to whether or not particular populations are accepted as deserving and entitled or as undeserving" (p. 107). SCT separates populations along two scales: power (high to low) and worthiness (deserving to undeserving). Those with both power and worth are "Advantaged," like the middle class, the military, and small businesses. Those with worth but not power are "Dependent," like children, the homeless, and the handicapped. Those with power but little worth are "Contenders" or "Contemptibles," like Wall Street firms, big banks, and big corporations. Those with little power or worth are "Deviants," like criminals, illegal aliens, and young minority males.

Without worth or power, Deviants have no voice and no affluence; they are out of sight and out of mind.

Gambling addicts fit the Deviant profile (McGowan, 2004). "Alcoholics are alcoholics, drug addicts are drug addicts, but gambling addicts are degenerates," as talk-show host and recovering gambling addict Craig Carton expressed it (Seely, 2022). What little consideration addicts get in gambling debates focuses on the choice of allocating money to treatment programs; yet little awareness or care extends beyond that choice to the twin realities that 1) virtually no gambling addicts access treatment programs--Gerstein et al. (NORC) find that only three percent of pathological gamblers seek professional treatment each year (1999, p. 51)--and 2) there is little empirical evidence that any treatment approaches provide even a low level of effectiveness in addressing gambling addiction. Treatment programs most commonly report their impact according to anecdotal success stories or to the amount of money they spend on marketing or the numbers of calls they receive. Reports of measures of numbers of gamblers successfully helped are rare. According to SCT, Deviants lack power, have few willing to speak on their behalf, and are blamed for ills that "might more accurately be attributed to the broader social and economic system" (Schneider et al., 2014, p. 112). Casino operators have backed a "responsible gambling" narrative that puts the blame for addiction on "irresponsible" gamblers, with no responsibility reflecting back on their own operations.

Casino operators, on the other hand, fit the Contender profile. While they are negatively regarded in the population, their high cash flow gives them access to substantial political resources that allow them to reap political rewards. Many policy makers prefer not to be in the spotlight with casino operators, but those operators are often successful in getting legislation passed through behind-the-scenes influence and

out-of-sight details buried in broader legislation. Any fight between Contenders and Deviants will not be a fair fight. As Morse and Goss conclude, "governments have paid comparatively little attention to social costs .... Instead, they have focused on keeping the industry profitable" (2007, p. 92).

Casinos Threaten Good Governance

On the broadest public policy level, beyond bringing harms to individuals and to communities, is the fear that casinos pose an overshadowing threat to our civil society. As major recipients of casino revenue, governments are complicit in the harms of casino operations. Adams notes, "As this revenue increases, their focus on the public good competes with their interest in the funds. The balance between these opposing interests can reach a point where the need for money outstrips duties of public protection" (2004, p. 6). Clotfelter and Cook note this issue already in 1989 in lottery states that “seek more profit out of lottery players without considering social costs or public policy concerns” (Clott, 2015, p 153). The pressure for gambling revenue over public protection is also illustrated in Iowa, where in the early years of casino expansion the state conducted studies of gambling addiction rates, which rose from 1.7 in 1989 to 5.4 percent in 1995 (Volberg, 1995), when the state chose to stop funding the measure; instead, by 2003, Iowa-funded gambling research had shifted to market saturation studies (Cummings Associates, 2003) to identify places for new casinos.

For many of these reasons, a backlash against casinos is currently underway in a diversity of countries including Armenia, Australia, China, Denmark, Great Britain, Finland, Russia, and Sweden. In the U.S., however, court-unleashed sports betting is leading a charge into the legalization of EGM-mimicking rapid-bet online gambling (in-game bets on multiple results of the next football play, for example) in several states,

accompanied in a few states by full-fledged online casino gambling--with little consideration for the harms these activities bring, and with, of course, concurrent claims of economic development. This study matters because decisions made to allow casino operations based on a trade-off between economic benefits and social costs look different if the economic benefits are not real, as this study has demonstrated.

To end where we began, public administration scholars Laswell and Lerner (1951) noted long ago that good analysis makes good policy. Such analysis requires good information. Theoretical historian Hayden White saw that “the facts do not speak for themselves” (1978, p. 125). Facts need to be discovered and shared. In the field of casino impacts these principles are echoed by Anders, who writes, "Sound public policy should match the intended outcomes with the actual results" (2002, p. 207). This dissertation demonstrates that the intended casino outcomes of economic development and jobs do not match the actual results in the U.S. This conclusion challenges the legitimacy of the 30-year spread of casinos across the country and provides a warning to policy makers to more broadly discount profit-driven claims of gambling advocates, which today are moving rapidly into the online space through sports betting and online casinos.

Finally, in the absence of empirical support for the belief that casinos create economic development, the following consideration is central to sound casino policy decision making: "The available research supports the proposition that gamblers externalize costs to others. It also supports the likelihood that these costs are substantial. A policy response that neglects these likelihoods is becoming less sustainable as more is learned about gambling effects" (Morse & Goss, 2007, p. 69).

CHAPTER 6: LIMITATIONS AND FUTURE RESEARCH

This chapter identifies five limitations to this study and reviews six possible research areas that could follow from this study.

Limitations

Several limitations to this study should be noted. First, the Census Burea data used in this study comes partly from surveys, which provide only a best-available estimate of actual economic and demographic conditions, making the analyses less precise than would be ideal. Second, no differentiation was made in the analysis between areas with one casino and areas with more than one casino: effectively, multiple casinos functioned collectively as one large casino in an area for the purposes of this study. This may help explain why the results were not clearer for micropolitan than for metropolitan areas, as had been theorized: macropolitan economies were more likely to host multiple casinos, bringing proportionately larger impacts to their larger economies. Third, as detailed in Chapter Three, the results of this study do not speak to any area economic impacts experienced in America's few destination casino states (CT, MS, NJ, NV) whose casino revenue streams come disproportionately from gamblers outside of their economic areas, or in the seven states (IL, LA, MT, OK, OR, NV (again), SD) which allow EGM operations apart from casinos, or in Alabama with its intermittent casino operations. This study excluded those areas with their confounding factors in order to provide an accurate picture of the economic impacts experienced by typical casino and non-casino economies.

Fourth, ten outlier economies grew at more than twice the standard deviation. A cursory inspection of these found that six appear to be in fossil-fuel extraction areas, which experienced unusual growth over the period of this study. The addition of a control variable for this factor might slightly improve the precision of this study. Fifth, this study attempted to isolate the impacts of casino-based electronic gambling machines (EGMs) by analyzing data only from states which had not also legalized neighborhood-level slot machine operations during the time period under study. This line appears clear in theory, but in practice it is less so. For example, although "slot machines" are explicitly constitutionally prohibited in Idaho, the Idaho Lottery began a slow phase-in of rapid-bet "electronic pull-tab" EGMs in 2011, and their operation has grown to generate more than 15 percent of lottery revenue, or $40 million per year (Idaho Lottery, 2020). Likewise, so-called "grey-market" and "skills-based" EGMs operate in the shadows in many states to such an extent that an American Gaming Association white paper has recently called on state and local law enforcement action to reign them in (AGA, 2021a). The operation of all such machines outside of casino locations in the states of this study makes the analysis of the specific impacts of casino-based (EGM) gambling less precise.

Future Research

Several opportunities exist for further research in this area. First, the data set of casino opening dates (See Appendix A) could be used with other data to measure changes over time of other known or likely casino impacts, for instance impacts of casinos on related social costs like crime rates, divorce, or bankruptcy, or on other economic measures like income or tax receipts. Second, a further test of the hypothesis that tribal casinos have a more positive effect on their local economies than commercial casinos, as suggested by Wenz (2014b), is also possible using this data set. Third, this study could be

extended by adding data from future five-year reports of the Economic Census. Fourth, additional research might also explore Koo's (2007, p 379) supposition that economically depressed areas may be more likely to approve casinos, and, some might suggest, such areas may, then, be prone to slower growth than others; however, if casino claims of stimulating economic growth and employment are true, areas with an initial low-growth trajectory are where positive economic impacts of casinos should be most clear. Nothing in this study finds evidence for this. Fifth, since the goal of this study was to isolate the effect of casinos on their local economies, the study compared local economies only in their entirety. Situations where economic and social cost considerations affect the entire local economy but casino tax revenues are retained by only a part of the local economy, as happens with casinos on state, tribal, or national borders, would be a good area for future study. Finally, sixth, unrelated to casinos, analysis of the data in this study indicates 1) the greater impact of the Great Recession on micropolitan areas than metropolitan areas (see Table 3.1), and 2) that from 2002 to 2017 retail sales experienced a statistically significant higher growth on average in metropolitan areas than micropolitan areas. Those researching America’s urban-rural divide may find these results useful in their future work.

REFERENCES

Abbott, M. W. (2020). Gambling and gambling-related harm: Recent World Health Organization initiatives. *Public Health, 184,* 56–59. https://doi.org/10.1016/j.puhe.2020.04.001

Acil Allen Consulting, Deakin University, Central Queensland University, & the Social Research Centre. (2017). Report 1. *Fourth social and economic impact study of gambling in Tasmania.* Tasmanian Department of Treasury and Finance. https://www.treasury.tas.gov.au/liquor-and-gaming/gambling/reduce-harm-from-gambling/social-and-economic-impact-studies

Acil Allen Consulting, the Social Research Centre and the Problem Gambling Research and Treatment Centre. (2014), Summary Report. *Third social and economic impact study of gambling in Tasmania.* Tasmanian Department of Treasury and Finance. https://www.treasury.tas.gov.au/liquor-and-gaming/gambling/reduce-harm-from-gambling/social-and-economic-impact-studies

Adams, P. J. (2004). Minimising the impact of gambling in the subtle degradation of democratic systems. *Journal of Gambling Issues*, (11). https://doi.org/10.4309/jgi.2004.11.2

Alexander, R. C., & Paterline, B. A. (2005). Boom or bust? Casino gaming and host municipalities. *International Social Science Review*, *80*(1/2), 20-28. https://indexarticles.com/reference/international-social-science-review/boom-or-bust-casino-gaming-and-host-municipalities/

Allami, Y., Hodgins, D. C., Young, M., Brunelle, N., Currie, S., Dufour, M., & Nadeau, L. (2021). A meta-analysis of problem gambling risk factors in the general adult population. *Addiction*, 116(11), 2968-77. https://doi.org/10.1111/ADD.15449

Allen Consulting Group, Problem Gambling Research and Treatment Centre, and the Social Research Center. (2011). Volume 1: Gambling industry trends and economic impacts. *Social and economic impact study of gambling in Tasmania.* Prepared for the Tasmanian Government Department of Treasury and Finance.

American Casino Guide. *American casino guide*. (1995 published as "Casino/Resort Riverboat & Fun Book Guide," 1997, 1998, 2005, 2008, 2016). Casino Vacations Press.

American Gaming Association. (2021a). *American attitudes on casino gaming 2021.* Retrieved from https://www.americangaming.org/resources/americanattitudes-2021/

American Gaming Association (2014, May 27*). American Gaming Association launches its most aggressive coordinated effort* [Press release]. Retrieved from https://www.americangaming.org/newsroom/press-releasess/american-gaming-association-launches-its-most-aggressive-coordinated-effort

American Gaming Association. (2017a). *Gaming means small business: How casinos boost local economies* [PDF file]. Retrieved from https://www.americangaming.org/wp-content/uploads/2017/04/Small-Business-Report-High-Resolution.pdf

American Gaming Association. (2019). *Positive trends in responsible gaming* [PDF file]. Retrieved from https://www.americangaming.org/wp-content/uploads/2019/02/AGA.PostiveTrends_Infographic-1.pdf

American Gaming Association (2021b). *Skilled at deception: How unregulated gaming machines endanger consumers and dilute investments in local economies.* [PDF file]. Retrieved from https://www.americangaming.org/wp-content/uploads/2021/04/Unregulated-Gaming-Machines-White-Paper-Final.pdf

American Gaming Association. (2017). *State of the states 2017*. Retrieved from https://www.americangaming.org/resources/state-of-the-states-2017/

American Gaming Association. (2018). *State of the states 2018*. Retrieved from https://www.americangaming.org/resources/state-of-the-states-2018/

American Gaming Association. (2021c). *State of the states 2021*. Retrieved from https://www.americangaming.org/resources/state-of-the-states-2021/

American Gaming Association and Oxford Economics. (2018, June). *Economic impact of the US gaming industry.* [PDF document]. Retrieved from https://www.americangaming.org/wp-content/uploads/2018/06/OE-AGA-Economic-Impact-US-2018-June.pdf

Anders, G. C. (1998). Indian gaming: Financial and regulatory issues. *The Annals of the American Academy of Political and Social Science*, *556*(1), 98-108.

Anders, G. C. (2002). Reconsidering the economic impact of Indian casino gambling. In L. V. Williams (Ed.), *The economics of gambling* (1st ed., pp. 204-223). Routledge. https://doi.org/10.4324/9780203986936

Anders, G. C., Siegel, D., Yacoub, M. (1998, July). Does Indian casino gambling reduce state revenues? *Contemporary Economic Policy, 16* (347-355) https://doi.org/10.1111/j.1465-7287.1998.tb00524.x

Anderson, J (Guest). (2004). *Gambling - Your Verdict: A Nebraska Connects Special* [News special]. Kearney, Nebraska: Nebraska Educational Television Network (NETV).

Angrist, J. D., & Pischke, J. S. (2008). *Mostly harmless econometrics*. Princeton University Press.

Arthur Andersen, LLP. (1996). *Economic impacts of casino gaming in the United States, volume 2: Macro study*. American Gaming Association.

Arthur Andersen, LLP. (1997). *Economic impacts of casino gaming in the United States*, *volume 2: Micro study*. American Gaming Association.

Association of Gaming Equipment Manufacturers and Eilers & Kreijcik Gaming, (2019). 2018 census [PDF file]. Retrieved from https://irpcdn.multiscreensite.com/95105f97/files/uploaded/4.9.19AGEMCensus2018Finalv2.pdf

Beacon Economics. (2014). *California tribal gaming impact study*. California Nations Indian Gaming Association.

Belanger, Y. D., Williams, R. J., & Arthur, J. N. (2011). Casinos and economic well-being: Evaluating the Alberta First Nations' experience. *Journal of Gambling Business and Economics*, *5*(1), 23. https://doi.org/10.5750/jgbe.v5i1.563

Berry, F. S., & Berry, W. D. (1990). State lottery adoptions as policy innovations: An event history analysis. *American Political Science Review*, *84*(2), 395-415. https://doi.org/10.2307/1963526

Bowen, J. (2009, October 16). Casinos as an antecedent of tourism development. *Worldwide Hospitality and Tourism Themes*. *(1)*4, 332-343. https://doi.org/10.1108/17554210911002174

Breen, R. B. (2004). Rapid onset of pathological gambling in machine gamblers: A replication. *International Journal of Mental Health and Addiction. 2*(1), 44-49. https://www.researchgate.net/publication/228903668_Rapid_onset_of_pathological_gambling_in_machine_gamblers_A_replication

Breen, R. B., & Zimmerman, M. (2002). Rapid onset of pathological gambling in machine gamblers. *Journal of Gambling Studies*. *18*(1), 31-43. https://doi.org/10.1023/A:1014580112648

Brome, H. (2006). Economic impact of casino development [Policy memo]. Federal Reserve Bank of Boston, New England Public Policy Center. 1-7.

Brunner, T. (1994). Statement on riverboat gambling to the Metro Ethics Coalition Project. Better Government Association.

Cassidy, R., & Livingstone, C. (2014). The problem with gambling research. *The Conversation.* Retrieved from https://www.theconversation.com/the-problem-with-gambling-research-31934

Cassidy, R., Loussouarn, C., & Pisac, A. (2013). *Fair game: Producing gambling research*. The Goldsmiths Report of the University of London. https://www.gold.ac.uk/gamblingineurope/report/

CasinoBeats (2021). CBS - Industry CEOs on what safer gambling means for them. Retrieved from https://casinobeats.com/2021/07/15/cbs-industry-ceos-on-what-safer-gambling-means-for-them/

Central Atlanta Progress (CAP). (2017). *Casino gaming in Georgia: Final report* [PDF file]. Retrieved from https://www.metroatlantachamber.com/assets/orgia-cap_adid-final-report-1-2017-reduced_8mwXLVK.pdf

Chhabra, D. (2007). Estimating benefits and costs of casino gambling in Iowa, United States. *Journal of Travel Research, 46*(2), 173-182. https://doi.org/10.1177/0047287507299591

Christiansen, E. M. (1998). Gambling and the American economy. *The Annals of the American Academy of Political and Social Science*, *556*(1), 36-52. https://doi.org/10.1177/0002716298556001004

Clotfelter, C. T., & Cook, P. J. (1989). Selling hope: State lotteries in America. Harvard University Press.

Clott, A. (2015). The predatory nature of state lotteries. *Loyola Consumer Law Review*, *28*(1), 137. Retrieved from https://lawecommons.luc.edu/lclr/vol28/iss1/5

Coates, D., & Humphreys, B. R. (2008). Do economists reach a conclusion on subsidies for sports franchises, stadiums, and mega-events. *Econ Journal Watch*, *5*(3), 294-315. Retrieved from https://econjwatch.org/File+download/222/2008-0-coateshumphreys-com.pdf?mimetype=pdf

Collins, P. (2003). *Gambling and the public interest*. Greenwood Publishing Group.

Connor, T., & Taggart, W. (2009). The impact of gaming on the Indian Nations of New Mexico. *Social Science Quarterly, 90*(1), 50-70. https://doi.org/10.1111/j.1540-6237.2009.00602.x

Corfe, S., Bhattacharya, A., & Shepherd, J. (2021). *Double or nothing? Assessing the economic impact of gambling* [PDF file]. Social Market Foundation, London. Retrieved from https://www.smf.co.uk/wp-content/uploads/2021/03/Double-or-nothing-March-2021.pdf

Cotti, C. (2008). The effect of casinos on local labor markets: A county level analysis. *Journal of Gambling Business and Economics*, *2*(2), 17-41. https://doi.org/10.5750/jgbe.v2i2.529

Council on Casinos. (2013). *Why casinos matter: Thirty-one evidence-based propositions from the health and social sciences.* Report of the Institute for American Values. 1-56. https://www.amppubgroup.com/subject/economics-subject/why-casinos-matter-thirty-one-evidence-based-propositions-from-the-health-and-social-sciences/

Crompton, J. L. (2006). Economic impact studies: Instruments for political shenanigans? *Journal of Travel Research*, *45*(1), 67-82. https://doi.org/10.1177/0047287506288870

Cummings Associates. (2003). *Analysis of current markets for casino gaming in Iowa, with projections for the revenues and impacts of potential new facilities.* Iowa Racing and Gaming Commission. https://irgc.iowa.gov/sites/default/files/documents/2015/09/studycummings_0.pdf

Dadayan, L. (2016). *The Blinken Report: State revenues from gambling: Short-term relief, long-term disappointment*. Nelson A. Rockefeller Institute of Government. https://rockinst.org/issue-area/state-revenues-gambling-short-term-relief-long-term-disappointment/

Deloitte & Touche. LLP. (December 8, 1998). *Economic and fiscal impacts of the South Dakota gaming industry.* South Dakota Legislative Research Council.

Dorr, R. (1996, September 22). 40 Economists side against more gambling. *Omaha World Herald* (Omaha, Nebraska). Retrieved from http://votenotablegames.org/Resources/40_Economist_Article.pdf

Dowling, N., Smith, D., & Thomas, T. (2005). Electronic gaming machines: Are they the 'crack cocaine' of gambling? *Addiction*. 100, 133-145. https://pubmed.ncbi.nlm.nih.gov/15598190/

Doxey, P. (2019, April 13). Ulster County bringing in less money than expected, budget director says. *Daily Freeman* (Kingston, New York). Retrieved from https://www.dailyfreeman.com/2019/04/13/ulster-county-bringing-in-less-money-than-expected-budget-director-says/

Eadington, W. R. (2004). Comment on Kindt's paper. *Managerial and Decision Economics*, *25*(4), 191-196. https://www.jstor.org/stable/25151299

Eadington, W. R. (1999). The spread of casinos and their role in tourism development. *Contemporary Issues in Tourism Development* (Chapter 8, pp. 135-150). Routledge.

Eadington, W. R. (1998). Contributions of casino-style gambling to local economies. *The Annals of the American Academy of Political and Social Science*, *556*(1), 53-65. https://www.jstor.org/stable/1049329

Eadington, W. R. (1995). Economic development and the introduction of casinos: Myths and realities. *Economic Development Review*, *1*, 51. https://doi.org/10.1023/A:1022230124148

Economopoulos, A. J. (2015). Examining the impact of casinos on economic development: A spatial analysis of the counties in the Mid-Atlantic region. *Business and Economics Faculty Publications*. 19. https://digitalcommons.ursinus.edu/bus_econ_fac/19

Econsult Corporation. Potential local economic impacts of the only casino entertainment facility proposed fronting the South Delaware River in the City of Philadelphia [PDF file]. Prepared for Philadelphia Entertainment and Development Partners, LP. https://gamingcontrolboard.pa.gov/files/impact_reports/Phila_Entertainment_&_Development--LIR-Part_1_of_2.pdf

Ernst & Young, LLP. (2021). *The economic contributions of the betting and gaming sector* [PDF file]. Betting and Gaming Council (Great Britain). Retrieved from https://bettingandgamingcouncil.com/uploads/Downloads/BGC_Economic_Contribution_Report.pdf

Evans, W. N., & Topoleski, J. H. (2002, September). The social and economic impact of Native American casinos [PDF file]. *National Bureau of Economic Research Working Paper 9198.* https://www.nber.org/papers/w9198

Faiola, A. (1994, March 27). The jackpot state: Casino interests jockey for position just in case gambling is legalized. *Miami Herald* (Miami, Florida).

Fairchild, L., Krutz, J., & Stickney, A. (2005). Impact of casinos on retail sales in mid-size Iowa cities. *Papers of the Nebraska Economics and Business Association:38th Annual Fall Conference, 17*(1), 114-121.

Farrigan, T. L. (2005). *The Tunica miracle, sin and savior in America's Ethiopia: A poverty and social impact analysis of casino gaming in Tunica, Mississippi*. [Doctoral dissertation, The Pennsylvania State University]. PennState Electronic Theses and Dissertations for Graduate School. https://etda.libraries.psu.edu/catalog/6603

Farrow, S., & Carter, C. (2013). The benefits and costs of slot machine gambling. In L. Vaughan Williams & D. S. Siegel (Eds.), *The Oxford handbook of the economics of gambling*. (pp. 637-669). Oxford University Press.

Fenich, G. G., & Hashimoto, K. (2004). Perceptions of cannibalization: What is the real effect of casinos on restaurants? *Gaming Law Review, 8*(4), 247-259. https://doi.org/10.1089/glr.2004.8.247

Ferrell, D., & Gold, M. (1998, December 14). Casino industry fights an emerging backlash. *Los Angeles Times.* https://www.latimes.com/archives/la-xpm-1998-dec-14-mn-54012-story.html#:~:text=Stung%20by%20growing%20concerns%20over%20the%20social%20ills,commission%20exploring%20the%20human%20cost%20of%20legalized%20wagering.

Gardner, K. (2005). *Seneca Niagara Casino fiscal & economic impact on Niagara Falls, NY*. Niagara Development Corporation. https://reports.cgr.org/details/1418

Garrett, T. A. (2004). Casino gaming and local employment trends. *Review-Federal Reserve Bank of Saint Louis*, *86*(1), 9-22. https://doi.org/10.20955/r.86.9-22

Garrett T. A. (2003). Casino gambling in America and its economic impacts. *St. Louis: Federal Reserve Bank of St. Louis.* https://www.stlouisfed.org/publications/bridges/fall-2003/fed-study-examines-casino-gambling-impact-on-economy

Garrett, T. A., & Nichols, M. W. (2005). Do casinos export bankruptcy? [PDF file]. *Working Paper Series of the Federal Reserve Bank of St. Louis*. Retrieved from https://files.stlouisfed.org/files/htdocs/wp/2005/2005-019.pdf

Geisler, K. R., & Nichols, M. W. (2016). Riverboat casino gambling impacts on employment and income in host and surrounding counties. *The Annals of Regional Science*, *56*(1), 101-123. https://link.springer.com/article/10.1007%2Fs00168-015-0721-x

Geller, S. (Panelist). (2021, July 13). *Gaming's Awkward Stage: How to Regulate a Mature Industry that is Still Emerging* [General Session]. Summer Meeting of the National Council of Legislators from Gaming States, Chicago, Illinois.

Gerstein, D. R., Murphy, S. A., Toce, M. T., Volberg, R. A., Harwood, H. J., Tucker, A., Christiansen, E., Cummings, W., & Sinclair, S. (1999). *Gambling impact and behavior study: Report to the National Gambling Impact Study Commission*. National Opinion Research Center (NORC), University of Chicago. https://www.researchgate.net/publication/246284410_Gambling_impact_and_behavior_study_report_to_the_National_Gambling_Impact_Study_Commission

Goodman, R. (1995). *The luck business*. Simon and Schuster.

Goodman, R. (1994). *Legalized gambling as a strategy for economic development*. Alberta Gambling Research Institute. http://dx.doi.org/10.11575/PRISM/9648

Goss, E. (2002). *The economic impact of an Omaha, Nebraska casino*. [PDF File] The Greater Omaha Chamber of Commerce. Retrieved from https://nebraskafamilyalliance.org/wp-content/uploads/2020/10/Omaha-Casino-Chamber-of-Commerce.pdf

Gravetter, F. J., Wallnau, L. B., Forzano, L. A. B., & Witnauer, J. E. (2020). *Essentials of statistics for the behavioral sciences*. Cengage Learning.

Grinols, E. L. (1994). Bluff or winning hand? Riverboat gambling and regional employment and unemployment. *Illinois Business Review, 51*(1), 8-11. https://www.proquest.com/scholarly-journals/bluff-winning-hand-riverboat-gambling-regional/docview/198980419/

Grinols, E. L. (2004). *Gambling in America: Costs and benefits*. Cambridge University Press. https://doi.org/10.1017/CBO9780511510915

Grinols, E. L. (2011). The hidden social costs of gambling [PDF file]. *The gambling culture. Waco: The Center for Christian Ethics, Baylor University*. Retrieved from https://www.baylor.edu/content/services/document.php/144584.pdf

Grinols, E. L., & Mustard, D. B. (2008). Connecting casinos and crime: More corrections of Walker. *Econ Journal Watch*, *5*(2), 156. https://econjwatch.org/articles/connecting-casinos-and-crime-more-corrections-of-walker

Grinols, E. L., & Mustard, D. B. (2001). Business profitability versus social profitability: Evaluating industries with externalities, the case of casinos. *Managerial and Decision Economics*, *22*(1-3), 143-162. https://www.jstor.org/stable/3657264

Grinols, E. L. & Omorov, J. D. (1996). Who loses when casinos win? *Illinois Business Review, 53*(1), 7-12. https://www.proquest.com/scholarly-journals/who-loses-when-casinos-win/docview/198933919/

Hicks, M. J. (2003). A quasi-experimental analysis of the impact of casino gambling on regional economic performance. In *Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association* (Vol. 96, pp. 181-188). National Tax Association. http://www.jstor.org/stable/41954408

Holley, D. (2015). *Les Bois Park economic impact analysis*. Treasure Valley Racing, LLC.

Humphreys, B. R., & Marchand, J. (2013). New casinos and local labor markets: Evidence from Canada. *Labor Economics*. (24), 151-160. https://doi.org/10.1016/j.labeco.2013.08.006

Humphreys, B. R., & Soebbing, B. P. (2014). Access to Legal Gambling and the Incidence of Crime: Evidence from Alberta. *Growth and Change*, *45*(1), 98-120. https://doi.org/10.1111/grow.12034

Hunter, G. P. (2010). *Winning, losing, and breaking even: New casinos' effects on economic development impacts of existing casinos* [Doctoral dissertation, Massachusetts Institute of Technology]. DSpace@MIT. https://dspace.mit.edu/bitstream/handle/1721.1/59742/670429976-MIT.pdf?sequence=2

Idaho Lottery (2020). *2020 Idaho Lottery Annual Report*. Retrieved from https://issuu.com/idaholottery/docs/annualreport_2020_final

Iowa Gaming Association. (n.d.) *Reinvesting in Iowa: Gaming benefits Iowa.* Retrieved from https://www.iowagaming.org/reinvesting_in_iowa/gaming_benefits.aspx

Irlmeier, A. (2014a). Royal flush or just a bluff: Casinos and county unemployment in the Midwestern United States. *Major Themes in Economics, 16*(3). https://scholarworks.uni.edu/mtie/vol16/iss1/3/

Irlmeier, A. (2014b). Tribal and commercial casinos in the Midwestern United States: Effect on county unemployment. https://www.scholarworks.uni.edu

Kearney, M.S. 2005. The economic winners and losers of legalized gambling. National Tax Journal 18(2): 281–302. https://doi.org/10.17310/ntj.2005.2.08

Kindt, J. W. (2016, March 3). In Re: Summary analysis of methodologies for studying and detailing effects of Foxwoods and Mohegan Sun casinos on Connecticut's consumer economy [PDF file]. http://hdl.handle.net/2142/94724

Kindt, J.W. (2009). Censorship by big gambling: Emulating big tobacco: Cautionary statement for academics, government officials, and press. *United States International Gambling Report Series: Gambling with National Security, Terrorism, and Military Readiness.* Kindt, J.W., Ed. William S. Hein & Co., Inc.

Kindt, J. W. (2003a). Diminishing or negating the multiplier effect: The transfer of consumer dollars to legalized gambling: Should a negative socio-economic crime multiplier be included in gambling cost/benefit analyses? *Michigan State DCL Law Review, 2003*(2), 282-312. http://hdl.handle.net/2142/16237

Kindt, J. W. (2003b). The gambling industry and academic research: Have gambling monies tainted the research environment? *Southern California Interdisciplinary Law Journal 12*(1), 1-47. http://hdl.handle.net/2142/14454

Kindt, J. W. (2003c). Would re-criminalizing U.S. gambling pump-prime the economy and could U.S. gambling facilities be transformed into educational and high-tech facilities? *Stanford Journal of Law, Business & Finance*. 169-212. http://hdl.handle.net/2142/16236

Kindt, J.W. (2001). The costs of addicted gamblers: Should the states initiate mega-lawsuits similar to the tobacco cases? *Managerial and Decision Economics, 22*(1/3), 17-63. https://www.jstor.org/stable/3657257

Koo, J. U. N., Rosentraub, M. S., & Horn, A. (2007). Rolling the dice? Casinos, tax revenues, and the social costs of gaming. *Journal of Urban Affairs, 29*(4), 367-381. http://dx.doi.org/10.1111/j.1467-9906.2007.00351.x

KPMG Management Consulting, Chacko, J., Kubursi, A., Piers, R., Templer, A., & Walker, S.G. (1995). *One-year review of Casino Windsor* [PDF file]. Ontario Casino Corporation. https://dspace.ucalgary.ca/bitstream/1880/232/2/ady_sm.pdf

Lasswell, H. D., & Lerner, D. (Eds.) (1951). *The policy sciences*. Stanford University Press.

Li, G., Gu, X., & Siu, R. C. S. (2010). The impacts of gaming expansion on economic growth: A theoretical reconsideration. *Journal of Gambling Studies*, *26*(2), 269-285. https://link.springer.com/article/10.1007/s10899-009-9165-5

Lim, S. H., & Zhang, L. (2017). Does casino development have a positive effect on economic growth? *Growth and Change*, *48*(3), 409-434. https://doi.org/10.1111/grow.12182

List of casinos in the United States. (2019, September 16). In *Wikipedia*. https://en.wikipedia.org/wiki/List_of_casinos_in_the_United_States

Livingstone, C., Adams, P., Cassidy, R., Markham, F., Reith, G., Rintoul, A., ... & Young, M. (2018). On gambling research, social science and the consequences of commercial gambling. *International Gambling Studies*, *18*(1), 56-68. https://doi.org/10.1080/14459795.2017.1377748

Madden, M. K. (1991). Gaming in South Dakota: A statistical description and analysis of its socioeconomic impacts [PDF file]. University of South Dakota Business Research Bureau. http://dx.doi.org/10.11575/PRISM/9616

Mallach, A. (March, 2010). Economic and social impact of introducing casino gambling: A review and assessment of the literature: Discussion paper [PDF file]. *Federal Reserve Bank of Philadelphia, Community Affairs Department.* https://www.philadelphiafed.org/-/media/frbp/assets/community-development/discussion-papers/discussion-paper_casino-gambling.pdf

Mangan, J. (2017). *Removing poker machines from hotels and clubs in Tasmania: Economic considerations.* [PDF file]. University of Queensland. https://www.anglicare-tas.org.au/download/3806/

Marionneau, V., & Nikkinen, J. (2020). Does gambling harm or benefit other industries? A systematic review. *Journal of Gambling Issues*, *44.* 4-44. http://dx.doi.org/10.4309/jgi.2020.44.2

Mass Gaming (2011). Expanded Gaming Act: About. Massachusetts Gaming Commission. Retrieved December 1, 2021 from https://massgaming.com/about/expanded-gaming-act/

Mays, G. L., Casillas, C., & Maupin, J.R. 2006. New Mexico's experience with Indian casinos and crime. *American Journal of Criminal Justice 30*(2), 193–207. https://link.springer.com/epdf/10.1007/BF02885891

McCarron, A. (2020, July 2). Lords call for ban on sponsorship in wide ranging gambling report. SBC News. https://www.sbcnews.co.uk/europe/uk/2020/07/02/lords-call-for-ban-on-sponsorship-in-wide-ranging-gambling-report/

McGowan, V. M. (2004). How do we know what we know? Epistemic tensions in social and cultural research on gambling 1980-2000. *Journal of Gambling Issues*, *11*. http://dx.doi.org/10.4309/jgi.2004.11.11

McGowan, V. M., Droessler, J., Nixon, G., & Grimshaw, M. (2000). Recent research in the socio-cultural domain of gaming and gambling: An annotated bibliography and critical overview. The Alberta Gambling Research Institute. https://opus.uleth.ca/bitstream/handle/10133/318/sociocultural_mcgowan.pdf?isAllowed=y&sequence=1

Meister, A. (2009). *Indian gaming industry report*. Casino City Press.

Meister, A. (2017). *The economic impact of tribal gaming: A state-by-state analysis*. [PDF file}. Nathan Associates, Inc., for the American Gaming Association. https://www.americangaming.org/sites/default/files/Economic%20Impact%20of%20Indian%20Gaming%20in%20the%20U.S.%20September%202017.pdf

Morse, E. A., & Goss, E. (2007). *Governing fortune: Casino gambling in America*. University of Michigan Press.

Moyer, J. W. (2021, August 20). A Black-owned casino bets on a Black neighborhood in the former capital of the Confederacy. *Washington Post*. Retrieved from https://www.washingtonpost.com/local/black-casino-richmond-alfred-liggins/2021/08/20/fff68248-f93e-11eb-b8dd-0e376fba55f2_story.html

Meredith, R. (Panelist). (2000, July 7-8). *Gambling impacts on business* [Conference Presentation]. National Conference of the National Coalition Against Gambling Expansion, Omaha, Nebraska.

Moosa, I. A. (2017). *Econometrics as a con art: Exposing the limitations and abuses of econometrics*. Edward Elgar Publishing.

Muggleton, N., Parpart, P., Newall, P., Leake, D., Gathergood, J., & Stewart, N. (2021). The association between gambling and financial, social and health outcomes in big financial data. *Nature Human Behaviour*, *5*(3), 319-326. https://doi.org/10.1038/s41562-020-01045-w

Mutari, E., & Figart, D. M. (2015). *Just one more hand: Life in the casino economy*. Rowman & Littlefield.

National Gambling Impact Study Commission (NGISC). (1999, June). *The national gambling impact study commission: Final report*. Washington, D.C. https://www.ojp.gov/ncjrs/virtual-library/abstracts/national-gambling-impact-study-commission-final-report

Nichols, M. W., Tosun, M. S., & Yang, J. (2015). The fiscal impact of legalized casino gambling. *Public Finance Review, 43*(6), 739-761. https://doi.org/10.1177/1091142115574900

Nikkinen, J. (2019). Funding of gambling studies and its impact on research. *Nordic Studies on Alcohol and Drugs, 36*(6), 491-495. http://doi.org/10.1177/1455072519878127

Nicoll, F., & Akcayir, M. (2020). Editorial. The state of play in gambling research. *Critical Gambling Studies*, *1*(1), i-vii. https://criticalgamblingstudies.com/index.php/cgs/article/view/47/24

Ordway, D. M. (2021, February 17). Webinar: Using Academic Research to Keep Politicians Honest: Training for Journalists. *The Journalist's Resource, Harvard Shorenstein Center for Media, Politics, and Public Policy.*

https://journalistsresource.org/media/using-research-to-keep-politicians-honest-training-video/

O'Toole, L. J. (2000). Research on policy implementation: Assessment and prospects. *Journal of Public Administration Research and Theory*, *10*(2), 263-288. https://ris.utwente.nl/ws/portalfiles/portal/7053582/J+Public+Adm+Res+Theory-2000-O%27Toole-263-88.pdf

Papajohn, G., & Reardon, P. J. (1994, May 13). City hoping to attract tourists, but odds are most patrons would be from area. *Chicago Tribune.* As cited in Grinols (2004, p. 73-74).

Passell, P. (1994, June 12). The False Promise of Development by Casino. *New York Times*. p. 87. https://www.nytimes.com/1994/06/12/business/the-false-promise-of-development-by-casino.html

Philander, K. S., & Walker, D. M. (2012). William R. Eadington and the economics of gambling. *UNLV Gaming Research & Review Journal. 16*(2), 9-18. https://www.academia.edu/4342518/William_R_Eadington_and_the_Economics_of_Gambling

Pierce, P. A., & Miller, D. E. (2004). *Gambling politics: State government and the business of betting*. Lynne Rienner Publishers.

Porter, M. E. (2000). Location, competition, and economic development: Local clusters in a global economy. *Economic Development Quarterly*. 14(1), 15-34. https://journals.sagepub.com/doi/10.1177/089124240001400105

Prewitt, A. (2021, September). The blame game. *Sports Illustrated. 132*(9), 37-40. https://www.si.com/betting/2021/08/09/gambling-issue-the-athletes

Project Syndicate. (2019, February 23). Measure for measure. *Project Syndicate.* https://www.project-syndicate.org/bigpicture/measure-for-measure

Public Health England (2021a). Gambling-related harms evidence review: The economic and social cost of harms. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1022208/Gambling-evidence-review_economic-costs.pdf

Public Health England (2021b). Gambling-related harms evidence review: Risk factors for gambling and harmful gambling: An umbrella review. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1020749/Gambling_risk_factors.pdf

R Core Team (2021). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. https://www.R-project.org/

Reece, W. S. (2010). Casinos, hotels, and crime. *Contemporary Economic Policy*, *28*(2), 145-161. https://doi.org/10.1111/j.1465-7287.2009.00172.x

Rephann, T. J., Dalton, M., Stair, A., & Isserman, A. (1997). Casino gambling as an economic development strategy. *Tourism Economics*, *3*(2), 161-183. https://doi:10.1177/135481669700300204

Rose, A. Z. (1998). *The regional economic impacts of casino gambling: Assessment of the literature and establishment of a research agenda*. National Gambling Impact Study Commission. https://govinfo.library.unt.edu/ngisc/reports/ecoimprpt.pdf

SACES: South Australian Centre for Economic Studies. (2021). *Fifth social and economic impact study into gambling in Tasmania: Volume 1: Industry Trends and Impacts* [PDF file]. Tasmanian Department of Treasury and Finance. https://www.treasury.tas.gov.au/Documents/Fifth%20SEIS%20Volume%201%20-%20Industry%20Trends%20and%20Impacts.PDF

SACES: South Australian Centre for Economic Studies. (2008). *Social and economic impact study into gambling in Tasmania.* [PDF file]. Tasmanian Gaming Commission. https://www.treasury.tas.gov.au/liquor-and-gaming/gambling/reduce-harm-from-gambling/social-and-economic-impact-studies

Sallaz, J. J. (2006). The making of the global gambling industry: An application and extension of field theory. *Theory and Society*, *35*(3), 265–297. https://doi.org/10.1007/s11186-006-9002-0

Samuelson, Paul A. (1976). *Economics* (10th ed.). McGraw-Hill.

Schneider, A. L., Ingram, H., & DeLeon, P. (2014). Democratic policy design: Social construction of target populations. In Sabatier, P., & Weible, C., eds. *Theories of the Policy Process, 3rd Ed., 3,* 105-149. Westview Press. https://www.researchgate.net/publication/265377853_Democratic_Policy_Design_Social_Construction_of_Target_Populations

Schneider, J., Schwarze, S., Bsumek, P. K., & Peeples, J. (2016). *Under pressure: Coal industry rhetoric and neoliberalism*. Springer Publishing.

Schüll, N. D. (2012). *Addiction by design: Machine gambling in Las Vegas*. Princeton University Press.

Schwartz, D. G. (2018, June 4). How casinos use math to make money when you play the slots. *Forbes.* https://www.forbes.com/sites/davidschwartz/2018/06/04/how-casinos-use-math-to-make-money-when-you-play-the-slots/?sh=7628916b94d0

Schwartz, D. G. (2013). *Roll the bones: The history of gambling.* Winchester Books.

Seely, M. (2022, March 2). Ohio explores diversion court for problem gamblers who commit crimes. *OhBets.* Retrieved from https://www.ohbets.com/ohio-explores-diversion-court-problem-gamblers/

Siegel, D., & Anders, G. (1999) Public policy and the displacement effects of casinos: A case study of riverboat gambling in Missouri. *Journal of Gambling Studies, 15(*2), 105-121. https://doi.org/10.1023/A:1022230124148

Spectrum Gaming Group. (2013, October 28). *Gambling impact study* [PDF file]. Prepared for the State of Florida Legislature. http://www.leg.state.fl.us/gamingstudy/docs/FGIS_Spectrum_28Oct2013.pdf

Spectrum Gaming Group. (2021). *Gaming market study: State of New York* [PDF file]. New York State Gaming Commission. https://www.gaming.ny.gov/pdf/Spectrum%20New%20York%20Gaming%20Study%20Main%20Report,%20Final.pdf

Strategic Economics Group (SEG) & Spectrum Gaming Group (SGG). (2014, May 23). *Socioeconomic impact of gambling on Iowans: A study for the Iowa Racing and Gaming Commission*. [PDF file]. http://publications.iowa.gov/33110/

Stokowski, P. (1996). *Riches and regrets: Betting on gambling in two Colorado mountain towns.* University of Colorado Press.

Sulkunen, P., Babor, T. F., Ornberg, J. C., Egerer, M., Hellman, M., Livingstone, C., ... & Rossow, I. (2019). Setting limits: Gambling, science and public policy. Oxford University Press.

Taylor J. B. (2012). *The economic and fiscal impacts of Indian tribes in Washington* [PDF file]. Washington Indian Gaming Association. https://www.washingtonindiangaming.org/wp-content/uploads/2018/04/wigaeconseptupt3.pdf

Taylor, J. B., Krepps, M. B., & Wang, P. (2000). *The national evidence on the socioeconomic impacts of American Indian gaming on non-Indian communities* [PDF file]. Christian A. Johnson Endeavor Foundation. https://hpaied.org/sites/default/files/publications/PRS00-1.pdf

Thompson, A. (2015, May 6). Slot machines perfected addictive gaming. Now, tech wants their tricks. *The Verge*. https://www.theverge.com/2015/5/6/8544303/casino-slot-machine-gambling-addiction-psychology-mobile-games

Thompson, I. (2011, April 14). Care to Revise Your Statement? *Philadelphia City Paper.* p. 7. Retrieved from https://issuu.com/phillycp/docs/cp_2011-04-14

Thompson, W. N. (1997). Frontline: Easy Money. PBS. https://www.pbs.org/wgbh/pages/frontline/shows/gamble/procon/ithompson.html

Thompson, W. N., & Gazel, R. C. (1996). *The monetary impacts of riverboat casino gambling in Illinois*. Better Government Association.

Thompson, W. N., Gazel, R., & Rickman, D. (1997). Social and legal costs of compulsive gambling. *Gaming Law Review*, 1(1), 81-89. http://doi.org/10.1089/glr.1997.1.81

Thompson, W. N., Gazel, R., & Rickman, D. (1995) The economic impact of Native American gaming in Wisconsin. *Wisconsin Policy Research Institute Report, 8*(3). Retrieved from https://www.badgerinstitute.org/BI-Files/Reports/Vol8no3.pdf

Thompson, W. & Schmidt, R. (2002). Not exactly 'a fair share': Revenue sharing and Native American casinos in Wisconsin. *Wisconsin Policy Research Institute Report, 15*(1), 1-22. Retrieved from https://www.badgerinstitute.org/BI-Files/Special-Reports/Reports-Documents/Vol15no1.pdf

Tiller, V. E. V. (Ed.). (2015). *Tiller's guide to Indian country: Economic profiles of American Indian reservations.* (3rd ed.). BowArrow Publishing Company.

University Research Center. (2017). *An economic analysis of a lottery in Mississippi*. Jackson, Mississippi: Mississippi Institutions of Higher Learning. https://jacksonfreepress.media.clients.ellingtoncms.com/news/documents/2017/11/29/lotteryanalysis.pdf#:~:text=The%20creation%20of%20a%20lottery%20in%20Mississippi%20would,lottery%20payouts%20as%20well%20as%20costs%20of%20operation

U.S. Census Bureau. (2019). *Metropolitan and micropolitan.* https://www.census.gov/programs-surveys/metro-micro/about.html

Vaughan Williams, L., & Siegel, D. S. (Eds.). (2013). *The Oxford handbook of the economics of gambling*. Oxford University Press.

Volberg, Rachel. (1995, July). *Gambling and problem gambling in Iowa: A replication survey.* Iowa Department of Human Services. https://www.idph.iowa.gov/Portals/1/Files/IGTP/volberg_1995.pdf

Walker, D. M. (2013a). Overview of the economic and social impacts of gambling in the United States. In L. Vaughan Williams & D. S. Siegel (Eds.), *The Oxford Handbook of the Economics of Gambling*. (pp. 108-128). Oxford University Press.

Walker, D. M. (2013b). *Casinonomics: the socioeconomic impacts of the casino industry*. Springer.

Walker, D. M. (2008a). Do casinos really cause crime? *Econ Journal Watch*, *5*(1), pp. 4-20. www.econjournalwatch.org/pdf/WalkerCommentJanuary2008.pdf

Walker, D. M. (2008b). Evaluating crime attributable to casinos in the US: A closer look at Grinols and Mustard's "Casinos, crime, and community costs." *Journal of Gambling Business and Economics*, *2*(3), 23. https://doi.org/10.5750/jgbe.v2i3.535

Walker, D. M. (2007a). *The economics of casino gambling*. Springer

Walker, D. M. (2007b). [Review of the book Gambling in America, by E. Grinols]. Southern Economic Journal. 73(3), 830-832. https://www.proquest.com/central/docview/212127775/fulltextPDF/DD09D2A3C064450APQ/10?accountid=9649

Walker, D. M. (2003). Methodological issues in the social cost of gambling studies. *Journal of Gambling Studies*, *19*(2), 149-184. https://pubmed.ncbi.nlm.nih.gov/12766468/

Walker, D. M., & Jackson, J. D. (2013). Casinos and economic growth: An update. *The Journal of Gambling Business and Economics*, *7*(2), 80-87. https://doi.org/10.5750/jgbe.v7i2.757

Walker, D. M., & Jackson, J. D. (2007). Do casinos cause economic growth? *American Journal of Economics and Sociology*, *66*(3), 593-607. http://dx.doi.org/10.1111/j.1536-7150.2007.00528.x

Walker, D. M., & Jackson, J. D. (1998). New goods and economic growth: Evidence from legalized gambling. *The Review of Regional Studies*, *28*(2), 47. http://journal.srsa.org/ojs/index.php/RRS/article/download/28.2.4/371

Walker K., & Herman, M. (2021). *tidycensus: Load U.S. Census boundary and attribute data as 'tidyverse' and 'sf'-ready data frames*. R package version 0.11.4. https://CRAN.R-project.org/package=tidycensus

Wartzman, R. (1995, September 11). Bayou backlash: Gambling is proving to be a poor sager for state of Louisiana --- Business is disappointing and an FBI graft probe roils a jaded electorate --- Bets, lies and videotape. *Wall Street Journal*

Washington Economics Group (2021, September 22, revised November 18). *Economic and revenue estimates on Florida of proposed amendment for changes to Florida's gambling law* [PDF file]. Florida Education Champions. Accessed 11/28/21 at https://thecapitolist.com/wp-content/uploads/2021/11/Florida-Education-Champions-Economic-Impact-Study-11-18-2021.pdf

Wassmer, R. W., Ong, R. S., & Propheter, G. (2016). Suggestions for the needed standardization of determining the local economic impact of professional sports. *Economic Development Quarterly*, *30*(3), 252-266. https://doi.org/10.1177/0891242416636685

Weinstein, Clower, & Associates. (2013). *Economic opportunities for casino gaming in Texas: An economic and fiscal impact assessment* [PDF file]. Texas Association of Business. http://lettexansdecide.com/wp-content/uploads/2013/04/Casino-gaming-study-2013-Final.pdf

Wenz, M. (2014a). Casinos, gambling and economic development. *Growth and Change*, *45*(1), 1-4. https://doi.org/10.1111/grow.12037

Wenz, M. (2014b). Valuing casinos as a local amenity. *Growth and Change*, *45*(1), 136-158. https://doi.org/10.1111/grow.12036

Wenz, M. (2007). The impact of casino gambling on housing markets: A hedonic approach. *The Journal of Gambling Business and Economics*, *1*(2), 101-120. https://doi.org/10.5750/jgbe.v1i2.512

Welte, J. W., Barnes, G. M., Tidwell, M. C. O., Hoffman, J. H., & Wieczorek, W. F. (2016). The relationship between distance from gambling venues and gambling participation and problem gambling among US adults. *Journal of Gambling Studies*, *32*(4), 1055-1063. https://doi.org/10.1007/s10899-015-9583-5

White, H. (1978). The fictions of factual representation. In White, H. (Ed.), *Tropics of discourse: Essays in cultural criticism* (pp. 121-134). Johns Hopkins University Press.

Wickham et al.., (2019). Welcome to the tidyverse. *Journal of Open Source Software, 4(43),* 1686. https://doi.org/10.21105/joss.01686

Williams, R. J., Belanger, Y., & Arthur, J. (2011a). *Gambling in Alberta: History, current status and socioeconomic impacts.* Alberta Gaming Research Institute. Retrieved from http://dx.doi.org/10.11575/PRISM/9881

Williams, R. J., Leonard, C. A., Belanger, Y. D., Christensen, D. R., El-Guebaly, N., Hodgins, D. C., ... & Stevens, R. M. (2021). Predictors of gambling and problem gambling in Canada. *Canadian Journal of Public Health*, *112*(3), 521-529. https://doi.org/10.17269/s41997-020-00443-x

Williams, R. J., Rehm, J., & Stevens, R. M. G. (2011b). *The social and economic impacts of gambling: Final report.* Canadian Consortium for Gambling Research. https://opus.uleth.ca/handle/10133/1286

Williams R. J., & Wood R. (2004). *The demographic sources of Ontario gaming revenue: Final report.* Ontario Problem Gambling Research Centre. https://hdl.handle.net/10133/380

Young, C. (2021, March 3). Massachusetts senator angling to keep sports betting out of casinos. *Berkshire Eagle*. https://www.berkshireeagle.com/statehouse/masssenator-angling-to-keep-sports-betting-out-of-casinos/article_b8da450e-7c28-11eb-a6d4-9b5547351a9f.html

APPENDIX A: CASINO DATA SET

The listing below provides the opening (when they began operating EGMs) and closing dates of the casinos from the 27 casino states included in this study (plus Illinois, which is included in the table below because their non-casino EGM operations did not commence until after the initial 2002-2012 study period: Illinois was not included in the analyses reported in this study). Some casinos which opened prior to 1995 (well before the years of this study) were assigned an opening date of 1995 in this database, based on their appearance in the annual Casino/Resort Riverboat & Fun Book Guide (also used by Rephann, 1997, and named in subsequent years American Casino Guide) for 1995, although they may have opened earlier.

The following 12 states did not host casinos during the period of this study: Alaska, Georgia, Hawaii, Kentucky, Massachusetts, New Hampshire, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia. The following 11 states were excluded from this study: four destination-casinos states: Connecticut, Nevada, New Jersey, Mississippi; seven states (including Nevada, again) with non-casino EGMs: Illinois, Louisiana, Nevada, Montana, Oklahoma, Oregon, South Dakota; and one intermittent-casinos state: Alabama.

The author invites any corrections to this data set. The data set is available at https://scholarworks.boisestate.edu/pubadmin_data/1 or on request as an electronic file for other casino-impacts researchers.

Table A1 Casino (EGM) Open/Close Dates for the 27 Casino States Included in this Study, Plus Illinois (The Study Excludes Four Destination-Casino States, Seven States with Non-Local EGMs, and one Intermittent-Casino State)

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Apache Gold Casino Resort	San Carlos	AZ	11/1/96		Y	Gila
Apache Sky Casino	Dudleyville	AZ	4/1/17		Y	Pinal
BlueWater Resort and Casino	Parker	AZ	7/1/99		Y	La Paz
Desert Diamond Casino	Why	AZ	7/1/99		Y	Pima
Desert Diamond Casino, Sahuarita	Sahuarita	AZ	7/1/01		Y	Ping
Desert Diamond Casino–West Valley (Golden Hassan)	Glendale	AZ	7/1/15		Y	Maricopa
Desert Diamond Hotel & Casino	Tucson	AZ	7/1/93		Y	Pina
Cliff Castle Casino	Camp Verde	AZ	5/1/95		Y	Yavapai
Cocopah Casino	Somerton	AZ	7/1/95		Y	Yuma
Casino of the Sun	Tucson	AZ	3/10/94		Y	Pina
Fort McDowell Casino	Fountain Hills	AZ	7/1/92		Y	Maricopa
Harrah's Ak-Chin Casino	Maricopa	AZ	7/1/94		Y	Pinal
Hon-Dah Resort Casino	Pinetop-Lakeside	AZ	7/1/93		Y	Navajo
Casino Arizona, McKellips	Scottsdale	AZ	7/1/98		Y	Maricopa
Lone Butte Casino	Chandler	AZ	7/1/94		Y	Maricopa
Mazatzal Casino	Payson	AZ	10/1/93		Y	Gila
Paradise Casino	Yuma	AZ	8/5/96		Y	Yuma
Spirit Mountain Casino	Mohave Valley	AZ	7/1/95		y	Mohave
Talking Stick Resort (Casino Az, Indian Bend)	Scottsdale	AZ	7/1/03		Y	Maricopa
Twin Arrows Casino Resort	Flagstaff	AZ	7/1/13		Y	Coconino
Vee Quiva Hotel & Casino	Laveen	AZ	7/1/97		Y	Maricopa
Wild Horse Pass Hotel & Casino	Chandler	AZ	7/1/95		Y	Maricopa

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Bucky's Casino	Prescott	AZ	7/1/95		Y	Yavapai
Yavapai Casino	Prescott	AZ	7/1/92		Y	Yavapai
Saracen Casino Annex	Pine Bluff	AR	9/28/19		Y	Jefferson
Oaklawn Racing & Gaming	Hot Springs	AR	4/1/19		N	Garland
Southland Park Gaming and Racing	West Memphis	AR	4/1/19		N	Crittenden
Agua Caliente Casino	Rancho Mirage	CA	4/6/01		Y	Riverside
Augustine Casino	Rancho Mirage	CA	6/19/02		Y	Riverside
Barona Valley Ranch Resort and Casino	Lakeside	CA	12/31/02		Y	San Diego
Bear River Casino	Loleta	CA	8/11/05		Y	Humboldt
Sherwood Valley (Black Bart) Casino	Willits	CA	1/1/96		Y	Mendocino
Black Oak Casino	Tuolumne	CA	5/15/01		Y	Tuolumne
Blue Lake Casino	Blue Lake	CA	1/1/02		Y	Humboldt
Cache Creek Casino Resort	Brooks	CA	7/1/99		Y	Yolo
Cahuilla Creek Casino	Anza	CA	6/1/96		Y	Riverside
Casino Pauma	Pauma Valley	CA	5/4/01		Y	San Diego
Cher-Ae Heights Bingo and Casino	Trinidad	CA	1/1/95		Y	Humboldt
Chicken Ranch Bingo and Casino	Jamestown	CA	7/1/94		Y	Tuolumne
Chukchansi Gold Resort & Casino	Coarsegold	CA	6/25/03		Y	Madera
Chumash Casino Resort	Santa Ynez	CA	6/1/04		Y	Santa Barbara
Colusa Casino Resort	Colusa	CA	7/1/95		Y	Colusa
Desert Rose Casino	Alturas	CA	7/1/99		Y	Modoc
Diamond Mountain Casino	Susanville	CA	2/17/96		Y	Lassen
Eagle Mountain Casino	Porterville	CA	1/1/96		Y	Tulare

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Elk Valley Casino	Crescent City	CA	11/1/95		Y	Del Norte
Fantasy Springs Resort and Casino	Indio	CA	12/21/04		Y	Riverside
Feather Falls Casino	Oroville	CA	6/11/96		Y	Butte
Gold Bear Casino	Klamath	CA	7/1/96	7/1/07	Y	Del Norte
Gold Country Casino and Hotel	Oroville	CA	7/1/96		Y	Butte
Golden Acorn Casino	Campo	CA	8/15/01		Y	San Diego
Graton Resort & Casino	Rohnert Park	CA	11/5/13		Y	Sonoma
Harrah's Rincon-San Diego Casino	Valley Center	CA	12/20/04		Y	San Diego
Havasu Landing Resort and Casino	Havasu Lake	CA	11/1/19		Y	San Bernardino
Jackson Rancheria Casino	Jackson	CA	7/1/95		Y	Amador
Jamul Casino	Jamul	CA	10/10/16		Y	San Diego
Konocti Vista Casino and Bingo	Finley	CA	8/11/12		Y	Lake
La Jolla Slot Arcade	Pauma Valley	CA	7/31/18	8/1/04	Y	San Diego
La Posta Casino	Boulevard	CA	1/1/07	10/1/12	Y	San Diego
Lucky 7 Casino	Smith River	CA	1/1/96		Y	Del Norte
Lucky Bear Casino	Hoopa	CA	7/1/96		Y	Humboldt
Mono Wind Casino	Auberry	CA	7/1/96		Y	Fresno
Morongo Casino, Resort & Spa	Cabazon	CA	12/10/04		Y	Riverside
Paiute Palace Casino	Bishop	CA	10/1/95		Y	Inyo
Pala Casino Resort and Spa	Pala	CA	4/3/01		Y	San Diego
Pechanga Resort and Casino	Temecula	CA	6/24/02		Y	Riverside
Pit River Casino	Burney	CA	7/1/96		Y	Shasta
Quechan Resort Casino	Winterhaven	CA	2/13/09		Y	Imperial
Red Earth Casino	Salton City	CA	4/10/07		Y	Imperial
Red Fox Casino	Laytonville	CA	1/1/96		Y	Mendocino
Redhawk Casino	Shingle Springs	CA	12/17/08		Y	El Dorado

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
River Rock Casino	Geyserville	CA	6/25/04		Y	Sonoma
Robinson Rancheria Resort and Casino	Nice	CA	1/1/89		Y	Lake
Rolling Hills Casino	Corning	CA	7/31/02		Y	Tehama
San Manuel Indian Bingo and Casino	Highland	CA	7/1/94		Y	San Bernardino
San Pablo Lytton Casino	San Pablo	CA	1/1/94		Y	Contra Costa
Santa Ysabel Resort and Casino	Santa Ysabel	CA	4/11/07	2/1/14	Y	San Diego
Shodakai Casino	Redwood Valley	CA	7/1/94		Y	Mendocino
Sho-Ka-Wah Casino	Hopland	CA	7/1/98		Y	Mendocino
Soboba Casino	San Jacinto	CA	1/1/95		Y	Riverside
Spa Resort and Casino	Palm Springs	CA	7/1/95		Y	Riverside
Spotlight 29 Casino	Coachella	CA	1/14/95		Y	Riverside
Sycuan Resort and Casino	El Cajon	CA	3/1/83		Y	San Diego
Table Mountain Casino	Friant	CA	7/1/95		Y	Fresno
Tachi Palace Hotel and Casino	Lemoore	CA	7/1/94		Y	Kings
Thunder Valley Casino Resort	Lincoln	CA	6/9/03		Y	Placer
Torres Martinez Casino	Salton City	CA	4/3/07		Y	Imperial
Tortoise Rock Casino	Twentynine Palms	CA	04/31/14		Y	San Bernardino
Twin Pine Casino	Middletown	CA	11/1/94		Y	Lake
Valley View Casino	Valley Center	CA	4/18/01		Y	San Diego
Viejas Casino	Alpine	CA	9/13/91		Y	San Diego
Winnedumah Winn's Casino	Independence	CA	7/1/09		Y	Inyo
Win-River Casino	Redding	CA	4/1/93		Y	Shasta
Ameristar Casino Black Hawk	Black Hawk	CO	12/20/01		N	Gilpin
Black Diamond Casino and Saloon	Cripple Creek	CO	10/1/91		N	Teller

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Brass Ass Casino of Cripple Creek	Cripple Creek	CO	6/22/95		N	Teller
Bronco Billy's Casino	Cripple Creek	CO	10/1/91		N	Teller
Bull Durham Saloon and Casino	Black Hawk	CO	6/17/94		N	Gilpin
Bullpen Casino	Black Hawk	CO	5/1/99		N	Gilpin
Z Casino (Bullwhacker's)	Black Hawk	CO	7/1/95		N	Gilpin
Century Casino Central City	Central City	CO	7/11/06		N	Gilpin
Colorado Central Station Casino	Black Hawk	CO	7/1/95		N	Gilpin
Colorado Grande Casino	Cripple Creek	CO	2/25/12		N	Teller
Creeker's Gaming Hall	Cripple Creek	CO	7/1/95	7/1/07	N	Teller
Dan Cooper's Eureka! Casino	Black Hawk	CO	7/1/95	3/1/08	N	Gilpin
Doc Holliday Casino	Central City	CO	7/1/95	6/13/13	N	Gilpin
Dostal Alley Brewpub & Casino	Central City	CO	10/12/91		N	Gilpin
Double Eagle Hotel & Casino	Cripple Creek	CO	8/29/06		N	Teller
The Gold Creek Casino	Cripple Creek	CO	12/19/03		N	Teller
Easy Street Casino	Central City	CO	12/7/00		N	Gilpin
Famous Bonanza	Central City	CO	1/17/92		N	Gilpin
The Gilpin Casino	Black Hawk	CO	10/2/92		N	Gilpin
Gold Rush Hotel & Casino/Gold Digger's Casino	Cripple Creek	CO	4/10/99	10/1/10	N	Teller
Golden Gates Casino	Black Hawk	CO	11/1/12		N	Gilpin
Golden Gulch Casino	Black Hawk	CO	11/1/12		N	Gilpin
Golden Mardi Gras Casino	Black Hawk	CO	11/1/12		N	Gilpin
Imperial Casino	Cripple Creek	CO	7/1/95	3/1/10	N	Teller
Isle of Capri Casino and Hotel	Black Hawk	CO	12/30/98		N	Gilpin
J.P. McGills Hotel & Casino	Cripple Creek	CO	11/26/97		N	Teller
Johnny Nolon's Casino	Cripple Creek	CO	5/18/10		N	Teller
The Lodge Casino at Black Hawk	Black Hawk	CO	6/24/98		N	Gilpin

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Midnight Rose Hotel & Casino	Cripple Creek	CO	8/19/92		N	Teller
Red Dolly Casino	Black Hawk	CO	8/19/92		N	Gilpin
Reserve Casino Hotel (Harveys, Fortune)	Central City	CO	12/1/94		N	Gilpin
The Richman Casino Wild Card Saloon & Casino	Black Hawk	CO	5/25/95	12/20/01	N	Gilpin
Monarch (Riviera)	Black Hawk	CO	2/4/00		N	Gilpin
Saratoga Casino (Fitzgeralds)	Black Hawk	CO	6/27/13		N	Gilpin
Scarlet's Casino	Central City	CO	2/1/05	9/1/06	N	Gilpin
Silver Hawk Saloon & Casino	Black Hawk	CO	7/1/97	9/1/06	N	Gilpin
Sky Ute Lodge and Casino	Ignacio	CO	7/1/95		Y	La Plata
Teller House	Central City	CO	10/1/91	2/26/00	N	Gilpin
Uncle Sam's Casino (Lucky Lola's)	Cripple Creek	CO	7/1/95		N	Teller
Ute Mountain Casino Hotel & Resort	Towaoc	CO	9/1/92		Y	Montezuma
Wild Horse Casino	Cripple Creek	CO	7/1/04	10/1/08	N	Teller
Wildwood Casino	Cripple Creek	CO	7/1/08		N	Teller
Womacks Casino & Hotel	Cripple Creek	CO	7/1/1995		N	Teller
Delaware Park Racetrack & Slots	Wilmington	DE	7/1/95		N	New Castle
Dover Downs	Dover	DE	7/1/95		N	Kent
Harrington Raceway & Casino	Harrington	DE	7/1/96		N	Kent
Big Easy Casino (Mardi Gras)	Hallandale Beach	FL	4/1/07		N	Broward
Calder Casino & Race Course	Miami Gardens	FL	7/1/04		N	Miami-Dade
Casino Miami Jai-Alai	Miami	FL	1/25/12		N	Miami-Dade
Dania Jai-Alai	Dania Beach	FL	2/20/14		N	Broward
Magic City Casino (Flagler Dog Track)	Miami	FL	9/2/09	6/1/18	N	Miami-Dade

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Gulfstream Park Racing and Casino	Hallandale Beach	FL	11/1/06		N	Broward
Hamilton Jai-Alai and Poker	Jasper	FL	12/21/05		N	Hamilton
Hialeah Park Race Track	Hialeah	FL	8/1/13		N	Miami-Dade
Melbourne Greyhound Park	Melbourne	FL	1/1/04		N	Brevard
Miccosukee Resort and Gaming Center	Miami	FL	6/14/99		Y	Miami-Dade
Orange City Racing and Card Club	Orange City	FL	3/1/17		N	Volusia
The Isle at Pompano Park	Pompano Beach	FL	4/1/07		N	Broward
Seminole Casino Big Cypress	Clewiston	FL	4/26/19		Y	Hendry
Seminole Casino Brighton	Okeechobee	FL	6/2/05		Y	Okeechobee
Seminole Casino Immokalee	Immokalee	FL	2/1/94		Y	Collier
Seminole Casino Coconut Creek	Coconut Creek	FL	7/1/00		Y	Broward
Seminole Hard Rock Hotel and Casino Hollywood	Hollywood	FL	5/11/04		Y	Broward
Seminole Hard Rock Hotel and Casino Tampa	Tampa	FL	10/10/04		Y	Hillsborough
Seminole Classic Casino	Hollywood	FL	7/1/95		Y	Broward
Coeur d'Alene Casino	Worley	ID	3/1/93		Y	Kootenai
Clearwater Casino	Lewiston	ID	8/17/96		Y	Nez Perce
Fort Hall Casino	Fort Hall	ID	5/1/90		Y	Fort Hall
It'se Ye Ye Casino	Kamiah	ID	12/21/01		Y	Lewis
Kootenai River Inn and Casino	Bonners Ferry	ID	7/1/95		Y	Boundary
Sage Hill Casino	Blackfoot	ID	3/1/09		Y	Bingham
Casino Queen	East St. Louis	IL	1/1/93		N	St. Clair
Harrah's Joliet	Joliet	IL	5/4/93		N	Will

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Harrah's Metropolis	Metropolis	IL	1/1/94		N	Massac
Hollywood Casino Aurora	Aurora	IL	6/17/93		N	Kane
Grand Victoria Casino Elgin	Elgin	IL	10/6/94		N	Kane
Hollywood Casino Joliet	Joliet	IL	6/16/92		N	Will
Argosy's Alton Belle Casino	Alton	IL	9/1/91		N	Madison
Rivers Casino	Des Plaines	IL	7/18/11		N	Cook
Par-A-Dice Casino	East Peoria	IL	1/1/91		N	Tazewell
Jumer's Casino & Hotel	Rock Island	IL	12/1/08		N	Rock Island
Ameristar (Showboat Mardi Gras, Harrah's)	East Chicago	IN	4/18/97		N	Lake
Belterra Casino	Florence	IN	10/27/00		N	Switzerland
Blue Chip Casino	Michigan City	IN	8/22/97		N	LaPorte
Four Winds South Bend	South Bend	IN	1/16/18		Y	St. Joseph
French Lick Resort Casino	French Lick	IN	12/3/06		N	Orange
Hollywood Casino Lawrenceburg	Lawrenceburg	IN	12/13/96		N	Dearborn
Hoosier Park	Anderson	IN	9/1/94		N	Madison
Horseshoe Southern Indiana	Elizabeth	IN	9/12/19		N	Harrison
Horseshoe Casino	Hammond	IN	6/16/92		N	Lake
Indiana Grand Casino	Shelbyville	IN	4/13/09		N	Shelby
Majestic Star	Gary	IN	6/7/96		N	Lake
Majestic Star II	Gary	IN	6/7/96		N	Lake
Rising Star Casino Resort	Rising Sun	IN	10/1/96		N	Ohio
Tropicana Evansville	Evansville	IN	1/1/95		N	Vanderburgh
Ameristar Casino Council Bluffs	Council Bluffs	IA	1/1/96		N	Pottawattamie

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Argosy	Sioux City	IA	1/1/04	7/1/14	N	Woodbury
Blackbird Bend Casino (CasinOmaha)	Onawa	IA	7/1/92		Y	Monona
Catfish Bend	Burlington	IA	11/16/94		N	Des Moines
Diamond Jo Casino	Dubuque	IA	12/11/08	7/30/14	N	Dubuque
Diamond Jo Casino – Worth	Northwood	IA	4/6/06		N	Worth
Grand Falls Casino	Larchwood	IA	6/9/11		Y	Lyon
Hard Rock Sioux City	Sioux City	IA	8/1/14		N	Woodbury
Harrah's Council Bluffs	Council Bluffs	IA	1/1/96		N	Pottawattamie
Horseshoe Council Bluffs	Council Bluffs	IA	2/27/86		N	Pottawattamie
Isle of Capri	Bettendorf	IA	4/21/95		N	Scott
Isle of Capri	Waterloo	IA	6/30/07		N	Black Hawk
Lady Luck (Casino Queen)	Marquette	IA	3/1/09		N	Clayton
Lakeside Hotel & Casino	Osceola	IA	1/1/00		N	Clarke
Meskwaki Casino	Tama	IA	1/1/92		Y	Tama
Prairie Flower Casino	Carter Lake	IA	12/1/18		Y	Pottawattamie
Prairie Meadows	Altoona	IA	3/1/89		N	Polk
Q Casino	Dubuque	IA	6/1/85		N	Dubuque
Rhythm City Casino Resort	Davenport	IA	10/1/00		N	Scott
Riverside Casino & Golf Resort	Riverside	IA	8/31/06		Y	Washington
Wild Rose Casino and Resort	Clinton	IA	6/12/91		N	Clinton
Wild Rose Casino and Resort	Emmetsburg	IA	5/28/06		N	Palo Alto
Wild Rose Casino and Resort	Jefferson	IA	8/1/15		N	Greene
WinnaVegas Casino Resort	Sloan	IA	4/1/92		Y	Woodbury

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
7th Street Casino	Kansas City	KS	1/10/08		Y	Wyandotte
Boot Hill Casino	Dodge City	KS	12/3/09		N	Ford
Casino White Cloud	White Cloud	KS	5/1/95		Y	Doniphan
Golden Eagle Casino	Horton	KS	5/1/96		Y	Brown
Hollywood Casino at Kansas Speedway	Kansas City	KS	2/12/12		N	Wyandotte
Kansas Crossing Casino and Hotel	Pittsburg	KS	4/8/17		N	Crawford
Kansas Star Casino	Mulvane	KS	12/26/11		N	Sumner
Prairie Band Casino & Resort	Mayetta	KS	1/1/98		Y	Jackson
Sac and Fox Casino	Powhattan	KS	2/28/97		Y	Brown
Hollywood Casino Hotel & Raceway Bangor	Bangor	ME	11/1/05		N	Penobscot
Oxford Casino	Oxford	ME	6/5/12		N	Oxford
Hollywood Casino Perryville	Perryville	MD	9/30/10		N	Cecil
Horseshoe Casino Baltimore	Baltimore	MD	8/26/14		N	Baltimore
Live! Casino & Hotel	Hanover	MD	6/6/12		N	Anne Arundel
MGM National Harbor	Oxon Hill	MD	12/8/16		N	Prince George's
Ocean Downs	Berlin	MD	1/4/11		N	Worcester
Rocky Gap Casino Resort	Flintstone	MD	5/22/13		N	Allegany
Bay Mills Resort & Casino	Brimley	MI	11/1/95		Y	Chippewa
FireKeepers Casino Hotel	Battle Creek	MI	8/5/09		Y	Calhoun
Four Winds New Buffalo	New Buffalo	MI	8/2/07		Y	Berrien
Four Winds Hartford	Hartford	MI	8/30/11		Y	Van Buren
Four Winds Dowagiac	Dowagiac	MI	4/30/13		Y	Cass
Greektown Casino Hotel	Detroit	MI	12/10/00		N	Wayne
Gun Lake Casino	Wayland	MI	2/11/11		Y	Allegan
Island Resort & Casino	Harris	MI	1/1/98		Y	Delta

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Kewadin Casino - Christmas	Christmas	MI	1/1/94		Y	Alger
Kewadin Casino - Hessel	Hessel	MI	1/1/94		Y	Mackinac
Kewadin Casino - Manistique	Manistique	MI	1/1/94		Y	Schoolcraft
Kewadin Casino, Hotel and Convention Center	Sault Sainte Marie	MI	7/1/95		Y	Chippewa
Kewadin Shores Casino - St. Ignace	St Ignace	MI	7/1/95		Y	Mackinac
Kings Club Casino	Brimley	MI	7/1/95		Y	Chippewa
Leelanau Sands Casino	Suttons Bay	MI	7/1/95		Y	Leelanau
Little River Casino and Resort	Manistee	MI	1/1/99		Y	Manistee
MGM Grand Detroit	Detroit	MI	7/29/99		N	Wayne
MotorCity Casino Hotel	Detroit	MI	12/14/99		N	Wayne
Northern Waters (Lac Vieux Desert)	Watersmeet	MI	7/1/95		Y	Gogebic
Odawa Casino Resort	Petoskey	MI	6/20/07		Y	Emmet
Ojibwa Casino - Marquette	Marquette	MI	7/1/94		Y	Marquette
Ojibwa Casino Resort - Baraga	Baraga	MI	7/1/95		Y	Baraga
Saganing Eagles Landing Casino	Standish	MI	12/31/07		Y	Arenac
Soaring Eagle Casino & Resort	Mt. Pleasant	MI	1/1/98		Y	Isabella
Turtle Creek Casino and Hotel	Williamsburg	MI	7/1/96		Y	Grand Traverse
Black Bear Casino Resort	Carlton	MN	7/1/93		Y	Carlton
Fond-du-luth Casino	Duluth	MN	1/1/90		Y	St. Louis
Fortune Bay Resort Casino	Tower	MN	7/1/89		Y	St. Louis
Grand Casino Hinckley	Hinckley	MN	1/1/92		Y	Pine
Grand Casino Mille LACG	Onamia	MN	1/1/91		Y	Mille LACG
Grand Portage Lodge & Casino	Grand Portage	MN	7/1/89		Y	Cook
Jackpot Junction Casino Hotel	Morton	MN	7/1/89		Y	Renville

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Little Six Casino	Prior Lake	MN	1/1/90		Y	Scott
Mystic Lake Casino Hotel	Prior Lake	MN	1/1/92		Y	Scott
Northern Lights Casino	Walker	MN	1/1/96		Y	Cass
Palace Casino & Hotel	Cass Lake	MN	7/1/89		Y	Cass
Prairie's Edge Casino Resort (Firefly)	Granite Falls	MN	7/1/90		Y	Yellow Medicine
Seven Clans Casino Red Lake	Red Lake	MN	12/23/09		Y	Beltrami
Seven Clans Casino Thief River Falls	Thief River Falls	MN	7/1/89		Y	Pennington
Seven Clans Casino Warroad (Lake of the Woods)	Warroad	MN	7/1/89		Y	Roseau
Shingobee on the Bay	Walker	MN	10/13/17		Y	Cass
Shooting Star Casino	Mahnomen	MN	7/1/92		Y	Mahnomen
Shooting Star Casino	Bagley	MN	8/17/16		Y	Clearwater
Treasure Island Resort and Casino	Red Wing	MN	7/1/89		Y	Goodhue
White Oak Casino	Deer River	MN	8/1/00		Y	Itasca
Ameristar Casino (Sheraton, Hotel Tunica)	St. Charles	MO	8/6/02		N	St. Charles
Ameristar (Isle of Capri, DiamondJacks)	Kansas City	MO	1/16/97		N	Clay
Argosy Riverside	Riverside	MO	6/1/94		N	Platte
Harrah's	North Kansas City	MO	9/22/94		N	Clay
Hollywood Casino St. Louis	Maryland Heights	MO	2/12/08		N	St. Louis
Isle Casino	Cape Girardeau	MO	10/30/12		N	Cape Girardeau
Isle of Capri	Boonville	MO	12/6/01		N	Cooper
Isle of Capri	Kansas City	MO	6/5/00		N	Jackson
Lady Luck Casino	Caruthersville	MO	3/1/00		N	Pemiscot
Mark Twain	La Grange	MO	2/1/05		N	Lewis

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Lumière Place	St. Louis	MO	12/19/07		N	St. Louis
River City Casino	St. Louis	MO	3/4/10		N	St. Louis
President Casino Laclede's Landing	St. Louis	MO	7/1/93	7/1/10	N	St. Louis
St. Jo Frontier Casino	St. Joseph	MO	6/24/94		N	Buchanan
Ohiya Casino (moved/expanded 2/15/13) (Class II)	Niobrara	NE	7/1/96		Y	Knox
Lucky 77 (Class II)	Walthill	NE	8/15/05		Y	Thurston
Native Star Casino (Class II)	Winnebago	NE	7/1/07		Y	Thurston
Iron Horse (Class II)	Emerson	NE	7/9/04		Y	Dixon
Apache Nugget Casino (Harrah's at Trump Plaza)	Cuba	NM	8/6/04		Y	Sandoval
Billy the Kid Casino (Trump Taj Mahal)	Ruidoso	NM	5/10/99		N	Lincoln
Buffalo Thunder (Playboy, Atlantis)	Pojoaque Pueblo	NM	8/12/08		Y	Santa Fe
Camel Rock Casino	Tesuque Pueblo	NM	1/1/95	11/1/18	Y	Santa Fe
Casino Apache Travel Center	Mescalero	NM	5/23/03		Y	Otero
Casino Hollywood	San Felipe	NM	3/9/02		Y	Sandoval
Cities of Gold Casino	Pojoaque Pueblo	NM	7/23/95		Y	Santa Fe
Dancing Eagle Casino	Casa Blanca	NM	1/1/00		Y	Cibola
Downs at Albuquerque	Albuquerque	NM	6/29/18		N	Bernalillo
Fire Rock Navajo Casino	Church Rock	NM	11/19/08		Y	McKinley
Inn of the Mountain Gods Resort & Casino	Mescalero	NM	7/1/95		Y	Otero
Isleta Casino & Resort	Isleta Pueblo	NM	7/1/13		Y	Bernalillo
Northern Edge Navajo Casino	Fruitland	NM	1/1/12		Y	San Juan
Ohkay Casino Resort	San Juan Pueblo	NM	7/1/95		Y	Rio Arriba

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Palace West	Isleta	NM	1/1/14		Y	Bernalillo
Route 66 Casino	Laguna Pueblo	NM	9/1/03		Y	Bernalillo
Route 66 Casino Express	Laguna Pueblo	NM	7/1/03		Y	Bernalillo
Sandia Casino	Sandia Pueblo	NM	1/1/94		Y	Bernalillo
Santa Ana Star Casino	Santa Ana Pueblo	NM	1/1/93		Y	Sandoval
Santa Claran Hotel & Casino	Española	NM	6/15/01		N	Rio Arriba
Sky City Casino	Acoma	NM	1/1/92		Y	Cibola
Sun Ray Park & Casino	Farmington	NM	7/2/99		N	San Juan
Sunland Park Racetrack & Casino	Sunland Park	NM	7/1/99		N	Doña Ana
Taos Mountain Casino	Taos	NM	6/29/97		Y	Taos
Tesuque Casino	Tesuque Pueblo	NM	11/23/18		Y	Santa Fe
Wild Horse Casino	Dulce	NM	1/1/94		Y	Rio Arriba
Zia Park Casino, Hotel & Racetrack	Hobbs	NM	11/24/04		N	Lea
Akwesasne Mohawk Casino	Hogansburg	NY	4/12/99		Y	Franklin
Batavia Downs Casino	Batavia	NY	5/18/05		N	Genesee
Del Lago Resort and Casino	Tyre	NY	2/1/17		N	Seneca
Empire City Casino at Yonkers Raceway	Yonkers	NY	10/11/06		N	Westchester
Hamburg Gaming (Buffalo Raceway)	Hamburg	NY	1/1/04		N	Erie
Jake's 58 Hotel & Casino	Islandia	NY	2/27/17		N	Suffolk
Finger Lakes Gaming and Race Track	Farmington	NY	2/18/04		N	Ontario
Lakeside Entertainment	Union Springs	NY	12/1/13		Y	Cayuga
Mohawk Bingo Palace and Casino	Akwesasne	NY	4/12/99		Y	Franklin

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Monticello Gaming & Raceway	Monticello	NY	6/30/04	4/23/19	N	Sullivan
Point Place Casino	Bridgeport	NY	3/1/18		Y	Madison
Resorts World Catskills	Thompson	NY	2/8/18		N	Sullivan
Resorts World New York City	Ozone Park	NY	10/28/11		N	Queens
Rivers Casino & Resort	Schenectady	NY	2/8/17		N	Schenectady
Saratoga Casino and Raceway	Saratoga Springs	NY	7/1/04		N	Saratoga
Seneca Allegany Casino	Salamanca	NY	5/1/04		Y	Cattaraugus
Seneca Buffalo Creek Casino	Buffalo	NY	3/3/07		Y	Erie
Seneca Gaming and Entertainment Irving (Class II)	Irving	NY	9/2/00		Y	Cattaraugus
Seneca Gaming and Entertainment Oil Spring	Cuba	NY	7/4/14		Y	Allegany
Seneca Gaming and Entertainment Salamanca (Class II)	Salamanca	NY	9/20/00		Y	Cattaraugus
Seneca Niagara Casino	Niagara Falls	NY	12/31/02		Y	Niagara
Tioga Downs & Casino	Nichols	NY	6/9/06		N	Tioga
Turning Stone Resort & Casino	Verona	NY	7/16/93		Y	Oneida
Vernon Downs & Casino	Vernon	NY	7/1/04		N	Oneida
Yellow Brick Road Casino	Chittenango	NY	6/2/15		Y	Madison
Harrah's Cherokee	Cherokee	NC	11/1/97		Y	Swain
Harrah's Cherokee Valley River	Murphy	NC	9/28/15		Y	Cherokee
Dakota Magic Casino	Hankinson	ND	8/9/99		Y	Richland
Spirit Lake Casino	Fort Totten	ND	1/1/96		Y	Benson
Four Bears Casino	Four Bears Village	ND	7/5/93		Y	McKenzie
Grand Treasure Casino (Painted Pony)	Williston	ND	4/25/12		Y	Williams
Skydancer Casino	Belcourt	ND	1/1/93		Y	Rolette

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Prairie Knights Casino and Resort	Fort Yates	ND	12/14/93		Y	Sioux
Belterra Park Gaming & Entertainment Center	Anderson Township	OH	5/1/14		N	Hamilton
Hollywood Casino Columbus	Columbus	OH	10/8/12		N	Franklin
Hollywood Casino Toledo	Toledo	OH	5/29/12		N	Lucas
Hollywood Gaming at Dayton Raceway (River Downs)	Dayton	OH	8/28/14		N	Montgomery
Hollywood Gaming at Mahoning Valley Race Course	Austintown	OH	9/17/14		N	Mahoning
Jack Cincinnati Casino	Cincinnati	OH	2/27/13		N	Hamilton
Jack Cleveland Casino	Cleveland	OH	5/14/12		N	Cuyahoga
Jack Thistledown Racino	North Randall	OH	4/9/13		N	Cuyahoga
Hard Rock (MGM Northfield Park)	Northfield	OH	12/18/13		N	Summit
Miami Valley Gaming	Turtlecreek Township	OH	12/11/13		N	Warren
Scioto Downs Racino	Columbus	OH	6/1/12		N	Franklin
Harrah's Philadelphia	Chester	PA	1/22/07		N	Delaware
Hollywood Casino at Penn National Race Course	Grantville	PA	2/12/08		N	Dauphin
Lady Luck Casino Nemacolin	Farmington	PA	7/1/13		N	Fayette
Live! Hotel and Casino	Philadelphia	PA	3/1/20		N	Philadelphia
The Meadows Racetrack and Casino	North Strabane Twp.	PA	1/1/07		N	Washington
Mohegan Sun at Pocono Downs	Plains Township	PA	11/1/06		N	Luzerne
Mount Airy Casino Resort	Mount Pocono	PA	10/22/07		N	Monroe
Parx Casino and Racing	Bensalem	PA	12/18/09		N	Bucks
Presque Isle Downs	Erie	PA	2/8/07		N	Erie

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Rivers Casino	Pittsburgh	PA	8/9/09		N	Allegheny
Wind Creek (Sands Casino Resort Bethlehem)	Bethlehem	PA	5/22/09		N	Northampton
Rivers Casino Philadelphia (SugarHouse Casino)	Philadelphia	PA	9/23/10		N	Philadelphia
Valley Forge Casino Resort	Upper Merion Twp.	PA	3/31/12		N	Montgomery
Newport Grand Casino	Newport	RI	9/1/92	8/28/18	N	Newport
Tiverton Casino Hotel (replaced Newport Grand)	Tiverton	RI	9/1/18		N	Newport
Twin River Casino (Lincoln Park)	Lincoln	RI	9/1/92		N	Providence
7 Cedars Casino	Sequim	WA	2/14/95		Y	Clallam
Angel of the Winds Casino Resort	Arlington	WA	10/28/04		Y	Snohomish
BJ's Bingo and Gaming	Fife	WA	7/1/14		Y	Pierce
Casino Snoqualmie	Snoqualmie	WA	11/6/08		Y	King
Chewelah Casino	Chewelah	WA	8/1/08		Y	Stevens
Suquamish Clearwater Casino Resort	Suquamish	WA	7/8/03		Y	Kitsap
Coulee Dam Casino	Coulee Dam	WA	1/12/04		Y	Lincoln
Elwha River Casino	Port Angeles	WA	3/27/09		Y	Clallam
Emerald Queen Casino	Fife	WA	1/1/05		Y	Pierce
Emerald Queen Casino	Tacoma	WA	7/1/96		Y	Pierce
ilani Casino Resort	La Center	WA	4/24/17		Y	Clark
Kalispel Park & Casino	Cusick	WA	4/8/19		Y	Pend Oreille

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Last Chance Casino and Bingo	Darrington	WA	3/30/19		Y	Snohomish
Legends Casino at Yakima Nation	Toppenish	WA	5/14/98		Y	Yakima
Little Creek Casino and Resort	Shelton	WA	9/21/95		Y	Mason
Lucky Dog Casino	Potlatch	WA	8/11/01	9/1/09	Y	Mason
Lucky Eagle Casino	Rochester	WA	6/10/95		Y	Thurston
Mill Bay Casino	Manson	WA	2/4/04		Y	Chelan
Muckleshoot Indian Casino	Auburn	WA	4/27/95		Y	King
Nisqually Red Wind Casino	Yelm	WA	5/1/97		Y	Thurston
Nooksack Northwood Casino	Lynden	WA	1/1/07		Y	Whatcom
Nooksack River Casino	Deming	WA	4/16/93	7/1/15	Y	Whatcom
Northern Quest Casino	Airway Heights	WA	1/1/00		Y	Spokane
12 Tribes Resort Casino	Omak	WA	12/15/03		Y	Okanogan
Quinault Beach Resort and Casino	Ocean Shores	WA	1/1/00		Y	Grays Harbor
Shoalwater Bay Casino	Tokeland	WA	10/26/03		Y	Pacific
Silver Reef Casino	Ferndale	WA	4/9/02		Y	Whatcom
Skagit Valley Casino	Bow	WA	12/17/95		Y	Skagit
Spokane Tribe Casino	Airway Heights	WA	1/8/18		Y	Spokane
Swinomish Northern Lights Casino	Anacortes	WA	7/15/94		Y	Skagit

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
The Point Casino (Harrah's Skagit)	Kingston	WA	2/14/02		Y	Kitsap
Tulalip Bingo at Quil Ceda	Marysville	WA	9/29/04		Y	Snohomish
Tulalip Resort Casino	Tulalip	WA	6/4/03		Y	Snohomish
Two Rivers Casino	Davenport	WA	8/1/08		Y	Lincoln
The Casino Club at The Greenbrier	Greenbrier	WV	10/1/09		N	Greenbrier
Hollywood Casino at Charles Town Races	Charles Town	WV	7/12/10		N	Jefferson
Mardi Gras Casino and Resort (Tri States)	Nitro	WV	7/1/95		N	Kanawha
Mountaineer Casino, Racetrack and Resort	Chester	WV	7/1/94		N	Hancock
Wheeling Island Hotel-Casino-Racetrack	Wheeling	WV	7/1/94		N	Ohio
Bad River Lodge& Casino	Odanah	WI	7/1/91		Y	Ashland
Grindstone Creek Casino	Hayward	WI	7/1/16		Y	Sawyer
Hole in the Wall Casino	Danbury	WI	7/1/95		Y	Burnett
Ho-Chunk Gaming Black River Falls (Majestic Pines)	Black River Falls	WI	7/1/95		Y	Jackson
Ho-Chunk Gaming Madison	Madison	WI	7/1/99		Y	Dane
Ho-Chunk Gaming Nekoosa (Rainbow)	Nekoosa	WI	10/14/93		Y	Wood
Ho-Chunk Gaming Tomah	Tomah	WI	7/1/04		Y	Monroe
Ho-Chunk Gaming Wisconsin Dells	Baraboo	WI	7/1/95		Y	Sauk
Ho-Chunk Gaming Wittenberg	Wittenberg	WI	11/7/08		Y	Shawano
St. Croix Casino Danbury	Danbury	WI	7/1/10		Y	Burnett
Irene Moore Activity Center	Green Bay	WI	7/1/91		Y	Brown

Name (Former Name)	City	St	EGMs	Closed	Tribal	County
Legendary Waters Casino (Isla Vista)	Bayfield	WI	7/1/95		Y	Bayfield
L-A-C, 7 Winds Casino	Hayward	WI	7/1/95		Y	Sawyer
Lake of the Torches	Lac du Flambeau	WI	7/1/96		Y	Vilas
St. Croix Little Turtle Hertel Express	Webster	WI	1/1/10		Y	Burnett
Menominee Casino Resort	Keshena	WI	7/1/91		Y	Menomine e
Thunderbird C-Store Casino	Keshena	WI	7/1/11		Y	Menomine e
North Star Mohican Casino Resort	Bowler	WI	5/8/92		Y	Shawano
Mole Lake Casino (Grand Royale, Regency)	Mole Lake	WI	7/1/91		Y	Forest
Oneida Bingo Casino	Green Bay	WI	12/1993		Y	Brown
Oneida Mason Street Casino	Green Bay	WI	8/22/00		Y	Brown
Oneida One-Stop Packerland	Green Bay	WI	7/1/92		Y	Brown
Oneida Casino Travel Center	Pulaski	WI	8/25/05		Y	Brown
Potawatomi Hotel & Casino	Milwaukee	WI	3/7/91		Y	Milwaukee
Potawatomi Carter (Northern Lights)	Carter	WI	7/1/95		Y	Forest
St. Croix Casino	Turtle Lake	WI	1/1/92		Y	Polk
Wind River Casino	Riverton	W Y	5/1/08		Y	Fremont
789 Casino	Riverton	W Y	1/1/92		Y	Fremont
Little Wind Casino	Ethete	W Y	4/4/09		Y	Fremont
Shoshone Rose Casino	Fort Washakie	W Y	7/1/07		Y	Fremont

APPENDIX B: CENSUS VARIABLE CODES USED TO COMPUTE ESTIMATES

Table B1 Census Variable Codes Used to Compute Estimates

Construct	Variable	Variable Description	Source	Variable ID
population	pop_allraces	total population (all races)	sf1	P007001
population	pop_white	total population (white only)	sf1	P007002
education	total_male	total (male)	sf3	P037002
education	bach_male	bachelor's (male)	sf3	P037015
education	mast_male	master's (male)	sf3	P037016
education	prof_male	prof deg (male)	sf3	P037017
education	doc_male	doctorate (male)	sf3	P037018
education	total_female	total (female)	sf3	P037019
education	bach_female	bachelor's (female)	sf3	P037032
education	mast_female	master's (female)	sf3	P037033
education	prof_female	prof deg (female)	sf3	P037034
education	doc_female	doctorate (female)	sf3	P037035
employ	total_labor_male	Total!!Male!!In labor force!!Civilian	sf3	P043005
employ	employ_male	Total!!Male!!In labor force!!Civilian!!Employed	sf3	P043006
employ	unemploy_male	Total!!Male!!In labor force!!Civilian!!Unemployed	sf3	P043007
employ	total_labor_female	Total!!Female!!In labor force!!Civilian	sf3	P043012
employ	employ_female	Total!!Female!!In labor force!!Civilian!!Employed	sf3	P043013
employ	unemploy_female	Total!!Female!!In labor force!!Civilian!!Unemployed	sf3	P043014
poverty	total_income	Total	sf3	P092001
poverty	income_poverty	Total!!Income in 1999 below poverty level	sf3	P092002
population	pop_allraces	total population (all races)	acs	B02001_001
population	pop_white	total population (white only)	acs	B02001_002
education	total_male	total (male)	acs	B15002_002
education	bach_male	bachelor's (male)	acs	B15002_015
education	mast_male	master's (male)	acs	B15002_016

Construct	Variable	Variable Description	Source	Variable ID
education	prof_male	prof deg (male)	acs	B15002_017
education	doc_male	doctorate (male)	acs	B15002_018
education	total_female	total (female)	acs	B15002_019
education	bach_female	bachelor's (female)	acs	B15002_032
education	mast_female	master's (female)	acs	B15002_033
education	prof_female	prof deg (female)	acs	B15002_034
education	doc_female	doctorate (female)	acs	B15002_035
employ	total_male_work	Estimate!!Total!!Male	acs	B23022_002
employ	worked_male	Estimate!!Total!!Male!!Worked in the past 12 months	acs	B23022_003
employ	total_female_work	Estimate!!Total!!Female	acs	B23022_026
employ	worked_female	Estimate!!Total!!Female!!Worked in the past 12 months	acs	B23022_027
poverty	total_income	Estimate!!Total	acs	B06012_001
poverty	income_poverty	Estimate!!Total!!Below 100 percent of the poverty level	acs	B06012_002

APPENDIX C: EMPLOYMENT ANALYSIS WITH UNEMPLOYMENT AS A CONTROL VARIABLE

This appendix provides results for the employment analysis on all areas (micro + metro, without any casino-change areas) with the addition of unemployment as a control variable. While the VIF statistics did not indicate a multicollinearity issue with unemployment as a control variable for the employment analysis (in all analyses, max VIF remained under two), the high r-square result for the model using unemployment as a control variable (see Table C1) suggests that some of the explanatory power of the model for the dependent variable, employment, is being inflated by the inclusion of the unemployment variable. For this reason, the final model adopted for this study was built without unemployment as a control variable for the employment analysis. For comparison, however, this appendix provides results for the employment analysis with the inclusion of unemployment as a control variable (see also footnote 13, above).

Table C1 R-Squared Results for Employment Regression with and without Unemployment as a Control Variable

	Micro + Metro		Micropolitan		Metropolitan	
	With unemp	Without unemp	With unemp	Without unemp	With unemp	Without unemp
2002-2007	.167	.117	.194	.141	.195	.161
2007-2012	.839	.281	.847	.271	.824	.349
2012-2017	.864	.206	.874	.205	.835	.272
2002-2017	.211	.167	.232	.184	.201	.165

Regression Analysis on Employment, Including an Unemployment Control Variable

Regression analysis over the full (micro + metro) data set controlling for local changes over time in population, minority population, poverty, education, and unemployment rates (see Table C2), finds a statistically significant negative association for 2012 to 2017 (b = -.006, RSE = .002, p < .001) but no statistically significant association for 2002 to 2007 (p = .212), 2007 to 2012 (p = .192), or 2002 to 2017 (p = .603). Regression on the micropolitan areas finds a statistically significant negative association of casinos with employment growth rates for 2007 to 2012 (b = -.008, RSE = .003, p = .009) and 2012 to 2017 (b = -.012, RSE = .003, p = .001), but no statistically significant association for 2002 to 2007 (p = .103) or 2002 to 2017 (p = .950). Regression on the metropolitan areas finds a statistically significant positive association approaching statistical significance for 2012 to 2017 (b = -.003, RSE = .002, p = -.054), but no statistically significant association for 2002 to 2007 (p = .401), 2007 to 2012 (p = .941), or 2002 to 2017 (p = .931).

Table C2 Employment Growth Rate Regression Results

	2002 to 2007				2007 to 2012				2012 to 2017				2002 to 2017			
Micro+Metro, n=567	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**
Casino Presence	.011	.009	.212	.040	-.003	.002	.192	-.024	-.006	.002	.000	-.063	.006	.011	.603	.020
Population	.105	.047	.027	.082	.093	.019	.000	.119	.031	.017	.078	.034	.049	.024	.038	.0765
Minority (Nonwhite)	-.004	.001	.010	-.128	-.001	.000	.012	-.073	.000	.000	.651	.010	-.004	.001	.000	-.227
Poverty	-.012	.002	.000	-.264	-.001	.000	.009	-.078	-.001	.000	.008	-.064	-.009	.002	.000	-.240
Education	-.013	.005	.006	-.195	-.000	.000	.499	-.013	-.001	.000	.016	-.049	-.002	.002	.426	-.038
Unemployment	-.004	.001	.000	-.236	-.013	.000	.000	-.850	-.014	.000	.000	-.900	-.004	.001	.000	-.237
Constant	.239	.022	.000	.	-.006	.002	.005	.	-.021	.001	.000	.	.156	.018	.000	.
	$p < .001$; R-sq = .167				$p < .001$; R-sq = .839				$p < .001$; R-sq = .864				$p < .001$; R-sq = .211			
Micropolitan, n = 337	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**
Casino Presence	.025	.015	.103	.069	-.008	.003	.009	-.052	-.012	.003	.001	-.079	-.001	.020	.950	-.003
Population	.172	.100	.085	.105	.107	.030	.000	.118	-.002	.030	.957	-.001	.075	.060	.211	.083
Minority (Nonwhite)	-.001	.002	.726	-021	-.001	.000	.089	-.064	.000	.000	.824	.006	-.004	.001	.001	-.193
Poverty	-.011	.002	.000	-.300	-.001	.001	.016	-.084	-.001	.000	.020	-.066	-.009	.003	.001	-.273

Education	-.012	.006	.039	-.207	-.000	.001	.826	-.005	-.001	.001	.022	-.054	-.002	.003	.399	-.057
Unemployment	-.004	.001	.000	-.244	-.013	.001	.000	-.848	-.014	.000	.000	-.903	-.004	.001	.000	-.246
Constant	.225	.026	.000	.	-.006	.002	.010	.	-.021	.001	.000	.	.146	.023	.000	.
	p < .001; R-sq = .194				p = .001; R-sq = .847				p < .001; R-sq = .874				p < .001; R-sq = .232			
Metropolitan, n=230	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**	**b**	**RSE**	**p**	**B**
Casino Presence	-.009	.011	.401	-.039	-.000	.002	.941	-.003	-.003	.002	.076	-.054	-.001	.013	.931	-.005
Population	-.007	.061	.915	-.006	.063	.016	.000	.101	.039	.025	.124	.065	-.028	.027	.311	-.049
Minority (Nonwhite)	-.009	.002	.000	-.313	-.001	.000	.003	-.098	.000	.000	.463	.023	-.006	.001	.000	-.316
Poverty	-.013	.003	.000	-.210	-.001	.001	.132	-.054	-.001	.001	.041	-.078	-.011	.003	.000	-.220
Education	-.017	.005	.001	-.208	-.001	.001	.035	-.054	-.000	.001	.449	-.022	-.002	.003	.484	-.046
Unemployment	-.005	.002	.009	-.188	-.014	.001	.000	-.868	-.003	.002	.076	-.054	-.005	.001	.000	-.210
Constant	.283	.044	.000	.	-.002	.003	.393	.	-.022	.002	.000	.	.203	.036	.000	.
	p < .001; R-sq = .195				p < .001; R-sq = .824				p < .001; R-sq = .835				p < .001; R-sq = .201			

For all areas (micro + metro), regression analysis finds the following relationship of employment growth with each control variable. Population growth has a positive association at or approaching statistical significance for 2002 to 2007 (b = .105, RSE = .047, p = .027), 2007 to 2012 (b = .093, RSE = .019, p < .001), 2002 to 2017 (b = .049, RSE = .024, p = .038), and 2012 to 2017 (b = .031, RSE = .017, p = .078). Minority population growth has a statistically significant negative association for 2002 to 2007 (b = -.004, RSE = .001, p = .010), 2007 to 2012 (b = -.001, RSE < .000, p = .012), and 2002 to 2017 (b = -.004, RSE = .001, p < .001), but no statistically significant association for 2012 to 2017 (p = .651). Poverty growth has a statistically significant negative association for 2002 to 2007 (b = -.012, RSE = .002, p < .001), 2007 to 2012 (b = -.001, RSE = .000, p = .009), 2012 to 2017 (b = -.001, RSE = .000, p = .008), and 2002 to 2017 (b = -.009, RSE = .002, p < .001). Education growth has a statistically significant negative association for 2002 to 2007 (b = -.013, RSE = .005, p = .006) and 2012 to 2017 (b = -.001, RSE = .000, p = .016), but no statistically significant association for 2007 to 2012 (p = .499) or 2002 to 2017 (p = .426). Unemployment growth has a statistically significant negative association for 2002 to 2007 (b = -.004, RSE = .001, p < .001), 2007 to 2012 (b = -.013, RSE = .000, p < .001), 2012 to 2017 (b = -.014, RSE = .000, p = .000), and 2002 to 2017 (b = -.004, RSE = .001, p < .001).

For micropolitan areas, regression analysis found the following relationship of employment growth with each control variable. Population growth had a positive association at or approaching statistical significance for 2002 to 2007 (b = .172, RSE = .100, p = .085) and 2007 to 2012 (b = .107, RSE = .030, p < .001), but no statistically significant association for 2012 to 2017 (p = .957) or 2002 to 2017 (p = .211). Minority population growth had a statistically significant negative association for 2007 to 2012 (b

= .001, RSE < .000, p = .089) and 2002 to 2017 (b = -.004, RSE = .001, p = .001), but no statistically significant association for 2002 to 2007 (p = .726) or 2012 to 2017 (p = .824). Poverty growth had a statistically significant negative association for 2002 to 2007 (b = -.011, RSE = .002, p < .001), 2007 to 2012 (b = -.001, RSE = .001, p = .016), 2012 to 2017 (b = -.001, RSE < .000, p = .020), and 2002 to 2017 (b = -.009, RSE = .003, p = .001). Education growth had a statistically significant negative association for 2002 to 2007 (b = -.012, RSE = .006, p = .039) and 2012 to 2017 (b = -.001, RSE = .001, p = .022), but no statistically significant association for 2007 to 2012 (p = .826) or 2002 to 2017 (p = .399). Unemployment had a statistically significant negative association for 2002 to 2007 (b = -.004, RSE = .001, p < .001), 2007 to 2012 (b = -.013, RSE = .001, p < .001), 2012 to 2017 (b = -.014, RSE < .000, p < .001), and 2002 to 2017 (b = -.004, RSE = .001, p < .001).

For metropolitan areas, regression analysis found the following relationship of employment growth with each control variable. Population growth had a statistically significant positive association for 2007 to 2012 (b = .063, RSE = .016, p < .001), but no statistically significant association for 2002 to 2007 (p = .915), 2012 to 2017 (p = .124), or 2002 to 2017 (p = .311). Minority population growth had a statistically significant negative association for 2002 to 2007 (b = -.004, RSE = .001, p = .010), 2007 to 2012 (b = -.001, RSE < .000, p = .012), and 2002 to 2017 (b = -.004, RSE = .001, p < .001), but no statistically significant association for 2012 to 2017 (p = .651). Poverty growth had a statistically significant negative association for 2002 to 2007 (b = -.013, RSE = .003, p < .001), 2012 to 2017 (b = -.001, RSE = .001, p = .041), and 2002 to 2017 (b = -.011, RSE = .003, p < .001), but no statistically significant association for 2007 to 2012 (p = .132). Education growth had a statistically significant negative association for 2002 to 2007 (b =

-.017, RSE = .005, p = .001) and 2007 to 2012 (b = -.001, RSE = .001, p = .035), but no statistically significant association for 2012 to 2017 (p = .449) or 2002 to 2017 (p = .484). Unemployment had a negative association at or approaching statistical significance for 2002 to 2007 (b = -.005, RSE = .002, p = .009), 2007 to 2012 (b = -.014, RSE = .001, p < .001), 2012 to 2017 (b = -.003, RSE = .002, p = .076), and 2002 to 2017 (b = -.005, RSE = .001, p < .001).

GCM Analysis on Employment, Including an Unemployment Control Variable

Although the model fit between fixed-slope and random-slope models was not shown to differ in the LR test (LR chi2(1) = .95; p = .331), no evidence suggested a significantly better fitting model between fixed or random slope. A fixed slope approach is used on the expectation that the impact of the year variable on retail sales would be similar from place to place, which also mirrors the retail sales analysis. The LR test found that the nested GCM provides a better fit to the data than the non-nested GCM analysis [(Wald chi2: fixed = 12.96 (p < .001); random = 46.37 (p < .001)]. Likelihood ratio tests indicate a slightly better fit to the data for a model with fixed-intercept nested in random-intercept (LR chi2(2) = 1,736.57; p < .001).

Table C3 Growth Curve Model across 2002, 2007, 2012 and 2017

Employment	**Micro + Metro**			**Micropolitan**			**Metropolitan**		
Prob > chi2 = 0.000	**λ**	**RSE**	**p**	**λ**	**RSE**	**p**	**λ**	**RSE**	**p**
Casino Present	-.011	.003	.000	-.013	.006	.024	-.011	.003	.001
Year	-.002	.000	.000	-.002	.000	.000	-.003	.000	.000
Population (per mil)	-.000	.001	.900	-.125	.066	.059	-.000	.002	.953
Minority	-.001	.000	.000	-.001	.000	.000	-.001	.000	.000
Poverty	-.003	.001	.000	-.003	.001	.000	-.003	.001	.000
Education	.004	.000	.000	.005	.000	.000	.004	.000	.000
Unemployment	.002	.000	.000	.001	.000	.000	.003	.000	.000
Constant	5.376	.369	.000	4.809	.516	.000	7.224	.451	.000
Rand Eff: State									
SD of Intercept	.025	.003	<.05	.025	.004	<.05	.025	.003	<.05

The Growth Curve Model analysis found a statistically significant negative association between casinos and employment for all areas (micro + metro) (λ = -.011, RSE = .003, p < .001), for micropolitan areas (λ = -.013, RSE = .006, p= .024), and for metropolitan areas (λ = -.011, RSE = .003, p= .001).

For all areas (micro + metro), employment had a statistically significant positive relationship with education (λ = .004, RSE < .000, p < .001) and unemployment (λ = .002, RSE < .000, p < .001), a statistically significant negative association with minority population (λ = -.001, RSE < .000, p < .001) and poverty (λ = -.003, RSE = .001, p < .001), and no statistically significant association with population (p = .900). For micropolitan areas, employment had a statistically significant positive association with education (λ = .005, RSE < .000, p < .001) and unemployment (λ = .001, RSE < .000, p < .001), and a negative association at or approaching statistical significance with population

(λ = -.125, RSE = .066, p = .059), minority (λ = -.001, RSE < .000, p < .001) and poverty (λ = -.003, RSE = .001, p < .001). For metropolitan areas, employment had a statistically significant positive association with education (λ =.004, RSE < .000, p < .001) and unemployment (λ =.003, RSE < .000, p < .001), a statistically significant negative association with minority (λ = -.001, RSE < .000, p < .001) and poverty (λ = -.003, RSE = .001, p < .001), and no statistically significant association with population (p = .953).

The hierarchical linear Growth Curve Model, nesting variables by state and local area to adjust for state- and area-level differences in variable change over time, finds significant differences in the impact of independent variables on the dependent variable from state to state and area to area. All analyses returned a statistically significant (p < .05) result for state and area impacts.

APPENDIX D: ANALYSIS OF AREAS THAT ADDED CASINOS BETWEEN 2002 AND 2017

Over the 2002 to 2017 period, 46 local economies (ten micropolitan and 36 metropolitan) added their first casino. While casinos in some areas also closed between 2002 to 2017, no areas became casino-free, since other casinos in those areas continued to operate. As a result, all areas that changed their casino status were areas that added casinos. Bivariate, regression, and Growth Curve Model analyses were run comparing the casino-change areas with the areas that did not change (either always or never had casinos) across the years of the study, to measure the impact opening a casino has on a local economy. Tables D1 to D6 summarizing the statistical analyses are included below.

Casino-change analysis was run only on the full (micro + metro) data set because the numbers of casino-change areas involved for each five-year period for the micropolitan (2002 to 2007 n = 4, 2007 to 2012 n = 3, 2012 to 2017 n = 3) and metropolitan (2002 to 2007 n = 17, 2007 to 2012 n = 13, 2012 to 2017 n = 6) areas were too small to be able to return reliable results. These change-area analyses also lack precision because a casino may have begun operation in any year between 2002 and 2017, but the time unit of analysis in this research is in five-year increments. As a result, for example, an area whose first casino opened in 2003 is treated the same as an area whose first casino opened in 2007: both are recorded as non-casino areas in 2002 and as casino areas in 2007 and beyond.

For all areas (micro + metro), areas that added casinos from 2007 to 2012 (n = 16) had a statistically significant positive association with retail sales in both the bivariate analysis (p = .011) (see Table D1) and the regression analysis (b = .085, RSE = .037, p = .023) (see Table D2). No statistically significant association was returned for areas that added casinos in the other years on either the bivariate analysis [2002 to 2007 (p = .627), 2012 to 2017 (p = .411), 2002 to 2017 (p = .620)] or the regression analysis [2002 to

2007 (p = .943), 2012 to 2017 (p = .361), 2002 to 2017 (p = .337)]. The Growth Curve Analysis (see Table D3) also did not find a statistically significant association between retail sales and the addition of a casino (p = .951).

The results for employment as the dependent variable follow a similar pattern. Areas that added casinos had a positive association approaching statistical significance with employment in the 2007 to 2012 (n = 16) regression analysis (b = .007, RSE = .004, p = .076) (see Table D5), and a statistically significant positive association in the 2002 to 2017 (n = 46) regression analysis (b = .017, RSE = .007, p = .012), but no statistically significant association for the other years on either the bivariate analysis [2002 to 2007 (p = .678), 2007 to 2012 (p = .882), 2012 to 2017 (p = .644), 2002 to 2017 (p = .776)] (see Table D4) or the regression analysis [2002 to 2007 (p = .827), 2012 to 2017 (p = .515)]. The Growth Curve Analysis (see Table D6) also did not find a statistically significant association between employment and the addition of a casino (p = .784).

Casino-Change Areas Compared to Non-Casino-Change Areas: Retail Sales

Table D1 Growth Rates, Mean and Bivariate T-Test Results: Retail Sales

Micro + Metro (n = 613)

	2002-2007 (new cas 07) p = .627; t = -.325				2007-2012 (new cas 12) p = .011; t = -2.29				2012-2017 (new cas 17) p = .411; t = .226				2002-2017 (new cas 07-17) p = .620; t = -.307			
	n	Mean	SE	SD	n	Mean	SE	SD	n	Mean	SE	SD	n	Mean	SE	SD
No Cas-Change	592	.281	.007	.176	597	.079	.007	.165	604	.130	.011	.278	567	.562	.022	.535
Casino-Change	21	.294	.026	.120	16	.175	.058	.233	9	.109	.029	.086	46	.587	.062	.420

Table D2 Growth Rate Regression Results: Retail Sales

	2002 to 2007 (new cas 07)				2007 to 2012 (new cas 12)				2012 to 2017 (new cas 17)				2002 to 2017 (new cas 07-17)			
Micro + Metro, n = 613	b	RSE	p	B	b	RSE	p	B	b	RSE	p	B	b	RSE	p	B
Casino Presence	.002	.025	.943	.002	.085	.037	.023	.082	-.021	.023	.361	-.009	.043	.057	.337	.022
Population	.889	.086	.000	.376	.765	.219	.001	.214	.808	.299	.007	.117	1.055	.109	.000	.305
Minority (Nonwhite)	-.008	.003	.004	-.158	-.000	.002	.959	-.002	.000	.002	.871	.003	.003	.005	.493	.035
Poverty	-.025	.003	.000	-.304	-.012	.004	.001	-.166	-.020	.015	.196	-.144	-.038	.015	.010	-.187
Education	-.019	.005	.294	.042	-.006	.004	.128	-.054	.010	.005	.072	.053	-.001	.012	.960	-.003
Unemployment	.001	.001	.294	.042	-.008	.003	.011	-.108	-.005	.007	.484	-.039	.009	.006	.105	.101
Constant	.313	.028	.000	.	.119	.019	.000	.	.052	.012	.000	.	.364	.088	.000	.
	$p < .001$; R-sq = .266				$p < .001$; R-sq = .116				$p < .001$; R-sq = .055				$p < .001$; R-sq = .142			

Table D3 Growth Curve Model Results, 2002, 2007, 2012 and 2017: Retail Sales

	Micro + Metro (Prob>chi2 < .001) in all cases)		
Employment	**λ**	**RSE**	**p**
Casino Present	16,715	273,966	.951
Year	82,468	12,975	.000
Pop (per mil)	13,319,760	321,830	.000
Minority	3,818	4,936	.493
Poverty	-33,203	14,449	.022
Education	35,986	12,509	.004
Constant	-166,000,000	26,100,000	.697
Rand Eff: State			
SD of Intercept	175,333	65,766	<.05
Rand Eff: Area			
SD of Intercept	.001	.000	<.05
SD of Slope	2,493,073	618,032	<.05

Casino-Change Areas Compared to Non-Casino-Change Areas: Employment

Table D4 Growth Rates, Mean and Bivariate T-Test Results: Employment

Micro + Metro (n = 613)

	2002-2007 (new cas 07) p = .678; t = -.462				2007-2012 (new cas 12) p = .882; t = -1.185				2012-2017 (new cas 17) p = .644; t = -.344				2002-2017 (new cas 07-17) p = .776; t = -.759			
	n	Mean	SE	SD	n	Mean	SE	SD	n	Mean	SE	SD	n	Mean	SE	SD
Non-Casino	592	.128	.004	.095	597	-.062	.001	.035	604	-.000	.001	.034	567	.057	.004	.098
Casino	21	.137	.012	.055	16	-.052	.006	.025	9	.004	.005	.016	46	.068	.007	.047

Table D5 Growth Rate Regression Results: Employment

	2002 to 2007 (new cas 07)				2007 to 2012 (new cas 12)				2012 to 2017 (new cas 17)				2002 to 2017 (new cas 07-17)			
Micro + Metro, n = 613	b	RSE	p	B	b	RSE	p	B	b	RSE	p	B	b	RSE	p	B
Casino Presence	.002	.008	.827	.003	.007	.004	.076	.032	.003	.005	.515	.011	.017	.007	.012	.047
Population	.119	.046	.010	.094	.119	.026	.000	.159	.000	.040	.996	.000	.050	.023	.027	.080
Minority (Nonwhite)	-.003	.001	.007	-.126	-.001	.001	.080	-.086	.000	.001	.664	.028	-.004	.001	.000	-.214
Poverty	-.013	.002	.000	-.307	-.007	.001	.000	-.438	-.007	.001	.000	-.435	-.010	.002	.000	-.285
Education	-.009	.004	.033	-.144	.003	.001	.005	.108	.001	.001	.361	.046	.002	.002	.294	.048
Constant	.172	.013	.000	.	-.056	.003	.000	.	-.017	.003	.000	.	.067	.012	.000	.
	$p < .001$; R-sq = .125				$p < .001$; R-sq = .275				$p < .001$; R-sq = .194				$p < .001$; R-sq = .173			

Table D6 GCM Results, 2002, 2007, 2012 and 2017: Employment Rate

	Micro + Metro (Prob>chi2 < .001 in all cases)		
Employment	**λ**	**RSE**	**p**
Casino Present	-.001	.003	.784
Year	-.000	.000	.079
Pop (per mil)	-.000	.000	.103
Minority	-.001	.000	.000
Poverty	-.001	.001	.035
Education	.004	000	.000
Constant	1.214	.447	.007
Rand Eff: State			
SD of Intercept	.023	.002	<.05
Rand Eff: Area			
SD of Intercept	.018	.002	<.05
SD of Slope	.029	.001	<.05