

## THE IMPACT OF LEGALIZED CASINO GAMBLING ON STATE EDUCATION SPENDING DISPLACEMENT

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### ABSTRACT

Corporate casino gambling has expanded from being legal in only two U.S. states (Nevada and New Jersey) in the late 1980s to 12 states in 2006. As a result, the annual gambling revenue realized by the casino industry has grown from \$9 billion in 1991 to over \$32 billion in 2006. The growth of gambling in many states has not been matched by a corresponding increase in academic research on casino gambling. To shed more light on casino gambling and state budgets, this research examines state education spending following the introduction of corporate casino gambling and attempts to answer the following question: Does gambling revenue earmarked for education spending displace funds usually spent on these programs?

### INTRODUCTION

Corporate casino gambling has expanded from being legal in only two U.S. states (Nevada and New Jersey) in the late 1980s to 12 states in 2006. As a result, the annual gambling revenue realized by the casino industry has grown from \$9 billion in 1991 to over \$32 billion in 2006. The growth of gambling in many states has not been matched by a corresponding increase of academic research on casino gambling. The majority of studies on corporate casinos focus on the social vices associated with gambling (Schofield, Mummery, Wang, & Dickson, 2004; Shaffer & Kidman, 2004; Raylu & Oei, 2002;

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Welte et al., 2001; Bondolfi, Osiek, & Ferrero, 2000; Slutske et al., 2000; Korn & Shaffer, 1999; Miller & Westermeyer, 1996; Smart & Ferris, 1996), such as increases in violence and pathological gambling (Berman & Siegel, 1992; Castellani, 2000; Herscovitch, 1999). Some studies on the economic impact of casino gambling are commissioned by corporate casinos to tout their economic benefits to states and localities. There are only a few rigorous academic studies on the fiscal impact of casino gambling. In general, most citizens and policymakers lack sufficient information about the fiscal impact of gambling taxes on state budgets.

In order to shed more light on the relationship between casino gambling and state budgets, this research examines state spending displacement following the introduction of corporate casino gambling and attempts to answer the following question: Does gambling revenue earmarked for state education spending displace funds usually spent on these programs? Based on promises made to gain public support for legalizing corporate casino gambling, many state policymakers earmark a portion of tax revenue from casino gambling for specific programs. Currently, earmarking gaming revenue for education spending is popular. In the case of education spending, the public assumes that the earmarked gaming revenue complements current education funding amounts. However, spending displacement results if the casino revenue substitutes for, rather than complements, existing revenue. Consequently, there is less than anticipated or no significant increase in education funding. This research addresses this issue by examining the revenue-displacement impact of earmarked corporate casino tax revenue on education spending in Illinois, Michigan, and Missouri.

The study examines data for the three states from 1970 through 2004. This period provides an adequate time span to evaluate education spending from state general funds and determine whether displacement took place following the introduction of earmarked education spending from casino gambling tax revenue.

#### LITERATURE REVIEW

“Earmarking” is defined as the “practice of designating or dedicating specific revenues to the financing of specific public services” (Buchanan, 1963). This topic is placed under various

classifications, such as “special funds,” “segregated accounts,” “segregated budgets,” and “dedicated revenues.” Generally, earmarking refers to dedicating a single tax source to a single public service. However, the term is applicable to the “creation of special-purpose fiscal units, such as school districts, fire districts, and sanitation districts, each of which is granted independent, but restricted, taxing powers” (Buchanan, 1963, p. 458). Earmarking is important at various levels of government. At the local level, earmarked funds support important programs such as education spending. At the state level, almost one-half of all state collections are designated for various programs. At the federal level, there has been significant growth in the use of trust-fund accounts for such programs as highway construction, social security, and other social services.

Earmarking funds from certain revenue sources for specific programs is very common in state budgeting. In 1997, 28 states dedicated cigarette and tobacco taxes, thirty-six states dedicated sales and use taxes, and all fifty states dedicated motor fuel taxes to specific programs (Fiscal Planning Services, 2000, as stated in Novarro, 2002). In 2000, an average of 24 percent of total state expenditures was reserved by law for specific government programs. The sectors receiving the most earmarked funds were transportation (22.8 percent), elementary and secondary education (9.9 percent), and higher education (13.9 percent) (NASBO, 2001). Table 1 details the prevalence of earmarking in different states in 1996. The percentage of tax revenues earmarked in a state can be as low as 5 percent (Rhode Island and Hawaii) or as high as 87 percent (Alabama).

### **Earmarking in Different Contexts**

Researchers have studied earmarking in many budgeting contexts. For example, Phelps (1969) examines the impact of earmarking on highway grants. Zampelli (1986) looks at earmarking in the context of federal aid for three separate public service categories. Weicher (1972); Bowman (1974); Feldstein (1975); Ladd (1975); Inman (1978); McGuire (1978); Johnson (1979); Olmsted, Denzau, and Roberts (1993); Peterson (1975); and Wyckoff (1991) examine the impact of intergovernmental grants earmarked for various educational programs. These studies conclude that each

**TABLE 1**  
**Earmarking State Revenues**

Region and State	Revenues Earmarked (%)	Areas to which state dedicates earmarked revenues				
		Transp	LG	Ed	HWHS	Env
<b>New England</b>						
Connecticut	10	x	x	—	—	x
Maine	12	x	x	—	—	—
Massachusetts	39	x	x	—	x	x
New Hampshire	14	x	x	—	—	—
Rhode Island	5	x	x	—	—	—
Vermont	13	x	—	—	x	x
<b>Mid-Atlantic</b>						
Delaware	6	x	x	—	—	x
Maryland	17	x	—	—	—	x
New Jersey	39	—	x	x	x	x
New York	8	x	x	—	—	—
Pennsylvania	11	x	x	—	x	x
<b>Great Lakes</b>						
Illinois	32	x	x	x	x	x
Indiana	26	x	x	—	x	x
Michigan	39	x	x	x	x	—
Ohio	17	x	x	—	x	x
Wisconsin	9	x	x	—	—	x
<b>Plains</b>						
Iowa	22	x	x	—	—	—
Kansas	25	x	x	x	x	x
Minnesota	16	x	x	x	x	x
Missouri	27	x	x	x	—	—
Nebraska	21	x	x	x	—	x
North Dakota	22	x	x	x	—	—
South Dakota	47	x	x	x	—	—
<b>Southeast</b>						
Alabama	87	x	x	x	x	—
Arkansas	13	x	x	x	x	—
Florida	28	x	x	x	x	x
Georgia	6	x	—	—	—	—
Kentucky	4	x	x	—	x	—
Louisiana	15	x	x	x	—	—
Mississippi	26	x	x	x	x	—
North Carolina	19	x	x	x	x	—

TABLE 1 (Continued)

Region and State	Revenues Earmarked (%)	Areas to which state dedicates earmarked revenues				
		Transp	LG	Ed	HWHS	Env
South Carolina	17	x	x	x	x	—
Tennessee	60	x	x	x	—	x
Virginia	25	x	x	x	—	—
West Virginia	19	x	x	x	x	—
<b>Southwest</b>						
Arizona	30	x	x	x	x	x
New Mexico	40	x	x	x	x	—
Oklahoma	21	x	x	x	x	x
Texas	21	x	x	x	—	—
<b>Rocky Mountain</b>						
Colorado	20	x	x	—	—	—
Idaho	21	x	x	x	x	x
Montana	64	x	x	x	x	—
Utah	55	x	—	x	—	—
Wyoming	17	x	x	—	—	—
<b>Far West</b>						
Alaska	8	x	x	x	—	—
California	19	x	x	—	x	—
Hawaii	5	x	x	—	—	—
Nevada	57	x	x	x	x	x
Oregon	21	x	x	x	x	x
Washington	30	x	x	x	x	x
<b>Total (or average)</b>	24	50	46	30	27	22

Legends: Transp = Transportation; LG = Local government; Ed = Education; HWHS = Health, welfare, and human services; Env = Environment.

Source: National Conference of State Legislatures (1996).

earmarked dollar of lump-sum grants spent in the designated public sectors displaces from \$0.22 to \$0.78. Some international studies on earmarking include Pack and Pack (1990; 1993) and Cashell-Cordo and Craig (1990), who use a reduced-form equation to study the effect of earmarked aid on expenditures in foreign governments. Feyzioglu, Swaroop, and Zhu (1998); Swaroop, Jha, and Rajkumar (2000); and Franco-Rodriguez (2000) study the impact of earmarking on foreign aid to developing countries and find varying effects on the

displacement of aid on public expenditures. Finally, Gupta (1993) studies the revenue displacement of various categories of foreign aid and finds that some categories of aid are more heavily displaced than others. These studies by and large conclude that aid to foreign governments is either highly or completely displaced.

Many researchers have studied earmarking specifically in the context of state education spending. Deran (1965) undertook one of the earliest studies of earmarking by utilizing survey data on the earmarking of state taxes to find “no bivariate association between earmarking as a share of expenditures and expenditures per capita” (Jung, 2002, p. 30). Studies on gambling revenue offer critical insight into the issue. In studying state lotteries, Spindler (1995) argues that education spending ratios (state education spending versus state general revenue fund) tend to drop after the introduction and adoption of state lotteries. In another important study, Miller and Pierce (1997) find that education expenditures generally increase more in nonlottery states than in lottery states. Both of these studies posit that earmarked revenue from state lotteries is displaced. The revenue-displacement effect of earmarked lottery revenue is supported in varying degrees by Clotfelter and Cook (1989; 1990), Borg and Mason (1988), DeBoer (1986), Mikesell and Zorn (1986), Borg and Mason (1989), Mikesell and Pirog-Good (1990), Borg, Mason, and Shapiro (1991), Evans and Zhang (2002), and Novarro (2002).

As a means of gaining support for legalized corporate casino gambling, lawmakers earmark a large percentage of gambling revenue for specific state and local programs. Consequently, the public supports legalizing gambling in the belief that taxes collected on corporate casino revenue will marginally increase the funding that various programs receive. For example, in the case of education spending, people who support casino gaming earmarks generally assume that tax revenue collected from casino gaming will supplement state spending on education rather than replace appropriations from existing general funds. In studies that examine the displacement of casino revenue in Mississippi, Stanley (2003, 2004a, 2004b) and Stanley and French (2001, 2002) find that tax revenue from corporate casinos earmarked for education increases education spending in state school districts. So far, there is no empirical support for substitution.

### RESEARCH HYPOTHESIS AND EMPIRICAL MODEL

The research hypothesis holds that revenue earmarked for education spending displaces money previously budgeted from other sources of revenue. The empirical model for determining the state spending displacement of earmarked corporate casino tax revenue is provided below:

$$YREXP = \gamma C + \beta X + \varepsilon$$

Where:

$YREXP$  = Total yearly educational expenditures at the elementary and secondary level. This total does not include any capital expenditures for education primarily because the politics surrounding the issuance of bonds for the development or improvement of educational infrastructure differs significantly from the politics associated with non-capital expenditure.

$C$  = yearly earmarked casino profits, while  $\gamma$  denotes the corresponding parameter coefficient.

$X$  = the state demographic characteristics that impact educational spending.

$\varepsilon$  = random error.

Total Yearly Education Expenditures ( $YREXP$ ) at the elementary and secondary level does not include any capital expenditures for education. This expenditure was excluded primarily because the politics surrounding the issuance of bonds for the development or improvement of education infrastructure differs significantly from the politics associated with noncapital expenditures.  $C$  corresponds to yearly earmarked casino profits, while  $\gamma$  denotes the corresponding parameter coefficient.  $X$  represents the state demographic characteristics that affect education spending. The variable  $\varepsilon$  accounts for random error.

This research uses OLS regression to determine the change in education funding before and after the introduction of gambling revenue in state budgets. The degree of change in education funding levels helps establish the presence of state spending displacement associated with earmarked gambling revenue.

#### Variable Description

The dependent variable *Yearly Education Expenditure* is influenced by the independent *Earmarked Casino Revenue* and

*Demographic* variables. Yearly education expenditure is the annual state revenue set aside for education spending. Earmarked casino revenue comprises the casino profits earmarked for education spending, measured in dollars on a yearly basis. The demographic variable tracks characteristics that influence or serve as indicators of a state's demand for school spending. These characteristics include *Per Capita Personal Income*, *Per Capita (non-casino) State Revenue*, *Unemployment Rate*, and *Percentage of Population between the Ages of 5 and 17* (primary- and secondary-school-age).

Some of the characteristics stated above increase the demand for school spending, while others have the converse effect. For example, if the percentage of the population that is between the ages of 5 and 17 increases, then the state's demand for primary and secondary education funding will also rise. Moreover, an increase or decrease in the per capita state income will generally translate into a respective increase or decrease in spending allocation. The same condition holds true for the state's unemployment rate and per capita (non-casino) state revenue.

### **Data Sources**

The data for each state's *Current Education Expenditures* were gathered from the National Center for Education Statistics' Data Resource Center. Data for *Total State Expenditure*, broken down by elementary and secondary education, were collected from the U.S. Census Bureau. *Annual Gambling Revenue (AGR)* statistics were obtained from the casino gaming commissions of the various states. This information was used to determine *Casino Revenue Placed in State General Funds* and *Casino Revenue Earmarked for Any Education Level*. The demographic variables are: *Percentage of Population between Age 5 and 17* and *Percentage of Population over Age 65*. This information was collected from U.S. Census Bureau's Current Population Reports. The *Unemployment Rate* data were collected from the Current Population Survey (CPS) of the Bureau of Labor Statistics. *Total State Revenue* data were obtained from the U.S. Census Bureau's State Government Finances annual reports. *Personal Income* data originated from the Census Bureau's Current Population Reports. This information is used to determine *Per Capita State Personal Income*. Appendix 1 lists the variables collected for



the examination of state spending revenue displacement and the years for which they were collected.

### RESEARCH FINDINGS

Table 2 provides the descriptive statistics, Table 3 details the correlation analysis, and Table 4 examines the revenue displacement of earmarked casino funds for education spending. As stated above, the research focuses on three states (Illinois, Michigan, and Missouri) that earmark a percentage of corporate casino gambling revenue

**TABLE 2**  
**State Spending Displacement: Descriptive Statistics**

	Non-casino per capita (in 1,000)	Education per capita (in 1,000)	Unemployment rate	Population between 5 and 17 (in 1,000)	Population over 65 (in 1,000)	Per capita income (in 1,000)
Mean (\$)	3,112	12.11	4.93	1,754	1,147	27,727
Standard error (\$)	227	2.27	0.21	101.71	59.82	716.56
Median (\$)	3,300	8.15	4.70	1,911	1,176	28,095
Mode (\$)	N/A	0.00	5.70	1,013	746	N/A
Standard deviation (\$)	1,265	12.64	1.14	566.28	333.07	3,989.65
Sample variance (\$)	1,599,826	159.83	1.31	320,676	110,938	15,917,337
Minimum (\$)	-67.13	0.00	3.30	997	703	20,848
Maximum (\$)	5,104	43.75	7.60	2,367	1,500	3,4725
Count	31	31	31	31	31	31

**TABLE 3**  
**State Spending Displacement: Correlation Analysis**

		Exp	E/CR	I	Rev	Unemp	YP	OP
State government education expenditure	Pearson Cor.	1	.202	.633 <sup>a</sup>	.803 <sup>a</sup>	.024	.419 <sup>b</sup>	.288
	Sig. (two-tailed)		.312	.000	.000	.902	.027	.138
	N	28	27	28	28	28	28	28

TABLE 3 (Continued)

		Exp	E/CR	I	Rev	Unemp	YP	OP
Casino revenue earmarked for education	Pearson Cor.	.202	1	.675 <sup>a</sup>	.575 <sup>a</sup>	.179	.682 <sup>a</sup>	.595 <sup>a</sup>
	Sig. (two-tailed)	.312		.000	.002	.344	.000	.001
	N	27	30	30	27	30	30	30
Per capita income	Pearson Cor.	.633 <sup>a</sup>	.675 <sup>a</sup>	1	.723 <sup>a</sup>	-.179	.414 <sup>b</sup>	.261
	Sig. (two-tailed)	.000	.000		.000	.335	.021	.156
	N	28	30	31	28	31	31	31
State revenue with corporate casino revenue	Pearson Cor.	.803 <sup>a</sup>	.575 <sup>a</sup>	.723 <sup>a</sup>	1	.117	.824 <sup>a</sup>	.723 <sup>a</sup>
	Sig. (two-tailed)	.000	.002	.000		.554	.000	.000
	N	28	27	28	28	28	28	28
Unemployment rate	Pearson Cor.	.024	.179	-.179	.117	1	.489 <sup>a</sup>	.558 <sup>a</sup>
	Sig. (two-tailed)	.902	.344	.335	.554		.005	.001
	N	28	30	31	28	31	31	31
Population between 5 and 17	Pearson Cor.	.419 <sup>b</sup>	.682 <sup>a</sup>	.414 <sup>a</sup>	.824 <sup>a</sup>	.489 <sup>a</sup>	1	.982 <sup>a</sup>
	Sig. (two-tailed)	.027	.000	.021	.000	.005		.000
	N	28	30	31	28	31	31	31
Population over 65	Pearson Cor.	.288	.595 <sup>a</sup>	.261	.723 <sup>a</sup>	.558 <sup>a</sup>	.982 <sup>a</sup>	1
	Sig. (two-tailed)	.138	.001	.156	.000	.001	.000	
	N	28	30	31	28	31	31	31

Legends: Exp = State government education expenditure; E/CR = Casino revenue earmarked for education; I = Per capita income; Rev = State revenue with corporate casino revenue; Unemp = Unemployment rate; YP = Population between 5 and 17; OP = Population over 65; Pearson Cor. = Pearson Correlation.

Notes: <sup>a</sup> Correlation is significant at the 0.01 level (two-tailed).

<sup>b</sup> Correlation is significant at the 0.05 level (two-tailed).

**TABLE 4**  
**Displacement of Casino Revenue Earmarked for Education Spending**

	Coefficients <sup>a</sup>			t	Sig.
	Unstandardized		Standardized		
	Slope	Std. Error	Beta		
(Constant)	-.149	.017		-8.686	.000
Education expenditure from state government	-6.51E-009	.000	-.717	-7.654	.000
Population between 5 and 17	3.59E-005	.000	.719	8.993	.000
Per capita income	5.26E-.006	.000	.695	7.438	.000

Note: <sup>a</sup> Dependent variable: Casino revenue as a proportion of education expenditure.

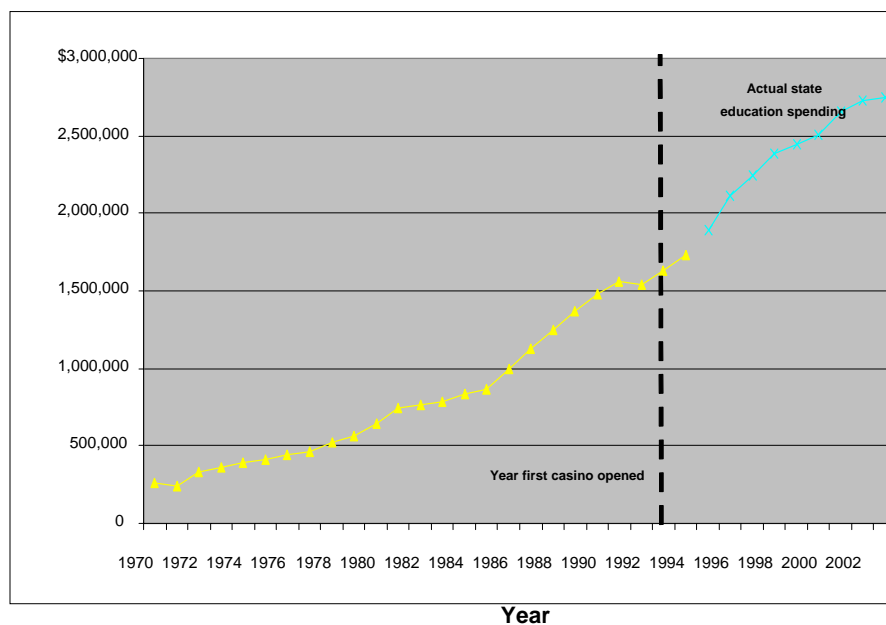
directly for education spending. The other states with corporate casino gaming place that revenue into the state's general fund, which is then allocated towards education spending. The data reveal that casino revenue earmarked for education spending grows at a slower rate than non-casino revenue for education spending. Additionally, for every dollar of growth in education expenditure from non-casino revenue, the proportion originating from casino revenue decreases by roughly six-billionths of a percentage point. Although a very small amount of earmarked casino revenue is displaced, there is an overall increase in education spending following the introduction of casino gaming.

Tax revenue earmarked for education spending is only slightly displaced, and contributes to an increase in total education spending in the three states. Figures 1 through 3 track education expenditures in the three states with corporate casino tax revenue specifically earmarked for education spending.

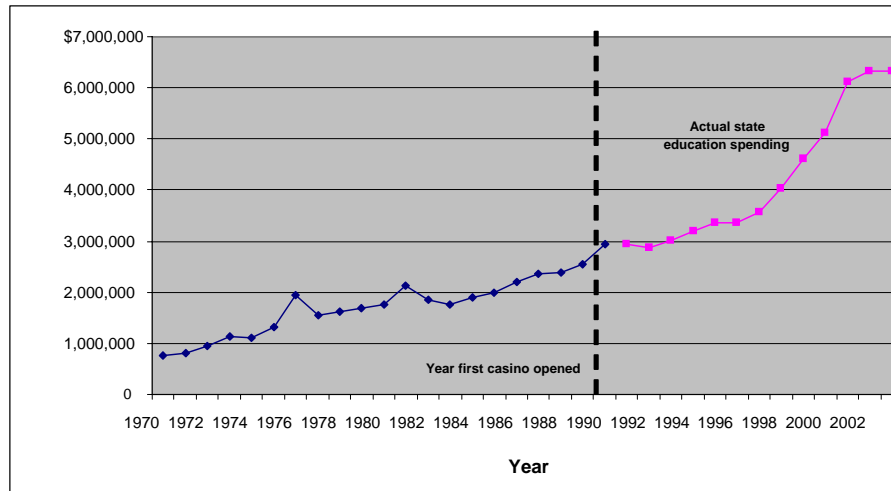
Following the opening of corporate casino facilities and the collection of state tax revenue, there is an increase in state education spending in the three states. In Michigan, the leap in education spending in 1997 is the result of changes in state law that developed a new formula for determining the amount of money state and local governments contribute to education. The law substantially increases the amount of all revenue that state government contributes to education spending and decreases local governments' education

contributions. This observation serves as a caveat, because the effect of the legislative changes hinders the full understanding of the impact of earmarked casino revenue on this state's education spending. Nonetheless, there is still a noticeable increase in education spending following the period after the advent of the law. During this period, there was no drastic change in education spending laws in Illinois or Missouri.

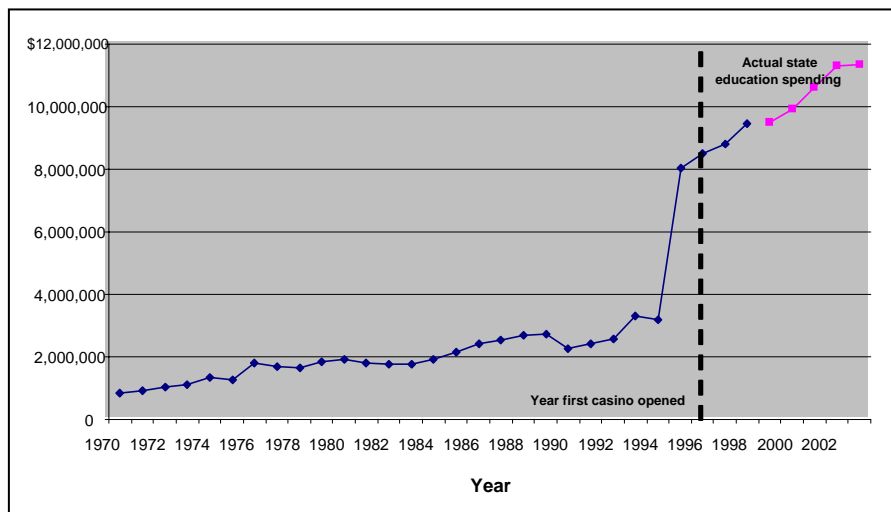
**FIGURE 1**  
**Missouri Education Spending (\$ Hundreds)**



**FIGURE 2**  
**Illinois Education Spending (\$ Hundreds)**



**FIGURE 3**  
**Michigan Education Spending (\$ Hundreds)**

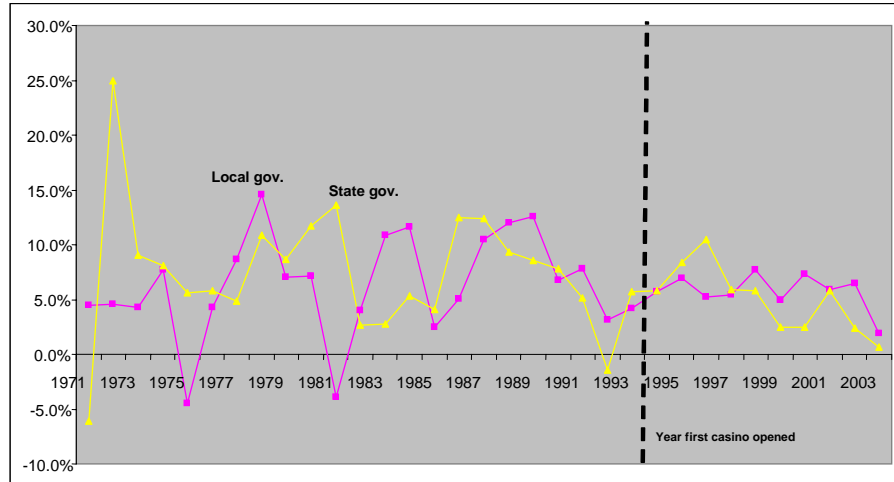


Earmarked casino tax revenue also helps stabilize annual appropriations for education. Figures 4 through 6 detail the annual percent change in state education funding before and after the taxing of corporate casino gaming. The figures reveal that once the collection of corporate casino tax begins, there is a decrease in the variance of annual percent change in education spending in each of the three states. This observation indicates the overall stabilizing effect of earmarked revenue from corporate casino gaming on education spending.

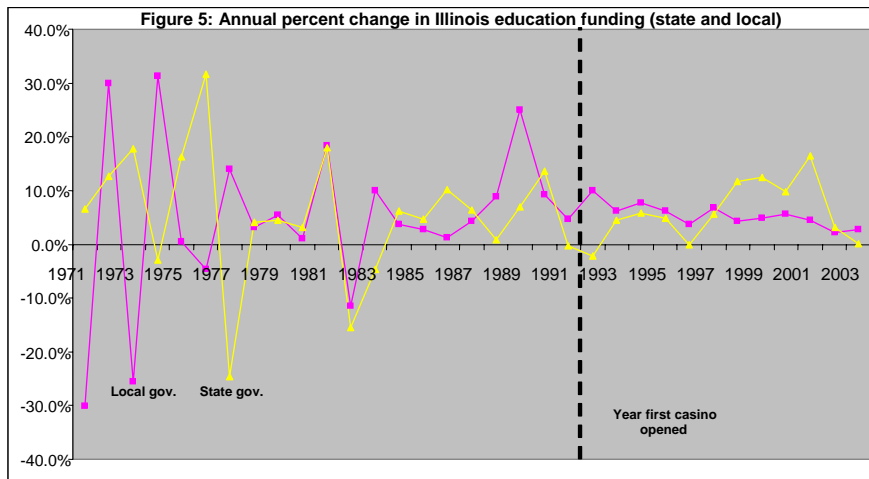
**RESEARCH DISCUSSION**

This research addresses the question of whether the revenue earmarked for spending displaces the money usually spent on different state programs. Three distinct findings were found: First, the research reveals that a very small amount of earmarked tax revenue for education was displaced in these three states. Second, there is an increase in educational funding following the introduction of corporate casinos in a state. Third, earmarked casino revenue helps to stabilize the state’s annual appropriation for educational spending.

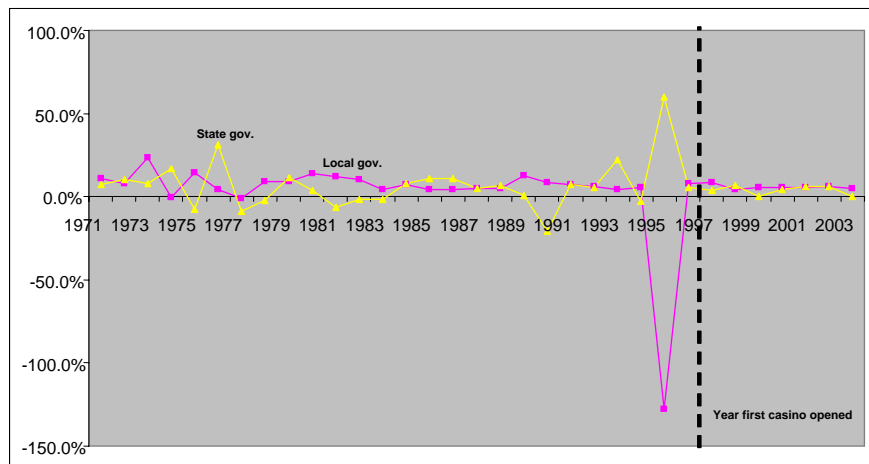
**FIGURE 4**  
**Annual Percent Change in Missouri Education Funding**  
**(State and Local)**



**FIGURE 5**  
**Annual Percent Change in Illinois Education Funding**  
**(State and Local)**



**FIGURE 6**  
**Annual Percent Change in Michigan Education Funding**  
**(State and Local)**



More specifically, the spending displacement test determined whether income generated from the corporate casino tax, when earmarked, displaced funds that legislators had previously appropriated for these same state programs. The research determined that there was a small amount of displacement of casino tax revenue earmarked for educational spending in the three states. However, there was an overall increase in education spending following the introduction of corporate casino gaming, as the amount of the increase was not equal to the sum of the amount earmarked from corporate casino taxes and the amount previously appropriated from the state's general funds.

The research also revealed that tax revenue from corporate casinos that is earmarked for educational spending helps to stabilize annual appropriations for educational spending. Following the introduction of corporate casinos, the annual percent change in state education funding decreased after casino tax revenue was earmarked for education. A possible explanation for this observation is that casino revenue earmarked for educational spending buffered the impact of large annual fiscal increases or decreases in education spending from the state's general fund. When a state allocated less money from the general fund toward education spending, a high percentage of earmarked casino funds were used to bolster education spending. Conversely, when a state allocated more money from the general fund toward educational spending, a low percentage of earmarked casino funds were used for education spending. This example reveals that political officials are willing to manipulate the level of fiscal illusion associated with earmarked casino revenue and education spending.

The observations regarding spending displacement raise several important questions. First, if revenue from corporate casino gaming displaces state educational spending, then what happens to the displaced revenue? In other words, what programs or services are being developed or funded at a higher level with the money displaced by corporate casino gambling tax revenue earmarked for education spending? Additional research is necessary to determine which state agencies and programs unrelated to education benefit from casino gaming revenue being earmarked for education spending.

A second question emerges concerning public perception. If the missing funds are located, would the public support the diversion? Is



education spending displacement a source of fiscal illusion? In addition, would the public prefer that the displaced earmarked revenue be used to fund a program or service different from what policymakers choose? These questions raise issues of the political influence of citizens and policymakers when dealing with corporate casino gambling and earmarked educational funds. Policymakers are aware that citizens can exert a great deal of political influence, because the majority of the public must vote in favor of a referendum to legalize corporate casino gaming. After gaming is legalized, the policymakers completely control the fiscal decisions regarding the allocation of tax revenue generated from corporate casinos and its earmarking for education spending.

Generally speaking, the question remains whether citizens should exercise more influence in directing the use of earmarked casino revenue in their respective states if policymakers alter the contract with respect to the use of that earmarked revenue for education. Future research should address these and other pivotal questions related to corporate casino gaming.

#### REFERENCES

- Berman, L., & Siegel, M. (1992). *Behind the 8-Ball: A Guide for Families of Gamblers*. New York: Simon & Schuster.
- Bondolfi, G., Osiek, & Ferrero, F. (2000). "Prevalence Estimates of Pathological Gambling in Switzerland." *Acta Psychiatrica Scandinavica*, 101 (6): 473-475.
- Borg, M., & Mason, P. M. (1988). "The Budgeting Incidence of a Lottery to Support Education." *National Tax Journal*, 41: 75-86.
- Borg, M. O., & Mason, P. M. (1989). "Earmarked Lottery Revenues: Positive Windfalls or Concealed Redistribution Mechanisms?" *Journal of Education Finance*, 15: 289-301.
- Borg, M. O., Mason, P. M., & Shapiro, S. L. (1991). *The Economic Consequences of State Lotteries*. New York: Praeger Publishers.
- Bowman, J. H. (1974). "Tax Exportability, Intergovernmental Aid, and School Finance Reform." *National Tax Journal*, 27: 163-174.
- Buchanan, J. M. (1963). "The Economics of Earmarked Taxes." *Journal of Political Economy*, 71: 475-469.

- Cashell-Cordo, P., & Craig, S. G. (1990). "The Public Sector Impact of International Resource Transfers." *Journal of Development Economics*, 32: 17–42.
- Castellani, B. (2000). *Pathological Gambling: the Making of a Medical Problem*. New York: State University of New York Press.
- Clotfelter, C. T., and P. Cook (1989). *Selling Hope: State Lotteries in America*. Cambridge, MA: Harvard University Press.
- Clotfelter, C. T., and P. Cook (1990). "On the Economics of State Lotteries." *Journal of Economic Perspectives* 4 (4): 105–119.
- DeBoer, L. (1986). "Lottery Taxes May Be Too High." *Journal of Policy Analysis and Management*, 5: 594–596.
- Deran, E. Y. (1965). "Earmarking and Expenditures: A Survey and a New Test." *National Tax Journal*, 18: 354–361.
- Evans, W., & Zhang, P. (2002). *The Impact of Earmarked Lottery Revenue on State Educational Expenditures*. Arlington, VA: National Science Foundation.
- Feldstein, M. S. (1975). "Wealth Neutrality and Local Choice in Public Education." *American Economic Review*, 65: 75–89.
- Feyzioglu, T., Swaroop, V., & Zhu, M. (1998). "A Panel Data Analysis of the Fungibility of Foreign Aid." *The World Bank Economic Review*, 12: 29–58.
- Fiscal Planning Services Incorporated (2000). *Dedicated State Tax Revenues: A Fifty-State Report*. Bethesda, MD: Fiscal Planning Services.
- Franco-Rodriguez, S. (2000). "Recent Developments in Fiscal Response with an Application to Costa Rica." *Journal of International Development*, 12: 429–441.
- Gupta, K. (1993). "Sectoral Fungibility of Foreign Aid in India" (Mimeo). Alberta, Canada: University of Alberta.
- Herscovitch, A. (1999). *Alcoholism and Pathological Gambling: Similarities and Differences*. Holmes Beach, FL: Learning Publications.

- Inman, R. P. (1978). "Optimal Fiscal Reform of Metropolitan Schools: Some Simulation Results." *American Economic Review*, 68: 107–122.
- Johnson, M. B. (1979). "Community Income, Intergovernmental Grants, and Local School District Fiscal Behavior." In Peter Mieszkowski and William Oakland (eds.), *Fiscal Federalism and Grants-in-Aid* (pp. 81–103). Washington, DC: The Urban Institute.
- Jung, C. (2002). "The Effect of Local Earmarking on Capital Spending in Georgia Counties." *State and Local Government Review*, 34: 29–37.
- Korn, D. A., & Shaffer, H. J. (1999). "Gambling and the Health of the Public: Adopting a Public Health Perspective." *Journal of Gambling Studies*, 15 (4): 289–365.
- Ladd, H. F (1975). "Local Education Expenditures, Fiscal Capacity, and the Composition of the Property Tax Base." *National Tax Journal* 28: 145–158.
- McGuire, C. M. (1978). "A Method for Estimating the Effect of a Subsidy on the Receiver's Resource Constraint: With an Application to U.S. Local Governments, 1964–1971." *Journal of Public Economics*, 10: 25–44.
- Mikesell, J., & Zorn, C. K. (1986). "State Lotteries as Fiscal Savior or Fiscal Fraud: A Look at the Evidence." *Public Administration Review*, 46: 311–320.
- Mikesell, J., & Pirog-Good, M. (1990). "State Lotteries and Crime: The Regressive Revenue Producer Is Linked with a Crime Rate Higher by 3 Percent." *American Journal of Economics and Sociology*, 49: 7–19.
- Miller, D. E., & Pierce, P. A. (1997). "Lotteries for Education: Windfall or Hoax?" *State and Local Government Review* 29 (1): 34–42.
- Miller, M. A. R. M., & J. M. Westermeyer (1996). "Gambling in Minnesota." *American Journal of Psychiatry*, 153 (6): 845.
- National Association of State Budget Officers [NASBO] (2001). 2000 *State Expenditure Report*. [Online]. Available at [www.naspo.org](http://www.naspo.org).
- National Conference of State Legislatures (1996). *State Balanced Budget Requirements: Provisions and Practice*. [Online].

Available at <http://www.ncs.org/programs/fiscal/balbud2a.htm>.  
(Retrieved on December 1, 2005).

- Novarro, N. (2002). *Does Earmarking Matter? The Case of State Lottery Profits and Educational Spending*. Stanford, CA: Stanford Institute for Economic Policy Research.
- Olmsted, G. M., Denzau, A. T., & Roberts, J. A. (1993). "We Voted for This? Institutions and Educational Spending." *Journal of Public Economics*, 52: 363–376.
- Pack, H., & Pack, J. R. (1990). "Is Foreign Aid Fungible? The Case of Indonesia." *Economic Journal*, 103 (399): 188–194.
- Pack, H., & Pack, J. R. (1993). "Foreign Aid and the Question of Fungibility." *Review of Economics and Statistics*, 75: 258–265.
- Peterson, G. E. (1975). "Voter Demand for Public School Expenditures." In John E. Jackson (Ed.), *Public Needs and Private Behavior in Metropolitan Areas*. Cambridge, MA: Ballinger.
- Phelps, C. D. (1969). "Real and Monetary Determinants of State and Local Highway Investment, 1951–66." *American Economic Review*, 59: 507–521.
- Raylu, N., Oei, T. P. (2002). "Pathological Gambling: A Comprehensive Review." *Clinical Psychology Review*, 22 (7): 1009–1061.
- Schofield, G., Mummery, K., Wang, W., & Dickson, G. (2004). "Epidemiological Study of Gambling in the Non-Metropolitan Region of Central Queensland." *Australian Journal of Rural Health* 12 (1): 6–10.
- Shaffer, H. J., & Kidman, R. (2004). "Gambling and the Public Health." In J. E. Grant, M. N. Potenza (Eds.), *Pathological Gambling: A Clinical Guide to Treatment*. Washington, DC, London, UK: England: American Psychiatric Publishing, Inc.
- Slutske, W. S., Eisen, S., True, W. R., Lyons, M. J., Goldberg, J., & Tsuang, M. (2000). "Common Genetic Vulnerability for Pathological Gambling and Alcohol Dependence in Men." *Archives of General Psychiatry*, 57 (7): 666–673.
- Smart, R. G., & Ferris, J. (1996). "Alcohol, Drugs and Gambling in the Ontario Adult Population." *Canadian Journal of Psychiatry—Revue Canadienne de Psychiatrie*, 41 (1): 36–45.

- Spindler, C. J. (1995). "The Lottery and Education: Robbing Peter to Pay Paul?" *Public Budgeting and Finance*, 3 (1): 54–62.
- Stanley, R. (2003). "Measuring the Impact of Casino Proceeds on Local per Pupil Expenditures in Mississippi." *International Journal of Public Administration*, 26 (4): 455–470.
- Stanley, R. (2004a). "Measuring the Impact of Casino Proceeds on Total per Pupil Assessment Values in Mississippi." *Journal of Public Budgeting, Accounting & Financial Management*, 16 (4): 554–569.
- Stanley, R. (2004b). "The Lottery, Education, and the Southern States: A Measure of Utility in Per Pupil Expenditures among Lottery States in the South." *Journal of Public Budgeting, Accounting & Financial Management*, 16 (4): 534–553.
- Stanley, R., & French, P. E. (2001). "Assessing the Impact of State Lotteries on Education Policy among the American States." *Journal of Public Budgeting, Accounting & Financial Management*, 14 (1): 57–69.
- Stanley, R., & French, P. E. (2002). "An Empirical Assessment of Lottery Proceeds on Education in the American States." *Chicago Policy Review*, 6 (1): 45–60.
- Swaroop, V., Jha, S., & Rajkumar, A. S. (2000). "Fiscal Effects of Foreign Aid in a Federal System of Governance: The Case of India." *Journal of Public Economics*, 77: 307–330.
- Weicher, J. C. (1972). "Aid, Expenditures, and Local Government Structure." *National Tax Journal*, 25: 573–583.
- Welte, J., Barnes, G. M., Wiczorek, W. F., Tidwell, M. C., & Parker, J. (2001). "Alcohol and Gambling Pathology among U.S. Adults: Prevalence, Demographic Patterns and Comorbidity." *Journal of Studies on Alcohol*, 62 (5): 706–712.
- Wyckoff, P. G. (1991). "Testing Bureaucratic Influence on Local School Expenditures by Comparing Survey and Expenditure Data." *Review of Economics and Statistics*, 78: 331–335.
- Zampelli, E. M. (1986). "Resource Fungibility, the Flypaper Effect and the Expenditure Impact of Grants-in-Aid." *Review of Economics and Statistics*, 68: 33–40.

**APPENDIX 1**  
**State Spending Revenue Displacement (Variables Collected)**

Variable	Years examined		
	Illinois	Michigan	Missouri
Casino revenue placed in state general funds	1991-2004	1999-2004	1994-2004
Casino Revenue Earmarked for Any Education Level	1991-2004	1999-2004	1994-2004
Per capita state personal income	1970-2004	1970-2004	1970-2004
Per capita state revenue	1970-2004	1970-2004	1970-2004
Unemployment rate	1970-2004	1970-2004	1970-2004
Percentage of population between ages 5 and 17	1970-2004	1970-2004	1970-2004
Percentage of population over age 65	1970-2004	1970-2004	1970-2004

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