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Do Casinos Export Bankruptcy?

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JEL Classification: R10, D12, L83

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***** The views expressed here are those of the authors and do not necessarily reflect the views of the Federal Reserve Bank of St. Louis or the Federal Reserve System.

Do Casinos Export Bankruptcy?

I. Introduction

Casino gambling has now established itself as a major economic and social presence in the United States. Commercial casino gambling is available in 11 states and Native American casinos are present in 23 states.[1] In 2003, adjusted gross revenue from commercial and Native American casinos totaled nearly $44 billion, or nearly 60 percent of all gambling revenues in the United States (Christiansen, 2003).[2] Thirty-eight percent of U.S. casino revenue was generated from three jurisdictions: Nevada ($9.6 billion), Atlantic City, New Jersey ($4.5 billion), and Mississippi ($2.7 billion).[3]

Casinos in Nevada, New Jersey, and Mississippi are predominately tourist destinations, or what Eadington (1998) has termed "destination resort casinos." These destination resorts are characterized by the presence of multiple casinos, thousands of hotel rooms, gourmet restaurants, multi-day stays by visitors, and other amenities typical of a vacation resort, such as spas, golf courses, and nightclubs. Clearly, the casino resorts in Nevada, New Jersey, and Mississippi differ from others areas of the country, such as small Native American and commercial casinos in the Midwest, which draw gamblers mostly from the local community and offer a less formal gambling environment.

Visits to these destination resort casinos are not trivial. For example, according to the Las Vegas Convention and Visitors Authority, 35.5 million people visited Las Vegas in 2003

[1] Commercial casinos refer to casinos owned by publicly traded corporations.
[2] Available at http://www.grossannualwager.com/. Adjusted gross casino revenue is equal to total wagers minus player winnings. Other sources of gambling revenue include state lotteries, pari-mutuel racing, and racinos (gaming devices located at pari-mutuel tracks).
[3] Revenue figures were gathered from various gaming control board websites. For an excellent centralized source of casino revenue data, see the UNLV Gaming Studies Research Center at http://gaming.unlv.edu/resources/statistics/revenue.html.

and spent $32.7 billion dollars. Forty-percent of these visitors lived outside the western United States, and 30 percent of visitors to Las Vegas were from California. Reno, Nevada had 4.8 million visitors in 2003, with 44% visiting from California and 7% from both Oregon and Washington. Laughlin, Nevada had approximately 4.3 million visitors in 2003, with 40% originating from California and 23% from Arizona. The Atlantic City Convention and Visitors Authority reports that 32.3 million people visited Atlantic City in 2003. According to the New Jersey Division of Tourism, nearly 64 percent of all tourist visits to New Jersey, including visits to casinos, are from out-of-state. The Mississippi Gulf Coast Convention and Visitors Bureau estimates that 78 percent of Gulf coast gaming revenue is generated from out-of-state visitors, and the Mississippi Gaming Commission reports that, on average, only 33 percent of visitors to Mississippi resort casinos live in the state of Mississippi.[4]

Destination resort casinos create the greatest number of jobs, tax revenue and other economic benefits (Eadington, 1998, 1999). By attracting visitors from outside of the region, destination resort casinos effectively export gambling services to those regions where tourists originate. While these casinos provide entertainment for millions of visitors who contribute to the local and state economies, an interesting question is the extent to which various problems associated with casino gambling, such as bankruptcy and addiction, are also exported to the regions where tourists live. Barron et al. (2002) note the possibility that a destination resort

[4] Data for Las Vegas are from http://www.lasvegas24hours.com/pdf/historical_visitor_statistics.pdf. Reno data are from the 2003 Marketing Report, available at http://www.visitrenotahoe.com/about/2003marketingreport.pdf. Laughlin data are from http://www.lasvegas24hours.com/press/laughlin_profile.html. Atlantic City and New Jersey data are from http://www.atlanticcitynj.com/resources_research.asp and http://www.state.nj.us/travel/industry/research.shtml. Information for Mississippi is from the Mississippi Gaming Commission (http://www.mgc.state.ms.us) and "Fiscal Year 2003 Economic Impact for Tourism in Mississippi," available at http://www.visitmississippi.org/press_news/Total_fy03_TR_report.pdf. Both Nevada and Mississippi also have Native American casinos, but none qualify as a destination resort casino based on the definition by Eadington (1998).

casino may be a net exporter of 'negatives' given the fact that many of its patrons are tourists who take their problems, including financial losses, home with them.

This paper attempts to quantify the extent to which destination resort casinos export negatives back to a visitor's home state. Specifically, we explore the influence that out-of-state visits to destination resort casinos have on personal bankruptcy rates in visitors' home states.

II. Personal Bankruptcy and Casino Gambling

The number of personal bankruptcy filings in the United States increased about 126 percent between 1990 and 2004, from just over 700,000 in 1990 to nearly 1.6 million in 2004. Figure 1 demonstrates this rising trend in personal bankruptcy filings, despite declines in 1993 and 1994 as well as 1999, 2000, and 2004.

[Figure 1 about here]

Various social, economic, and demographic factors have been hypothesized to contribute to the growing number of personal bankruptcies. These factors include rising debt levels and easier access to credit (Shephard, 1984a; Domowitz and Sartain, 1999), higher divorce rates (Shephard, 1984a; Heck, 1981), changes to bankruptcy laws (Shephard, 1984b; Boyes and Faith, 1986), changes in economic conditions (Eckstein and Sinai, 1986; Domowitz and Eovaldi, 1993), and a decreased social stigma attached to bankruptcy (Sullivan et al., 1988, 1989).

The simultaneous spread of casino gambling and rising bankruptcy rates in the 1990s has been noted and studied for evidence of a causal relationship. Research has provided mixed results. The Treasury Department (1999), using data from 1962 to 1998 and applying an intervention model, found no measurable effect of gambling on personal bankruptcy rates in

Mississippi and New Jersey. Expanding on the study performed by the Treasury Department, de la Vina and Bernstein (2002) examined county level bankruptcy rates for the years 1988 to 1996. After controlling for county-level fixed effects and the unemployment rate, the authors found no significant relationship between casino gambling available within 50 miles and personal bankruptcy filings.

Thalheimer and Ali (2004) examined personal bankruptcy rates over the period 1990 to 1997 in the riverboat gambling states of Iowa, Illinois, Missouri, and Mississippi. Controlling for various social, economic, and legal factors, the authors found that access to casino gambling had no significant influence on personal bankruptcies. However, Thalheimer and Ali (2004) estimated that personal bankruptcy rates, on average, would have been 0.4 percent lower in the absence of casino gambling.

Nichols et al. (2000) used a difference-in-difference methodology to compare bankruptcy rates in eight communities that adopted casino gambling during the 1990s with a group of control communities, matched by a set of fifteen economic and demographic characteristics. Bankruptcy rates in seven casino communities were higher than their matched group of control communities after the casino opened, but only five of the seven cases were statistically significant. In one community studied, Biloxi, Mississippi, bankruptcy rates were lower after the casinos opened, but this change in bankruptcy was not statistically significant.

Evans and Topoleski (2002) used a difference-in-difference methodology similar to Nichols et al. (2000) to examine the influence of Native American casinos on surrounding communities. Counties with Native American casinos and counties within fifty miles of a

Native American casino were compared to non-gaming counties between 1989 and 1999.[5] Evans and Topoleski (2002) found that personal bankruptcies significantly increased by 10 percent in counties with Native American casinos and 7 percent in counties within fifty miles of a casino four years after the casino opened. However, the authors noted that while this increase was large, it accounted for only a small percentage of the total increase in personal bankruptcies over the last fifteen years.

A recent paper by Barron et al. (2002) echoes the local, but small, aggregate influence of casino gambling on bankruptcy. Using county-level data for the period 1993 to 1999 and controlling for numerous economic and socio-demographic factors, such as the level of consumer debt, income, job tenure, divorce rates, health insurance coverage, and wage garnishing laws, Barron et al. (2002) found that casino gambling had a positive and significant influence on personal bankruptcy. They noted that without gambling, counties with or adjacent to casinos would have had bankruptcy rates that were 5.4 percent lower in 1998. Nationwide, however, the reduction in bankruptcies would have only been 1 percent.

All of the above studies examined the localized influence of casino gambling. That is, they explored the influence of local casino gambling on local bankruptcies. No study to date has explored the influence that destination casino resorts such as those in Nevada, New Jersey, and Mississippi have on bankruptcy filings for individuals living in communities across the country that visit these resorts. As noted by Barron et al. (2002, page 454), "it is certainly possible and perhaps likely that some of the ill effects of casino gambling are exported back to the counties where tourists reside."

[5] Excluded from the analysis were states with no Native American owned casinos (New Jersey, Delaware, Illinois, Indiana, Missouri, and West Virginia), states with Native American and non-Native American owned establishments (Colorado, Iowa, Mississippi, Nevada, and South Dakota), and Oklahoma.

III. Data and Hypotheses

The main focus of this paper is to test the hypothesis that visits to destination resort casinos in Nevada, New Jersey, and Mississippi increase bankruptcy rates in the states where tourists to these casino resorts reside. We also explore whether bankruptcy rates in the three casino resort states are higher than other states, both nationally and regionally. As noted in Eadington (1998), casino gambling may lead to an increase in local bankruptcies, or conversely, it may reduce bankruptcies via an increase in economic growth resulting from casino gambling. We obtain state-level non-business bankruptcy filing data (Chapter 7 and Chapter 13) for the 48 contiguous states for the years 2001 and 2002. These data are available from the Administrative Office of the U.S. Courts.

Casino Visits and Availability

Our variable of interest is the per capita number of visits from each state to the three casino resort states of Nevada, New Jersey, and Mississippi. Data were obtained from the 2002 and 2003 *Profile of the American Casino Gambler: Harrah's Survey* to calculate the number of visits from each state to Nevada resort casinos and New Jersey resort casinos. Data were obtained from the Mississippi Gaming Commission to calculate the number of visits from each state to Mississippi resort casinos.[6] The casino resort destinations in each state are: Nevada -

[6] The *Harrah's Survey* is based on surveys conducted by Roper Reports and NFO WorldGroup. Roper conducted face-to-face interviews of 2,000 men and women. NFO WorldGroup mailed a survey questionnaire to 100,000 adults and 3,300 adults who were pre-identified as gamblers. These surveys are done annually. The latest *Harrah's Survey* (2004) does not report the percentage of all visits to casino destinations, making our calculation of per capita visits impossible. Current and past surveys are available from Harrah's at http://www.harrahs.com/about_us/index.html. Quarterly visitation reports for Mississippi casinos are available at http://www.mgc.state.ms.us/. Data from these quarterly reports were summed to arrive at annual totals for 2001 and 2002.

Reno, Las Vegas, Laughlin, and Lake Tahoe; New Jersey - Atlantic City; and Mississippi - Tunica and the Gulf coast.[7]

For calendar years 2001 and 2002, the 2002 and 2003 *Harrah's Survey* lists the number of "gambling trips" (the number of gamblers times the number of casino visits) made by residents in each state and the percentage of these gambling trips that were made to casino resorts in Nevada and New Jersey (as well as other gambling locations). Similarly, the Mississippi Gaming commission reports the number of trips made from each state to Mississippi resort casinos as well as the total number of visits to Mississippi casinos.

Using the information obtained by the *Harrah's Survey* and the Mississippi Gaming Commission, we calculated per capita visits to each casino resort state *i*, from state *j* as $PCVISIT_{i,j} = \{(GamblingTrips_j) \text{ x } (PercentVisits_{i,j})\}/POP_j$, where $GamblingTrips_j$ is the number of casino trips made by residents of state *j*, $PercentVisits_{i,j}$ is the percentage of gambling trips to a casino resort state *i* from state *j*, and POP_j is the population of state *j*.[8] For the three resort states, $PCVISIT = 0$.[9] If, as suggested by Barron et al. (2002) and others that visitors to destination resort casinos take their problems home with them, we would expect higher bankruptcy rates in states that have a greater number of per capita visits to these casino destinations.

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[7] Classification as a casino resort is done by authors and is based on the definition of a destination casino resort stated by Eadington (1998).

[8] Several points: (1) If Nevada's resort casinos accounted for less than three percent of a state's total casino visits, no visitation data was reported in the *Harrah's Survey*. As a result, 2002 visitations to Nevada from Arkansas, Louisiana, Missouri, Mississippi, Maine, Montana, Vermont, Tennessee, and Wyoming were obtained from airline data compiled by the Las Vegas Convention and Visitors Authority (www.lvcva.com). (2) Visits to Nevada in 2001 from Louisiana, Maine, Mississippi, Montana, Vermont, and Wyoming use 2002 airline data compiled by the Las Vegas Convention and Visitors Authority. (3) Visits to Mississippi from Kentucky, South Carolina, and Virginia for 2001 and 2002 are from the *Harrah's Survey*. The Mississippi Gaming Commission did not report visits from these states, listing visits from these states in an 'other' category.

[9] This is to ensure that the out-of-state, or exported, externality is the primary effect captured by *PCVISIT*. Residents of Nevada, Mississippi, and New Jersey clearly gamble in their respective states, however, so our empirical models include other variables that capture the localized influence of casino gambling on local bankruptcy filings.

Given that gambling is widespread across the United States, it is critical to control for the extent of casino gambling in the state where the tourists reside in order to determine the net effect that visits to our chosen destinations have on personal bankruptcy. We use data on total casino gaming revenue, including both commercial and Native American, for each state in 2001 and 2002 as a measure of casino presence.[10] Commercial casino revenue is available publicly from the various state gaming agencies. Casino revenue figures for Native American casinos, however, are generally not available due to the sovereign status of Native American tribes. Therefore, we use a unique set of state-specific estimates provided by Meister (2005).

The expected influence of casino gambling on same-state personal bankruptcy filings is ambiguous. The literature reviewed above offers mixed results, with some studies finding that casino gambling causes bankruptcy rates to rise while others find no effect. Based on past literature, we anticipate that states with a greater presence of casino gambling may have a higher, but possibly only marginally so, incidence of personal bankruptcy filings.

Economic and Demographic Controls

According to the Consumer Federation of America, income shocks such as divorce, unemployment, or medical expenses, are greater contributors to bankruptcy than a profligate lifestyle (Burke, 1998). Shephard (1984a, page 217) notes that "[bankruptcy] petitioners are more apt to be unemployed, recently divorced, members of racial minorities and heavy users of credit." As a result, several variables are included in our empirical models to control for these income shocks.

[10] Revenue data from racinos (casinos at pari-mutuel tracks) is also included in total gaming revenue. Racino states include Delaware, Iowa, Louisiana, New Mexico, Rhode Island, and West Virginia. Some of these racinos (e.g. Delaware and West Virginia) are part of the state's lottery.

We include state-level per capita income to control for variations in income levels across states. Greater per capita income, an indicator of greater asset levels and also a key component of net debt, is expected to reduce per capita bankruptcy.[11] To account for income shocks such as medical expenses, divorce, or job loss, we include the state unemployment rate, divorce rate per thousand people, and the percent of the population with privately or publicly provided health insurance coverage.[12] States with higher rates of divorce and unemployment are expected to have higher bankruptcy rates, whereas states having a higher percentage of their population covered by health insurance are expected to have lower bankruptcy rates.

Descriptive statistics and sources for all continuous variables used in the analysis are shown in Table 1. It is interesting to note that the average per capita bankruptcy rate is 0.005, or about five in 1,000 people. The average per capita casino visits is 0.4127, indicating that states average approximately one casino resort visit for every 2.5 people. Average per capita visits to Mississippi is roughly one in five people, whereas per capita visits to Nevada and New Jersey average one in 6.5 people and one in 17 people, respectively.

[Table 1 about here]

IV. Empirical Model and Results

The basic model used to estimate the influence that visits to destination casino resorts have on personal bankruptcy filings is:

[11] The level of debt is an important determinant of bankruptcy. Data on debt, however, are only publicly available at the national level. Moreover, changes in debt levels are likely to be more important in explaining changes in bankruptcy over time as opposed to across states or regions, where less variation is likely. We estimate models with both state and regional dummy variables to account for state and regional specific effects such as debt.

[12] We also considered average job tenure in our empirical models. This variable was insignificant in all specifications and lowered the adjusted R^2. A year dummy variable was also considered, but this variable was insignificant.

$$BANKPC_{j,t} = \beta_0 + \beta_1 PCVISIT_{j,t} + \beta_2 CASREV_{j,t} + \beta_3 PCINC_{j,t} + \beta_4 UNEMP_{j,t} + \beta_5 DIV_{j,t} + \beta_6 HLTHCOV_{j,t} + \beta_7 NV + \beta_8 MS + \beta_9 NJ + \gamma REGION \quad \textbf{(1)}$$

$BANKPC_{j,t}$ is the per capita bankruptcy rate for state j in year t, where t = 2001, 2002. $PCVISIT_{j,t}$ is the number of visitors from state j in year t to resort casinos in Nevada, Mississippi, and New Jersey, examined both in aggregate (i.e., all three destinations combined) and individually. $CASREV_{j,t}$ is total casino revenue in state j in year t. $UNEMP_{j,t}$, $DIV_{j,t}$, and $HLTHCOV_{j,t}$ are the unemployment rate, divorce rate, and percent of the population with health coverage, respectively, for state j in year t.

The remaining variables control for state and regional effects. Regional dummy variables based on Bureau of Economic Analysis definitions are included.[13] Separate dummy variables for Nevada, Mississippi, and New Jersey are included to compare bankruptcy rates of these states with the bankruptcy rates in other states in the region and nationally. According to Eadington (1998), local casino gambling can have ambiguous effects on local personal bankruptcies. The large presence of casinos in these states may lead to increases in income and employment that are sufficient to reduce the incidence of bankruptcy. Alternatively, the greater presence of casinos, particularly for Nevada where gambling is very widespread, may lead to higher bankruptcy rates. The net result depends upon which of these two effects is greater.

Four specifications of equation (1) are estimated and the results are shown in Table 2. The first three specifications are estimated by OLS. As a test for robustness, the fourth specification considers state-level random effects and was estimated by GLS.[14] As seen in Table 2, the estimates from the random effects model are very similar to the OLS results.

[13] The Northeast region is omitted in all regressions.

[14] The Hausman test statistic for testing fixed versus random effects was 7.84, less than the χ^2 five percent critical value of 12.59. We do not include state fixed effects because we wish to see how bankruptcy rates in casino resort state compare to other states in the respective region. The inclusion of regional dummies and state fixed effects

In all model specifications, the per capita visits variable is positive and significant at one percent, indicating that states with higher per capita visits to casino resorts have higher bankruptcy rates. This supports the hypothesis that some of the ill effects of casino gambling, bankruptcy in this case, are exported back to the states where tourists reside. Averaging the *PCVISIT* coefficients across the specifications, we find that visits to casino resorts increase other states' personal bankruptcy filings by approximately five per 10,000 residents ($0.0012 \cdot 0.4127$). This is equal to an increase of 0.5 bankruptcies per 1,000 people. Since per capita bankruptcies average five per 1,000 residents (from Table 1), visits to casino resorts increase state per capita bankruptcies by roughly 10 percent on average.

[Table 2 about here]

The remaining coefficient estimates are generally consistent with our expectations and consistent across model specification. Higher rates of unemployment and divorce are associated with increased bankruptcy, whereas higher income lowers bankruptcy.[15] Health coverage is not statistically significant in most specifications, possibly due to the low variation of this variable across the states.[16]

As is consistent with the literature on gambling and bankruptcy, the influence of casino gambling on bankruptcy is mixed, but always very small. For example, in column (1) of Table 2, casino gambling is found to have a small positive, but statistically significant impact on

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results in perfect collinearity. The average of state fixed effects is captured by the regional dummies. Since we only have two years of data for each state, the inclusion of state fixed effects significantly reduces our degrees of freedom. As mentioned in the text, the results from our OLS models with regional dummies and casino resort state dummies are very similar to the results from the random effects model.

[15] In our specification we use contemporaneous income, unemployment, and divorce. Using lagged values of these variables did not change any of our conclusions.

[16] We do find that health coverage is positive and significant at 10 percent in the third specification. One explanation for this counter-intuitive result is that people with no access to any health coverage (private or publicly provided) are the most indigent segment of the population. As a result, these individuals would have little or no assets to declare for bankruptcy compared to relatively more wealthy people. Adding the square of health coverage in the models did not provide additional information. In the end, making a definitive inference regarding health coverage is not possible given that the coefficient is far from robust across our various specifications.

bankruptcy (about 1.5 bankruptcies per 10,000 residents at the mean). However, when controlling for casino resort state and regional effects, the casino revenue variable is either no longer significant (column 2) or it is negative and significant at 10 percent (column 3). A scatter plot of the raw casino revenue data and per capita bankruptcy data, shown in Figure 2, can explain the change in the sign and significance of the casino revenue coefficient across specifications. Figure 2 reveals a large 'Nevada effect' - the two outlying points in the scatter plot are Nevada in 2001 and 2002. Thus, once we control for Nevada in our empirical models, the relationship between casino revenue and per capita bankruptcies is no longer positive and statistically significant.

[Figure 2 about here]

The results from the regressions that include casino resort state dummies are reported in column (2) and column (3) of Table 2. The results indicate that both Mississippi and New Jersey have a higher incidence of bankruptcy than other states even when controlling for the presence of casino gambling and other economic and demographic factors. Moreover, although only significant at 10 percent in the second specification, the coefficient for Nevada reveals that per capita bankruptcy rates in that state are nearly twice the national average. Various pairwise *t*-tests of the three casino state coefficients reveal that most differences in the estimated coefficients are not statistically significant. Only Nevada is statistically larger (at $\alpha = 0.05$) than New Jersey in the third specification.

Regional dummy variables are included in the third specification of Table 2. The Midwest, South, and West all have higher bankruptcy rates than the Northeast. The casino resort states have higher bankruptcy rates than their regional peers as indicated by the magnitude and significance of the casino resort state coefficients. Here again the magnitude of

the coefficient on Nevada stands out, showing the high level of bankruptcy in that state even when controlling for the presence of gambling. Pairwise *t*-tests reveal that average per capita bankruptcies in Nevada are statistically greater than the average rate of bankruptcy in western states (at $\alpha = 0.10$) and average per capita bankruptcies in New Jersey are statistically greater than the average rate of bankruptcy in northeastern states (at $\alpha = 0.05$).

The results from regressions that disaggregate per capita visits by casino resort state are presented in Table 3. Many of the results are consistent with those presented in Table 2. However, after disaggregating the per capita visits variable, only visits to Mississippi casinos have a statistically significant influence on per capita bankruptcies, although an *F*-test rejects the null hypothesis that all three coefficients are jointly equal to zero. Based on the mean per capita visits to Mississippi reported in Table 1 and the estimated per capita visits coefficient of 0.0016, bankruptcies nationwide are predicted to be 0.00032 ($0.0016 \cdot 0.2004$), or 3.2 per 10,000 people greater as a result of visits to Mississippi casinos.

[Table 3 about here]

One explanation for the statistical significance of Mississippi relative to New Jersey and Nevada is the different demographic makeup of the tourists that each destination attracts. In particular, even though we are controlling for income, unemployment, divorce, etc., the fact remains that Mississippi is a regional destination, drawing most of its tourists from the South. According to statistics from the Mississippi Gaming Commission, during the fourth quarter of 2002, most tourists to Mississippi casinos arrived from Tennessee (12.60 percent), Alabama (10.02 percent), Florida (9.94 percent), Arkansas (9.73 percent) and Louisiana (9.22 percent). Tourists to Mississippi casinos are therefore predominantly from a region with lower income and consequently may be more susceptible to bankruptcy-inducing economic shocks, i.e., large

gambling losses, than tourists to either Atlantic City, which draws primarily from the wealthier Northeast, or Nevada, where Las Vegas attracts tourists both nationally and worldwide.

As further evidence of this, consider the additional comparison of the three casino resort destinations: Atlantic City and Mississippi are very similar destinations in that both are primarily regional destinations. Atlantic City had just over 33 million visitors in 2002 with 24.6 million, or roughly 75 percent, arriving by automobile. Mississippi had over 54 million visitors in 2002, and of these, over 23 million visited the coastal region of Gulfport/Biloxi. According to the Gulfport/Biloxi Regional Airport Authority, however, there were only 816,653 boardings at the airport, so most visitors clearly arrived by automobile. In contrast to both Mississippi and Atlantic City, however, Las Vegas had roughly 35 million visitors in both 2001 and 2002. Approximately 6 million (17 percent) visitors arrived by car from Southern California, whereas McCarran International Airport had 35 million enplaned/deplaned passengers.[17] Finally, although Las Vegas and Atlantic City each attracted approximately 35 million visitors in 2002, total casino gambling revenue for Las Vegas was $7.63 billion versus $4.38 billion in Atlantic City. Mississippi, in contrast, had more visitors, nearly 55 million, but only amassed $3.37 billion in gaming revenue, thus suggesting much less affluent visitors more prone to bankruptcy than gamblers traveling to either Las Vegas or Atlantic City.

Consistent with Barron et al. (2002) and Thalheimer (2004), the influence of Mississippi casinos nationwide is very small and localized. As presented earlier, bankruptcies nationwide are predicted to be 3.2 per 10,000 people greater as a result of Mississippi casinos. However, the average per capita visits for the states surrounding Mississippi (Tennessee,

[17] Not all enplaned/deplaned passengers will have Las Vegas as a final destination. Data for Las Vegas are from http://www.lasvegas24hours.com/pdf/historical_visitor_statistics.pdf. Atlantic City data are from http://www.atlanticcitynj.com/resources_research.asp. Information for Mississippi is from www.gulfcoast.org/gpt and from quarterly reports prepared by the Mississippi Gaming Commission http://www.mgc.state.ms.us/.

Alabama, Florida, Arkansas, and Louisiana) is 1.544 (compared to the national average of 0.4127), suggesting an increase of 0.0024 (0.0016 · 1.544), or 2.4 bankruptcies per 1,000 people. Thus, in this case the regional influence of casino gambling on bankruptcy is much greater than the nationwide influence.

V. Summary and Conclusions

Casino gambling in the United States has spread from just two states (Nevada and New Jersey) in the early 1990s to over thirty states by 2005. During this period, much has been written about the positive and negative aspects of this expansion. Indeed, the growth in casino gambling even led to a federal government inquiry into the consequences of expanded gambling (National Gambling Impact Study Commission, 1999). Due in large part to work by Eadington (1998, 1999), it is generally agreed that destination resort casinos provide the greatest economic benefit by "exporting" casino gambling, i.e., attracting tourists and bringing in dollars from outside of the community.

However, there is less agreement on the negative aspects of gambling, as demonstrated by the mixed findings in the literature regarding the link between gambling and bankruptcy. Moreover, all previous studies on this issue only examined the influence of local casinos on local bankruptcy filings. Less is known about the negative influence that destination casino resorts have on communities where tourists reside. This paper used data on the number of gambler visits to resort casinos in Nevada, New Jersey, and Mississippi from all other states, and has demonstrated that destination casino resorts do indeed "export" bankruptcy along with gambling services.

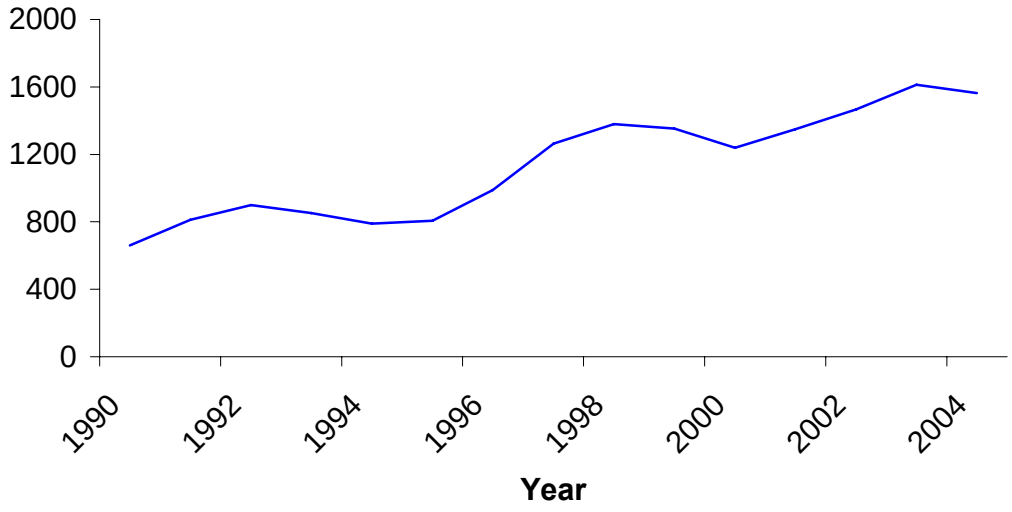
This negative influence, however, is not uniform across the three destinations studied here. In particular, only visits to Mississippi resort casinos are found to have an individually statistically significant influence on bankruptcy filings in other states. Consistent with other studies, this influence is greatest in the region that Mississippi heavily draws from (roughly 2.4 bankruptcies per 1,000 people), while the nationwide impact is small (roughly 3 bankruptcies per 10,000 people).

The finding that the influence of casino resorts on personal bankruptcy filings is not uniform across all jurisdictions has important policy implications with regard to the future expansion of casino gambling. In particular, it was noted earlier in the paper that the characteristics of visitors to the various resorts are quite different. While Atlantic City, Reno and Laughlin, Nevada, and Mississippi are all regional resorts, they draw from very different regions. Atlantic City draws from the wealthier Northeast, Reno and Laughlin attract approximately 40% of their gamblers from California, while Mississippi draws from the less wealthy South and Southeast.[18] Indeed, Atlantic City has higher gambling revenue despite having fewer visitors. Las Vegas has approximately the same number of visitors as Atlantic City, but has nearly twice the gambling revenue, suggesting an even more affluent gambler. Negative income shocks, such as gambling losses, are therefore likely to be more easily absorbed by gamblers frequenting Atlantic City or Las Vegas compared to gamblers that frequent Mississippi resort casinos. This suggests that the location of a casino destination

[18] Reno and Laughlin are a small part of Nevada's casino gaming industry, so Nevada's impact on other states' bankruptcy rates will predominantly reflect casinos in Las Vegas. In 2003, gaming revenues in Nevada totaled $9.6 billion. Revenues for Washoe County, which includes Reno and North Lake Tahoe, were $1 billion, whereas Laughlin revenues totaled $552 million. In contrast, revenues for the "Las Vegas Strip" were $4.8 billion. Indeed, excluding Laughlin, Clark County accounted for 76% ($7.3 billion) of the state's total gaming revenue in 2003. Statistics from Nevada Gaming Control Board, http://gaming.nv.gov/documents/pdf/cyrr03.pdf.

resort is an important factor in determining its cost-benefit ratio. Casino resorts placed in wealthier regions are less likely to significantly export bankruptcy.

Figure 1 - U.S. Personal Bankruptcies 1990 to 2004
(in thousands)



Source: The Administrative Office of U.S. Courts,
http://www.uscourts.gov/bnkrpctystats/bankruptcystats.htm

Figure 2 - Casino Revenue (in millions) and Per Capita Personal Bankruptcies

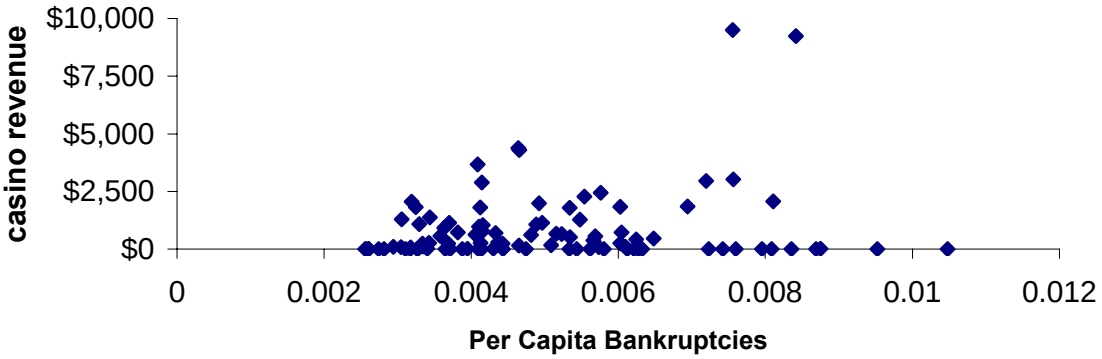


Table 1 - Descriptive Statistics and Data Sources

Variable	Mean (Standard Deviation)	Source
Per Capita Bankruptcy	0.0049 (0.0017)	Administrative Office of the United States Courts
Casino Revenue (millions)	858.9403 (1,593.10)	Meister (2005) for Native American revenue; state gaming agencies for commercial casino gaming revenue
Per Capita Visits to Casino Resorts	0.4127 (0.5330)	2002 and 2003 *Harrahs Survey* and Mississippi Gaming Commission. See text for computations.
Per Capita Visits to Nevada Casinos	0.1546 (0.2406)	2002 and 2003 *Harrahs Survey* and the Las Vegas Convention and Visitors Authority. See text for computations.
Per Capita Visits to New Jersey Casinos	0.0577 (0.1594)	2002 and 2003 *Harrahs Survey*. See text for computations.
Per Capita Visits to Mississippi Casinos	0.2004 (0.5279)	2002 and 2003 *Harrahs Survey* and Mississippi Gaming Commission. See text for computations.
Per Capita Income	28,567.25 (4,234.97)	U.S Bureau of the Census
Unemployment Rate	4.9229 (1.0185)	U.S. Bureau of Labor Statistics
Divorce Rate (per 1,000)	4.1222 (1.0760)	U.S. National Center for Health Statistics, *Vital Statistics of the United States*, annual.
Health Insurance Coverage	0.8558 (0.0369)	U.S. Bureau of the Census, *Current Population Survey*. Annual Social and Economic Supplements.

Note: all data are at the state-level for 2001 and 2002. Number of observations = 96.

Table 2 – Casino Gaming and Non-Business Bankruptcies

Variable	(1)	(2)	(3)	(4)
Constant	-0.0004	-0.0004	-0.0080*	0.0048*
	(0.76)	(0.77)	(1.70)	(1.64)
Per Capita Visits to Casinos	0.0011***	0.0013***	0.0014***	0.0010***
	(3.70)	(4.07)	(4.46)	(3.25)
Casino revenue	0.178e-6**	-0.199e-6	-0.385e-6*	0.186e-6
	(2.36)	(0.84)	(1.82)	(1.53)
Per Capita Income	-0.914e-7***	-0.723e-7**	0.155e-7	-0.789e-7*
	(2.96)	(2.09)	(0.47)	(1.67)
Unemployment rate	0.0003**	0.0003**	0.0004***	0.0003***
	(2.28)	(2.63)	(3.21)	(5.31)
Divorce Rate	0.0004***	0.0003*	0.0003*	0.0002**
	(3.02)	(1.72)	(1.74)	(2.12)
Health Coverage Percentage	0.0047	0.0046	0.0087*	-0.0005
	(1.03)	(1.00)	(1.77)	(0.18)
Nevada	-------	0.0043*	0.0059***	-------
		(1.80)	(2.81)	
New Jersey	-------	0.0018**	0.0015**	-------
		(2.27)	(1.99)	
Mississippi	-------	0.0025***	0.0033***	-------
		(3.23)	(4.26)	
Midwest	-------	-------	0.0018***	-------
			(5.63)	
South	-------	-------	0.0020***	-------
			(4.59)	
West	-------	-------	0.0016***	-------
			(3.81)	
Adjusted R^2	0.408	0.429	0.525	-------

Note: Dependent variable is per capita non-business bankruptcies. Absolute t-statistics in parentheses. *** denotes significance at 1 percent, ** at 5 percent, and * at 10 percent. Casino revenue is in million of dollars. Northeast is the omitted region. Specifications (1) through (3) are estimated by OLS, specification (4) considers state random effects estimated by GLS. Number of observations = 96.

Table 3 – Casino Gaming and Non-Business Bankruptcies – By Resort State

Variable	(1)	(2)	(3)	(4)
Constant	0.0006	-0.0002	-0.0079*	0.0042
	(0.13)	(0.05)	(1.71)	(1.48)
Per Capita Visits to NV Casinos	0.0003	0.0011	0.0013	-0.0001
	(0.42)	(1.31)	(1.65)	(0.19)
Per Capita Visits to MS Casinos	0.0013***	0.0016***	0.0016***	0.0016***
	(3.55)	(4.02)	(4.21)	(4.37)
Per Capita Visits to NJ Casinos	0.0002	-0.0004	0.0003	-0.0004
	(0.31)	(0.57)	(0.40)	(0.37)
Casino revenue	0.174e-6**	-0.297e-6	-0.438e-6	0.169e-6
	(2.29)	(1.01)	(1.64)	(1.40)
Per Capita Income	-0.764e-7**	-0.392e-7	0.304e-7	-0.454e-7
	(2.52)	(0.97)	(0.82)	(0.92)
Unemployment rate	0.0003**	0.0004***	0.0004***	0.0003***
	(2.62)	(3.06)	(3.25)	(5.34)
Divorce Rate	0.0004**	0.0002	0.0001	0.0002**
	(2.50)	(1.01)	(1.21)	(2.12)
Health Coverage Percentage	0.0034	0.0038	0.0087*	-0.0007
	(0.69)	(0.80)	(1.78)	(0.25)
Nevada	-------	0.0054*	0.0066**	-------
		(1.82)	(2.36)	
New Jersey	-------	0.0017*	0.0014	-------
		(1.86)	(1.54)	
Mississippi	-------	0.0029***	0.0035***	-------
		(2.84)	(3.79)	
Midwest	-------	-------	0.0016***	-------
			(4.97)	
South	-------	-------	0.0019***	-------
			(4.53)	
West	-------	-------	0.0016***	-------
			(4.21)	
Adjusted R^2	0.417	0.443	0.523	-------

Note: Dependent variable is per capita non-business bankruptcies. Absolute t-statistics in parentheses. *** denotes significance at 1 percent, ** at 5 percent, and * at 10 percent. Casino revenue is in million of dollars. Northeast is the omitted region. Specifications (1) through (3) are estimated by OLS, specification (4) considers state random effects estimated by GLS. Number of observations = 96.

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