The Impact of Casio Gambling on Bankruptcy Rates: A County Level Analysis

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Roughly 250 U.S. counties have legalized casino gambling within their borders. Sixty of these counties have established commercial casino operations, with the remainder supporting tribal casinos. Past research has provided mixed results regarding the impact of these casinos on market and non-market outcomes. The goal of this research study is to estimate the impact of casinos on two of these outcome variables -- individual and business bankruptcy rates -- over the decade of the 1990s. The study matches each casino county with a non-casino county according to U.S. Census region, household income, population and population density. Using simple descriptive statistics and regression analysis, the study estimates the impacts of casinos on bankruptcy rates. Our regression analysis on matched-pair counties indicates that those counties that legalized casino gambling during the 1990s experienced a cumulative growth rate in individual bankruptcies that was more than double the growth rate for corresponding non-casino counties. However, the cumulative rate of change in business bankruptcy rates in the casino counties was, on average, 35.4 percent lower than the applicable rate for the non-casino counties.

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Twenty-five years ago, legalized gambling was confined to Nevada, Atlantic City, New Jersey, a few racetracks, and two or three state lotteries. Since then, the U.S. has added almost 400 commercial casinos and 248 tribal casinos to the gambling landscape. As of January 1, 2003, only 19 states had resisted legalizing casinos. The states with no casinos include: Alabama, Alaska, Arkansas, Georgia, Hawaii, Kentucky, Maine, Maryland, Massachusetts, Nebraska, New Hampshire, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, and Virginia.

Casino revenues have grown along with the number of casinos. In recent years, commercial (non-tribal) casinos have increased adjusted gross revenues (AGR) from $19.7 billion in 1999 to $26.5 billion in 2002, or 10.0 percent per year.[1] Per thousand dollars of GDP, commercial casino AGR grew from $2.13 in 1999 to $2.63 in 2002. Tribal casinos have also experienced significant revenue growth. In 2001, tribal casinos in 28 states pulled in an estimated $12.7 billion in AGR, reflecting a growth rate of approximately 14 percent per year from the $7.5 billion in AGR reported for 1997. Figure 1 and Figure 2 profile commercial and tribal casino AGR.

This expansion has impacted the social costs of gambling, including bankruptcy. Much of the research examining the social costs has focused on the problem or pathological gambler. As noted in the report of the National Gambling Impact Study Commission,

[1] Adjusted gross revenues refers to net losses of gamblers and does not include other non-gambling related revenues of the casino.

> All seem to agree that pathological gamblers "engage in destructive behaviors: they commit crimes, they run up large debts, they damage relationships with family and friends, and they kill themselves. With the increased availability of gambling and new gambling technologies, pathological gambling has the potential to become even more widespread."[2]

During the rapid expansion of casino gambling during the 1990s, personal bankruptcies expanded at comparably high rates. Between 1990 and 1999, total personal U.S. bankruptcies grew from 771,210 to 1,294,134, or 67.8 percent. On the other hand, during this same period of time, business bankruptcies declined from 63,365 in 1990 to 37,183 in 1999. Despite these seemingly contradictory relationships, many politicians, sociologists and economists fault casinos for a large share of the growth in U.S. bankruptcies. However, other economic and demographic factors were also changing during this period, making the assignment of cause for rising bankruptcies impossible to isolate without a more in-depth analysis. In the subsequent analysis, we use multivariate regression to disentangle contributors to higher bankruptcy rates, specifically focusing on the casinos.

Other researchers have also undertaken this same task. For example, Barron, Staten and Wilshusen (2000) (hereafter referred to as BSW) conclude that casinos had positive and statistically significant impacts on personal bankruptcy rates in the casino county and its geographic neighbors. However, these researchers concluded that the increase in personal bankruptcies attributable to casinos was only 8 percent, and that other demographic and economic factors were much more important in explaining the rapid growth in personal bankruptcies in the 1990s.

In the subsequent analysis, we expand on the BSW study by adding two factors not considered by them. First, we examine business bankruptcies; second, we add tribal casinos,

[2] National Gambling Impact Study Commission Report, at 4-1 (1999) (*quoting* National Research Council, "Pathological Gambling: A Critical Review," (April 1, 1999), p. Exec-2.)

which were excluded from their analysis, to our assessment. Our data set also excludes some data that the BSW study included. The BSW study included counties adjacent to those hosting casinos -- what they term “collar counties” – in their analysis, based on the assumption that a higher incidence of pathological gambling behavior was expected within a 50 mile radius of a casino facility. However, our study focuses only on the casino counties. Bankruptcy filings in collar counties may well include residents who live more than 50 miles from a casino, who thus are not particularly influenced by casino activity. Our more limited focus may be viewed as providing a more conservative measure of the bankruptcy impact of casinos, as it reduces the possibility that those with more attenuated geographical proximity to the casino operations may erroneously be attributed to casino-related causation.

GROWTH IN CASINO OPERATIONS: A PERSPECTIVE

Tribal casinos. Large-scale Indian casino gambling is barely a decade old. Its origins trace back to 1987, when the U. S. Supreme Court issued its decision in *California v. Cabazon Band of Mission Indians*.[3] The Court held that the state of California had no authority to apply its regulatory statutes to gambling activities conducted on Indian reservations. Tribal sovereignty was subordinate to the Federal government, and state power to regulate was thus dependent on congressional authorization. In 1988, Congress responded to this decision by enacting the Indian Gaming Regulatory Act,[4] which essentially recognized the right of Indian tribes to regulate gambling and gaming facilities on their reservations as long as the states in which they were located had some form of legalized gambling. The Act was intended to accomplish several policy goals, which include: 1) promoting tribal economic development and self-sufficiency, and 2) providing a regulatory base to protect Indian gaming from organized

[3] 480 U.S. 202 (1987).
[4] 25 U.S.C. §§ 2701-2721.

crime, to ensure that the tribe is the beneficiary of the gaming operation, and to ensure the fairness and honesty of the gaming operation; and 3) establishing the National Indian Gaming Commission to assist in these purposes.[5] Figure 3 shows tribal casinos by state. Oklahoma had the largest number of tribal casinos at 50 followed by California at 44 and Washington at 23.

Commercial casinos.[6] After a brief respite, America returned to casinos in 2002. Following more than a decade of explosive growth, the tragic events of September 11th reduced air travel to spots such as Las Vegas. But casinos responded with increased marketing to locals, and the U.S. gaming industry (both casino and non-casino) posted a five percent increase in revenues to an estimated $64 billion for 2002.

While all forms of gambling have grown, casino gambling has experienced robust growth in recent years. Since Nevada legalized casino gaming in 1931, an additional ten states have legalized commercial casinos. New Jersey legalized casino gaming in 1976, and its first casino opened in 1978. However, eight of the eleven states with commercial casinos began casino construction in the 1990s, thus introducing new features into their local economic and social structures.

According to Christiansen of Capital Advisors LLC, Americans today pay out more on gambling than they spend on movie tickets, theme parks, spectator sports, and video games combined. Moreover, Merrill Lynch estimated that Americans lose a comparable amount each year in illegal betting. Figure 4 shows the number of commercial casinos by state. As indicated, eleven states had a total of 432 commercial casinos in 2004. Nevada had the most casinos at 249, while Michigan had the fewest at 3.

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[5] See 25 U.S.C. § 2702.

[6] A commercial casino is a non-tribal casino owned by private investors.

Table 1 compares commercial and tribal casinos. Commercial casinos generate, on average, more revenue than tribal casinos. Furthermore, the effective tax rate is much higher for commercial casinos and the growth rate of AGR has been much lower for commercial casinos.

Casinos and Financial Distress

Casino gambling is not strictly an economic issue. In addition to economic gains and losses, casinos produce impacts on the social fabric of the surrounding community. Therefore, to more accurately assess the total impact of casinos, one must distinguish between economic profitability and social viability. Bankruptcy is an issue that bridges the economic and social spheres.

A study by the National Opinion Research Center at the University of Chicago found that pathological gamblers generate 15 percent of the industry's gross revenues and that each pathological gambler costs society around $10,550 over his/her lifetime.[7] In its 1999 report, The National Gambling Impact Study Commission singled out convenience gambling as providing fewer economic benefits and greater social costs than other forms of gambling. In particular, it recommended a rollback in convenience gambling operations.[8] It also recommended undertaking new studies on the relationship between gambling and various social problems, such as bankruptcy, divorce, domestic violence, suicide and crime.[9]

The National Gambling Impact Study Commission estimated that of the 125 million Americans who gamble at least once a year, approximately 7.5 million have some form of gambling problem.[10] Another 15 million are classified as "at risk" of developing a gambling problem.

[7] National Gambling Impact Study Commission Report, p. 4-14 to -15.
[8] Id., Recommendation 3-6.
[9] Id., Recommendation 8-9.
[10] Id. at p. 4-1.

As a result of significant losses imposed by pathological and problem gamblers, the National Gambling Impact Study Commission recommended a pause in the expansion of gambling in order to assess the social impacts of recent rapid expansions in gambling availability.[11] In particular, the Commission recommended research on the “extent to which gambling-related debt is a contributing factor to personal bankruptcies”, and on “gambling-related crimes perpetrated for the primary purpose of gaining funds to continue gambling or to pay gambling debts.”[12] Many policymakers, sociologists and economists conclude that pathological gambling and even moderate gambling has an impact on sociological parameters such as bankruptcy. The analysis that follows examines the merit of this conclusion.

OVERVIEW OF FEDERAL BANKRUPTCY LAWS

In order to evaluate the significance of bankruptcy data considered in this study, a basic overview of federal bankruptcy laws will prove helpful. Federal bankruptcy laws serve two important purposes: providing a “fresh start” for debtors by granting relief from burdensome financial obligations, and providing a means for creditors to obtain payment to the extent possible.[13] Debtors may choose between two primary approaches for bankruptcy relief: liquidation and reorganization/rehabilitation. Generally speaking, Chapter 7 of the Bankruptcy

[11] Id. at p. 47.
[12] Id., Recommendation 8-20.
[13] *See, e.g.*, BFP v. Resolution Trust Corp., 511 U.S. 531, 569 (1994) (referring to “core Bankruptcy Code purposes of augmenting the bankruptcy estate and improving the debtor's prospects for a “fresh start”); Kokoszka v. Belford, 417 U.S. 642, 645-46 (1974) (“'It is the twofold purpose of the bankruptcy act to convert the estate of the bankrupt into cash and distribute it among creditors and then to give the bankrupt a fresh start with such exemptions and rights as the statute left untouched.'”) (*quoting* Burlingham v. Crouse, 228 U.S. 459, 473 (1913)); Local Loan Co. v. Hunt, 292 U.S. 234, 244 (1934) (“One of the primary purposes of the Bankruptcy Act is to 'relieve the honest debtor from the weight of oppressive indebtedness, and permit him to start afresh free from the obligations and responsibilities consequent upon business misfortunes.' This purpose of the act has been again and again emphasized by the courts as being of public as well as private interest, in that it gives to the honest but unfortunate debtor who surrenders for distribution the property which he owns at the time of bankruptcy, a new opportunity in life and a clear field for future effort, unhampered by the pressure and discouragement of pre-existing debt.” (citation omitted)).

Code provides for a liquidation process, while Chapters 11, 12, and 13 provide procedures for reorganization and rehabilitation of debtors.

A debtor commences bankruptcy by filing a petition that constitutes an order for relief under the applicable chapter of the Bankruptcy Code for which the debtor is eligible.[14] The petition creates an estate which, by operation of law, generally includes all legal and equitable interests of the debtor in property.[15] From this estate, an individual debtor may be permitted to treat certain property – often basic necessities -- as exempt from bankruptcy proceedings, in order to facilitate the debtor's "fresh start".[16] All other property is potentially available for the claims of creditors, though satisfaction of those claims ultimately depends on the priority accorded to the creditor and the amount of available assets.

<u>Chapter 7</u>. Chapter 7 of the Bankruptcy Code focuses primarily on liquidating the non-exempt assets of the debtor and distributing them for the benefit of creditors.[17] The balance of those unpaid debts may be discharged – an important feature reflecting the "fresh start" purpose.[18] Discharges are frequent under Chapter 7 cases, meaning that creditors are often left unpaid. Some commentators have indicated that most Chapter 7 cases leave no assets available for distribution to creditors after exemptions are taken into account.[19]

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[14] *See* 11 U.S.C. § 301.

[15] See 11 U.S.C. § 541(a).

[16] See 11 U.S.C. § 522(b); In re Morehead, 283 F3d 199 (4th Cir. 2002) ("Federal bankruptcy law allows a debtor to exempt some of his property – mainly basic necessities – from the bankruptcy estate. The exemptions can afford the debtor some economic and social stability, which is important to the fresh start guaranteed by bankruptcy.")

[17] See 11 U.S.C. § 704 (defining duties of bankruptcy trustee in Chapter 7 case).

[18] See 11 U.S.C. § 727(a) (granting discharge provided that certain conditions are met).

[19] *See, e.g.*, Arnold B. Cohen, *Chapter 20 Cases: An Appropriate Debtor Tool?*, 4 J. BANKR. L. & PRACT. 53, 53 n.4 (1994) ("Although most Chapter 7 cases are so-called "no asset" cases in which the debtor's Section 522 exemptions cover all the Section 541(a) property of the estate, there are cases in which there will be distributable property of the estate.")

As a technical matter, Chapter 7 filers may include many types of debtors, including corporations.[20] However, only individuals may obtain a discharge under Chapter 7, which makes this chapter particularly appealing to individual debtors.[21] Individuals who are employees, as well as individuals who are sole proprietors of businesses, are eligible. Thus, a portion of Chapter 7 filings may reflect adverse financial experiences with business activities, as well as financial difficulties rooted in gambling activity.

Chapter 13. Chapter 13 of the Bankruptcy Code provides individual debtors with another alternative, which focuses primarily on rehabilitation. Individuals with regular income meeting certain total debt limits for unsecured and secured debts are eligible to file under this chapter.[22] Self-employed individuals are potentially eligible, and thus Chapter 13 may involve business-related debt as well as personal debt.[23] Qualifying debtors may be attracted to Chapter 13 because it potentially allows them to keep secured property, which might otherwise be subject to loss through foreclosure.[24]

Chapter 13 allows a debtor to propose a plan,[25] in which the debtor agrees to submit future income to the trustee to satisfy all or a portion of outstanding obligations.[26] The plan typically involves deferred payments over a period of three to five years,[27] which, for example, might allow the debtor to catch up on arrearages owing on secured property.[28] The plan must be confirmed in order to be effective, and one of the conditions of confirmation requires that "the

[20] *See* 11 U.S.C. § 109(b) (defining debtors eligible for Chapter 7 filing).
[21] *See* 11 U.S.C. § 727(a)(1).
[22] See 11 U.S.C. § 109(e). The statutory debt limits are subject to adjustment for inflation. See 11 U.S.C. § 104. For cases commenced after April 1, 2001, eligibility is limited to individuals with regular income who owe less than $290,525 in applicable unsecured debt, and $871,550 of applicable secured debt. See Alan N. Resnick, Bankruptcy Law Manual § 10.4, p. 1085-86 (5th Ed. 2002). The next adjustment is scheduled to occur on April 4, 2004. See id. at § 10.4, p. 1086.
[23] See 11 U.S.C. § 1304(b).
[24] See Cohen, *supra* note 19, at 58.
[25] See 11 U.S.C. § 1321.
[26] See 11 U.S.C. § 1322(a).
[27] See 11. U.S.C. § 1322(d).
[28] See Cohen, *supra* note 19, at 58.

value, as of the effective date of the plan, of property to be distributed under the plan on account of each allowed unsecured claim is not less than the amount that would be paid on such claim if the estate of the debtor were liquidated under Chapter 7 of this title on such date."[29] Discharges are permitted.[30] Thus, unsecured creditors may experience losses in this chapter as well as in Chapter 7.

A Chapter 13 case may also be converted to a Chapter 7 case under certain conditions.[31] A Chapter 13 case involving a debtor who is a sole proprietor of a small business may also be converted to a Chapter 11 case.[32] In some cases, it may also be possible for a debtor to file a Chapter 7 case followed by a Chapter 13 case, which is referred to as a "Chapter 20".[33] Thus, filings in Chapters 7 and 13 may, in some cases, reflect the same debtor.

Chapter 11. Chapter 11 of the Bankruptcy Code provides another route for reorganization or rehabilitation of a debtor, which is generally somewhat more complex and costly than Chapter 13. Eligible debtors technically include any debtor that is eligible for Chapter 7.[34] Thus, a debtor who does not carry on an active business is technically eligible to file under Chapter 11.[35] However, Chapter 11 is primarily aimed at business debtors, and these are the dominant filers under this chapter.[36] Much like the Chapter 13 debtor, the Chapter 11

[29] 11 U.S.C. § 1325(a)(4).
[30] See 11 U.S.C. § 1328 (describing terms of discharge).
[31] See 11 U.S.C. § 1307.
[32] See Resnick, *supra* note 22, at § 10.13.
[33] See generally Cohen, *supra* note 19.
[34] See 11 U.S.C. § 109(d) (defining debtor for purposes of Chapter 11).
[35] See Toibb v. Radloff, 501 U.S. 157, 162 (1991). See also Resnick, *supra* note 22, at § 9.5, n. 3 (noting that the bankruptcy court has refused to allow individuals to fund a chapter 11 reorganization plan with future wages).
[36] The legislative history supports this approach to Chapter 11. See Toibb v. Radloff, *supra*, 501 U.S. at 162 (quoting the legislative history as follows: "Chapter 11, Reorganization, is primarily designed for businesses, although individuals are eligible for relief under the chapter. The procedures of chapter 11, however, are sufficiently complex that they will be used only in a business case and not in the consumer context." S.Rep. No. 95-989, p. 3 (1978), U.S.Code Cong. & Admin.News 1978, p. 5789 (1978).) As the Court also noted, 'the greater expense and complexity of filing under Chapter 11 likely will dissuade most consumer debtors from seeking relief under this

debtor may file a plan of reorganization with the court that provides a blueprint for repayment of creditors.[37] Confirmation of this plan provides relief for the debtor by changing the nature and extent of the debtor's financial obligations, which may result in some creditors not being paid, or receiving lower payments at a later time than reflected in their original bargain.[38]

Other Chapters. Other more detailed chapters also exist in the Bankruptcy Code to address special types of debtors. Chapter 9 provides special rules for municipalities.[39] Chapter 12 provides special procedures for family farmers with regular income. [40] Given the limited applicability of Chapter 12 and the extremely limited scope of Chapter 9, those bankruptcy filings are not considered in this study.

Venue Rules-All Chapters. Federal district courts have original and exclusive jurisdiction over bankruptcy cases.[41] Federal district courts are empowered to refer bankruptcy cases to bankruptcy judges,[42] so in this sense the bankruptcy court is a unit of the federal district court.[43] Bankruptcy petitions are subject to venue rules that affect the proper geographical location for filing. The following rule generally prescribes that venue is appropriate, and a petition may be filed, in the district court for the district:

> (1) in which the domicile, residence, principal place of business in the United States, or principal assets in the United States, of the person or entity that is the subject of such case have been located for the one hundred and eighty days immediately preceding such commencement, or for a longer portion of such one-hundred-and-eighty-day period than

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Chapter." *See id.* at 165. *See also* Resnick, *supra* note 22, at § 9.6 (describing typical conditions leading to a Chapter 11 petition).

[37] See 11 U.S.C. § 1123. Plans may also be filed by creditors. See 11 U.S.C. § 1121.

[38] See 11 U.S.C. § 1129. As one commentator explains, "the essence of confirmation is that prior debts and interests are extinguished and replaced by the debts and interests provided for in the plan or confirmation order." See Resnick, *supra* note 22, at § 9.64, p. 1060.

[39] See generally 11 U.S.C. §§ 901 ff.

[40] See generally 11 U.S.C. §§ 1201 ff.

[41] See 28 U.S.C. § 1334(a).

[42] See 28 U.S.C. § 157 (empowering District Court to refer cases arising under Title 11 (*i.e.*, bankruptcy cases) to bankruptcy judges).

[43] See 28 U.S.C. §§ 151 (designating bankruptcy judges as units of Federal District Court).

> the domicile, residence, or principal place of business, in the United States, or principal assets in the United States, of such person were located in any other district; or
> (2) in which there is pending a case under Title 11 [*i.e.*, the bankruptcy title] concerning such person's affiliate, general partner, or partnership."….[44]

For purposes of this statute, "domicile" and "residence" may be in different venues. As the Bankruptcy Court has stated,

> "Domicile" and "residence" are not used as synonyms in § 1408. The term "domicile" is defined generally as residence in fact along with the intent to remain there or to return when absent. * * *
>
> Once established, a domicile continues until a new one is acquired. Although any United States citizen residing in the United States always has a domicile in some state, a person may only have one domicile at a time. In contrast, a person may have several residences at the same time. A person can change residences at will but a domicile, once established, remains until a new domicile is established. Actual residence is not necessary to preserve a domicile once a domicile has been acquired.
>
> * * *
> Residence, when used in a sense other than domicile, is one of the most nebulous terms in the legal dictionary and can have many different meanings depending on the context in which it is used. Residence is less inclusive than domicile, importing merely having an abode at a particular place which may be one of any number of such places at which one is, at least from time to time, physically present.[45]

The venue rules make it possible for a debtor to have a residence in one jurisdiction, but to file a bankruptcy petition in another jurisdiction that the debtor considers his domicile. Alternatively, a debtor might file in still another venue in which the debtor has a "principal place of business." Employment in a particular location is not a sufficient basis for venue under the "principal place of business" category.[46] However, an entrepreneur who owns a business, even

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[44] 28 U.S.C. § 1408(a).

[45] In re Frame, 120 B.R. 718 (S.D. N.Y. 1990) (citations omitted). This case also indicated that residence for venue purpose reflected a requirement of permanence. *See id*. While there is agreement that a temporary presence is not sufficient, courts have disagreed on whether this implies a single residence. *See* In re Handel, 242 B.R. 789, 792-93 (1999) (agreeing with In re Frame to extent that a "mere stopping place" would not establish residence, but refusing to read venue statute as limiting venue to area of "principal" residence to exclude possibility that debtor might have more than one residence).

[46] *See* In re Canavos, 108 B.R. 55, 57-58 (1989).

one that is presently inactive, may file in the location of that business, even if it differs from his residence or domicile.[47]

These venue rules show that filing may occur in a location that differs from one's residence. Although one might raise that fact as a basis for discounting the validity of any correlation between casinos and bankruptcy filings, the fact remains that the venue for filing will nevertheless be the same as the residence and domicile in the vast majority of cases.[48] Given the stringent requirements for domicile and the inability to use a place of employment to file in lieu of residence, the typical employee debtor is likely to file in the same geographical area in which he lives. Even if the debtor is an entrepreneur with a business located in a venue that might differ from his home, the business is nevertheless subject to the effects of casinos, and the individual may also be personally affected. Thus, the foundation for correlation shown in the data is substantial, though particular cases may well have exceptional facts that limit the actual scope of any effect from casinos in that jurisdiction.

BANKRUPTCY DATA AND ANALYSIS.

Data

The bankruptcy data used in this study was obtained from the Administrative Office of the United States Bankruptcy Courts. Report F-5A contains data by county for filings by business and non-business debtors under each bankruptcy chapter. Court administrators use data in this report to evaluate where demand is greatest for bankruptcy court services.[49] The county-by-county presentation of this data is also useful for the purpose of evaluating whether

[47] See id. at 58.

[48] Ms. Sandra Thomas, the program manager for bankruptcy court data, has explained: "Please note that almost all consumer debtors file in the county in which they actually have their residence." E-mail from Sandra Thomas to Edward A. Morse, September 23, 2003 (on file with author).

[49] See id. Some counties appear more than once on the report. The program manager for bankruptcy court data has confirmed that the appropriate total for each county requires aggregation of each county appearance. See id.

any correlation exists between the availability of casino gambling in that county and the number of bankruptcy petitions filed in that county.

Table 2 compares the bankruptcy experiences of counties with commercial casinos, tribal casinos, and no casinos. When aggregate bankruptcy data are considered, the tribal casino counties experienced the highest growth rate; commercial casino counties had a lower aggregate growth rate than both non-casino and tribal casino counties. However, it should be noted that this aggregate data includes counties with preexisting casino operations. Thus, it is hazardous to generalize about the discrete effects of casino gambling on these figures alone. The rest of Table 2 focuses on median bankruptcy data over this same period. The median individual bankruptcies per thousand of population data show similar, though not identical, changes to the aggregate data over the period. However, median firm bankruptcies per thousand of population decreased over this same period for all three categories.

Table 3 also compares counties with commercial casinos, tribal casinos, and no casinos based on characteristics other than bankruptcy rates. In general, counties with commercial casinos had a larger population, higher density of population, lower poverty rates, higher bankruptcy rates, and higher family income than either counties with no casino or counties with a tribal casino. As presented, tribal casinos were located in counties that began the decade in more financial distress in terms of higher poverty rates, higher unemployment rates and slightly lower average family income.

Table 4 compares statistical results for counties with and without casinos. In this case, each casino county is matched with a non-casino county according to population, population density, census region and family income. As presented, there were no dramatic differences in these factors between casino counties and their non-casino counterparts.

Analysis

In order to investigate differences in a multi-variate framework, we next apply regression Equations (1) and (2) to the matched data. Equations (1) and (2) estimate individual bankruptcies and business bankruptcies, respectively, against factors hypothesized to affect financial distress. The two dependent variables, ΔIndBnk and ΔBusBnk, represent the change from 1990 to 1999 in the individual and business bankruptcy rates. A description of each variable is contained in Table 5.

$$\Delta IndBnk = \beta_0 + \beta_1 Mountain + \beta_2 Southeast + \beta_3 Southwest + \beta_4 West + \beta_5 Westnorthcentral + \beta_6 \Delta Pop + \beta_7 \Delta unemprate + \beta_8 \Delta Povrate + \beta_9 \Delta FamInc + \beta_{10} AdCasino + \varepsilon \quad (1)$$

$$\Delta BusBnk = \beta_0 + \beta_1 Mountain + \beta_2 Southeast + \beta_3 Southwest + \beta_4 West + \beta_5 Westnorthcentral + \beta_6 \Delta Pop + \beta_7 \Delta unemprate + \beta_8 \Delta Povrate + \beta_9 \Delta FamInc + \beta_{10} AdCasino + \varepsilon \quad (2)$$

Table 6 lists results from the estimation of Equations (1) and (2). As presented, the addition of casinos in a county during the 1990s had a negative and statistically significant impact on business bankruptcy rates and a positive and statistically significant impact on individual bankruptcy rates. Using parameter estimates from Table 6 provides estimates of the impact of individual and business bankruptcy rates. Adding a casino in the 1990s increased the county personal bankruptcy rate by 100 percent, but reduced business bankruptcy rates by 35.4 percent on average.

Table 7 presents the estimated impact of factors, including the addition of a casino on three types of bankruptcy filings. As shown, the addition of a casino in the county had a positive impact on Chapter 7 and 13 bankruptcy filings. On the other hand, the addition of a casino in the county had a negative impact on Chapter 11 filings. However, there are some constraints associated with this methodology that should be noted. First, we examined data in two discrete years: 1990 and 1999. Although this methodology may accurately measure the impact of the addition of a casino operation during the interim years, it is possible that such an introduction could have had discrete effects in a given year that were not significant in 1999.

Second, we have omitted some potential variables that could affect bankruptcy. For example, it is theoretically possible that casino counties had populations with higher debt loads than non-casino counties. Our study did not include debt load data. However, we find no evidence that such a disparity did, in fact, exist. Third, adding a casino could also be endogenous, to the extent that a county that legalized casino gambling may have already experienced increased bankruptcy rates before the casino was opened.

The differences in results between these chapters of the Bankruptcy Code may be explainable by reference to the effects of casino gambling in the particular locale. Individuals, who are the primary filers in Chapters 7 and 13, would be particularly susceptible to the impact of problem gambling on their personal financial condition. Adding casino gambling to their county of residence could be viewed as increasing the potential for this behavior to have an impact on their financial wellbeing. On the other hand, businesses in the region of the casino would not necessarily be negatively affected by these compulsive behaviors in the same manner as an individual. Though individual employees may have an impact on their operational effectiveness, the ability to diffuse that impact over a number of employees would tend to prevent the compulsive behavior of one or a few employees from impacting the financial wellbeing of the entire enterprise. Moreover, in many jurisdictions the business community surrounding a casino may well experience beneficial economic impacts from the inputs and services that casino operations require. Those jurisdictions that impose local or statewide buying requirements may be increasing the positive effects on local businesses, even though the casino operations may have negative effects on the bankruptcy rates of local individual casino customers.

Summary

Results from applying regression analysis to U.S. bankruptcy data for 1990 and 1999 indicate that counties that legalized casinos during the period suffered individual bankruptcy rates more than 100 percent higher than casinos that remained “casinoless.” On the other hand, the casino counties experienced business bankruptcy rates that were 35.4 percent less than their matching counties without casinos. Casino counties were much more likely to experience Chapter 7 and Chapter 13 bankruptcies, but less likely to experience Chapter 11 bankruptcies.

Figure 1: Commercial casino AGR, 1990-2002

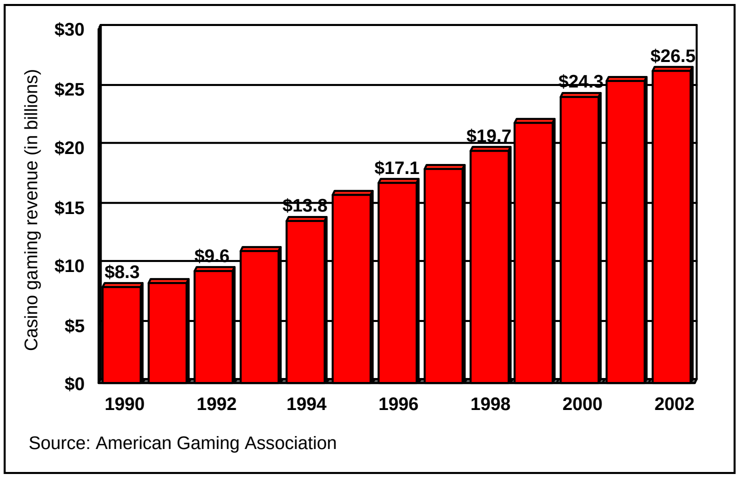
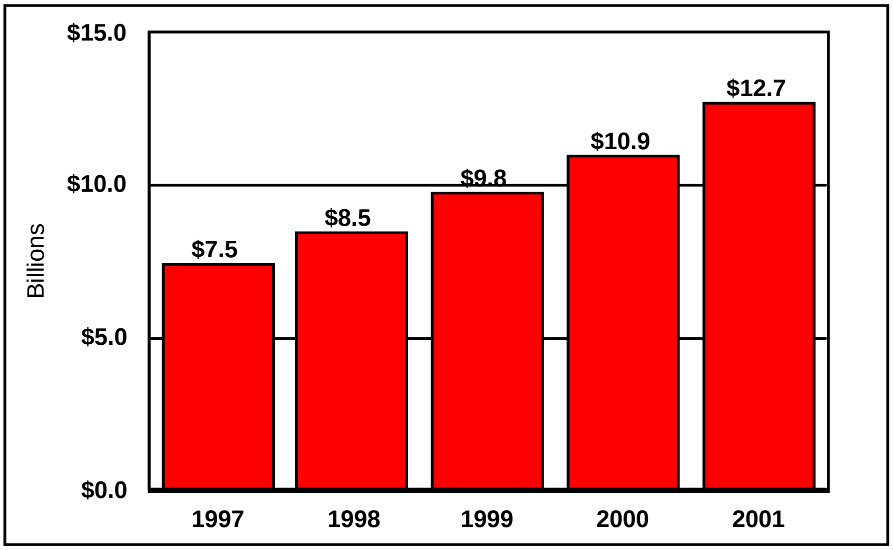


Figure 2: Tribal casino AGR, 1997-2001



Source: National Indian Gaming Commission, Tribal Gaming Revenues (7/2/2002).

Figure 3: Tribal casinos by state

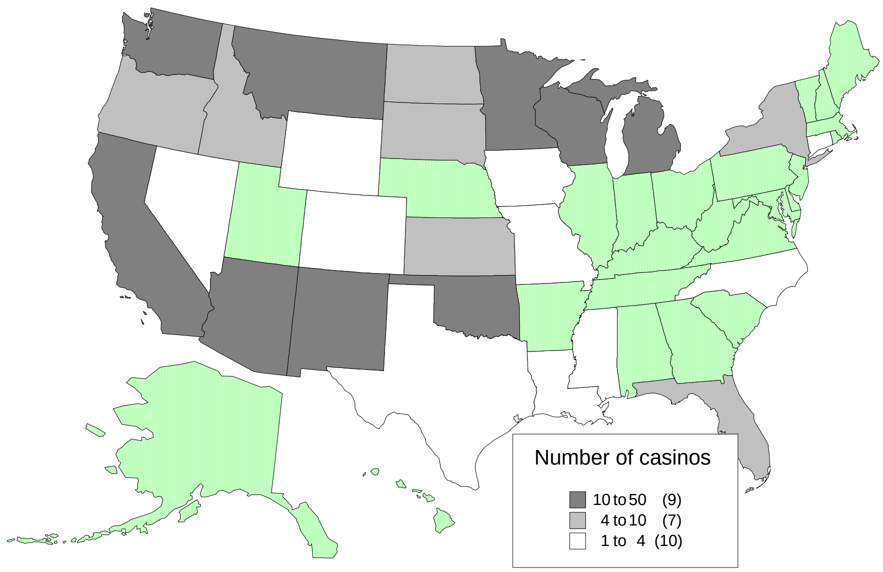


Figure 4: Commercial casinos by state

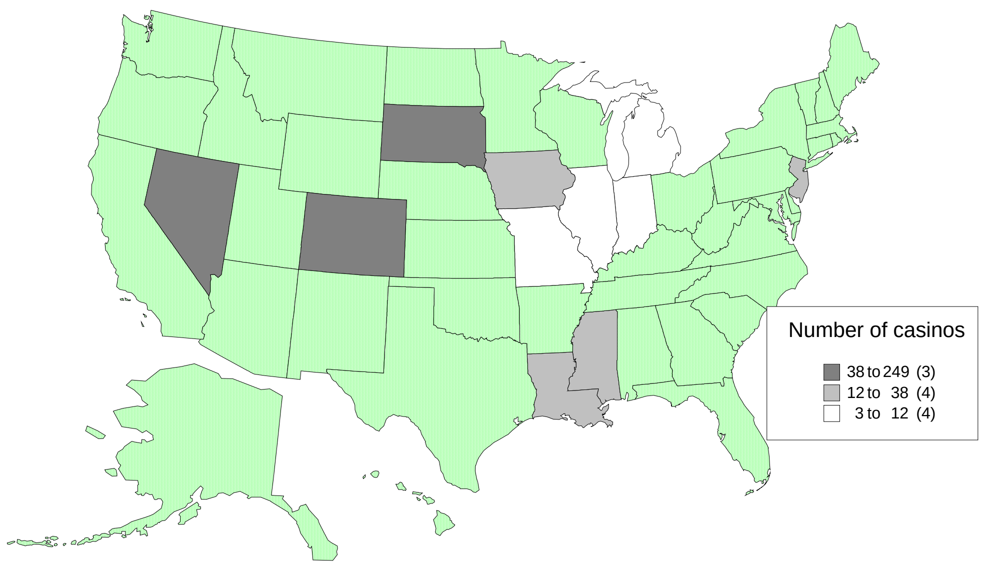


Table 1: Comparison of commercial and tribal casinos

	Commercial	Tribal
Number of casinos	432	248
Number of counties with casinos	60	192
Total AGR (in millions)	$26,518.3	$12,735.4
AGR per casino (in millions)	$61.4	$51.4
AGR yearly growth rate 1997-2001 (average)	10.3%	17.7%
Taxes or revenue sharing (in millions)	$4,038.4	$781.0
Effective tax or revenue sharing rate	15.2%	6.1%

Table 2: Bankruptcies by County, 1990-1999

	Counties with: Commercial casinos	Tribal casinos	No casino
Growth in individual bankruptcies 1990-99	91.8%	114.3%	100.0%
Median individual bankruptcies 1990 (per 1000 of population)	3.08	1.89	1.83
Median individual bankruptcies 1999 (per 1000 of population)	5.83	4.29	3.82
Median firm bankruptcy 1990 (per 1000 of population)	0.23	0.31	0.20
Median firm bankruptcy 1999 (per 1000 of population)	0.08	0.17	0.10

Table 3: Comparisons of U.S. counties according to casino status

	Counties with:		
	Commercial Casinos	Tribal Casinos	No Casinos
Median Population—1990	43,284	33,828	21,432
Median Population Growth 1990-2000	5.7%	13.9%	8.2%
Median Population per square mile 1990	73.4	27.8	38.1
Median Poverty rate 1990	11.3%	15.2%	13.7%
Median Poverty growth rate 1999	10.3%	13.4%	12.3%
Change in median poverty rate 1990-99	-1.1%	-1.7%	-1.4%
Percent of population over 65-1990	13.0%	14.9%	14.6%
Median growth 65+ population 1990-2000	7.9%	11.5%	7.6%
Median family household income-1989	$26,721	$22,570	$22,637
Median family household income-1999	$38,472	$33,867	$33,505
Median Growth in household income 1989-99	46.8%	48.6%	48.3%
Median unemployment rate-1990	5.7%	6.9%	5.7%
Median unemployment rate-2002	5.4%	6.1%	5.4%

Table 4: Matched counties

	Casino county	Non-casino county
Population Growth, 1990-2000	11.7%	10.6%
Median growth in family income, 1989-99	47.5%	48.2%
Poverty rate-1989	14.4%	13.8%
Poverty Rate-1999	12.8%	12.2%
Unemployment rate-1990	6.5%	5.9%
Unemployment rate-2000	6.0%	5.5%
Increase in individual bankruptcy rate,1990-99 (median figure per thousand of population)	2.37	2.08
Decrease in firm bankruptcy rate, 1990-99 (median figure per thousand of population)		

Table 5: Definition of variables used in Equations (1) and (2)

Mountain	A binary variable equal to 1 if county is located in the Mountain States Region; Equal of zero otherwise.
Southeast	A binary variable equal to 1 if county is located in the Southeast region; Equal of zero otherwise.
Southwest	A binary variable equal to 1 if county is located in the Southwest region; Equal of zero otherwise.
West	A binary variable equal to 1 if county is located in the West region; Equal of zero otherwise.
West north central	A binary variable equal to 1 if county is located in the West North Central region; Equal of zero otherwise.
Change in population	Change in population between 1990 and 2000
Change in unemployment rates	Change in the county unemployment rate between 1990 and 2000
Change in poverty rates	Change in the county poverty rate between 1989 and 1999
Change in family income.	Change in county family income between 1989 and 1999
Added casino	A binary variable equal to one if the county's first casino was constructed in the county between 1990 and 2000

Table 6: Impact of factors on bankruptcy rates

	Individual bankruptcy rates		Business bankruptcy rates	
	Coefficients	*t Stat*	*Coefficient*	*t-stat*
Intercept	9.8850*	2.4246	-0.2574*	-2.1171
Mountain	-3.5014	-0.9699	-0.0289	-0.2685
Southeast	-1.3294	-0.3389	0.0765	0.6541
Southwest	-2.5032	-0.9949	0.0400	0.5331
West	-6.1811*	-2.2470	0.2986*	3.6401
West north central	-0.0026	-0.0010	-0.0896	-1.1639
Change in population	0.0001*	3.6729	0.0402*	-4.2218
Change in unemployment rates	-0.0345	-0.0815	0.0047	0.3754
Change in poverty rates	97.7448*	16.3521	-2.3418*	-13.1370
Change in family income.	-0.0004	-1.3794	0.0001	1.2365
Added casino	3.2506*	1.9347	-0.1266*	-2.5270
Number of observations	482		482	
Rsq	37.5%		30.3%	

*indicates that coefficient is statistically significant at 5% level

Table 7: Impact of factors on the change in bankruptcy rates, 1990-99

	Chapter 7		Chapter 11		Chapter 13	
Intercept	5.9036*	2.6375	-0.0968E*	-2.4877	3.8403*	2.1511
Mountain	-1.7851	-0.9007	0.0265	0.7680	-1.6954	-1.0725
Southeast	-1.4100	-0.6546	0.0011	0.0288	0.1557	0.0906
Southwest	-1.5751	-1.1403	0.0205	0.8537	-0.9079	-0.8241
West	-2.8408*	-1.8811	0.0450*	1.7149	-3.0822*	-2.5589
West north central	-0.1662	-0.1173	-0.0036	-0.1460	0.0882	0.0781
Change in population	0.0000*	3.6633	0.0000*	-4.2162	0.0000*	3.5958
Change in unemployment rates	-0.0240	-0.1034	0.0017	0.4140	-0.0084	-0.0456
Change in poverty rates	52.5214*	16.0044	-0.8215*	-14.4050	43.6680*	16.6836
Change in family income.	-0.0002	-1.3731	0.0000	1.4080	-0.0002	-1.3851
Added casino	1.7687*	1.9174	-0.0230	-1.4358	1.3732*	1.8664
Number of observations	482		482		482	
Rsq	36.5%		32.0%		38.4%	

*indicates that coefficient is statistically significant at 5% level (one-tail test)

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