

# Casino Taxation in the United States

**Abstract** - This paper provides an overview of the forms of taxation that are applied to casinos by state and local governments, and analyzes those taxes and fees from a policy perspective. First, the paper contains a comprehensive review of the taxes and fees applied to commercial casinos in the 11 states where casinos are legal. The two most common forms of taxation include a tax on the net amount gambled (AGR, adjusted gross receipts, or gross receipts minus prizes paid) and admission taxes charged on riverboat casinos. A wide range of tax rates are applied to AGR by the states. Second, economic analysis of the efficiency and equity issues related to casino taxes is presented. Included in the analysis is consideration of the revenue offsets involved with other state and local taxes and the uses of the funds. Finally, a summary of our current knowledge of casino taxation and suggestions for needed research are presented.

## INTRODUCTION

Casino gambling is a fast-growing industry around the world, leading many governments to believe that casinos are important potential sources of public revenue. The American Gaming Association (2004) reports that 443 commercial casinos in 11 states generated more than \$27 billion in gross gaming revenue in 2003. State and local governments derived \$4.32 billion in direct gaming taxes from this economic activity, or about 16 percent of gross gaming revenue. Although tax revenue from direct gaming currently amounts to just one-third of one percent of total own-source revenues collected by state and local governments in the U.S., gambling represents a growing source of revenue nationwide. Over the period from 1993 to 2003, consumer spending at casinos rose from \$11.2 billion to \$27.02 billion in nominal terms. The American Gaming Association (2004) reports that Americans spend more on casino activities than on DVD/VHS rentals and sales, amusement and theme parks, and movie box office sales.

This fast-growing sector has captured the attention of state and local governments that see the potential for added revenues from taxes and fees applied to casinos as they are legalized and that view casinos as engines for local economic growth. Madhusudhan (1996) was the first to document this emergent trend in state and local public finance in the United States. For a good overview of the economics of casino gambling, see Suits (1979b) and Eadington (1999). Similar increased attention to casinos has also been paid in

---

**John E. Anderson**

*Department of  
Economics, University  
of Nebraska, Lincoln,  
NE 68588-0489*

**National Tax Journal**

Vol. LVIII, No. 2  
June 2005

the European Union as national governments there realize the revenue potential that exists as casino operations expand. For a brief review of world gambling and its expansion, see Thompson (1998), and for European context on casino gambling and lotteries, see the European Commission (2003) and European Lotteries (2004). Smith (2000) provides a good overview of gambling taxation issues with applications from Australia.

The purpose of this article is to chronicle the forms of taxation and fees that are being applied to casinos by state and local governments and to analyze those taxes and fees from a policy perspective. The second section of this paper contains an overview of the forms of taxes and fees applied to casinos in the United States. The third section contains economic analysis of several aspects of casino taxes. Finally, the fourth section includes a summary of our current knowledge of casino taxes and presents suggestions for needed research related to casino revenues.

## TAXES AND FEES APPLIED TO CASINOS IN THE UNITED STATES

This section contains an overview of the various forms of taxes and fees applied to casinos in the United States. Distinctions are drawn among forms of gambling permitted by the states (land-based and riverboat casinos, and limited-stakes casinos) and types of taxes and fees applied.

### *Types of Casinos and Casino Gambling*

Casino gambling has been legal in Nevada since 1931 and in New Jersey since 1976. In recent years, however, states and casinos have creatively crafted and applied laws that permit riverboat casinos and other types of gambling facilities. According to the recent National Council of State Legislatures (2004) analysis, the phenomenon of casino taxation is proliferating across the U.S. and "casino gaming has become

one of the fastest growing businesses in the recreation and entertainment sector." A flurry of casino gambling legalization over the period between 1989 and 1996 added nine more states to the list: Colorado, Illinois, Indiana, Iowa, Louisiana, Michigan, Mississippi, Missouri, and South Dakota. Interest in legalization and expansion of casino gambling continues to be hot. Last year (2004), casino gambling ballot and other initiatives were raised in the states of Alabama, Alaska, Arkansas, Delaware, Minnesota, Nebraska, Ohio, Pennsylvania, Rhode Island, and Washington. According to the American Gaming Association (2004), in the year 2003 commercial casinos operated in 11 states, Native American casinos operated in 28 states, and racetrack casinos operated in six states.

Hoffman, Gerstein, Huang, Brittingham, Larison, and Toce (1999) conducted a survey of gamblers and casinos as part of the National Gambling Impact Study Commission's work and found that the average amount of total revenue for a top-25 non-tribal casino was \$395 million in 1998, while the average amount of total revenue for smaller non-tribal casinos was \$91 million. They also tracked players at casinos and found that those who played at top-25 non-tribal casinos bet an average of nearly \$8,000 per year, although the distribution of the amount gambled was highly skewed with nearly 73 percent of the players gambling \$500 or less and just 3.2 percent gambling more than \$10,000. At smaller non-tribal casinos the average amount bet was about \$2,800 per year with 68 percent gambling \$500 or less and 3.6 percent gambling more than \$10,000.

In considering the taxation of casinos, it is important to distinguish between commercial casinos and other types of casinos. Commercial casinos include land-based, riverboat, docked, and racetrack casinos operated for commercial purposes. State regulations often make distinctions between land-based, riverboat, and

limited-stakes gambling. In an effort to contain gambling activity within discrete locations and reduce potential negative externalities, some states began to permit riverboats to host casino operations in the 1990s (Illinois, Indiana, Iowa, Louisiana, Mississippi, and Missouri). In some cases, the riverboats actually had to push away from the port and travel along the river while the casino was in operation. More recently, however, most riverboat casinos are only nominally boats and are permanently affixed to the dock. Some states put a limit on the amount a gambler can place on any bet on a slot machine or at a blackjack or poker table, providing so-called limited stakes gambling. For example, Colorado has a five dollar bet limit, while South Dakota imposes bet limits that vary with the game and the casino.

Not all casinos have the same revenue potential for state and local governments, however. An important Supreme Court ruling in 1987 established the principle that states could not regulate or tax gaming on Native American reservations. As a result, the number of gaming facilities, including casinos, proliferated on reservations and other property owned by tribes. For an overview of the Indian Gaming Regulatory Act, see National Indian Gaming Commission (2004). Evans and Topoleski (2002) provide an excellent overview of the rise in Native American gaming operations. At this point, there are 28 states in the U.S. with Native American casinos. There are over 310 gaming operations run by more than 200 tribes in the U.S., according to Evans and Topoleski (2002), of which about 220 are Las-Vegas-style casinos.

While states cannot formally tax tribal casinos, informal revenue sharing arrangements have become common as part of the negotiation process between states and tribes that culminates with a compact between the state and a tribe. Among those states with Native American casinos, seven have revenue sharing

arrangements: Arizona, California, Connecticut, Michigan, New Mexico, New York, and Wisconsin. These revenue sharing arrangements provide from eight to 25 percent of slot machine revenues to state and local governments. One of the most publicized compacts is that of Connecticut, where in 1992 the Mashantucket Pequot Tribe, which owns the Foxwoods Casino Resort, agreed to share 25 percent of its slot machine net income with the State of Connecticut and the City of Hartford. California compacts with tribes similarly provide for a state share of gaming revenues—up to 25 percent in some cases. At the low end, New Mexico tribal casinos have agreed to pay eight percent of their slot machine net income to the state. The fiscal aspects of these compacts appear to be completely *ad hoc* with no evidence of fundamental public finance principles being applied in their design by states and tribes, much less consideration being given to the design of *optimal fiscal compacts* in any sense. While state lotteries have benefited from the economic analysis of the optimal design of the prize structure (e.g., see Quiggin (1991)), there is as yet no economic analysis of optimal compacts for tribes to share the revenues with state and local governments. One area in need of additional research, consequently, is the question of designing appropriate state-tribal compacts. In this regard, the literature on revenue-sharing can be brought to bear.

The Indian Gaming Regulatory Act (IGA) of 1988 established the formal jurisdictional framework that governs Indian gaming in the United States. That act established regulations for three classes of gaming. Class I games are social games for prizes of minimal value and traditional Indian games that are conducted during tribal ceremonies or celebrations. Tribal governments are vested with the right to exclusively regulate such games. Class II games include bingo, pull tabs, punch boards, tip jars, and other games similar

to bingo. This class of games also includes non-banked card games (played against other players, not against the house or another player acting as a bank). Tribes have the jurisdictional authority to regulate all such games as long as the state in which they operate permits such gaming for any purpose. Class III games include a broad range of games such as slot machines, black jack, craps, roulette, and other table games. The IGA specifies conditions and restrictions by which tribes have authority to conduct Class III gaming activity.

### *Commercial Casinos and Taxation*

States typically apply wagering taxes to casino along with other taxes, such as admissions taxes in the case of river boat casinos, and various forms of license fees. Table 1 provides a summary of the various state casino taxes in effect in the year 2004 for the 11 states that generate revenue from casino operations. The prevalence and rates of wagering taxes, admissions taxes, and other taxes and fees applied to casinos are summarized in what follows.

### *Wagering Tax*

All states in the U.S. that permit commercial casinos impose some form of wagering tax. The precise definition of the tax base varies from state to state, but the essential tax base in all cases is a form of adjusted gross receipts (AGR), or gross gambling receipts minus payout for prizes.

The states of Illinois, Indiana, Iowa, Louisiana, Mississippi, and Missouri apply a wagering tax on riverboat casinos. Tax rates in these riverboat states range from four percent to 70 percent of AGR. Missouri applies a flat rate of 20 percent to AGR, while the other riverboat states apply graduated rates varying from a low of four percent in Mississippi to a high of 70 percent in Illinois.

Land-based casinos are taxed in Michigan, Nevada, and New Jersey. The states of New Jersey and Michigan apply flat rate taxes of eight and 18 percent, respectively, to AGR. Nevada applies graduated rates from three to 6.25 percent of AGR. The states of Colorado and South Dakota permit limited-stakes casino gambling, with South Dakota applying a flat rate tax of eight percent of AGR and Colorado applying graduated rates from 0.25 to 20 percent of AGR.

### *Admissions Tax*

Admissions taxes are applied primarily in riverboat casino states. States applying such admissions taxes require that each gambler boarding the riverboat casino pay a tax. Table 1 illustrates a range of admissions tax rates ranging from a low of two dollars in Missouri to a high of five dollars in Illinois and Iowa. In some cases, the admissions tax varies with patronage or size of the facility, for example. In Illinois, the admissions tax is four dollars per person at facilities admitting 2.3 million or fewer persons the previous year, and five dollars per person for larger facilities. In other cases, the tax varies with the local government unit, as in Louisiana where the admissions tax can vary between \$2.50 to \$3.00 per person depending on the parish. Iowa allows both state and local governments to apply an admissions tax of \$0.50 per person.

### *Fees*

Other taxes and fees are also required in most states with legalized casino gambling, as illustrated in Table 1. In riverboat casino states, there are typically licensing fees, as in Iowa where the fee is based on the capacity of the riverboat, or a local government license fee based on AGR as in Mississippi. Land-based casino states have the most extensive systems of fees and taxes imposed by local and state

governments. Michigan applies a municipal service fee. Nevada has a system of county license fees, state license fees, and a separate slot machine tax. New Jersey applies an annual license fee per facility and a slot machine fee. In addition, New Jersey applies a tax on the value of casino complementarities such as entertainment, food, rooms, and beverages provided at no or reduced prices to patrons, a tax on gross revenues of casino companies conducting multi-casino progressive slot machines, and an investment alternative tax applied to casino licensees. Most often, the fees are municipal or local government fees designed to generate revenue to cover local government costs associated with hosting the casino.

#### *Revenue Interactions with Other Taxes*

Casinos generate direct tax revenue from wagering, admissions, and other taxes, but from a state budgetary point of view the relevant question is whether the added tax revenue from casinos comes at the expense of other revenue sources. That is, what is the net effect of new casino revenue? Do casino taxes increase overall state tax revenue or are they offset by reductions in other sources of state revenue such as sales and excise taxes? Furthermore, are casino gambling taxes vulnerable to predatory federalism, with other units of government, perhaps across a county or state line, introducing new gambling opportunities? These are important issues to consider.

Garrett (2003) warns that the new tax revenue generated by casinos should not be viewed as new money to society. Furthermore, he reviews the evidence on revenue interactions with other state and local taxes and suggests that the effects of casino gambling on other sources of state revenue must be evaluated carefully on a case-by-case basis. We review the evidence to date on this question in the remainder of this section.

Leven and Phares (1998) have estimated the spending displacement effect of casinos in Missouri. They found that in 1995–96 the ten casinos in Missouri generated a total of \$589 million in gross receipts, of which \$503 million was the net casino win and \$86 million was from sales of food, drinks, gift shop merchandise and admissions to shows. Of that total \$589 million in total casino receipts, \$499 million was used in Missouri, with \$332 million used for casino operation, \$122 million paid in state taxes, and \$45 million paid in city taxes, while \$90 million leaked out of Missouri (federal taxes paid, profits paid to non-Missouri residents, etc.). Furthermore, they found that Missourians got the \$412 million they spent on casinos from reduced savings (\$49 million), reduced spending outside the state (\$51 million at casinos, \$9 million on dog and horse tracks, \$16 million on vacations, and \$22 million on other purchases), and \$265 million in reduced spending on other goods and services in Missouri. With evidence of this displacement effect, the net revenue gains to state and local governments are surely smaller than they would appear to be simply based on knowledge of the amount gambled and the tax rate applied to gambling.

Mason and Stranahan (1996) have considered the effects of casino gambling on state tax revenue in the context of a theoretical model that accounts for various tax interactions. While they provide no empirical estimates of the actual effect of casino tax revenues on other state taxes, they document several channels through which tax revenue substitution can occur. One such channel is through direct substitution of forms of gambling. For example, Suits (1977) found that casino gambling and other forms of gambling are substitutes, not complements. Other channels come through sectoral changes in income and employment, and effects through tourism.

**TABLE 1**  
U.S. STATE CASINO TAXES

State	Forms of Casino Taxation	Uses of Casino Revenue
Colorado	<p>Casino tax applied on a limited-stakes basis to casinos, starting in 1991.</p> <p>Tax base: adjusted gross proceeds (AGP).</p> <p>Tax rates:</p> <ul style="list-style-type: none"> <li>• 0.25% on \$0 to \$2 million AGP.</li> <li>• 2% on \$2 to \$4 million AGP.</li> <li>• 4% on \$4 to \$5 million AGP.</li> <li>• 11% on \$5 to \$10 million AGP.</li> <li>• 16% on \$10 to \$15 million AGP.</li> <li>• 20% on AGP over \$15 million.</li> </ul>	<ul style="list-style-type: none"> <li>• 28% to the Colorado Historical Society for historical preservation grants.</li> <li>• 12% to county governments in proportion to the gaming revenues generated in those counties.</li> <li>• 10% to city governments in proportion to the gaming revenues generated in those cities.</li> <li>• 0.2% to the Colorado Travel and Tourism Promotion Fund.</li> <li>• 49.8% to the state general fund, with specific earmarking of some funds.</li> </ul>
Illinois	<p>Riverboat gambling taxation includes an admissions tax and a wagering tax, applied to riverboat casinos, starting in 1991.</p> <p>Admissions tax:</p> <ul style="list-style-type: none"> <li>• \$4 per person at facilities that admitted 2.3 million or fewer persons in the previous year.</li> <li>• \$5 per person for larger facilities.</li> </ul> <p>Wagering tax:</p> <p>Tax base: adjusted gross receipts (AGR).</p> <p>Tax rates:</p> <ul style="list-style-type: none"> <li>• 15% for <math>0 &lt; AGR \leq \\$25</math> million</li> <li>• 27.5% for <math>\\$25</math> million <math>&lt; AGR \leq \\$37.5</math> million</li> <li>• 32.5% for <math>\\$37.5</math> million <math>&lt; AGR \leq \\$50</math> million</li> <li>• 37.5% for <math>\\$50</math> million <math>&lt; AGR \leq \\$75</math> million</li> <li>• 45% for <math>\\$75</math> million <math>&lt; AGR \leq \\$100</math> million</li> <li>• 50% for <math>\\$100</math> million <math>&lt; AGR \leq \\$250</math> million</li> <li>• 70% for <math>AGR &gt; \\$250</math> million</li> </ul>	<p>Local governments and the state education fund receive revenues. Each unit of local government that serves as a host community for a casino license receives 5% of the AGR and half of the admissions tax revenue.</p>

Indiana

Riverboat gambling taxation includes an admissions tax and a wagering tax, applied to riverboat casinos, starting in 1995.

Admissions tax:

Tax of \$3 per person for dockside and cruising boats.

Wagering tax for dockside boats:

Tax base: adjusted gross receipts (AGR).

Tax rates:

- 15% for  $\$0 < \text{AGR} \leq \$25$  million.
- 20% for  $\$25 \text{ million} < \text{AGR} \leq \$50$  million.
- 25% for  $\$50 \text{ million} < \text{AGR} \leq \$75$  million.
- 30% for  $\$75 \text{ million} < \text{AGR} \leq \$150$  million.
- 35% for  $\text{AGR} > \$150$  million.

Wagering tax for cruising boats:

Tax base: adjusted gross receipts (AGR).

Tax rate: 22.5% of AGR.

Iowa

Excursion boat gambling tax, applied to riverboat casinos, starting in 1991.

License fee:

Fee base: person capacity of the vessel, including crew.

Fee rate: \$5 per person.

Admission fee:

Fee base: admission to excursion boat.

Fee rate: state imposes a rate of \$0.50 per admission and cities and counties are each authorized to impose an admissions tax of \$0.50 as well.

Wagering tax:

Tax base: adjusted gross receipts (AGR).

Tax rates:

- 5% for  $\$0 < \text{AGR} \leq \$1$  million.
- 10% for  $\$1 \text{ million} < \text{AGR} \leq \$3$  million.
- 20% on  $\text{AGR} > \$3$  million.

Admission tax:

- \$1 to the city at which the riverboat is docked.
- \$1 to the county at which the riverboat is docked.
- \$0.10 to the county tourism promotion fund.
- \$0.15 to the state fair commission.
- \$0.10 to the division of mental health.
- \$0.65 to the state horse racing commission.
- separate revenue distribution applies in Patoka Lake.

Wagering tax:

- 25% to riverboat home cities and counties, up to \$33 million (established based on 2002 local distribution).
- 75% to the property tax replacement fund and the Build Indiana Fund lottery and gaming surplus account.

- 0.5% of AGR to the city from which the gambling excursion originated.
- 0.5% to the county from which the gambling excursion originated.
- 0.3% to the Gamblers Assistance Fund.
- remainder to the state general fund.

**TABLE 1 (continued)**  
U.S. STATE CASINO TAXES

State	Forms of Casino Taxation	Uses of Casino Revenue
Louisiana	<p>Riverboat gambling wagering tax, applied to riverboat casinos, starting in 1993.</p> <p>Tax base: monthly net proceeds (MNP).</p> <p>Tax rates:</p> <ul style="list-style-type: none"> <li>• Shreveport-based boats are phasing from 18.5% up to 21.5% of net proceeds.</li> <li>• Bally's boat in New Orleans has tax rates as follows: <ul style="list-style-type: none"> <li>– 18.5% for \$0 &lt; MNP ≤ \$6 million.</li> <li>– 20.5% for \$6 million &lt; MNP ≤ \$8 million.</li> <li>– 21.5% for MNP &gt; \$8 million.</li> </ul> </li> </ul> <p>Riverboat admissions fee: Local option fee up to \$2.50 or \$3.00 per person, depending on the parish.</p> <p>New Orleans land-based casino tax: Tax base: net revenues. Tax rate: 21.5% of net revenues or \$50 million, whichever is greater.</p>	<p>Riverboats:</p> <ul style="list-style-type: none"> <li>• 9% of state revenues go to an education fund for teacher salaries and pay raises.</li> <li>• 1% of state revenues go to a compulsive gambling program.</li> <li>• Remaining state revenues go to the general fund for gambling enforcement.</li> </ul> <p>Land-based casino:</p> <ul style="list-style-type: none"> <li>• All state revenues go to an education fund for teacher salaries and pay raises.</li> </ul> <p>Local government revenue allocations are determined by state statutes.</p>
Michigan	<p>Casino wagering tax, applied to land-based casinos, starting in 1996.</p> <p>Tax base: adjusted gross receipts (AGR).</p> <p>Tax rate: 18%.</p> <p>Effective September 1, 2004, an additional 6% of AGR is applied.</p> <p>Municipal service fee: Casinos must pay a municipal service fee equal to the greater of 1.25% of gross revenue or \$4 million.</p>	<ul style="list-style-type: none"> <li>• 45% to the state school aid fund.</li> <li>• 55% to the city where the casino is located for use in public safety and economic development.</li> </ul> <p>Additional 6% tax provides revenues distributed as follows:</p> <ul style="list-style-type: none"> <li>• 1/3 of revenues go to the city for use in public safety and economic development.</li> <li>• 7/12 of the revenues go to the general fund.</li> <li>• 1/12 of the revenues go to the Agriculture Equine Industry Development Fund.</li> </ul>
Mississippi	<p>Riverboat gambling wagering license fee, applied to riverboat casinos in 1993.</p> <p>Tax base: monthly gross revenue (MGR).</p> <p>Tax rates:</p> <ul style="list-style-type: none"> <li>• 4% for 0 &lt; MGR ≤ \$50,000.</li> <li>• 6% on \$50,000 &lt; MGR ≤ \$134,000.</li> <li>• 8% on MGR &gt; \$134,000.</li> <li>• A city or county may impose a local license fee with graduated rates of 0.4%, 0.6%, and 0.8% applied to the same base.</li> <li>• Local governments may also impose an additional tax of up to 4% of MGR.</li> </ul>	<ul style="list-style-type: none"> <li>• \$3 million or 25%, whichever is greater, of the state monthly revenue share goes to retire bonds until the year 2012.</li> <li>• Any amount of revenue in excess of \$3 million, but less than 25%, goes to the state Highway Fund until the year 2012.</li> <li>• The remaining revenue goes to the state general fund.</li> <li>• After the year 2012, all of the state revenues go to the general fund.</li> </ul>

Missouri	<p>Riverboat gambling admission fee, applied to riverboat casinos, starting in 1994. \$2 per person.</p> <p>Riverboat gambling wagering tax: Tax base: adjusted gross receipts (AGR). Tax rate: 20% (18% to the state and 2% to the local government).</p> <p>Land-based casino taxation, starting in 1931.</p>	<p>Admissions fee: • \$1 goes to the state gaming commission. – \$0.01 of this amount goes to the compulsive gamblers treatment fund. • \$1 goes to the home dock city or county.</p> <p>Wagering tax: • 2% of AGR goes to local governments. • The state share of AGR receipts goes to veterans and education programs.</p> <p>Local governments and state general fund.</p>
Nevada	<p>Tax base: AGR. Tax rate: 3.5% on first \$50,000. 4.5% on next \$84,000. 6.75% on AGR over \$134,000.</p> <p>Other taxes and license fees: Non-restricted gaming license (issued for operation of games and/or tables only, or for the operation of 16 or more slot machines only, or for the operation of games and/or tables in conjunction with slot machines):</p> <ul style="list-style-type: none"> <li>• Slot machines:             <ul style="list-style-type: none"> <li>– annual tax (non-restricted gaming license) of \$250 per machine,</li> <li>– quarterly license fee (non-restricted gaming license) of \$20 per machine.</li> </ul> </li> <li>• Games:             <ul style="list-style-type: none"> <li>– annual license fee (non-restricted gaming license) ranging from \$100 for one game to \$16,000 plus \$200 for each game over 16,</li> <li>– quarterly license fee (non-restricted gaming license) ranging from \$12.50 for one game to \$750 total for 8–10 games, for licensees operating more than 10 games the fee is \$125 per game for up to 16 games, rising to \$20,300 plus \$25 per game for games in excess of 35.</li> </ul> </li> </ul> <p>Restricted gaming license (issued for the operation of not more than 15 slot machines and no other games):</p> <ul style="list-style-type: none"> <li>• Slot machines:             <ul style="list-style-type: none"> <li>– annual tax (restricted gaming license) of \$250 per machine,</li> <li>– quarterly license fee (restricted gaming license) of \$81 for the first slot machine, rising to \$1,815 for 15 slot machines.</li> </ul> </li> </ul> <p>Other fees</p> <ul style="list-style-type: none"> <li>• Fees are also imposed by local governments.</li> </ul>	
Live entertainment tax:	<p>Tax base: amounts paid for admission, food, refreshments and merchandise Tax rate: 10% for restricted licensees, 5% for non-restricted licensees.</p>	

**TABLE 1 (continued)**  
**U.S. STATE CASINO TAXES**

State	Forms of Casino Taxation	Uses of Casino Revenue
New Jersey	<p>Land-based casino tax, starting in 1978.</p> <p>Gambling tax:                      Tax base: AGR.                      Tax rate: 8%.</p> <p>License fees:                      The initial fee must be at least \$200,000, with an annual renewal fee of at least \$100,000. Slot machine license fees are \$500 per machine.</p> <p>Investment alternative tax:                      Tax base: AGR of casino licensees.                      Tax rate: 2.5%.</p> <p>Miscellaneous casino taxes:                     <ul style="list-style-type: none"> <li>• 4.25% tax on the value of casino complementarities (entertainment, food, rooms, beverages provided at no or reduced prices to patrons of casinos).</li> <li>• 8% tax on the gross revenues of companies that conduct multi-casino progressive slot machines.</li> <li>• 7.5% tax on the calendar year 2002 adjusted net income of a casino (for fiscal years 2004-06 only).</li> <li>• \$3 per day occupancy fee on each hotel room in a casino hotel that is occupied by a guest as a complimentary item.</li> </ul> </p>	<p>Casino revenue funds provide financial assistance to the elderly and disabled.</p>
South Dakota	<p>Limited-stakes gambling tax applied, starting 1989.</p> <p>Gaming tax:                      Tax base: adjusted gross proceeds (AGP).                      Tax rate: 8%.</p>	<p>Revenues up to \$6.8 billion per year are allocated as follows:                     <ul style="list-style-type: none"> <li>• 40% to tourism promotion.</li> <li>• 10% to Lawrence County.</li> <li>• Repayment of expenses for operation of the gaming commission.</li> <li>• \$100,000 to a historic preservation loan program.</li> <li>• Remainder of revenue goes to the City of Deadwood for its historic preservation fund.</li> </ul> <p>Revenues in excess of \$6.8 billion per year are allocated as follows:                     <ul style="list-style-type: none"> <li>• 70% goes to the state general fund.</li> <li>• 30% goes to the Lawrence County, its school districts, and the City of Deadwood.</li> </ul> </p> </p>

Source: American Gaming Association (2003), NCSL (2004), updates from the state gaming control commissions.

Anders, Siegel, and Yacoub (1998) tested the hypothesis that Indian casino introduction in 1993 caused a structural change in the sources of state revenue in Arizona. Using data on the state's largest tax source, the Transaction Privilege, Use, and Severance Tax (TPT) collected in Maricopa County, the largest county in Arizona, they found that the introduction of Indian casinos had the effect of diverting funds from taxable to non-taxable sectors of the state economy. Non-taxable Indian gaming expenditures are substituted for other taxable consumption expenditures and the TPT tax base is reduced as a result. They found that four major sectors of the economy experience revenue displacement due to Indian casinos: retail trade, restaurants and bars, hotels and motels, and amusements.

Siegel and Anders (2001) analyzed the impact of Indian casinos on state lottery revenue in Arizona as well. Using monthly data for the period from 1993 through 1998, they estimated a time series model of the various types of lottery sales. They found that a ten percent increase in slot machines, for example, results in a 3.8 percent decline in general lottery revenues and a 4.2 percent decline in Lotto revenues.

Siegel and Anders (1999) examined the economic displacement effects of river boat casinos in Missouri. Using industry-level time series data for 11 counties where new riverboat casinos were located, they found limited evidence of displacement effects. Their strongest evidence of displacement was between casino spending and spending in the entertainment and amusement sectors of the economy.

While there is, as yet, limited direct evidence on the question of the net revenue effect of casino taxation, as outlined above, there is substantial evidence of the effects of state lottery revenue. Fink, Marco, and Rork (2004) have recently examined the overall revenue effect of state lotteries and have found that the additional lot-

tery revenue is offset by reductions in other state revenue sources. They used state data over a 32 year period of time and found that a one percent increase in net lottery revenue was met by a 0.01 percent decline in aggregate tax revenues. Their investigation of the specific sources of revenue decline revealed that general sales and excise tax revenues fell with additional lottery revenue. While they also found that income tax revenues from both corporate and personal income taxes rose with higher lottery revenue, that increase was not sufficient to compensate for lower sales and excise tax revenues. Haas, Heidt and Lockwood (2000) conducted a study of the effects of new casinos on Michigan state lottery sales and found that the casinos have a negative impact on daily lottery game revenue.

Popp and Stehwien (2002) used data from 33 counties in New Mexico over the period 1990-97 to test whether Indian casinos had the effect of reducing total taxable gross receipts (TGR). They found that the first casino in a county has the effect of reducing TGR by a small but significant amount. A second casino in a county, however, has the effect of decreasing TGR by 6.2 percent, indicating a strong substitution of gambling for other taxable activity. Furthermore, they found that the presence of a casino in a county has a negative impact of TGR in neighboring counties.

Elliott and Navin (2002) examined the extent to which licensing of casinos in a state cannibalizes revenues from the state lottery. They used pooled cross-section data over the period 1989-95 estimating a sample-selection model and found significant cannibalization of lottery revenues by casinos and pari-mutual betting. State revenues still rise with the combination of casinos and a lottery, but they found that the state loses \$0.83 in net lottery revenue for each additional dollar of revenue the state derives from casino gambling.

Tosun and Skidmore (2004) examined the issue of interstate lottery competition. They used data on lottery sales for West Virginia counties over the period 1987–2000 and tested whether the introduction of new lottery games introduced by other states in bordering counties affected sales. Their empirical estimates indicate a clear effect and demonstrate that interstate competition can reduce lottery sales. Furthermore, their analysis indicates that new lottery games introduced within a state also have the effect of reducing sales revenue on the traditional lottery games. Consequently, there is evidence of substitution among games within a state and across state lines.

Consequently, while we have limited empirical research evidence on the effect of commercial casino taxes on overall state and local tax revenue, what evidence we have indicates a substantial revenue offset exists with other state taxes. We have supporting indirect evidence from the experience of states adopting lotteries and states with Indian casinos that also indicates there may be a substantial revenue offset. This is a research question in need of further analysis. It is important to know whether new casino tax revenue generated from legalization of casinos in a state where they were formerly illegal results in a reduction in overall revenue, as in the case of state lotteries. Furthermore, more evidence on the interaction between Indian casinos and other commercial casinos is needed.

### *Uses of Casino Tax Revenues*

Taxes and fees generated from casino operations are often dedicated, or earmarked, to specific state or local governments or earmarked for specific state and local government purposes. Some states provide a division of revenues for state and local governments. Many states earmark revenues for specific purposes, as recorded in Table 1, including gambling

addiction programs, tourism promotion, historic preservation, education, state fair, mental health programs, horse racing commission, and elderly and disabled programs.

In examining the list of government programs supported by casino taxes and fees, one can see the direct link between revenue generated by casino taxes and government costs related to casinos in the form of gambling addiction programs and shared revenues for local governments hosting the casinos. Support for tourism promotion may also be directly related to the casinos and their operation if the proceeds are spent on casino destination promotion. Other than that, however, the laundry list of programs supported by these funds indicates that they are replacements for general fund financing of these government activities. It may be the case that voters are induced to approve casino gambling in part by assuaging voter guilt with promises of support for unrelated but generally recognized good causes.

Casino taxation advocates tout the benefits to these purposes coming from tax revenues generated by casino taxes. Cities, in particular, see clear links between casino taxes and the local public infrastructure and services they wish to provide. Whether the earmarking of casino tax revenues to these specific purposes actually increases expenditures for these purposes is an open question, however. While there is no direct empirical evidence on the issue, there has been research on the fungibility of lottery tax revenues.

Borg and Mason (1990) analyzed the issue of earmarking of state lottery funds and found that earmarking of lottery revenues generally does not benefit the statutory recipients. In fact, they found that the recipients do not even realize the statutory benefit to which they are entitled. Spindler (1995) also studied the impact of lotteries on state education funding and found that in some states the lottery produces a positive cumulative effect on education

expenditures, but in other cases he found that the effect is negative. He concluded that despite the earmarking of lottery revenues, they were fungible, leading to the situation where the state was robbing Peter to pay Paul. Spindler (1995) found two major forms of fungibility. In one case, there is an initial increase in education expenditure after lottery implementation, followed by an abrupt reduction. In the other case, he found a constant incremental adjustment in education expenditures, with year-to-year fluctuations.

Garrett (2001) has provided the most recent analysis on this issue by updating the Mason and Borg (1990) study with new data and a new test. Using Ohio data over the period 1958–1996, where lottery operation began in 1975, he estimated a time series model that focused specifically on how the lottery funds affected education expenditures. Controlling for lottery revenues and their impact on education expenditures in the model, he examined the impact the lottery revenues had on education expenditures. His conclusion is that lottery revenues earmarked for education had no impact on education expenditures. Hence, despite earmarking, the lottery revenues were found to be fully fungible.

The policy implications of this fungibility finding are important for the budgetary incidence of casino taxes. If casino tax revenues are as fungible as lottery tax revenues appear to be, then the combined incidence of the taxes and the government spending may not be what it appears. If, for example, the casino tax revenue is earmarked for education expenditures that would have benefited low-income families, but in reality no additional education expenditures result from the earmarked casino tax revenue, the combined incidence would be less favorable to the low-income families than the statutory incidence would appear. Here, again, we need empirical research on the fungibility of casino tax

revenues to inform this important policy consideration.

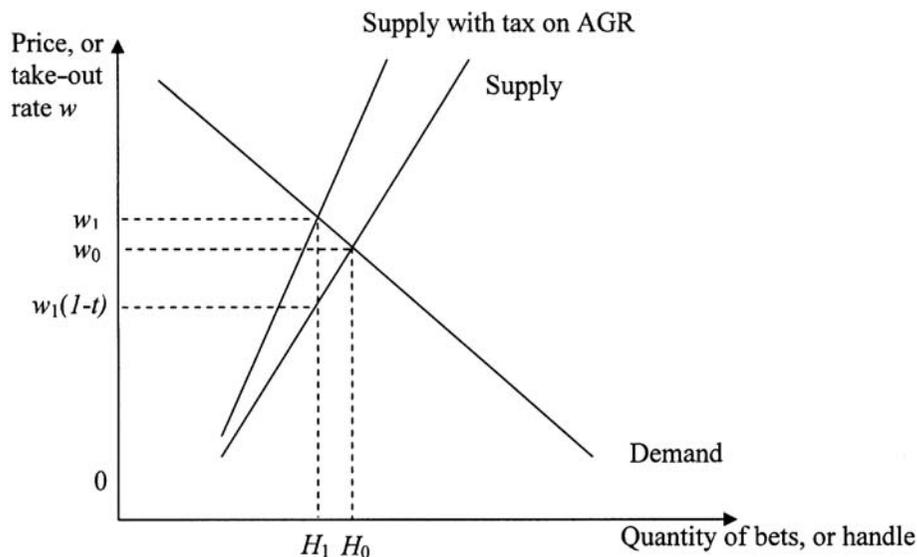
## ECONOMIC ANALYSIS OF CASINO TAXES

### *Market Analysis of a Casino Game*

It is important to consider basic market economic analysis of a casino game because the gambling context uses a unique terminology and a non-traditional approach due to the nature of casino gambling services. The fraction of total wagers placed by bettors that is withheld by the casino, called the take-out rate, determines the price of the game. The total amount of money wagered in a casino game is called the handle ( $H$ ). Total prizes paid to winners ( $P$ ) can be written as  $P = H - wH$ , where  $w$  is the withholding, or take-out, rate. Solving this prize expression for the take-out rate gives,  $w = 1 - P/H$ . Hence, the take-out rate is one minus the ratio of prizes paid to handle. This take-out rate ( $w$ ) represents the true price of the casino game being analyzed. The price of gambling with a casino game is inversely related to the prize amount:  $\partial w / \partial P = -1/H < 0$ . The higher the prize amount relative to handle, the lower is the price of gambling. We expect that gamblers will gamble more at lower relative prices (and gamble less at higher relative prices), other things being equal. While we cannot assume that gamblers have perfect information, knowing with full precision the price ( $w$ ), there is evidence from the gambling literature that indicates the price is generally well known. In particular, evidence from the lottery literature reported in Matheson and Grote (2004) indicates that lottery ticket buyers demonstrate a surprising degree of rationality.

Figure 1 illustrates the demand for a particular casino game where the price, or take-out rate ( $w$ ), is on the vertical axis and the total quantity of bets, or handle ( $H$ ), is on the horizontal axis. The demand

Figure 1. Market Analysis of a Casino Game



for the game reflects the usual situation where the higher the price reflected in the take-out rate applied by the casino, the smaller is the amount bet (handle), other things being equal. Thus, the demand function can be written as  $H(w)$ , where  $H' < 0$ .

Including the supply curve in Figure 1 gives a complete picture of the market for the game being analyzed. The supply curve is represented as relatively inelastic in Figure 1 since state governments typically limit and regulate the number and size of casinos within their jurisdictions. The interaction of demand and supply determines the equilibrium price, or take-out rate, and the equilibrium amount bet, or handle. We can then consider the effect of a tax applied to the casino offering the game.

The typical tax applied to a casino game is based on the adjusted gross receipts (AGR) of the game, with the tax revenue ( $T$ ) generated equal to the marginal tax rate ( $t$ ) applied to the tax base (AGR):  $T = t(AGR)$ . Since AGR is the product of the handle and the take-out rate ( $AGR = wH$ ), an

equivalent expression for the tax revenue is  $T = twH$ . With the tax written this way, the corresponding marginal tax rate implicitly applied to the handle, is thus,  $tw$ .

The statutory tax is applied to AGR, but we analyze the casino gambling market in terms of the handle ( $H$ ). Hence, we illustrate the tax with an upward shift of the supply curve, resulting in a higher equilibrium take-out rate and lower equilibrium handle. A tax of  $tw$  on  $H$  raises the price paid by gamblers from  $w_0$  to  $w_1$  and lowers the price received by the casino from  $w_0$  to  $w_1(1-t)$ . The tax revenue is  $tw_1H_1$ . The gambler bears the burden of  $(w_1 - w_0)H_1$  while the casino bears the burden of  $[w_0 - w_1(1-t)]H_1$ .

Despite the fact that the statutory incidence of a tax on AGR is on the casino, its economic incidence is determined by market forces with burden ultimately shared between the bettors and the casino, as illustrated in Figure 1. Of course, the economic agent with the more inelastic behavior will bear the greater share of the tax burden. If the regulatory environment of the state limits supply of the game,

resulting in a relatively inelastic supply curve, then the casino will bear a larger share of the tax burden. For example, if the state has a legal limit on the number of casinos, slot machines, or table games permitted in the state, then the supply curve becomes vertical as those limits become effective.

At this point, it is interesting to stop and consider how the state would set taxes if it were to apply monopoly regulatory and pricing rules to the casino industry. If the state were to permit just one monopoly casino and set the take-out rate in order to extract the monopoly rent earned by the casino, it would maximize  $AGR = wH - C(H)$ , where the cost of operating the casino is  $C(H)$ . Maximization with respect to  $w$  yields the familiar monopoly pricing solution,  $w = C'[e/(1 + e)]$ , where  $e$  is the price elasticity of demand. The maximum amount of state revenue would be obtained by setting the take-out rate according to this monopoly pricing formula, but allowing the casino to keep the fraction  $C(H)/H$  of the handle in order to cover its operating cost. The remaining share,  $w - C(H)/H$ , would be taken in tax by the state.

Returning to our traditional tax consideration, there is also an excess burden due to an AGR tax applied to a casino game. Figure 1 illustrates the excess burden by the usual triangle with height ( $t$ ) and width ( $H_0 - H_1$ ). The size of the excess burden of the tax will depend on the tax rate and the compensated elasticities of demand and supply.

Suits (1979a) estimated the elasticity of demand for various forms of gambling. He finds price elasticities considerably greater than one for legal bookmaking establishments in Nevada and for betting at thoroughbred race tracks. Paton, Siegel, and Williams (2004) confirm that the demand for bookmaking is price elastic, using recent changes in UK tax policy applied to bookmakers to test the elasticity. These results raise several important

policy issues. First, high-price elasticities place severe limits on gambling as a source of tax revenue. In a simple monopoly model, we know that gambling revenue would be maximized at the unitary elastic point on the demand curve. If the price elasticity exceeds unity, we are at a point on the demand curve corresponding to a higher price and smaller quantity than the revenue maximizing point. Hence, any further tax rate increase that raises the price will reduce revenue. Second, since relatively high-price elasticities are likely to be due to the availability of illegal gambling alternatives, any further tax increase may simply drive gambling activity out of the legal casino sector and into the illegal gambling sector. Although Suits (1979a) did not estimate price elasticities for casino gambling, per se, his results are suggestive of gambler responsiveness more generally and provide some of the only evidence on this issue.

Our partial equilibrium analysis of a casino game ignores the reality that there are both legal and illegal gambling opportunities and, hence, both taxed and untaxed casinos, available to gamblers. In reality, there are two sectors—legal and illegal—that need to be considered. We would expect that a tax applied in the legal casino sector would reduce the equilibrium handle in that sector, lower the after-tax take-out rate, and drive some gambling into the illegal sector. To date, there is no apparent research on optimal second-best casino taxation in this context. It is also important to take into account that some forms of casino gambling can be taxed (the activity that occurs in non-Indian reservation casinos) and other forms cannot (the activity that occurs on reservations).

### *Rationales for Casino Taxation*

Casino taxation must be examined within the larger context of legalization and regulation of gaming by states. As

states have legalized various forms of state-sponsored and commercial gaming over the past 30 years, they have done so with an explicit recognition of the potential social costs of expanded gaming and have developed elaborate regulatory contexts within which gaming takes place.<sup>1</sup> States often regulate the location and number of casinos, slot machines, and table games in order to minimize social costs. The original concept of riverboat casinos is the clearest example of that intent.

The major direct forms of taxation applied to casinos include gaming receipts (or wagering taxes), admissions taxes, and other forms of taxation. Madhusudhan (1999) reports that gaming receipts, or wagering taxes, based on AGR are the most common forms of taxation applied to casinos and account for the majority of revenues generated. Admissions taxes are the second most common and important source of revenue. In this case, the tax is typically a flat amount required of each gambler entering a casino establishment. Licenses, fees, and other forms of taxation are the third most important source of revenues. Among states with land-based casinos, Nevada has the highest share of state revenues generated by casinos at approximately 38 percent. Among riverboat casino states, Louisiana has the highest share of state revenues generated by casinos at approximately five percent. Of course, casinos also pay federal and state business corporation taxes, state and local sales taxes, and local property taxes.

One rationale for the imposition of gaming receipts, or wagering and admissions taxes applied to casinos, is the traditional logic of a sin tax. Recognizing the potential detrimental effects of casino gambling, states apply taxes to reduce the amount of this activity. Whether such taxation is effective in reducing the level of gaming activity depends, in part, on the size of the tax, the price elasticity of demand for casino gaming, and the nature of the supply of casino gambling opportunities.

A main stated rationale for fees applied to casinos is to generate revenues to cover state regulatory and enforcement costs for the casino gambling industry and the public safety and infrastructure needs of the local governments where the casinos are located. It is doubtful, however, that a state would be content with revenues that simply cover regulatory and enforcement costs. Given that the state legalization of casinos generates economic rents for the casino gaming industry, it is natural to think that the state and local governments would also desire to have a piece of the action. Hence, an important rationale for taxation of casinos may be to extract monopoly rents created through legalization and regulation of casino gambling. The state may recognize that by legalizing casino gambling and limiting the number of casinos, slot machines, and table games, it has the power to create large economic rents for casino operators. Consequently, the state may tax away a portion of those monopoly rents for its own budgetary use, leaving a sufficient amount of eco-

<sup>1</sup> As a part of a comprehensive view of the combined incidence of taxes and expenditures related to casinos, we should also consider, at least briefly, the difficult question of social costs associated with casino gambling. The social costs of casino gambling include costs related to increased crime (apprehension and increased police costs, adjudication and criminal and civil justice costs, and incarceration and supervision costs); business and employment costs (lost productivity on the job, lost time, and unemployment); bankruptcy, suicide, illness and social service costs (therapy and treatment costs, unemployment and other social service costs, including welfare and food stamps); government direct regulatory costs; family costs (divorce and separation); and abused dollars (lost gambling money acquired from family, employers, or friends under false pretenses, including theft and embezzlement). Grinols (2004) provides the most comprehensive overview of the benefits and costs related to casinos. He concludes that the costs outweigh the benefits by a factor between 3.9:1 and 6.3:1. Further evidence on the social costs of gambling can be found in General Accounting Office (2000) and in Gerstein, Hoffman, Huang, Brittingham, Larison, and Toce (1999).

conomic rent for the casino operators to induce them to operate the casinos. For an economic analysis based on this view, see Sauer (2001).

### *Incidence of Casino Taxes*

As we consider the question of who bears the burden of taxes on casinos, it is important to make a distinction not often discussed in public discourse on casino gambling. One of the attractive features of casino taxation is often said to be that the incidence of taxes on casino gambling falls entirely on the gambler, regardless of whether the tax is applied to the casino operator or the gambler. The assumption here, of course, is that gamblers are completely price inelastic. Hence, the gambler bears the burden of the tax, which is typically quite regressive as indicated by the results in Suits (1977), Suits (1982), Borg, Mason, and Shapiro (1991), Mason, Shapiro, and Borg (1989), Rivenbark (1998), and Walther (2004). Of course, the assumption of completely inelastic demand cannot be correct. As a result, there must be some sharing of the tax burden between the casino and the gamblers. Since the gambling behavior is entirely voluntary, however, some people consider the question of tax incidence as not very important. This view ignores, however, the fundamental reality that taxation of any good or service involves changing the voluntary consumption of consumers. The incidence question is no less interesting in the casino context.

There is another incidence perspective to consider, however. Casino gambling taxes may be viewed as taxes on the economic rents earned by casino operators who have been granted these rents due to restrictive government regulations on casino gambling. If casino gambling was formerly illegal in a state, then a change in state law permits a limited number of casinos to operate, and there are clear economic rents generated for the casino

operators. From this point of view, the government legalization of casino gambling, combined with restrictions on the number of casinos and slot machines, results in economic rents being earned by the casino operators. Those rents are then taxed with various forms of casino gambling taxes. From this point of view, casino taxes may not be regressive if they do not fall on the gamblers. Indeed, they may be progressive if the burden of the tax falls on the casino owners (and casino owners are not able to pass the tax on to labor).

There is little research on how casino taxation may affect the economic rents earned by casino operators. An indirect piece of evidence is provided by Shonkwiler (1993) who examined the effect of legalizing casinos in Atlantic City in 1976 on the existing casinos in Nevada. That study provides evidence from a dynamic unobserved components time series model that by 1985 the impact of Atlantic City casinos had reduced the steady-state Nevada gaming revenues by about ten to 12 percent. Such evidence indicates that the economic rents earned in Nevada when it was effectively a monopoly location for casinos were susceptible to legalization in New Jersey.

Taxes on gambling have generally been found to be regressive in their incidence. The seminal study on gambling tax incidence is Suits (1977). Using a national survey on gambling conducted during the summer of 1975 (covering horse tracks, state lotteries, casino games, numbers, sports cards, off-track betting, and sports books), he estimated the incidence of various gambling taxes. His estimates indicated that taken as a whole, gambling taxes were somewhat more regressive than state sales taxes. He found wide variation, however, in the incidence of specific forms of gambling taxation with taxes on lotteries, numbers, and sports cards being two to three times more regressive than state sales taxes, but Nevada

casino gambling taxes being progressive. Indeed, his estimates indicated that those casino taxes were approximately twice as progressive as the U.S. personal income tax. He reasoned that the cost of travel to the action accounted for the high degree of progressivity he found for the Nevada casino tax. Taking into account plane fare, hotel room and meal costs, plus the need for sufficient leisure time to make the trip, these costs acted like a high admission charge that discouraged participation by poor people. He also speculated that if casino gambling were to become more readily accessible elsewhere in the country, its taxation would become more regressive. That has certainly happened, and we know that the contemporary casino situation results in much less progressive, or more regressive, taxation.

As we have noted, since Suits (1977) published his paper, casino gambling has spread across the U.S. As a result, the travel and time costs for casino gamblers have been greatly reduced. Borg, Mason, and Shapiro (1991) challenge the Suits (1977) results for Nevada casinos. Rather than use a national sample as in Suits (1977), they use survey data obtained from gamblers who either lived in or traveled to Las Vegas or Atlantic City. They find that casino taxes are regressive. In fact, their results for Las Vegas are strongly regressive. They conclude that with easier access to casino gambling opportunities, taxes on casino gambling are placing a proportionately heavier burden on low-income groups.

Economic analysis of the incidence of taxation for state lotteries provides similar evidence that the taxes are generally regressive. See Scott and Garen (1993), for example, for a careful study of lottery tax incidence. The only evidence suggesting a possible progressive incidence for gambling taxes is that of Oster (2004) for the PowerBall lottery game in the case of very large jackpots that draw in large volumes of new players.

Rivenbark (1998) estimated the pattern of incidence using survey data collected from gamblers in Mississippi. He found that the incidence of casino taxes is regressive for members of both casino counties and non-casino counties; however, he found that the degree of regressivity is greater for residents of casino counties. One would suppose that this result reflects the fact that greater access and closer proximity to casinos results in more gambling among low-income gamblers. Rivenbark (1998) concludes that once casino gambling access is readily available, the poor become more attracted to gaming.

To the extent that casino taxes are more regressive than other taxes whose revenue they replace in state and local government budgets, the differential tax incidence is more regressive. As states rely more heavily on casino taxes as substitutes for income taxes or even sales taxes, the differential tax incidence is clearly made more regressive. Of course, what matters most as we consider the incidence question is the combined incidence of the taxation and spending package related to casinos, or the balanced-budget incidence of casino taxation. If casino taxes and fees are applied in a regressive manner, but spending for programs funded by those taxes and fees is allocated disproportionately to the poor, the overall incidence of the casino fiscal system might be substantially less regressive. Clearly, this is what state policy makers have in mind. Table 1 illustrates that policy makers have earmarked casino tax revenues for a wide range of purposes, many of which seem intended to provide benefits for low-income families. With states earmarking revenues for local public safety, public education, and such activities, it is clear that this is what states had in mind in crafting the enabling legislation.

## SUMMARY AND CONCLUSIONS

Casino taxation by state and local government in the United States is an

increasingly important aspect of tax policy as the spread of casino gambling by commercial casinos has introduced the opportunity to generate additional revenue. While casino taxes are generating rapidly increasing revenues, they still account for just one-third of one percent of total own-source revenues collected by state and local governments in the U.S. Despite that small share, it is clear that the rates of increase in casino tax revenue are rising and, in some states where the gambling industry has matured, these taxes are substantial revenue sources.

Commercial casinos are taxed primarily with wagering taxes based on their adjusted gross receipts (AGR). The wagering tax rates applied vary from a low of four percent in Mississippi to a high of 70 percent in Illinois. The wide variation in wagering tax rates applied to AGR deserves further economic analysis. To date there is no research on the determinants of wagering tax rates. Riverboat casinos are taxed with both wagering taxes and admissions taxes. Admissions taxes vary from a low of two dollars in Mississippi to a high of five dollars in Illinois and Iowa. In practice, the wagering tax revenue typically goes to the state, while the admissions tax revenue goes to the casino host local government. Such a division of revenue seems purely *ad hoc*. Research is needed to analyze the optimal combination of admission fees and wagering taxes.

Beyond wagering and admissions taxes, states also apply various licensing fees. The most elaborate fee structure is that of Nevada, where fees are applied to slot machines, table games, and live entertainment. New Jersey applies a slot machine license fee and also levies license fees of at least \$200,000 per casino plus annual renewal fees of at least \$100,000. Research is needed in this area to determine both the appropriate mix of wagering tax and licensing fees for casinos and the appropriate mix of casino taxation and complementary good taxation

(hotel rooms, live entertainment, food, drinks, etc.).

Revenue interactions with other sources of state revenue are apparent from the economic studies conducted in casino states to date. It seems clear that a good portion of the revenue generated by taxes on casinos is offset by reduced revenues from other sources, primarily from sales and excise taxes. Hence, the net revenue effect of additional casino taxes is smaller than it first appears. Additional research on this issue is needed in order to provide a clear picture of the net revenue implications of casinos.

Uses of casino tax and fee revenue run the gamut from being directed into the state's general fund to being earmarked for specific programs such as education, gambling addiction, tourism promotion, historic preservation, and other programs. Evidence on the fungibility of funds from lotteries indicates that earmarking for specific purposes is not likely to assure increased funding for those purposes. Additional research is needed to determine more precisely, in the case of casinos, how earmarked revenues affect expenditure levels in dedicated programs and how they may affect other tax rates such as state sales and excise tax rates.

Evidence on the incidence of casino taxes indicates that they are born primarily by the gamblers and are quite regressive. With increasing casino access as gambling opportunities spread across the country, however, the degree of repressiveness may be reduced as more gamblers can afford both the time and out-of-pocket costs to engage in casino gambling. An important issue related to the incidence of casino taxes has not been addressed in the literature, however. That issue is the extent to which state regulations on the number and location of casinos confer economic rents for casino owners and operators, and the corresponding question of how the states may attempt to capture a certain portion of those economic rents.

Through taxes and license fees, the states may be in a position to effectively extract a substantial portion of the economic rents conferred, but there is not yet any substantial economic analysis of this potential.

Casino taxation, therefore, provides not only the prospect of additional revenues for state and local governments, but also a variety of new opportunities for public finance researchers. The research questions outlined above beg for attention as state and local governments are increasingly intent on pursuing revenue opportunities and policy makers need more insightful analyses on which to base their enabling casino legislation.

### Acknowledgments

Thanks are due to Bree Dority O'Callaghan for excellent research assistance. Remaining errors are the author's alone.

### REFERENCES

- American Gaming Association.  
*Industry Information, State Information: Statistics*. Washington, D.C., 2003. <http://www.americangaming.org/Industry/state/statistics.cfm>
- American Gaming Association.  
*2004 State of the States: The AGA Survey of Casino Entertainment*. Washington, D.C., 2004.
- Anders, Gary C., Donald Siegel, and Munther Yacoub.  
"Does Indian Casino Gambling Reduce State Revenues? Evidence from Arizona." *Contemporary Economic Policy* 16 No. 3 (July, 1998): 347–55.
- Borg, Mary, and Paul Mason.  
"Earmarked Lottery Revenues: Positive Windfall or Concealed Redistribution Mechanism?" *Journal of Education Finance* 15 No. 3 (Winter, 1990): 289–301.
- Borg, Mary, Paul Mason, and Stephen Shapiro.  
"The Incidence of Taxes on Casino Gambling: Exploiting the Tired and Poor." *American Journal of Economics and Sociology* 50 No. 3 (July, 1991): 323–32.
- Eadington, William R.  
"The Economics of Casino Gambling." *Journal of Economic Perspectives* 13 No. 3 (Summer, 1999): 173–92.
- Elliott, Donald S., and John C. Navin.  
"Has Riverboat Gambling Reduced State Lottery Revenue?" *Public Finance Review* 30 No. 3 (May, 2002): 235–47.
- European Commission.  
*Decisions by the Court of Justice and the Court of First Instance (22/96)*. Bulletin EU 11–2003, Brussels, 2003.
- European Lotteries.  
"Consultation on a New Legal Framework for Payments in the Internal Market." Position Paper, Brussels, February 13, 2004.
- Evans, William N., and Julie H. Topoleski.  
"The Social and Economic Impact of Native American Casinos." NBER Working Paper No. 9198. Cambridge, MA: National Bureau of Economic Research, 2002.
- Fink, Steven C., Alan C. Marco, and Jonathan C. Rork.  
"Lotto Nothing? The Budgetary Impact of State Lotteries." *Applied Economics* 36 No. 21 (December, 2004): 2357–67.
- Garrett, Thomas A.  
"Earmarked Lottery Revenues for Education: A New Test of Fungibility." *Journal of Education Finance* 26 No. 3 (Winter, 2001): 219–38.
- Garrett, Thomas A.  
"Casino Gambling in America and Its Economic Impacts." St. Louis: Federal Reserve Bank of St. Louis, 2003.
- Gerstein, Dean, John Hoffman, Lynn Huang, Angie Brittingham, Cindy Larison, and Marianna Toce.  
"Gambling Impact and Behavior Study." Report to the National Gambling Impact Study Commission, 1999. [www.casino-gambling-reports.com/GamblingStudy/](http://www.casino-gambling-reports.com/GamblingStudy/).
- Grinols, Earl.  
*Gambling in America: Costs and Benefits*. Cambridge, UK: Cambridge University Press, 2004.
- Haas, Mark, Denise Heidt, and Andrew Lockwood.  
"Estimating Michigan Lottery Revenues when New Casinos Open." In *Proceedings*

- of the Ninety-Second Annual Conference on Taxation*, 191–97. Washington, D.C.: National Tax Association, 2000.
- Hoffman, John, Dean Gerstein, Lynn Huang, Angie Brittingham, Cindy Larison, and Marianna Toce.  
*Analysis of the Casino Survey, Report to the National Gambling Impact Study Commission*. Chicago: National Opinion Research Center at the University of Chicago, 1999.
- Leven, Charles, and Donald Phares.  
“Casino Gambling in Missouri: The Spending Displacement Effect and Net Economic Impact.” In *Proceedings of the Ninetieth Annual Conference on Taxation*, 431–38. Washington, D.C.: National Tax Association, 1998.
- Madhusudhan, Ranjana G.  
“What Do We Know About Casino Taxation in the United States?” In *Proceedings of the Ninety-First Annual Conference*, 85–95. Washington, D.C.: National Tax Association, 1999.
- Madhusudhan, Ranjana G.  
“Betting on Casino Revenues: Lessons from State Experiences.” *National Tax Journal* 49 No. 3 (September, 1996): 401–12.
- Mason, Paul M., and Harriet Stranahan.  
“The Effects of Casino Gambling on State Tax Revenue.” *Atlantic Economic Journal* 24 No. 4 (December, 1996): 336–48.
- Mason, Paul, Stephen Shapiro, and Mary Borg.  
“Gaming Tax Incidence for Three Groups of Las Vegas Gamblers.” *Applied Economics* 21 No. 9 (September, 1989): 1267–77.
- Matheson, Victor A., and Kent R. Grote.  
“Lotto Fever: Do Lottery Players Act Rationally Around Large Jackpots?” *Economics Letters* 83 No. 2 (May, 2004): 233–7.
- National Conference of State Legislatures (NCSL).  
“State Casino Taxes.” Denver, Colorado, June 4, 2004. [www.ncsl.org/programs/econ/casinotaxes.htm](http://www.ncsl.org/programs/econ/casinotaxes.htm).
- National Indian Gaming Commission.  
“Indian Gaming Regulatory Act Overview.” 2004. <http://www.nigc.gov/nigc/laws/igra/overview.jsp>.
- Oster, Emily.  
“Are All Lotteries Regressive? Evidence from the Powerball.” *National Tax Journal* 57 No. 2 Part 1 (June, 2004): 179–87.
- Paton, David, Donald Siegel, and Leighton Vaughan Williams.  
“Taxation and the Demand for Gambling: New Evidence from the United Kingdom.” *National Tax Journal* 57 No. 4 (December, 2004): 847–61.
- Popp, Anthony V., and Charles Stehwien.  
“Indian Casino Gambling and State Revenue: Some Further Evidence.” *Public Finance Review* 30 No. 4 (July, 2002): 320–30.
- Quiggin, John.  
“On the Optimal Design of Lotteries.” *Economica* 58 No. 229 (February, 1991): 1–16.
- Rivenbark, William C.  
“The Tax Incidence of Casino Gaming in Mississippi.” *Public Finance Review* 26 No. 6 (November, 1998): 583–98.
- Sauer, Raymond D.  
“The Political Economy of Gambling Regulation.” *Managerial and Decision Economics* 22 No. 1–3 (January–May, 2001): 5–15.
- Scott, Frank, and John Garen.  
“Probability of Purchase, Amount of Purchase, and the Demographic Incidence of the Lottery Tax.” *Journal of Public Economics* 54 No. 1 (May, 1993): 121–43.
- Shonkwiler, J. Scott.  
“Assessing the Impact of Atlantic City Casinos on Nevada Gaming Revenues.” *Atlantic Economic Journal* 21 No. 2 (June, 1993): 50–61.
- Siegel, Donald, and Gary Anders.  
“Public Policy and the Displacement Effects of Casinos: A Case Study of Riverboat Gambling in Missouri.” *Journal of Gambling Studies* 15 No. 2 (June, 1999): 105–21.
- Siegel, Donald, and Gary Anders.  
“The Impact of Indian Casinos on State Lotteries: A Case Study of Arizona.” *Public Finance Review* 29 No. 2 (March, 2001): 139–47.
- Smith, Julie.  
“Gambling Taxation: Public Equity in the Gambling Business.” *Australian Economic Review* 33 No. 2 (June, 2000): 120–44.
- Spindler, Charles.  
“Robbing Peter to Pay Paul?” *Public Budgeting and Finance* 15 No. 3 (Fall, 1995): 54–62.

- Suits, Daniel B.  
"Gambling Taxes: Regressivity and Revenue Potential." *National Tax Journal* 30 No. 1 (June, 1977): 19–35.
- Suits, Daniel B.  
"Elasticity of Demand for Gambling." *Quarterly Journal of Economics*, 93 No. 1 (February, 1979a): 155–62.
- Suits, Daniel B.  
"Economic Background for Gambling Policy." *Journal of Social Issues* 35 No. 2 (Summer, 1979b): 43–61.
- Suits, Daniel B.  
"Gambling as a Source of Revenue." In *Michigan's Economic and Fiscal Structure*, edited by Harvey E. Brazer and Deborah S. Laren, 828–53. Ann Arbor: University of Michigan Press, 1982.
- Thompson, William N.  
"Casinos de Juegos del Mundo: A Survey of World Gambling." *Annals of the American Academy of Political and Social Science* 556 (March, 1998): 11–21.
- Tosun, Mehmet Serkan, and Mark Skidmore.  
"Interstate Competition and State Lottery Revenues." *National Tax Journal* 57 No. 2 (June, 2004): 163–78.
- U.S. General Accounting Office.  
*Impact of Gambling: Economics Effects More Measureable Than Social Effects*. Washington, D.C., 2000. <http://www.gao.gov/new.items/gg000078.pdf>.
- Walther, Herbert.  
"Microfoundations of Lotto." Paper Presented at the 97<sup>th</sup> Annual Conference on Taxation, National Tax Association, Minneapolis, MN, 2004.