

# The Casino Gamble in Massachusetts<sup>!</sup>

## Full Report and Appendices

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<sup>!</sup> A shorter version of this paper, “Betting the Future: The Economic Impact of Legalized Gambling,” can be found at the Rappaport Institute for Greater Boston’s website at

<http://www.ksg.harvard.edu/rappaport/research/gambling.htm>

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For over a decade, advocates and opponents of casinos in the Commonwealth have argued about whether legalized gambling would produce prosperity or ruin. Our analysis — which compares the experience of counties in the United States that house casinos with those that do not — suggests that both sides are wrong.

Instead, the introduction of a casino does appear to produce a few modestly positive effects, a few modestly negative impacts, and, in several areas, no statistically significant effects at all. Specifically, we found that the introduction of casinos was associated with:

- **More jobs dispersed among more people:** The population of casino counties grew 5 percent faster than the population of non-casino counties and employment in casino counties grew 6.7 percent faster than in non-casino counties. As a result, there was little difference between employment rates in casino and non-casino counties.
- **No impact on unemployment rates:** The combination of increased population and employment meant that casino counties generally saw little change in their overall unemployment rates.
- **A limited positive effect on some house prices:** Median house prices in casino counties rose about \$6,000 more than in non-casino counties. This effect, however, seems to have been concentrated in sparsely populated rural counties. Median house prices in more urban casino counties were about equal to those in similar non-casino counties.
- **A modest increase in bankruptcies:** Personal bankruptcy rates in casino counties rose by about 10 percent (from about 2.98 bankruptcies per 1,000 residents to 3.27 bankruptcies per 1,000 residents). The increase was slightly higher in more populous counties.
- **More total crime but less per-capita crime:** Total reported crimes can be expected to increase slightly in casino counties, but only because of population increases associated with casinos. The crime rate (the number of crimes per 1,000 residents) actually declined.
- **No impact on total revenues or expenditures:** The changes in total revenues and spending in areas where casinos opened in the 1980s and 1990s were not significantly different from changes in non-casino areas. Spending by local and county governments on roads, police, and education was also unaffected.
- **A decline in per-capita spending and revenues:** Given that population increased in areas with casinos, per-capita spending and revenues did not increase as quickly in those areas as it did in non-casino counties.

These results suggest that economic, fiscal, or public-safety factors are insufficient to either deny or invite casinos into Massachusetts. Consequently, policymakers considering proposals to allow legalized casino gambling in Massachusetts must consider other less quantitative factors.

## Previous Studies

Several other studies have examined the effects of casinos on the local surrounding community. The National Opinion Research Center (NORC) at the University of Chicago on behalf of Congress' National Gambling Impact Study Commission created a dataset of 100 randomly chosen communities with 10,000 or people. Forty of these communities saw a casino introduced within 50 miles between 1980 and 1987. The comparison indicated that casinos had positive economic benefits for residents of nearby communities. Illustratively, fewer people in these communities received public assistance from unemployment or welfare programs. Such residents also had higher earnings in construction, hotel and lodging, and recreation industries. On the other hand, residents of communities near casinos were twice as likely to have pathological gambling problems.<sup>1</sup>

William N. Evans and Julie H. Topoleski, economists at the University of Maryland also found significant—and mixed—results when they compared counties that house Indian-casinos with similar counties that did not house such casinos. In particular, looking at a time period from 1983 to 1999, they found that four years after casinos opened the number of jobs per adult increased by about 5 percent and mortality fell by 2 percent within a county. They find that among the tribes themselves population increases 12 percent and employment by 26 percent four years after introducing a casino. However, they found counties with casinos also experienced 10 percent increases in personal bankruptcies, violent crime, auto thefts, and larcenies.<sup>2</sup>

While these findings suggest the tradeoffs involved in the decision to allow casinos in Massachusetts, many of these casinos examined in both these studies are located in sparsely populated rural areas that are quite different than the locales likely to house casinos in Massachusetts. Moreover, the discussion around full-service casinos in Massachusetts has focused on building competitors to neighboring Foxwoods and Mohegan Sun facilities in Connecticut as a way to recapture gambling dollars that leave the state. By contrast, previous gambling-impact studies assess the impact of facilities that are often far smaller than these mega-casinos.

Similarly, Jonathan Taylor, Matthew Krepps, and Patrick Wang, researchers for the Harvard Project on American Indian Economic Development, Assistant Professor at the European Institute of Business Management, and Senior Analyst at Lexecon Inc. respectively, find that mega-casinos are “a class unto themselves” when it comes to their community outcomes. They used the National Opinion Research Council's database to compare the effects of three different kinds of casinos: commercially-run casinos (located in a variety of venues, but usually away from cities), tribally-run casinos (the majority of which are small and located in remote rural areas), and three large casinos located near major metropolitan areas: Connecticut's Foxwoods and Mohegan Sun facilities, the Twin Cities' Shakopee Mdewakanton Sioux casinos, and St. Croix Chippewa casinos.<sup>3</sup>

Mega-casinos, they found, are more likely to reduce unemployment but, unlike other Indian casinos, their presence is also correlated with increases in crime, and reduced earnings in hospitality and retail businesses located within 50 miles radius. They also found that the smaller, tribally run casinos in rural areas were associated with a 10 percent increase in local government revenues. The commercial casinos, however, seemed to reduce local government revenue by 4 percent, and Foxwoods-style mega-casinos reduce local government revenues by 7 percent. Similarly, while the introduction of the broader set

of Indian casinos (including small rural facilities) corresponded with a 23 percent increase in general merchandise earnings among businesses in a 50-mile radius; commercial casinos reduced such earnings by 13 percent and Foxwoods-style Indian casinos did so by 57 percent.

## **Methodology**

This study focuses the county-level impacts of an Indian-owned casino. We analyze the effects of casinos at the county level rather than the state level because entire states are simply too large to discern a casino's influences on outcomes such as employment or crime. We analyze Indian casinos because of the availability of comprehensive data and because approval of any casino-style gambling facility (and perhaps any slot machines) may enable recognized tribes to open their own casinos in the state.<sup>4</sup>

We use standard statistical techniques to compare changes in outcomes such as employment, house prices, crime, and local tax receipts in counties that host a casino with counties that do not.<sup>5</sup> The specific techniques, which are described in Appendix 7, are designed to separate the impacts of the casinos on surrounding areas from the impacts of larger trends occurring at the same time or particular characteristics of the types of counties that host casinos.

To assess casino's fiscal impacts on county and local governments, the study also uses a new dataset overseen by Katherine Baicker, an economist at Dartmouth College, which allows reliable estimates of local fiscal effects using data across states with different sharing of responsibilities between the county and municipal levels of government.<sup>6</sup> Using data that combines municipal and county data, we examined how casinos impact integrated "area-level" government revenues and expenditures as well as local government expenditures on policing, roads, and education.

In making the comparisons, we face a common trade-off between relevance and breadth. On the one hand, we would prefer the largest possible number of cases in order to provide the widest range of possible outcomes and greatest confidence about conclusions. On the other hand, as previously noted, some of these casinos are small operations in remote communities – situations that do not represent the potential situation in Massachusetts. As previously noted, these distinctions may be critically important because at least some research suggests that larger casinos have significantly different impacts than their smaller, more rural counterparts.

We therefore undertook a series of analyses. At the broadest level we draw on Evans and Topoleski's data to examine the impact of 365 Indian casinos, which are located in 156 different counties across 26 states.<sup>7</sup> To better assess the impact of a very large-scale casino, we looked separately at 21 counties that are home to the largest 10 percent of Indian casinos, as measured by the number of slot machines. These "big slot" counties had at least 1,760 slot machines in 1990. In addition, because Massachusetts is far more densely populated than most of America, we look separately at results for less rural counties, identified as those counties above the 75<sup>th</sup> percentile of population for the nation—the "high population" counties. These 766 counties had at least 55,000 residents in 1990, 57 of which contained Indian casinos. We also look separately at the nine counties that were both "big slot" and "high population" counties. Because some of these casinos opened their doors as early as 1983 our statistical analysis captures a far larger number of yearly observations for comparison. We can statistically separate county trends from nation-wide

changes each year. We can also statistically account for the ways in which counties where casinos locate may differ beforehand from typical counties.

To further focus on very large casinos near population centers, we look at a subset of relatively urban, and very large casinos that opened between 1990 and 2000. Doing so affords a snapshot of changes over the decade and allows us to take advantage of Census data available for 1990 and 2000. We therefore look more carefully at the 16 counties with the largest and most relatively urban Indian casinos introduced over the decade.<sup>8</sup> We test for statistical significance in the difference of the means by conducting T-tests. With such a small number of observations in our sample, we are unable to statistically separate the importance of particular casino-opening years or prior local conditions on outcomes; but the sample affords a snapshot of how crime, employment, home prices, local finances and other variables changed in counties that introduced large-scale Indian casinos like those often proposed in the Commonwealth.

Finally, we examine four counties that both house mega-casinos similar to those proposed for Massachusetts and, like the Massachusetts proposals, are either urban counties or located close to urbanized areas. (These are New London County, Connecticut, home of the Mashantucket Pequot Tribe's Foxwoods and the Mohegan tribe's Mohegan Sun casinos; Scott County, home of Shakopee Mdewakanton Sioux and St. Croix Chippewa casinos, located in the Minneapolis/St. Paul region in Minnesota; and the Barona Tribe's casino in San Diego County.<sup>9</sup>) In this analysis, which is too small to yield statistically valid results, we pay particular attention to the New London County, Connecticut because it is also in New England and because Massachusetts' proposals explicitly seek to emulate the Connecticut casinos.

In sum, our statistical analysis draws on six kinds of analysis.

1. The experience of all counties that introduced Indian casinos.
2. All high population counties that introduced Indian casinos<sup>10</sup>
3. High population counties that introduced large "big slot" Indian casinos
4. The largest 16 casino counties that introduced casinos after 1990
5. The largest 3 casino counties, all in relatively urban locations
6. New London county, Connecticut, surrounding Foxwoods and Mohegan Sun

Each different sampling of cases brings a distinct trade-off between capturing the wider universe of experiences with new casinos, on the one hand, and the specific cases most relevant to Massachusetts on the other. By looking at multiple levels of analysis and finding which relationships hold across different levels, we can make more reliable judgments about which county-wide effects from casinos would be most likely for Massachusetts.

## Results

### Population

Casino advocates often argue that by providing economic opportunities, a casino will stem and perhaps reverse population declines in distressed areas. Casino critics, on the other hand, sometimes argue that problems associated with casinos may hasten peoples' exodus from troubled areas. Thus, while there is nothing inherently positive or negative about population shifts, the changes may indicate how individuals view casinos' impacts on their local communities. Most major master-studies on the effects of casinos, however, have not focused on local population change.

To begin with, our analysis found that casinos tend to locate in counties that have larger-than-average populations. Specifically, in 2000, the average U.S. county contained approximately 85,000 residents. The counties with casinos hosted a population of 155,000 people. And those counties with large casino capacities of more than 1,760 slot machines were home to 479,000 people on average.

In addition, casinos seem to attract new residents.<sup>11</sup> Between 1990 and 2000 the population of counties with casinos grew about 5 percent faster relative to similar counties that did not have a casino. "High-population" casino counties grew about 8 percent faster relative to similar counties without a casino. Restricting the sample to "big-slot" counties showed an additional 3.6 percent increase in population, though too inconsistent to be statistically significant.

All the counties in our sample of the largest-16 urban casino counties experienced some population increase over the decade, with eleven growing faster than the average for their states. The average rate of growth exceeded state averages by a statistically significant 7 percent over the decade.<sup>12</sup> The three mega-casino counties in this sample do not show especially rapid growth on the whole. Scott County Minnesota, near the Twin Cities saw the largest proportional change, with its population jumping from 58,000 to 89,000, 46 percent faster than the state average. However, the other two mega-casino counties saw relatively small population gains. San Diego County's population crept up from 2.5 million to 2.8 million, 3 percent slower than the California average. In New London County, Connecticut, the population grew only by 1.5 percent, from 255,000 to 259,000 over the decade, similarly 3 percent slower than the state average.

### Unemployment and Jobs

Casino can create jobs by directly employing people to deal cards, serve drinks, maintain order, clean bathrooms, and perform other casino-related tasks.<sup>13</sup> Casinos also can create jobs when they attract non-local patrons who spend money at local hotels, gift shops, or other attractions. Employees at casinos and casino-related businesses may also generate additional jobs if their incomes rise and they spend more at local businesses.

On the other hand, if local residents lose money gambling they may spend less money at local businesses, reducing employment.<sup>14</sup> Casinos could also reduce local employment (or at least redistribute jobs away from local businesses) if people come to a casino *instead of* patronizing local businesses. Casino opponents, for example, often contend that Atlantic City casinos drove out most restaurants and taverns.<sup>15</sup>

Studies on the effects of casinos have paid the most attention to the question of job creation. The National Opinion Research Council study for the 1999 National Gambling Impact Study, for example, found that nearby casinos cut unemployment by nearly a point compared to similar communities without casinos. Taylor, Krepps, and Wang found that unemployment rate fell by almost a fifth in communities within 50 miles of a new commercial casino, fell much less in communities around smaller Indian casinos, but that unemployment rose by a quarter around the mega-casinos at New London County, Connecticut and the casinos in Scott, Minnesota.<sup>16</sup>

Taylor, Krepps, and Wang also found recreation, retail, restaurant, and bar income fell for businesses located in counties that house Indian casinos, which seems to suggest that casinos redistribute economic activity away from local business. Similarly, Thomas A. Garrett, a senior economist at the Federal Reserve Bank of St. Louis, found that levels of employment fell by 25 percent or more in five of the six casino-counties he studied.<sup>17</sup>

We examine three measures of job creation. We compare the county unemployment rate averaged for the year before and after a casino opens in a county. We subtracted that number from the average state change in unemployment to isolate the county-specific effect. We also measure the relative change in part-time and full-time employment from 1990 to 2001 for years before and after the opening of a casino in a county.<sup>18</sup> In doing so, we looked first at the relative growth of employment, and secondly at the employment rate as a portion of the population.

#### Unemployment:

For all counties, the introduction of a casino did not cause statistically significant differences in unemployment compared to counties without casinos. Among populous counties, those that introduced a casino saw a 0.5 percent higher unemployment rate in the following year than similar counties without a casino. However, the unemployment rate in the large-capacity casino counties dropped by 0.6 percent compared to similar counties. And the unemployment rate dropped by 1.2 percent in the nine counties with large populations and large casinos.

But perhaps more importantly, 16 largest counties where casinos opened after 1990 showed unemployment rates that averaged 0.1 percent higher than their state averages before introducing casino gambling and averaged 0.7 percent lower unemployment after the casinos opened in 2001, a downward shift of 0.8 percent.<sup>19</sup> Among the mega-casino counties, both San Diego and Scott County unemployment rates shifted down about a half-percent compared the state average after casinos opened; while New London County's unemployment remained basically the same as the Connecticut average both before and after the opening of Foxwoods in 1991.

#### Employment:

The data on county employment suggest that casinos bring additional jobs, but that jobs are not necessarily more plentiful because there is no consistent increase in the employed portion of the population. We find that, compared to other counties, the introduction of a casino corresponded to a 6.7 percent increase in the number of people reporting full or part-time employment. Most of this increase is due simply to the increased population within these counties. Although with weak level of statistical significance, we find the employment rate as a portion of the population increased in these counties increased by 1.1

percent. Looking at more populous counties, more akin to those in Massachusetts, we see a 5.7 percent increase in employment, but a strongly statistically significant 1.7 percent *decrease* in the portion of the employed population. We find the most impressive employment results in counties with big casinos, including sparsely settled rural communities. Among that group, employment increased almost 15 percent and the employment-population ratio increased with a weak level of statistical significance by 2.8 percent. But focusing on large-capacity casinos in the most populous counties – arguably the most relevant comparison for Massachusetts – we do not find statistically significant change in either employment or the employment-population ratio.

Employment results appear slightly stronger in our separate snapshot of employment rates in the 16 largest and most urban casino counties. Instead of using regression analysis to control for the prior characteristics of a county or the timing when casinos were introduced, we compare changes to state averages and compare before-casino years to after-casino years in each county. We find average employment-population ratios stood three-quarters of a percent point below their state averages before the introduction of casinos and averaged just over 1 percent above their state averages in the years after casinos opened.<sup>20</sup> Thus, employment rates in counties that introduced casinos rose almost 2 percent faster than state averages. In these 16 counties, employment rates deteriorated relative to the state average in five cases and improved in the other eleven. Relative employment rates improved in all three mega-casino counties, especially in New London, Connecticut. The employment rate in New London already stood 4.2 percent above the state average in 1987. After Foxwoods and Mohegan Sun opened the employment rate improved to 6.6 percent above the state average in 1997.

## **Revenue and Spending Impacts**

For many state and local officials, casinos are attractive because they promise to provide significant new revenues at a time when they face serious fiscal problems. For at least three reasons, it is particularly difficult to project future revenue and spending impacts at the state level. First, the legal and political terrain surrounding Indian casinos is constantly in flux, which will affect revenue-sharing compacts between states and tribes. Second, it is unclear whether the construction of more casinos in New England would merely redistribute existing casino patrons, which would merely redistribute existing revenues, or whether new casinos would lead to increased casino gambling, which in turn would probably lead to greater overall revenues from taxes and revenue sharing. Finally, even if more casinos generate more casino gambling, the public-sector revenues from such gambling could be partially offset by diminished spending in other sources of public revenue—most notably the Massachusetts state lottery.

Because we are primarily concerned with casinos' effects on surrounding communities, we have not examined casino's impacts on state revenues. We note a frequently cited Deloitte & Touche study commissioned by the Aquinnah Wampanoag Indian tribe which found that, if it permitted construction of a large casino in southeastern Massachusetts, the state would receive \$211 million (in constant 2002 dollars) from annual taxes and revenue sharing. (This total represented a little less than 1 percent of the commonwealth's FY 2002 budget, or a little less than half of the revenues lost from the personal-income tax cut that

was being phased in that year). Another study by the Gaming Strategy Group projected that such a casino would generate only \$135 million a year or \$250 million with an additional casino in Western Massachusetts. The study further estimated that adding 700 slot machines at each of the state's four racetracks would increase the total to \$442 million. Cummings Associates, International Game Technology, and the New England Horsemen's Protective Association each offered their own, somewhat larger, estimated returns from slot machines at race tracks.<sup>21</sup> We also note however that the history of similar consultant studies for other public investments such as stadiums and convention centers suggests such studies often overestimate benefits and underestimate costs.<sup>22</sup>

#### Local government spending and revenues:

If casinos spur economic development around gambling facilities, localities near casinos should see rising tax revenues from increased property-tax revenues, sales taxes, and revenue sharing agreements from casinos owned by Indian tribes that are exempt from local taxes. On the other hand, casinos and casino-related growth could increase the demand for government services such as policing, roads, and schools.

Using a unique dataset developed by Katherine Baicker, Assistant Professor of economics at Dartmouth College, we examined combined municipal and county government area revenues and expenditures and also the combined expenditures on policing, roads, and education.

Our statistical analysis does not show any significant relationship between the introduction of a casino and either revenues or spending at the combined county-local level. This is true regardless of whether we held counties constant and compared outcomes before and after casinos, or whether we compared 1987-1997 revenue and spending levels between casino counties and non-casino counties.<sup>23</sup>

In our snapshot of the 16 largest recent casino counties, total revenues and spending increased, but the rate of increase was slightly less than state averages.<sup>24</sup> Specifically, area-level government revenues grew 75 percent during this period, but in nine of the 16 counties the growth was slower than the state average. Total-area spending increased two percent slower than state averages, lagging in half of the counties.<sup>25</sup> Mega-casino counties meanwhile saw revenues grow slower than their state averages in two out of three cases, and spending increase faster in two out of three cases.

The fact that casinos are associated with significant increases in population without increases in total revenues or spending means that *per-capita* spending and revenues grew more slowly for counties that introduced casinos than those without casinos. When we analyzed the county fiscal data on a per-capita basis, this is exactly what we found.<sup>26</sup> Similarly in our snapshot of the largest and most urban casino counties, we found per-capita spending grew more slowly than statewide averages in all 16 of these casino counties, a statistically-significant difference that averaged 10 percent slower between 1987 and 1997.<sup>27</sup>

In sum, the spending and revenue results should not be construed to mean that casinos retard growth; but they do not support the notion that casinos foster growth or enable local governments to spend more on services.

*Police spending:*

Casinos can impose extra burdens on localities to maintain public safety. After Foxwoods casino opened nearby, for example, the town of Preston reported receiving almost 1,000 annual calls for emergency services, up from 200 yearly before the casino. The adjoining town of Ledyard's Planning Director cited casino-related traffic problems as prompting the town to increase its full-time police force from 14 to 19 officers.<sup>28</sup>

Our analysis of local and county spending did not show police spending in counties with casinos outpacing non-casino counties. None of the broader samples of counties showed any statistically significant effects of casinos on area spending for police. This is true even when we look only at casino counties with more than 1,760 slot machines.

In contrast, average police expenditures in the 16 largest recent casino counties increased a brisk 126 percent, which is 39 percent faster than the 87 percent increases across the states in which these casinos were located. The average, however, is somewhat skewed by Forest County, Wisconsin where only 8,778 people lived in 1990 but new casinos with over 1,500 slot machines serving the Milwaukee area spurred police spending to rise 506 percent from \$576,000 in 1987 to \$3.5 million in 1997. Without Forest County, the remaining 15 largest casino counties still increased police spending 13.6 percent faster than state averages. However this pattern is not consistent. Rather, police spending increased faster than the state average in 8 of the counties, and slower in the other 7 counties.

Focusing only at mega-casino counties, we found that area spending on police outpaced the state average in two of the three cases. In Scott County, Minnesota the combined county and municipal spending on police increased from \$4 million in 1987 to \$8.9 million in 1997, a 117 percent hike that outpaced the 98 percent average rise in area spending across Minnesota. In San Diego County, spending on police rose from \$223 million to \$415 million, an increase of 86 percent that did not keep up with the 93 percent average increase across California. New London County saw an increase from approximately \$20 million in 1987 to more than \$37 million in 1997. The 91 percent increase around Foxwoods and Mohegan Sun outpaced the 78 percent increase on police spending in areas across Connecticut.

*Highway and road spending:*

The increased traffic associated with casinos could place greater stress on local roads. The Southeastern Connecticut Council of Governments, for instance, estimated that traffic on Route 2 near Foxwoods increased more than six-fold between 1980 and 1996. Similarly, the nearby town of Ledyard's Planning Director calculated a 4-fold increase in traffic on roads in their jurisdiction since the casino opened.<sup>29</sup>

We compare combined county and municipal level spending on roads and other transportation projects with the introduction of a casino in a given county. Surprisingly, in the statistical analysis of all counties, the high-population counties, and the large-casino counties, we find no statistically significant effect of casinos on area-level transportation expenditures. For relatively larger (1,760 slot machine or more) casinos in relatively populous (55,000 resident or more) counties, the statistically insignificant relationship was even in a weakly negative direction. Experimenting with slightly higher or lower population thresholds for our sample also failed to yield statistically significant results.<sup>30</sup>

A comparison of spending across the 16 largest recent casino counties does show somewhat greater roadway spending in these areas as a whole. Among the largest 16 casino counties, highway expenditures increased by almost 61 percent on average between 1987 and 1997, compared to a 54 percent average area increase in these states, a difference of more than 6 percent.<sup>31</sup> But again, the results are not consistent across counties: half the largest 16 casino counties increased spending faster than their state averages; the other half slower.

Only among the mega-casino counties did area highway expenditures consistently outpace statewide spending. On average, these counties increased spending 39 percent faster than their state averages. Highway spending among county and municipal authorities shot up 153 percent in Scott County, Minnesota, more than double the 72 percent increase in areas across the state. Spending rose 90 percent in San Diego, California, compared to 56 percent on average across California. New London County and its municipalities increased highway spending 58 percent, however, only slightly more than the 56 percent average area increase across Connecticut.

Taken together, the data do not indicate a clear pattern of casinos being associated with increased local spending on roads and other transportation projects.

#### *Education spending:*

Casinos can affect both the demand for education and the resources available to pay for it. If, for example, casinos attract workers with families, they will create increased demand for—and spending on—schools. And if casinos generate additional revenues for local governments, they could lead to increases in per-capita spending on education. On the other hand, if casinos result in demands for other public services, such as additional policing, or lead to economic declines that reduce tax revenues, education spending (either in total or on a per-capita basis) might lag in counties that introduce casinos.

To see how casinos affect local spending on education, we examined data on relative changes in area-level expenditures for education by county, both as totals and in terms of per-pupil spending.<sup>32</sup> To examine changes in total spending between 1987 and 1997, we compare the size of each spending change relative to the absolute level of education spending in that county. To compare changes in per-pupil spending, we divide total spending by the number of pupils. We compare counties that introduced a casino between 1987 and 1997 to those that did not.

Looking first at total educational spending, we see that the only statistically significant relationship was among counties with large casinos. Introducing these casinos (with over 1,760 slot machines) was associated with an 8 percent greater increase in total school spending compared to other counties between 1987 and 1997. When we examine spending on a per-pupil basis, however, the data indicate that counties which introduced casinos show no statistically significant differences in their rates of education spending compared to other counties in the state. This is true for large-casino counties as well.<sup>33</sup>

Looking at the sample of 16 largest recent casino counties, we find that education spending per-pupil increased on average 2 percent faster than state averages for the period as a whole. These results were not statistically significant.<sup>34</sup> Moreover, in half of these counties per-pupil spending increased slower than the state averages; while in the other half of counties, per-pupil spending grew faster. Among our three mega-casino counties, per-pupil spending grew 6 percent slower than the state average in San Diego County; 29

percent faster in Scott County, Minnesota; and 15 percent faster in New London County.<sup>35</sup> Overall, there appears to be clear affect of casinos on education spending.

### Would casinos reduce Lottery revenue?

As noted above, introducing casinos in Massachusetts could draw players away from other forms of gambling, including the State Lottery.<sup>36</sup> The effects on Lottery revenue could be an important issue because most of the revenues generated by the Lottery are distributed as unrestricted local aid to cities and towns.<sup>37</sup> In fiscal year 2003, for example, the lottery generated \$889 million in public funds. Of this, \$705 million went to direct unrestricted local aid, which made the lottery the second largest source of state aid for localities, trailing only the \$2.7 billion in state “Chapter 70” aid for education.<sup>38</sup> Of the remaining lottery funds, another \$79 million was distributed in state grants for local arts programs. Most of the rest went into the state’s general fund in a diversion that repeated a temporary practice from the recession of the early 1990s.<sup>39</sup>

The existing research suggests that legalizing casinos would lead to no more than modest reductions in lottery revenues. A meta-study of available literature for the 1999 National Gambling Impact Study Commission, for example, found little or no overall substitution effects between lottery and casino spending.<sup>40</sup> A May 2004 study of nine states by the Center for Policy Analysis at the University of Massachusetts Dartmouth commissioned for the state of Rhode Island concluded that casinos lead to a flattening of lottery revenue, but not an outright reduction.<sup>41</sup> Similarly, a Deloitte & Touche study of 27 new casinos found that growth rates for lottery revenue slowed by 1 percent on average.<sup>42</sup> These results are consistent with the findings of economist Melissa Schettini Kearney of Wellesley College, that lottery expenditures crowd out a variety of household spending rather than competing with other forms of gambling.<sup>43</sup>

Research findings based on the experiences of other states may, however, need to be adjusted for Massachusetts’ unusually long-standing and successful state lottery. A Delloite & Touche study cited in the Swift Commission report noted that lotteries in states with new casinos have typically sought to prevent shortfalls in sales by launching advertising campaigns, multiplying the number of game options, or increasing the pay-out rate on lottery tickets.<sup>44</sup> Such a pattern is consistent with an earlier study by Jeffery Dense, Emily Hodgson and Clyde W. Barrow at the Center for Policy Analysis at the University of Massachusetts Dartmouth, which found slipping lottery profits in many states with new casinos even when total lottery sales continued to rise.<sup>45</sup>

The Massachusetts Lottery has already implemented these sales-promotion measures. Thus, less room exists for the State Lottery to boost sales in the face of new competition. On the other hand, compared to most states, the Massachusetts Lottery already earns relatively low profits-per-ticket on relatively high revenues. Compared to other states with lotteries, casinos in Massachusetts would therefore have to crowd out a relatively larger number of Lottery sales before the total combined government profits from all gaming sources would decline.<sup>46</sup>

## Social Effects and Quality of Life

Casinos can also affect the character of a community in other ways. Proponents claim that casinos will spur economic development, which in turn will reduce a variety of social ills. Opponents, in contrast, contend that casinos will bring crime, encourage high-risk behavior, and erode community.<sup>47</sup> Our study examines data on home values, crime, and bankruptcy.

### Home values:

Because population increases in casino counties, it seems likely that house prices in these counties would rise as well. Even if population did not increase, moreover, casinos might make communities more attractive by producing revenues that their host communities could use to improve public services and/or lower residential tax bills. On the other hand, if casinos were associated with problems such as crime, traffic congestion, and unmet needs for greater public services, then existing residents might be eager to sell their homes at lower prices.

To sort out temporary and place-specific real-estate trends from the larger effect of casinos on how much people value living in a community, we look at home prices over an extended period and across numerous cases. We use U.S. Census data to compare countywide self-reported median home values from the 1990 Census with values from the 2000 Census.<sup>48</sup> To supplement this analysis, we examine Connecticut data tracks municipal home sales for the period 1986 to 1999 prepared by the Connecticut Economic and Policy Council from raw sales price data submitted by municipal assessors to the Connecticut Office of Policy.<sup>49</sup>

The Census data on median house prices tells a mixed story. We found statistically significant results only when including all counties and all casinos. Within this broadest sample, new casinos were associated with an almost \$6,000 increase in median housing prices when compared to non casino counties from 1990 to 2000 – or about 2 percent higher. Looking separately at larger counties or larger casinos did not yield other statistically significant additional effects. Although the additional effect of restricting the sample to large-capacity casino counties was not consistent enough to be statistically significant, the total average gain in these counties was almost \$9,000 more than similar counties over the decade.

In the 16 largest casino-counties, median housing prices increased 49 percent over the decade, but this gain was actually 2 percent slower than their state rates on average.<sup>50</sup> Among the three counties with urban mega-casinos, Scott County, Minnesota showed the most impressive gains in housing prices, jumping 73 percent from a median of \$90,800 in 1990 to \$157,300 in 2000, an increase that was, however, only 1 percent faster than the Minnesota average. San Diego, California saw a 22 percent increase in home values over the decade from \$186,200 to \$227,200, an increase that was 10 percent less than the California average. The Census-reported median housing price in New London County, Connecticut during this period fell from \$148,900 to \$142,200, a 5 percent reduction that matched the Connecticut-wide trend.<sup>51</sup>

The municipal assessments data from Connecticut tells a rosier story. Foxwoods casino opened in 1992 and Mohegan Sun in 1996, both in New London County, an area comprised of 20 municipalities. Home prices in these municipalities increased by an average of 47

percent from 1986 to 1999, compared to an average increase across the state of 34 percent.<sup>52</sup> These increases were not driven by casino-induced population increases because we know from our Census data that population actually fell 3 percent relative to the state average over the 1990s. The boost in median home values was especially pronounced directly besides Foxwoods in North Stoningham, where home values began the period below the state's median at \$94,500 in 1986 and ended the period above the median at \$159,000 in 1999, an increase of 68 percent or double the state-wide rate of gain. Depending on which data we find more convincing, we can speculate that casinos may have a positive impact on the values of nearby properties but not on the larger county.

### **Crime:**

Communities that consider introducing a casino worry about crime. New casinos increase problem gambling and problem gamblers may turn to criminal activity as a way to pay debts and support their habit. The chance for big pay-out can encourage people to risk more money than they can afford to lose, leaving some desperate enough to turn to crime. A National Opinion Research Center report to the National Gambling Impact Study (1999) found that the presence of a casino within 50 miles was associated in 1990 with an increase in average per-capita casino expenditures from \$52 to \$178 and a doubling of problem and pathological gambling. According to one Institute of Justice study by Richard C. McCorkle, one-in-six arrestees in Las Vegas detention facilities could be classified as pathological or problem gamblers.<sup>53</sup> Large quantities of cash may also attract organized crime, money laundering, and petty corruption.<sup>54</sup>

On the other hand, casinos could actually reduce crime. Insofar as local-area residents' incomes increase and the unemployed find jobs, they may turn less to crime. Casinos also hire their own extensive security. They provide their own controlled environments with video surveillance and they screen patrons against lists of criminal offenders.

In so far as crime rates increase near casinos, it can be hard to know whether gambling has promoted criminality or whether the increased visitors to an area simply increase the number of people who might potentially commit or fall victim to crime. Gaming-industry literature and websites often point to a spike in crime following the opening of Disney World in Orlando, Florida as evidence that casinos *per se* do not foster crime—just large numbers of cash-toting tourists. Other studies of theme parks and national parks, however, suggest that casino tourism attracts more crime than other kinds of visitors.<sup>55</sup>

Data about local crime trends can also be misleading depending on how it treats crimes that take place on casino premises. Communities may be less concerned about crimes at casinos because the casinos pay for security and residents are not threatened in their streets or homes. In Ledyard, Connecticut the total number of crimes increased 632 percent from 214 in 1991 to 1353 in 1998.<sup>56</sup> But only 364 of those crimes in 1998 took place outside the casino. After 1998 the State Police began publishing the data separately for on-casino and off-casino crime in ways that are not comparable to earlier data, but register off-casino crimes at below pre-casino levels.

Large-scale studies across multiple states give some support to the conclusion that casinos increase crime.<sup>57</sup> The National Opinion Research Center's study of 100 communities, found no statistically significant increase in crime between those communities within 50 miles of a casino and other communities during the 1990-1997 study period.<sup>58</sup> Evans and Topoleski's large-scale study find that after four years of

opening a casino, reported violent crime increased by 9 percent. Property crimes increased by 4.4 percent, an upsurge accounted for completely by the increase in auto thefts and larceny.<sup>59</sup> The study by Taylor, Krepps, and Wang at the Harvard Project on Indian Economic Development found that results vary according to different kinds of casinos and different kinds of crimes. They found that the introduction of a commercial casino corresponds to a 21 percent increase in motor vehicle thefts and a 27 percent increase in robberies per 100,000 residents; Indian casinos, in contrast, brought a 49 percent reduction in motor-vehicle thefts and a 39 percent reduction in robberies. One possible interpretation is that, when including the many rural Indian casinos, the added income and employment from introducing new business is more important than vice from gambling itself. Looking at the large and relatively urban Shakopee casinos in the Minnesota and casinos in New London County, Connecticut, their most statistically significant finding was a 25 percent increase in motor-vehicle thefts.<sup>60</sup>

The effects of casinos on crime may be highly localized and concentrated on specific kinds of crime. Evidence can be contradictory since studies of individual states or towns can suggest different relationships between gambling and crime depending on the cases and years selected.<sup>61</sup> The Connecticut General Assembly's Office of Legislative Research studied the effects of Foxwoods and Mohegan Sun on crime at the town rather than the county level.<sup>62</sup> Their analysis of uniform crime reports found that in Connecticut as a whole the number of crimes indexed in FBI statistics (murder, rape, robbery, burglary, arson, larceny, aggravated assault, and motor vehicle theft) fell 42 percent from 1983 to 2000. But in the five towns surrounding Foxwoods and Mohegan Sun, crime increased 2.3 percent during the same time. Index crimes rose 16 percent from 1991, the year before Foxwoods opened, until 1995. Looking at the period from 1996, when Mohegan Sun opened, until 2000, they found that index crimes increased to a rate 21 percent over the pre-casino years. The biggest share of crimes and the largest increases took the form of larceny and aggravated assault. The largest increases in crime were in Ledyard and Montville, home to Foxwoods and Mohegan Sun. On the other hand, the number of crimes reported in the towns themselves – as opposed to the casino premises – remained relatively constant.<sup>63</sup> This is surprising since the sheer increase in activity around these towns might have led to greater crime.

Our own countywide data analysis does not show crime waves associated with new casinos. Looking at total FBI-indexed crimes per resident in all counties, we find that introducing a casino is associated with a decrease of 3 reported crimes per 1,000 people. Looking only at more populous counties, showed an average additional effect of 3 fewer crimes per 1,000 people, but the additional effect was not statistically significant. No statistically significant effects were found among large-casino counties. The per-capita crime rate in the 9 large-population counties that also hosted large-capacity casinos dropped 9 crimes per 1,000 residents, however.

Among our sample of the largest 16 casino counties, crime rates decreased slightly relative to the state average after casinos opened. These counties experienced a decrease in crime relative to state trends that averaged 4 crimes per 1,000 people. In only three of these counties did crime increase relative to the state average. Avoyelles Parish, Louisiana saw the largest increase: following the 1994 opening of the Tunica Biloxi Tribe's casino in 1994 the county crime rate rose by 19 crimes per thousand people, though it still sat below the state average. The three mega-casino counties also witnessed decreasing crime rates

relative to their state averages, especially in San Diego where the county suffered 8 more crimes per 1,000 residents than the state average before the 1991 opening of the Barona casino, and 1 less crime per 1,000 residents afterwards, a shift of 9 crimes per 1,000 people. Unlike some of the town-specific findings discussed for Foxwoods above, our data on the whole of New London County show a tiny dip in crime relative to the state average.

In sum, casinos are not associated with general increases in crime rates. The total number of crimes can be expected to increase with the introduction of casinos, but only because casinos are associated with population increases which are far larger than any possible decrease in the number of crimes per resident.

### **Bankruptcy:**

Pathological gamblers are more likely to have financial problems than others. The National Gambling Impact Study Commission's interview study, for example, found that pathological gamblers owed \$1.20 for every dollar of their national income, compared to \$0.60 dollars of debt for non-gamblers. A full 19 percent of pathological gamblers reported having ever declared bankruptcy, compared to 4 percent of nongamblers in the study.<sup>64</sup>

For our purposes, the question is whether such problems worsen when people live near casinos. Previous studies tend to find that proximity to casinos increases personal bankruptcies. A 2004 comparison by Ernie Goss and Edward Morse at Creighton University found that the personal-bankruptcy rate in counties with casinos increased at twice the rate of comparable counties without casinos. Business-bankruptcy rates were 35 percent lower in comparable counties with casinos.<sup>65</sup> Evans and Topoleski found personal bankruptcy rates stood about 10 percent higher in counties with a casino than in those without them. Mark Nichols and Grant Stitt, at the University of Nevada, Reno, along with David Giacomassi at the University of Memphis completed a study for the Institute of Justice of eight communities with new casinos matched to similar non-casino counties. They found an associated increase in personal bankruptcy in seven of these casino counties.<sup>66</sup> A large-sample study published in 2002 by John Barron and Michael Staten at Purdue, along with Stephanie Wilshusen at Georgetown on bankruptcy rates between 1994 and 1998 similarly found that nearby casinos increase personal bankruptcy. In addition, they found weaker but significant effects in the next county over from casinos. They conclude that bankruptcy rates would have remained flat – instead of increasing 8 percent – in host and adjoining communities if casino revenues had remained constant after 1994; but that nationwide the total effect would have been far smaller.<sup>67</sup>

Our own analysis measures the rate of personal bankruptcies per 1,000 residents. This data, originally obtained through the SMR Research Corporation, comes from economists Evans and Topoleski at the University of Maryland. They combine county data on Chapter 7, Chapter 11, and Chapter 13 bankruptcies into four-quarter aggregate rates.

We also find that proximity to casinos tends to increase personal bankruptcies. Our analysis measures the rate of personal bankruptcies per 1,000 people before and after introducing a casino. The mean in the United States during this period is 2.98 personal bankruptcies per 1,000 people. Looking at all counties that introduced casinos, the effect appears to increase the bankruptcy rate by about 10 percent from 2.98 to 3.27 personal bankruptcies per 1,000 people. In more populous counties the bankruptcy rate rose to 3.44 bankruptcies per 1,000 people. We found no additional statistically significant effects when we looked only at larger casinos. Whether or not these increases are alarming is a matter of

judgment. The evidence suggests, for instance, that a casino in Southeastern Massachusetts' Bristol County, which had 534,678 residents in 2000, would lead to 246 additional bankruptcies per year.

In the sample 16 largest recent casino counties, we see conflicting results but do not generally reinforce our other findings.<sup>68</sup> Measuring the personal bankruptcy rate before and after casinos shows that introducing casinos correspond with a county-wide decrease in bankruptcy rates of about 0.2 bankruptcies per 1,000 people. Relative to changes in the state average, bankruptcy fell in the mega-casino counties of San Diego County and Scott County, Minnesota but increased in New London County, Connecticut.

## **Conclusion**

For over a decade, advocates and opponents of casinos in the Commonwealth have argued about whether legalized gambling would produce prosperity or ruin. Our analysis indicates that at the county level—where any positive or negative effects are likely to be concentrated—casinos would have only relatively minor effects. On the positive side, they may create more jobs and they are likely to attract more residents as well. However, since the increases in jobs and population are about equal, jobless rates are not likely to change dramatically in areas with new casinos. On the negative side, total crime may increase, but the increase appears to be due solely to the increase in population. Bankruptcies are likely to rise in counties with casinos but the total number of people affected by the increase is relatively small. Perhaps most surprising is that casinos appear to have little or no effect on home values (at least in populous counties) or on total spending for either policing or roads. They do not seem to impact per-pupil spending on education.

These findings do not mean that casino gambling is a trivial issue—only that employment, finances, and crime are insufficient rationales for deciding whether to deny or allow casinos in Massachusetts. Policymakers, therefore, must consider other issues when deciding whether to allow casino gambling in the state. These might include questions such as whether (and how) casinos would alter the Commonwealth's character, whether it is problematic to rely on gaming revenues to fund public services; and whether allowing limited casino gambling will compromise the state's ability to control gambling in the future. Towards this end, we include appendices on such topics as the history of casino gambling and the gambling behavior of different segments of the population.

## Appendices

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### Appendix 1

#### Existing outlets for legalized gambling in Massachusetts

Massachusetts is one of only 14 states that prohibit both casino-style table games and slot machines as of July 1, 2004.<sup>69</sup> But Massachusetts residents already participate in other forms of legalized gambling. They spend on average over \$12 per week on State Lottery games.<sup>70</sup> The state hosts four race tracks. Churches and schools sometimes raise funds through Bingo and “Vegas Nights” as well.

And many Bay Staters gamble in Connecticut casinos. Connecticut’s two Indian casinos draw day trippers and weekend gamblers, with daily bus service running from approximately 50 Massachusetts cities and towns.<sup>71</sup> Foxwoods and Mohegan Sun sit within 70 miles from Massachusetts’ southernmost border, and within 100 miles of almost twice as many Bay Staters than Connecticut residents.<sup>72</sup>

#### Lottery

The Massachusetts State Lottery dwarfs all other forms of gambling within the Commonwealth. Originally called “The Game,” the legislature introduced weekly drawings in April 1972 as a way to raise money for towns and cities. Two years later, Massachusetts became the first state to introduce instant lottery tickets. The next year the state launched “The Big Game” with \$500,000 prizes and televised drawings. The Lottery has increased public interest and sales over time with new products such as larger multi-state jackpots and a constantly changing array of dozens of Instant Game tickets sold in 7,300 outlets, including almost every liquor and convenience store in the state.<sup>73</sup>

The introduction of “Keno” in 1993 further boosted revenues. A lotto-style game in which players attempt to match numbers randomly generated by a computer, Keno has become increasingly like a slot machine or roulette experience. Psychological experiments suggest that the more immediate a payoff, the more individuals focus on the size of a payout rather than the expected return on their wager.<sup>74</sup> The Massachusetts legislature reduced the time between Keno drawing to every 5 minutes in 2001 and then 4 minutes in 2003, moves that bumped up revenues each time.<sup>75</sup>

The Massachusetts State Lottery stands tall in the nation’s lottery world. Massachusetts lottery sales per-capita reached \$653 in fiscal year 2003; a figure unsurpassed all but three states that used fast-paced video-lottery machines. In fact, the next non-video state, Georgia, stood a distant second at \$300 per-capita and average spending in the nation’s lottery states hardly measures up at \$175 per-capita.<sup>76</sup> The Commonwealth’s Lottery stood first in sales as a percent of state personal income; and had the lowest costs of generating its high sales.<sup>77</sup> The Massachusetts State Lottery returned \$705 million in unrestricted local aid to cities and towns in FY2003 and another \$184 million for other state programs, a return to government of 21 cents for every dollar spent on lottery tickets.<sup>78</sup>

Poor people spend considerably more on Lottery tickets than their wealthy counterparts. City-wide studies of lottery sales in other states show that vendors in low-income neighborhoods sell a disproportionate amount of the tickets.<sup>79</sup> Statistically speaking, every dollar spent on the Massachusetts State Lottery deprives its buyer of about 30 cents.<sup>80</sup> According to the 1999 National Impact Study Commission, lottery players with incomes below \$10,000 spent almost \$600 a year on tickets, more than any other group. High school dropouts spend four times as much as college graduates; blacks spend five times as much as whites.<sup>81</sup> And research suggests that lottery sales actually increase when unemployment rises.<sup>82</sup>

### **Race tracks**

Massachusetts authorizes betting at four licensed race tracks which together claim to employ about 8,000 full and part-time workers. Greyhounds race at Wonderland in the city of Revere and at the Rayhham-Tauton track in the town of Raynham in Bristol County. Thoroughbred horses race at East Boston’s Suffolk Downs and a harness-horse racing facility operates in Plainville in Norfolk County.<sup>83</sup> Over three-quarters of racing revenue in 2003 came from bettors at Massachusetts tracks betting on simulcast races at other tracks, often in other states. Racing Commission revenues from track betting and simulcast have been on a steady decline from \$473 million in 1995 to \$416 million in 1999 and \$400 million in 2003.<sup>84</sup>

A consulting report by Cummings Associates, whose clients include numerous casinos, portrays track racing as a declining industry. The study blames the likes of home videos, cable television, and the Internet for pushing aside race tracks as entertainment and contends, “without new revenues, the prospects for the Massachusetts racing industry are very grim.”<sup>85</sup> Twice in the last decade the Legislature gave the industry tax breaks to keep it solvent. According to chief operating officer Bob O’Malley, Suffolk Downs announced cutbacks of racing times in 2003 to “keep the place afloat.”<sup>86</sup>

### **Charitable Bingo**

Massachusetts legalized low-stakes Bingo in 1971. Churches, fraternal clubs, veteran's organizations and other charitable organization hosted 404 Bingo fundraisers in 2003 and sold Charity Game tickets supplied by the State Lottery. Organizations that obtain a raffle and bazaar license from their municipal clerk can hold raffles and host a maximum of three "Las Vegas nights" with table gambling.<sup>87</sup> Licensed charitable gaming raised \$24 million for these organizations in 2003.<sup>88</sup> The legislature levied a 5 percent gross-revenue tax on Bingo, raffles, and bazaars in 1973 when they transferred supervision from the Department of Public Safety to the State Lottery Commission's new Department of Charitable Gaming. These taxes generated \$5.3 million in FY 2003, almost \$2 million of which went to cover the costs of regulation and oversight.<sup>89</sup>

### **Out-of-state gambling**

Massachusetts residents can travel out of state to gamble. Despite an absence of in-state casinos, 29 percent of Bay Staters nonetheless gamble at casinos.<sup>90</sup> This percentage sits above the national average of 26 percent, though well below Connecticut's 38 percent rate. Commonwealth residents who do gamble at casinos make an average of 4 visits a year, less than the national average of nearly 6 among casino patrons – and far less than the 8 trips-per-year average in Connecticut or nearly 23-trip average in Nevada. Boston-area residents gambled at casinos somewhat less frequently (26.6 percent) but nonetheless generated 4.8 million of the state's 5.3 million casino trips.<sup>91</sup>

Here is where Massachusetts residents go:

#### *Connecticut Indian casinos*

Run by the Pequot tribe in Ledyard, Connecticut, Foxwoods is the largest casino complex in the world, with 6,700 slot machines, 24 restaurants and 40,000 visitors a day.<sup>92</sup> The Mohegan tribe's slightly-smaller Mohegan Sun facility, sits nearby in Uncasville. It aggressively woos Massachusetts residents through a variety of promotional efforts.

Three studies – based on on-site surveys or tallies of license plates – found that Massachusetts residents comprised about a third of patrons at Connecticut casinos.<sup>93</sup> A more recent 2004 analysis calculates that 36 percent of Foxwoods patrons and 21 percent at Mohegan Sun are Massachusetts residents. Critics have questioned the methods of some of these studies or their sponsorship. Others note that since distant travelers spend more freely, the fraction should actually be higher in dollar terms.<sup>94</sup>

In 2003 Foxwoods and Mohegan Sun together provided \$396 million in revenue sharing to the state of Connecticut from total revenues estimated to be \$2.7 billion, including non-gaming revenues.<sup>95</sup>

#### *Other New England gambling*

*Rhode Island* introduced video lottery terminals in 1992 at its Lincoln Park dog racing facility, which sits 50 miles from most of Eastern Massachusetts. It generates over \$400 million in annual revenue on approximately 2,400 machines.<sup>96</sup> The Newport Grand facility also hosts approximately 1,000 video-slot machines and betting on jai-lai and simulcast racing.<sup>97</sup> The two facilities respectively pay 51 to 57 percent of their slot revenue to the state and another 1 percent to each local

municipality, a total of over \$215 million.<sup>98</sup> A Deloitte & Touche consulting study in 2001 financed by the Naragansett tribe estimated that 75 percent of patrons at Rhode Island's two gambling facilities were Massachusetts residents.<sup>99</sup>

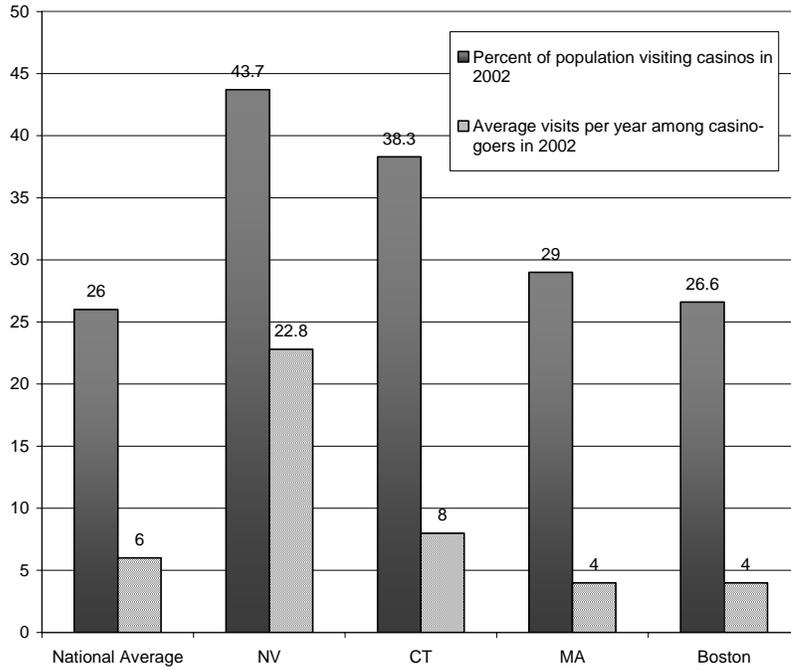
The Naragansett tribe continues negotiations over terms for a full-function casino, with 5 bills coming to the state Legislature over the last 5 years. The tribe lacks the right to operate a casino under the IGRA due to a 1996 rider placed on a federal budget bill by the late Senator John Chaffee who represented Rhode Island. The latest proposal was for a 3,000-slot machine facility run by Harrah's Entertainment off of Route-95 in Warwick. The company offered to partially supplement shortfalls that result at the state's race tracks and to eventually pay 35 percent of slot revenue to the state. They also offered the Naragansett tribe 7.5 percent of gross revenue for the use of the tribal name and as a way to garner favor for the proposal. The proposal was to go before voters as a ballot initiative in Fall 2004 and was endorsed by the West Warwick town council, but the state's Supreme Court removed the question from the ballot.

*New Hampshire* has debated but so far withheld from introducing video slot machines to its state racing tracks.

*Maine* voters defeated a November 2003 ballot question which would have created two full-scale casinos. In a separate question they approved slot machines at two race tracks, the Bangor Raceway and Scarborough Downs, where slot machines been held up by town opposition.<sup>100</sup>

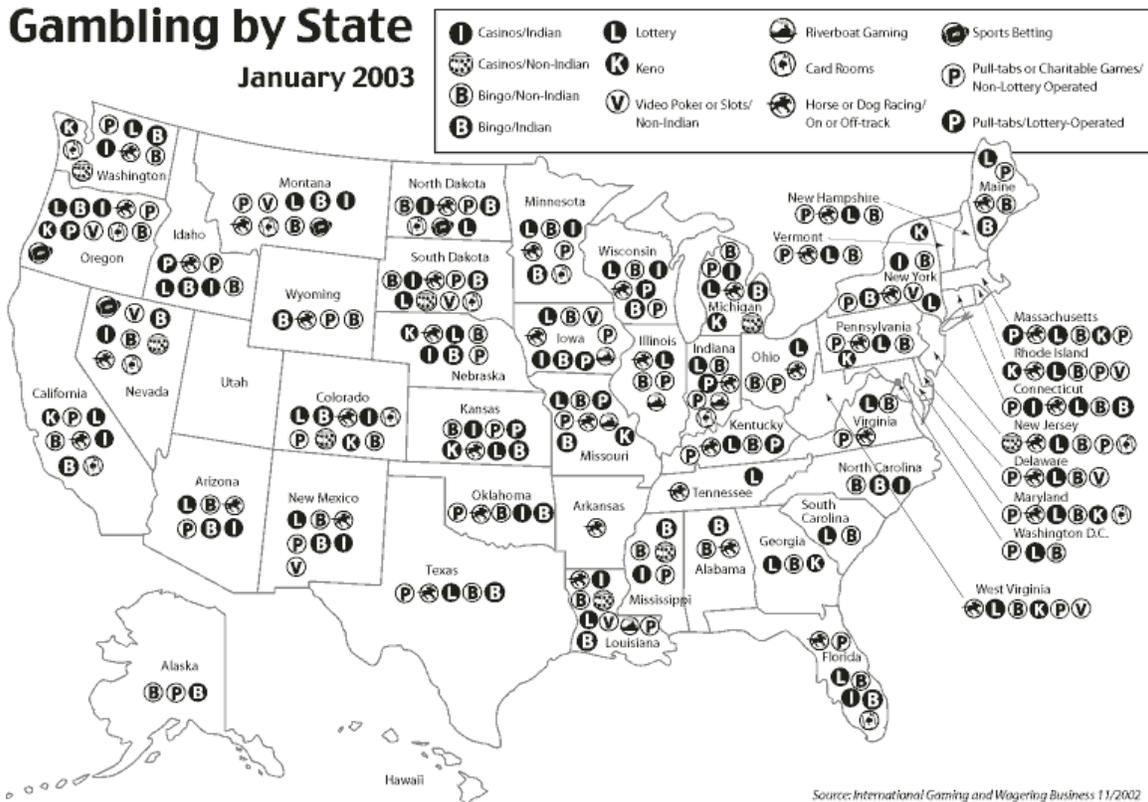
*Off-shore cruises* based in Massachusetts can travel to international waters for casino gambling. A limited number of cruises out of Lynn, Provincetown, and Gloucester operated with over 400 slot machines and a variety of table games that escape taxation by any state.<sup>101</sup> Only the larger boat out of Lynn, which provides other entertainment amenities, has drawn enough patrons to remain in business.<sup>102</sup>

### Out-of-State Gambling



Source: Harrah's Profile of the American Gambler (2003), prepared with assistance from Everett Tattelbaum

### Gambling by State January 2003



Source: International Gaming and Wagering Business 11/2002

## Appendix 2 Indian Gaming and Past Proposals in Massachusetts

The Massachusetts Legislature has seriously considered approving casinos since at least the early 1980s. Proposals have focused on varying mixes of slot machines at race tracks, Indian casinos, and commercially run casinos.

The proposals for casino gambling have shifted with the changing legal prospects of Massachusetts Indian tribes to run casinos. Under the Indian Gaming Regulation Act, a tribe with federal recognition must still negotiate a gambling “compact” with its state. In order to obtain federal recognition a tribe must show its genealogical descent and demonstrate that it continues to operate politically as a tribe. Disagreement exists over whether a federally-recognized tribe that is refused a compact by a recalcitrant state can then sue for approval of casino gambling in federal court.<sup>103</sup> In addition to negotiating a compact, the National Indian Gaming Commission must approve of the casino management contract. If a tribe intends to operate a casino on land they purchase outside of their own reservation, they must gain state approval for that land to be taken in trust for the tribe.

Some gambling opponents in Massachusetts fear that approving slot machines or table games at one location would deprive the Legislature of the legal authority to deny casino licenses to any federally-recognized tribe because a provision of the Indian Gaming Regulatory Act seems to allow states to deny Class III gaming to tribes only if they prohibit the activity state-wide. State Representative Daniel Bosley (D- North Adams), for example, warns that authorizing slot machines at racetracks would obligate the Commonwealth to negotiate a compact governing the conduct of casino gaming with any federally recognized tribe that requests one.<sup>104</sup>

No legal consensus exists as to whether the Wampanoag Tribe of Aquinnah in Martha’s Vineyard, the only federally recognized Native-American tribe in the state, holds a legal right to open a casino. The state legislature implemented a settlement agreement in 1985 with the Wampanoags that was subsequently approved by Congress. The Commonwealth has interpreted this pre-IGRA agreement as granting the Wampanoags no greater gambling rights than any other citizens.<sup>105</sup> The tribe disputes this interpretation and has pursued building a casino on numerous occasions.

In August 1994 and then again in September 1995 Governor Weld signed memorandums of understanding with the Wampanoag tribe to allow them to build a \$150 million casino on land in New Bedford that would have been taken in trust as tribal land. Under those terms the tribe would have paid the state and Bristol County \$105 million annually, with 90 percent going to the state. The agreement would have also allowed the state to add slot machines at its four race tracks and a commercial casino in Hamden County without violating the tribe’s rights to “exclusivity.” The Commonwealth’s voters defeated a non-binding referendum question on a Hamden County casino that November.<sup>106</sup>

In the mid-1990s the tribe proposed a Foxwoods-style gambling and entertainment facility with 1,200 hotel rooms, exhibition halls, and shopping. The proposed casino, in Plymouth or Bristol County, aimed to attract Southeastern Massachusetts residents who now visit Connecticut casinos as well as visitors from Rhode Island, Maine, and New

Hampshire.<sup>107</sup> A study by Deloitte and Touche consulting, commissioned by the Wampanoag tribe, predicted that a destination casino resort in Southeastern Massachusetts would create 3,800 full-time jobs during the construction period and 9,000 part- and full-time jobs in the first year of operations.<sup>108</sup> The state Commission to Study the Potential Expansion of Legalized Gambling, however, criticized these estimates in their 2002 report to Governor Jane Swift as based on overly optimistic assumptions.<sup>109</sup>

In 2003, Senate Minority Leader Brian Lees (R-Springfield), Sen. Richard Tisei (R-Wakefield), and Sen. Joan Menard (D-Somerset) filed an amendment to the Senate's stimulus package authorizing two casinos, one in Bristol County that the Wampanoag Indians would have been able to bid on first, and one in either Worcester or Hampden counties. The bill required that the casinos would cost at least \$400 million to construct. As a short-term budget infusion, the proposed casino licenses would cost at least \$150 million each. The bill also authorized the state's four race tracks to pay at least \$25 million each to install as many as 1,500 slot machines and then to pay a large portion of revenues to the state. The bill, which would have also created a new Gaming Commission, was withdrawn two days later for lack of support.<sup>110</sup>

Newly-elected Governor Romney proposed auctioning three licenses for slot machine halls that could have gone to tracks. He estimated these licenses would generate \$300 million in annual state revenue.<sup>111</sup> Proponents argued that race tracks already host established gambling and provide adequate parking. With limited capital investment they could quickly provide revenues to the state and, by contributing to higher racing purses, could make the tracks more competitive against racing in other states. Critics argued that slot machines turn race tracks into casinos more than enhancing racing. There is no reason, they argued, for public policy to single out this declining industry by subsidizing racing purses.<sup>112</sup> In April 2003 the House rejected two separate bills for race-track slot machines.

The future of Native-American casinos in Massachusetts remains uncertain. Two Native-American groups in Massachusetts that hoped to operate casino gambling were denied federal recognition as tribes in June 2004, but a federal board in October allowed both tribes to proceed with appeals.<sup>113</sup>

## Appendix 3 Who Gambles and How?

### Change over time

Gambling has increased only slightly over recent decades, but the way people gamble has changed dramatically. The first national gambling survey, taken in 1975, found that 61 percent of Americans gambled in the previous year, including friendly wagers such as office pools. Wagers on sporting events comprised the most popular form, with 25 percent of respondents having placed such bets in the previous year. Twenty-four percent of respondents played the lottery; 9 percent wagered at casinos.<sup>114</sup>

A similar survey by the National Opinion Research Center in 1998 revealed a profound shift in the composition of past-year gambling. Total participation in gambling crept up only slightly to 63 percent of respondents.<sup>115</sup> Compared to the earlier survey, casino play increased nearly three-fold to 26 percent of respondents. Bingo and betting on horses or dogs declined precipitously. Lottery play more than doubled from 24 to 54 percent.

A more detailed survey in 1999-2000 confirmed these results in greater detail.<sup>116</sup> The percent of adults playing the lottery during the previous year had climbed to 66 percent. Casino play inched up slightly to 27 percent. Horse and dog betting, now separated in the tally, stood at a mere 2 percent of the population. Measured by the dollars individuals wagered in different kinds of gambling, however, horse-racing betters show the heaviest involvement, followed by casino and dice players.<sup>117</sup>

### Differences between groups and games

Different groups of people gamble at differently. The largest increase in gambling between the 1975 and 1998 surveys was among the elderly, whose past-year gambling more than doubled from 23 percent to 50 percent. Casino-sponsored surveys also show that casino patrons tend to be more elderly. One large-scale survey by NFO WorldGroup finds that 30 percent of 51 to 65 year-olds had gambled at casinos in 2002, compared to 25 percent of the 36-50 and 21-35 year olds.<sup>118</sup> Over recent decades, women also became more far likely to gamble, especially at casinos, where they now constitute 46 percent of gamblers.<sup>119</sup>

Compared to lottery ticket buyers, casino players earn higher incomes. A survey by Harrah's Entertainment found that people who gambled in a casino in the previous 12 months had higher incomes than the national average (\$50,516 versus \$42,228 for the United States population as a whole). Casino players were slightly better educated and more likely to hold white-collar jobs.<sup>120</sup>

Other studies confirm that lower-income Americans gamble less often at casinos, but indicate that they bet more heavily. A national survey conducted in 1999-2000 at the Research Institute on Addictions created an index of socio-economic status (SES) that equally weighted measures of income, years of education, and occupational status. A third of people in the highest SES quintile group participated in past-year casino gambling, compared to only 17 percent of those in the lowest income quintile. But those in the lowest

SES quintile group who did gamble at casinos did so about twice as heavily as casino gamblers in the highest SES group in absolute terms.<sup>121</sup> Similarly, the survey found that 35 percent of Blacks and Hispanics gambled at race tracks or casinos, compared to 37 percent for whites; but non-whites gambled far more heavily. Measured in dollar-terms of involvement, Hispanic gamblers played almost twice as heavily in casino/track games as whites and Blacks bet more than twice as heavily.<sup>122</sup>

The RIA survey also looked at indicators of problem gambling. Using 10 psychological criteria to diagnose problem or pathological gambling -- such as whether respondents were preoccupied with gambling or needed to bet increasing amounts to derive the same excitement -- the survey found that 3.5 percent of respondents showed at least three criteria for problem gambling. Lower-socioeconomic-status gamblers showed far more psychological indicators of problem gambling. Gamblers in the bottom two SES quintiles showed indications of problem gambling three times as often as gamblers in the upper three SES groups.<sup>123</sup> By these measures, Black and Hispanic gamblers showed signs of problem gambling twice as often as whites.<sup>124</sup>

The national survey also revealed regional differences in gambling. A greater portion of New Englanders gamble overall than residents in any other region. Part of the high New England gambling rate stems from its leading participation in office betting pools, charity games, and Bingo. New Englanders also outpace the nation in rates of lottery participation and sports betting. When it comes to casino games, New Englanders comes in second, behind the Midwest (and behind the individual-state rates studied for California and Texas).<sup>125</sup>

A final group with distinct gambling behavior that is especially relevant to Massachusetts. According to one meta-analysis of published studies on problem gambling, 5.6 percent of college students suffered from gambling problems, as opposed to 1.9 percent in the adult population.<sup>126</sup> The National Opinion Research Center reported that living within 50 miles of a casino doubles the probability that individuals suffer from gambling problems.<sup>127</sup>



## Appendix 4 Historic Trends

Legalized gambling has grown and been eliminated in successive waves over American history. At the turn of the Twentieth Century virtually all forms of legalized gambling were forbidden, partly as a movement to raise morals and eliminate corruption. Casino gambling was legalized in Nevada in 1931. State Lotteries returned in 1964, and sovereign Indian tribes began using gambling as an economic development strategy in the late 1980s. In recent years casinos have blossomed with the rise of advanced slot machines and the maturation of a corporate gaming industry.

### Las Vegas and Atlantic City

In the early 1960s Nevada was the only state to allow casinos, book-making, off-track betting, or sports wagering. Today, only Hawaii and Utah prohibit all forms of gambling.<sup>128</sup>

Nevada stood alone from 1931 until 1976 when New Jersey voters approved casino gaming in Atlantic City, a depressed and crime-ridden former resort town.<sup>129</sup> After the casinos opened, local property taxes grew rapidly and the city added 48,000 new jobs (an increase greater than the city's total population).<sup>130</sup> But critics noted that most of the new jobs went to residents in surrounding suburbs and no programs existed to channel casino-related revenues into urban revitalization.

### Lotteries

State lotteries, a revenue-raising instrument eradicated during the reform movement at the turn of the twentieth century, made a dramatic comeback in the latter half of the century. In 1964 New Hampshire introduced a limited "sweepstakes" in order to raise funds during a budget crisis. Drawings were held twice a year, tickets were only available at race tracks and state-owned liquor stores, and the winning number was linked to horse race as a way to side-step federal anti-lottery statutes.

After an amendment of federal statutes, seven states operated lotteries by 1973, taking in \$2.1 billion in adjusted to 2000-year dollars, an amount that ballooned to \$37.6 billion in 2000.<sup>131</sup> Today, 40 states offer lotteries. Convenience stores sell a variety of colorful, instant scratch cards promoted by state advertising campaigns. Consumer spending on lotteries stood at \$37 billion in 1999, a figure that comes to \$370 per household nationwide, more than the average household spent on alcoholic beverages or on tobacco products and supplies.<sup>132</sup>

### Native-American tribes

In the 1970s Native-American tribes also turned to casino-gambling to promote economic development. The Miami Seminoles began offering \$10,000 Bingo jackpots in their 1,200 seat hall in 1978. Florida law limited bingo jackpots to \$100 but a federal appeals court ruled in 1982 that state civil regulations did not apply to the Seminole sovereign nation. Five years later, 113 Indian bingo halls generated \$225 million in annual revenue.<sup>133</sup>

In 1987 the Supreme Court declared that states could not prevent tribes from sponsoring gambling on reservations as long as gambling was approved elsewhere in the state. In response, Congress passed the 1988 Indian Gaming Regulatory Act (IGRA), which gave states authority to sign gaming compacts with tribes, while retaining broad federal powers including approval of compacts and regulation of casino-management contracts. Tribes that believe that states have negotiated in bad faith can appeal to the Department of the Interior.<sup>134</sup> In the event that the state fails to reach a compact within 180 days, a federal court could then appoint a mediator who would draft a compact and submit it to the Bureau of Indian Affairs for approval.

Native American gaming has expanded rapidly since the IGRA. A study by Evans and Topoleski found about 200 casinos run by Indians in 1999 on reservations and contiguous service areas that included about half of the nation's Indian population.<sup>135</sup>

Not all Indian casinos make large profits because they are not tourist destinations and are located too far from major markets or too near to competitors.<sup>136</sup> A 1997 General Accounting Office study estimated that Indian Class III gaming establishments—those with slots and table games, rather than those limited to Bingo—took in a median of \$12.7 million in yearly revenues. The median tribe with a casino operates 450 slot machines with 27,000 square feet of gaming space, and can tap a market of one million people living within 100 square miles of the casino. Foxwoods, by contrast, boasts 315,000 square feet, with over 6,000 slots, and 13 million people living within 100 miles.<sup>137</sup>

### **Slot machines and non-Indian casinos**

Largely in response to the new Indian casinos and the revenues they generated, states began a round of commercial casino authorization after passage of the IGRA. In November 1988, South Dakota voters authorized limited gambling in the former mining town of Deadwood; four months later the Iowa legislature authorized limited-stakes gambling on riverboats.

Casino gambling spread quickly over the 1990s. Colorado opened three casinos in declining rural mine towns in 1990. Illinois, Indiana, Iowa, Louisiana, Mississippi, and Missouri approved riverboat gambling between 1990 and 1994. Louisiana and Michigan opened land-based casinos.<sup>138</sup> The states of Illinois, Indiana, Michigan, Mississippi, Missouri, New Jersey, and Louisiana also authorized casino gambling on a commercial scale without limiting it to Indian tribes.

**TABLE 1: GROSS GAMBLING REVENUE, 1992-2002**  
Amount wagered minus winnings returned to players

Year	Non-Indian casinos (\$billion)	Total gaming (\$billion)
1992	9.6	30.4
1993	11.2	34.7
1994	13.8	39.8
1995	16.0	45.1
1996	17.1	47.9
1997	18.2	50.9
1998	19.7	54.9
1999	22.2	58.2
2000	24.3	61.4
2001	25.7	63.3
2002	26.5	68.7

Year Indian gaming revenue and public revenues are not available.

**Non-Indian casinos** data does not include cruises and non-casino devices for 2000-2002.

**Total gaming** includes pari-mutuel wagering, lotteries, casinos, legal bookmaking, charitable gaming and bingo, Indian reservations, and card rooms.

**The 2002 data** including cruises and non-casino devices would total \$28.1 billion; the gross revenue at Native American casinos (class II and III) is \$14.2 billion. Pari-mutuel wagering was \$4.0 billion; lotteries \$18.6 billion; charitable games and bingo \$2.6 billion; card rooms \$972.5 million; legal bookmaking \$116.2 million.<sup>139</sup>

**Sources:** American Gaming Association, Christiansen Capital Advisors LLC, available at [http://www.americangaming.org/industry/factsheets/genera\\_info\\_detail.cfv?id=8](http://www.americangaming.org/industry/factsheets/genera_info_detail.cfv?id=8)

As of 2004, more than half the nation's states allowed some sort of casino gambling (the exact number varies depending on definitions and the time of surveys).<sup>140</sup> Twenty-six states allowed either private or tribal casinos as of 2001, generating \$38.2 billion in gross revenue.<sup>141</sup> According to Goss and Morse's tally, Eleven states hosted 432 privately-owned casinos in 2004, 249 of which in Nevada. Twenty-eight states contained 248 casinos on Native-American tribal land, 117 of which in Oklahoma, California, and Washington state.<sup>142</sup> The revenue pulled from tribal casinos (bets minus winnings) totaled \$12.7 billion in 2001, less than half of the \$26.5 billion total from commercial casinos.<sup>143</sup> Pennsylvania in July 2004 approved slot machines at seven race tracks and five casinos locations for a total of 61,000 slot machines, more than any state except Nevada.

The image of casinos may still be anchored in cards and roulette wheels; but slot machines have become the mother's milk of the industry. Only 14 percent of casino patrons spend most of their gambling time at the tables.<sup>144</sup> In Atlantic City 70 percent of total gaming revenue in 1998 came from slot machines. In Nevada, slots accounted for 65 percent of gaming revenue, up from less than half in 1980.<sup>145</sup> Nationally, slot machines take in over \$1 billion in daily wagers – grossing more than McDonald's, Burger King, Wendy's, and Starbuck's combined.<sup>146</sup> Unlike Keno or video-lottery terminals which give equal chances to each outcome, computerized slot machines can entice players to spend more money by weighting the odds of outcomes that give the illusion of near misses to huge jackpots.<sup>147</sup>

A variety of states have introduced limited gaming devices at race tracks, bars, and other establishments.<sup>148</sup> South Dakota introduced video poker lottery terminals in liquor-licensed establishments in 1989, followed by Montana in 1990. West Virginia became the first state to authorize video-lottery terminals in a race track in 1990, followed by Rhode Island in 1992. Iowa and Delaware followed suit in 1995.<sup>149</sup> Nine states currently allow "racinos", slot machine parlors at race tracks.<sup>150</sup> Montana and Oregon do not allow casino

gambling, but they allow certain gaming devices in restaurants, truck stops, and race tracks. New Mexico authorizes these devices both at tracks and liquor-licensed fraternal/charitable and organization facilities.<sup>151</sup> Louisiana and West Virginia also allow video lottery terminals in liquor-licensed establishments.<sup>152</sup>

The government share from taxes and revenue-sharing on casino came to \$4.038 billion from commercial casinos in 2001 and another \$781 million from Indian casinos. The disparity between commercial and Indian casinos exceeds the roughly two-to-one difference in gross revenues because of a far-higher effective- tax or revenue-sharing rate on commercial casinos (15.2 percent) than on tribal casinos (6.1 percent) overall.<sup>153</sup> Maximum tax rates on casino gaming revenues vary from 6.25 percent in Nevada to 35 percent in Illinois.<sup>154</sup>

States lack the legal authority to tax tribal businesses. But revenue-sharing agreements exist in many but not all states as part of tribal gaming compacts. Tribes in some states, such as Connecticut, Michigan, Wisconsin, California, and New Mexico agree to make annual payments to the state.<sup>155</sup>

In Connecticut, the Pequots and Mohegan tribes together agree to pay \$160 million minimum for the right to operate slot machines.<sup>156</sup> Compared to most tribal gaming, the Connecticut Indian casinos are obligated to share an unusually large portion of revenues with the state, the 25 percent baseline is similar to the higher rates for commercial casinos in a few states.<sup>157</sup>

### **Lobbying among the gaming industry**

Lobbying is an important feature of the gaming industry. Because of the large stakes and highly regulated nature of the industry, gambling interests spend significant amounts of money lobbying legislators and key regulators.<sup>158</sup>

According to the Center for Responsive Politics, the casino and gambling industry spent over \$50 million nationwide on individual, soft-money, and political action committee contributions between 1990 and 2004.<sup>159</sup> This figure does not include lobbying fees, which totaled over \$13 million in 2000 alone.<sup>160</sup> The large businesses that own and manage commercial casinos wield considerable financial clout. Harrah's Entertainment for instance, operates 26 casinos in 13 states under the Harrah's, Harveys, Rio, and Showboat brand names.<sup>161</sup> Bribes and kickbacks to officials in other states, including in Rhode Island and Connecticut, have been the source of numerous scandals and indictments.

Lobbyists for tribes also press the U.S. Department of Interior to help clients obtain federal recognition or get their lands put into trust. They also seek to influence federal bills and state legislatures to approve casinos and slots. Tribes sometimes pay lobbying firms to block casino approval for potential competitor tribes.<sup>162</sup> According to data collected compiled by the Center for Responsive Politics, Foxwoods' Mashantucket Pequot Tribe has spent over \$273,000 in the 2003-2004 election cycle and spent over \$1 million combined over the previous two election cycles.<sup>163</sup>

Records compiled by the Massachusetts Secretary of State's office show the gambling industry in 2003 spent \$1.3 million in lobbying in the Commonwealth, exceeding its record 1995 spending of \$1.1 million.<sup>164</sup> The biggest contributors were casino management companies, tribes, and slot machine producers.

## Appendix 5 Statistical Methodology

### REGRESSION ANALYSIS:

Like Evans and Topoleski (2002), we conduct Ordinary Least Squares (OLS) regressions conducted. We run year-dummy and country-dummy variables for all variables as controls to identify changes separate from the county fixed effects or the secular trends over time.<sup>165</sup> Unlike Evans and Topoleski, we do not break down the results according to the number of years after opening that impacts take place. We also use their database on casino opening dates and county-level bankruptcy. Data on population, employment, unemployment comes from the Census Bureau data on counties. Data on crime comes from Federal Bureau of Investigation Index Crime reports. See U.S. Dept. of Commerce, Bureau of the Census, *County and city data book* (Washington, D.C., U.S. G.P.O.); and U.S. Department of Commerce, Bureau of the Census, Data User Services Division, *USA Counties* (electronic resource).

### CASE SELECTION:

At the broadest level, we examine data from 365 Indian casinos in 156 counties across the nation. The dataset excludes casinos from Nevada, Oklahoma, Iowa, Mississippi, South Dakota, Colorado, or Colorado because these states either have competing Non-Indian casinos or, in Oklahoma's case, permit Class-III gaming in gambling parlors. We compare data on the years before a casino opened with data from years after a casino opened. The dataset comes from the research of William Evans and Julie H. Topoleski at the University of Maryland, derived from the nation's 566 federally-recognized tribes in 1999. They cross-check a variety of web sites describing casinos for gamblers, the web sites of casinos themselves, and a complete list of tribes with gaming contracts from the Bureau of Indian Affairs. They determine when casinos actually began operation from press accounts, calls to tribes, and web sites. The subset of 156 counties represents five percent of the nation's 3,115 counties.

For the regression analysis, the smaller samples are determined as follows. "Big slot" counties are those in the top decile as ranked by the number of slot machines. Slot machines generate the majority of revenue in most casinos, and are often taken as a rough measure of relative casino size. "Big population" counties are those in the top quartile of population, which meant those with at least 55,000 residents in 1990. The nine "big slot and population" counties are: Bernalillo County, New Mexico; Broward County, Florida, Brown County, Wisconsin; Maricopa County, Arizona; New London County, Connecticut; Riverside County, San Bernardino County, and San Diego County, California; and Scott County, Minnesota.

The sample of counties where large casinos opened during the 1990s is listed in the tables for this sample.

### EMPLOYMENT

For the regression analysis, we first determined the logarithmic mean of the change in county employment and then calculated the change in the employment rate as a portion of the population. We use the sum of full-time and part-time employment as reported by the Bureau of Labor Statistics (BEA-10). We average these results for all years before the

introduction of casino gambling in that county and compare it to the average for years after casino gambling. Taking the logarithmic means of these numbers, we subtract the former from the latter to determine the change in employment since the introduction of casinos. We look include only counties where casinos were introduced since 1990. Similarly, to determine the employment rate we calculate the employment population ratio. We use data from 1983 to 1989 for greater precision in establishing the county fixed effects.

For the mean values in the select group of 16 large, urban casino counties, we take the change in the employment-population ratio for those counties and we subtract the state rate to isolate the county effect. Here we average all years before the introduction of casinos and compare the results to the average of all years afterwards up to 2001.

#### FISCAL IMPACT COMPARISONS:

Past research has steered clear of comparing fiscal impacts across states on issues where responsibilities are shared differently between the county, state, and municipal levels of government. If the different levels of government share responsibilities differently across states, then information about any one single level of government's spending levels provides little basis for comparison. For instance, state governments provide an average of 50 percent of total government spending on education nationally, but this ranges between 29 percent in Nevada and 90 percent in Hawaii.<sup>166</sup> In New England, the state of Vermont spends the most per capita on education; but localities in Vermont take so little role in funding education that Vermont's total per-pupil education spending falls below Massachusetts and Connecticut where cities and towns spend a great deal.<sup>167</sup>

Our analysis is able to integrate county and local fiscal effects by making use of a relatively new database overseen by Katherine Baicker, an assistant professor of economics at Dartmouth, that combines county and municipal expenditures into "area spending" data.<sup>168</sup> We use data from the U.S. Census Bureau's 1982, 1987, 1992, and 1997, the available years in which the Census of Governments recently took place.<sup>169</sup>

#### CRIME ANALYSIS

The Federal Bureau of Investigation provides Uniform Crime Report data to the Inter-University Consortium for Political and Social Research, which aggregates annual county-level estimates of reported crime. Uniform Crime Reports represent a relatively reliable index of crime. All municipal and county police departments are required to report murder, rape, robbery, burglary, arson, larceny, aggravated assault, and motor vehicle theft crimes to the state police. We standardize these effects to per-resident as a way to correct for population changes. Index crimes do not include other crimes associated with casinos such as counterfeiting, disorderly conduct, and drunk driving. We examine the county crime rate minus the state crime rate as a way to isolate county-specific effects.

**Table 2: Effects of Casinos and Large Casinos (slots>1,760) on County-Level Outcomes. All Counties.**

Data are at the county-year level. This table shows OLS regressions of the relevant outcome on dummies for whether a casino (and large casino) existed in the county during that year. County and year dummies are included to control for time/ business cycle effects and heterogeneity across counties. Casinos are all Native American casinos. Casino data are from Evans and Topoleski (2002).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Log of Population	Unemployment Rate	Log Employment	FBI Index Crimes per Person	Log of Expenditures on Police	Median House Price	Log of Expenditures on Education	Log of Expenditures on Highways	Bankruptcies per 1000 people
Casino Existed in	0.050	-0.003	0.067	-0.003	-0.035	5,869.012	-0.034	0.059	0.294
County in that Year	(3.654)**	(1.249)	(4.340)**	(2.598)**	(1.129)	(2.023)*	(1.408)	(1.264)	(3.434)**
Large Casino Existed	0.036	-0.009	0.082	-0.003	0.112	3,055.055	0.112	0.064	-0.346
in County in that Year	(1.122)	(2.784)**	(2.690)**	(0.999)	(1.800)	(0.553)	(2.556)*	(0.875)	(1.292)
County Dummies?	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year Dummies?	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	10.137	0.060	9.262	0.034	7.037	83,674.707	9.379	7.397	3.935
	(7128.854)**	(296.773)**	(3112.034)**	(148.880)**	(1791.632)**	(188.621)**	(2636.868)**	(1084.898)**	(216.960)**
Observations	65909	37235	64207	32589	12379	9275	12370	12315	37268
R-squared	0.996	0.854	0.994	0.821	0.981	0.831	0.990	0.955	0.788

Robust t-statistics in parentheses  
 \* significant at 5%; \*\* significant at 1%

**Table 3: Counties with > 55000 Residents in 1990. Effects of Casinos and Large Casinos (slots>1,760) on County-Level Outcomes**

Data are at the county-year level. This table shows OLS regressions of the relevant outcome on dummies for whether a casino (and large casino) existed in the county during that year. County and year dummies are included to control for time/ business cycle effects and heterogeneity across counties. Casinos are all Native American casinos and data are from Evans and Topoleski.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Log of Population	Unemployment Rate	Log Employment	FBI Index Crimes per Person	Log of Expenditures on Police	Median House Price	Log of Expenditures on Education	Log of Expenditures on Highways	Bankruptcies per 1000 people
Casino Existed in	0.081	0.005	0.057	-0.001	0.031	7,083.028	0.001	0.029	0.461
County in that Year	(3.682)**	(2.324)*	(2.115)*	(0.467)	(0.740)	(1.313)	(0.040)	(0.388)	(3.418)**
Large Casino Existed	0.031	-0.011	0.044	-0.008	-0.007	-3,012.020	0.089	-0.010	-0.445
in County in that Year	(0.645)	(3.283)**	(0.915)	(2.228)*	(0.129)	(0.352)	(1.628)	(0.076)	(1.094)
County Dummies?	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year Dummies?	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	12.072	0.048	11.475	0.048	9.784	115,129.827	12.122	9.712	4.367
	(1629.129)**	(108.039)**	(2053.495)**	(163.604)**	(1298.451)**	(99.228)**	(2121.690)**	(901.565)**	(135.029)**
Observations	16609	9202	15989	8904	3068	2296	3068	3062	9203
R-squared	0.991	0.905	0.990	0.832	0.985	0.826	0.987	0.956	0.867

Robust t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%

Table 4: Population, Unemployment, and Employment in the Largest-16 Recent Casino Counties

County, State	Population 1990	Population 2000	Population Growth (1990-2000)	Relative Pop Growth (County minus State Average)	Relative Unemployment (County Minus State Average) Before	Relative Unemployment (County-State Average) After	Change in relative unemployment (After - Before)	Relative Employment Rate (before)	Relative Employment Rate (after)	Change in relative employment (Before Minus After)
Aitkin, MN	12,445	15,301	22.9%	14.8%	4.60%	4.20%	-0.40%	-10.90%	-11.20%	-0.30%
Allen Parish, LA	21,207	25,440	20.0%	14.3%	3.20%	0.00%	-3.20%	-9.50%	0.90%	10.40%
Attala, MS	18,461	19,661	6.5%	-2.9%	2.40%	1.50%	-0.90%	-0.70%	-1.20%	-0.50%
Avoyelles Parish, LA	39,108	41,481	6.1%	0.4%	3.70%	0.70%	-3.00%	-9.10%	-6.30%	2.80%
Bernalillo, NM	481,984	556,678	15.5%	-3.1%	-3.20%	-3.20%	0.00%	19.40%	22.50%	3.10%
Broward, FL	1,261,932	1,623,018	28.6%	3.1%	-0.90%	-0.20%	0.70%	7.40%	7.20%	-0.20%
Brown, WI	195,281	226,778	16.1%	5.4%	-1.40%	-1.60%	-0.20%	13.70%	16.60%	2.90%
Carlton, MN	29,317	31,671	8.0%	-0.1%	1.40%	1.40%	0.00%	-5.50%	-5.40%	0.10%
Cherokee, NC	20,208	24,298	20.2%	2.8%	3.00%	2.00%	-1.00%	-1.60%	0.60%	2.20%
Forest, WI	8,778	10,024	14.2%	3.4%	2.10%	1.60%	-0.50%	-10.20%	-6.80%	3.40%
Maricopa, AZ	2,129,352	3,097,299	45.5%	13.1%	-5.60%	-7.00%	-1.40%	15.00%	18.00%	3.00%
<b>New London, CT</b>	<b>255,171</b>	<b>259,088</b>	<b>1.5%</b>	<b>-2.9%</b>	<b>0.00%</b>	<b>0.10%</b>	<b>0.10%</b>	<b>4.20%</b>	<b>6.60%</b>	<b>2.40%</b>
Riverside, CA	1,193,639	1,545,387	29.5%	14.5%	-0.30%	-1.70%	-1.40%	-12.00%	-12.50%	-0.50%
San Bernardino, CA	1,437,012	1,709,434	19.0%	4.0%	-2.20%	-2.70%	-0.50%	-11.30%	-12.20%	-0.90%
<b>San Diego, CA</b>	<b>2,513,216</b>	<b>2,813,833</b>	<b>12.0%</b>	<b>-3.0%</b>	<b>-4.10%</b>	<b>-4.50%</b>	<b>-0.40%</b>	<b>5.80%</b>	<b>6.90%</b>	<b>1.10%</b>
<b>Scott, MN</b>	<b>58,249</b>	<b>89,498</b>	<b>53.6%</b>	<b>45.5%</b>	<b>-1.50%</b>	<b>-2.00%</b>	<b>-0.50%</b>	<b>-6.90%</b>	<b>-6.60%</b>	<b>0.30%</b>
Average	604,710	755,556	19.9%	6.83%	0.08%	-0.71%	-0.79%	-0.76%	1.07%	1.83%
Mega-3 average	942,212	1,054,140	22.37%	13.20%	-1.87%	-2.13%	-0.27%	1.03%	2.30%	1.27%

Table 5: Revenues and Expenditures, Including Police, Highway, and Education in the Largest-16 Casino Counties  
All Numbers are in Thousands of Current Dollars

County, State	Education Expenditures 1997	Police Expenditures 1997	Highway Expenditures 1997	Education Expenditures 1987	Police Expenditures 1987	Highway Expenditures 1987	Change in education spending 1987-1997	Percent change in education spending, 1987-1997	Change in police spending, 1987-1997	Percent change in police spending, 1987-1997	Change in highway spending, 1987-1997	Percent change in highway spending, 1987-1997	Relative education change (casino minus state) 1987-97	Relative police change (casino minus state) 1987-97	Relative highway change (casino minus state) 1987-97	Relative Per-Pupil Education Change
Aitkin, MN	16,014	1,257	5,379	9,433	593	3,734	6,581	69.77	664	111.97	44.05	-12.65	14.13	-28.31	2.86%	
Allen Parish, LA	20,477	1,919	2,312	11,395	1,524	3,189	9,082	79.70	395	25.92	-27.50	11.83	-48.77	-57.23	18.37%	
Attala, MS	15,237	1,455	3,819	8,711	682	3,046	6,326	74.92	773	113.34	25.38	-12.05	-22.87	-20.60	-23.87%	
Avoyelles Parish, LA	32,797	7,674	4,883	19,296	3,986	3,803	13,501	69.97	3,688	92.52	28.40	2.09	17.84	-1.33	13.03%	
Bernalillo, NM	546,408	98,068	71,461	299,255	52,316	36,491	247,153	82.59	45,752	87.45	95.83	-5.20	-11.70	-1.98	11.83%	
Broward, FL	1,484,091	392,788	86,376	637,998	178,481	71,266	846,093	132.62	214,307	120.07	21.20	25.74	-6.03	-70.50	-10.82%	
Brown, WI	306,115	32,525	50,927	148,591	18,805	42,005	157,524	106.01	13,720	72.96	21.24	6.80	-12.08	-41.66	-12.88%	
Carlton, MN	46,464	3,039	8,842	25,979	1,730	6,666	20,485	78.85	1,309	75.66	32.64	-3.56	-22.18	-39.72	12.05%	
Cherokee, NC	29,064	1,368	490	14,505	535	167	14,559	100.37	833	155.70	193.41	11.69	25.14	106.16	35.93%	
Forest, WI	17,191	3,505	4,210	9,910	578	2,576	7,281	73.47	2,927	506.40	63.43	-25.74	421.36	0.53	-20.40%	
Maricopa, AZ	2,491,055	487,880	283,508	1,416,914	227,970	311,486	1,074,141	75.81	259,910	114.01	-8.98	141.97	185.54	69.45	-11.53%	
<b>New London, CT</b>	<b>338,267</b>	<b>37,363</b>	<b>37,145</b>	<b>171,895</b>	<b>19,584</b>	<b>23,577</b>	<b>166,372</b>	<b>96.79</b>	<b>17,779</b>	<b>90.78</b>	<b>57.55</b>	<b>12.47</b>	<b>11.98</b>	<b>1.17</b>	<b>14.88%</b>	
Riverside, CA	1,617,659	243,891	184,279	698,800	108,636	91,455	918,859	131.49	135,255	124.50	101.50	54.27	31.48	45.45	-16.92%	
San Bernardino, CA	2,010,564	286,986	157,382	869,573	128,552	86,502	1,140,991	131.21	158,434	123.25	81.94	53.99	30.22	25.89	-0.32%	
<b>San Diego, CA</b>	<b>2,806,716</b>	<b>414,602</b>	<b>268,307</b>	<b>1,521,389</b>	<b>223,128</b>	<b>141,182</b>	<b>1,285,327</b>	<b>84.48</b>	<b>191,474</b>	<b>85.81</b>	<b>90.04</b>	<b>7.26</b>	<b>-7.21</b>	<b>34.00</b>	<b>-5.97%</b>	
<b>Scott, MN</b>	<b>89,219</b>	<b>8,877</b>	<b>24,155</b>	<b>36,291</b>	<b>4,086</b>	<b>9,551</b>	<b>52,928</b>	<b>145.84</b>	<b>4,791</b>	<b>117.25</b>	<b>152.91</b>	<b>63.43</b>	<b>19.41</b>	<b>80.54</b>	<b>28.76%</b>	
Average	741,709	126,450	74,592	368,746	60,699	52,294	372,963	95.87	65,751	126.10	60.82	20.77	39.14	6.37	2.19%	
Mega-3 average	\$ 1,078,067	\$ 153,614	\$ 109,869	\$ 576,525	\$ 82,266	\$ 58,103	\$ 801,542	109.04	\$ 71,348	97.95	100.17	27.72	8.06	38.57	12.56%	
Total Revenues 1997	Total Expenditures 1997	Deficit (Surplus) 1997	Total Revenues 1987	Total Expenditures 1987	Deficit (Surplus) 1987	Revenue Growth 87-97	Spending Growth 87-97	Revenue State Average	Spending State Average							
Aitkin, MN	38793	39243	450	26005	23649	-2356	49.2%	65.9%	-6.6%	-2.7%						
Allen Parish, LA	40354	36753	-3601	25052	25256	204	61.1%	45.5%	2.1%	-7.5%						
Attala, MS	48221	46327	-1894	24608	23634	-974	96.0%	96.0%	20.7%	16.8%						
Avoyelles Parish, LA	62403	59756	-2647	45984	50268	4284	35.7%	18.9%	-23.3%	-34.1%						
Bernalillo, NM	1347218	1489835	142617	796173	781645	-14528	69.2%	90.6%	-7.7%	9.0%						
Broward, FL	5137270	5029723	-107547	2378327	2366103	-12224	116.0%	112.6%	8.8%	9.2%						
Brown, WI	648438	671655	23217	371412	388450	17038	74.6%	72.9%	-13.8%	-22.6%						
Carlton, MN	98985	104772	5787	68507	69719	1212	44.5%	50.3%	-11.3%	-18.3%						
Cherokee, NC	42873	46807	3934	29815	30746	931	43.8%	52.2%	-49.5%	-50.7%						
Forest, WI	28350	33096	4746	15723	16818	1095	80.3%	96.8%	-8.1%	1.3%						
Maricopa, AZ	8872864	8741548	-131316	4694453	4971154	276701	89.0%	75.8%	3.4%	-5.5%						
<b>New London, CT</b>	<b>834867</b>	<b>809099</b>	<b>-25768</b>	<b>484048</b>	<b>455398</b>	<b>-28650</b>	<b>72.5%</b>	<b>77.7%</b>	<b>-12.2%</b>	<b>-1.8%</b>						
Riverside, CA	5044677	4996706	-47971	2389130	2453208	64078	111.2%	103.7%	22.2%	9.9%						
San Bernardino, CA	5472530	5715867	243337	2636572	2659128	22556	107.6%	115.0%	18.6%	21.1%						
<b>San Diego, CA</b>	<b>9169809</b>	<b>9519599</b>	<b>349790</b>	<b>5197692</b>	<b>4734303</b>	<b>-463389</b>	<b>76.4%</b>	<b>101.1%</b>	<b>-12.5%</b>	<b>7.3%</b>						
<b>Scott, MN</b>	<b>197562</b>	<b>222227</b>	<b>24665</b>	<b>116568</b>	<b>111437</b>	<b>-5131</b>	<b>69.5%</b>	<b>99.4%</b>	<b>13.7%</b>	<b>30.8%</b>						
Average	2,317,826	2,347,688	29,862	1,206,254	1,197,557	(8,697)	74.78%	79.65%	-3.46%	-2.36%						
Mega-3 average	\$ 3,400,746	\$ 3,516,975	\$ 116,229	\$ 1,932,769	\$ 1,767,046	\$ (165,723)	72.79%	92.72%	-3.67%	12.10%						

Table 6: Social Effects and Quality of Life

County	Tribe	Number of Slot Machines	Casino opening date	Relative Unemployment (County-State Average)			Change in relative unemployment (Before-After)	Relative Crime (Before)	Relative Crime (After)	Change in Relative Crime (After - Before)	Population 1990	Population 2000
				Before	After	Change						
Aitkin, MN	Mille Lacs	3295	1991	4.60%	4.20%	-0.40%	0.028	0.018	-0.010	12445	15301	
Allen Parish, LA	Coushatta	1838	1995	3.20%	0.00%	-3.20%	-0.012	-0.009	0.003	21207	25440	
Attala, MS	Mississippi	1979	1994	2.40%	1.50%	-0.90%	0.001	-0.019	-0.020	18461	19661	
Avoyelles Parish, LA	Tunica Bilo	1233	1994	3.70%	0.70%	-3.00%	-0.023	-0.004	0.019	39108	41481	
Bernalillo, NM	Sandia Puet	1458	1991	-3.20%	-3.20%	0.00%	0.052	0.049	-0.003	481984	556678	
Broward, FL	Seminole Tr	2658	1991	-0.90%	-0.20%	0.70%	0.032	0.025	-0.007	1261932	1623018	
Brown, WI	Oncida Resc	2567	1991	-1.40%	-1.60%	-0.20%	0.010	0.006	-0.004	195281	226778	
Carlton, MN	Fond Du La	1613	1991	1.40%	1.40%	0.00%	0.007	0.002	-0.005	29317	31671	
Cherokee, NC	Eastern Che	1042	1997	3.00%	2.00%	-1.00%	-0.015	-0.015	0.000	20208	24298	
Forest, WI	Forest Coum	1518	1991	2.10%	1.60%	-0.50%	0.004	0.013	0.009	8778	10024	
Maricopa, AZ	Gila River F	988	1997	-5.60%	-7.00%	-1.40%	0.032	0.028	-0.004	2129352	3097299	
<b>New London, CT</b>	<b>Mashantuc</b>	<b>5790</b>	<b>1992</b>	<b>0.00%</b>	<b>0.10%</b>	<b>0.10%</b>	<b>0.001</b>	<b>0.000</b>	<b>-0.001</b>	<b>255171</b>	<b>259088</b>	
Riverside, CA	Santa Rosa l	4395	1994	-0.30%	-1.70%	-1.40%	0.022	0.006	-0.016	1193639	1545387	
San Bernardino, CA	San Manuel	2495	1994	-2.20%	-2.70%	-0.50%	0.016	0.006	-0.010	1437012	1709434	
<b>San Diego, CA</b>	<b>Barona Res</b>	<b>3333</b>	<b>1991</b>	<b>-4.10%</b>	<b>-4.50%</b>	<b>-0.40%</b>	<b>0.008</b>	<b>-0.001</b>	<b>-0.009</b>	<b>2513216</b>	<b>2813833</b>	
<b>Scott, MN</b>	<b>Shakopee S</b>	<b>2583</b>	<b>1992</b>	<b>-1.50%</b>	<b>-2.00%</b>	<b>-0.50%</b>	<b>0.010</b>	<b>0.004</b>	<b>-0.006</b>	<b>58249</b>	<b>89498</b>	
Average		2424	1993	0.08%	-0.71%	-0.79%	0.011	0.007	-0.004	604710	755555.6	
Mega-3 average		3902		-1.87%	-2.13%	-0.27%	0.006	0.001	-0.005	942212	1054139.7	

County	Population Growth (9000)	Relative Pop Growth	Median House Price		Median Price (1990-00)	Relative Price Growth	Relative Employment Rate (before)	Relative Employment Rate (after)	Bankruptcies before	Bankruptcies After	Relative Bankruptcies before	Relative Bankruptcies After	Change in relative bankruptcies
			1990	2000									
Aitkin, MN	0.23	0.15	\$ 50,000	\$ 93,200	86.40%	14.20%	-0.109	-0.112	1.410	2.531	-0.439	0.109	0.548
Allen Parish, LA	0.20	0.14	\$ 35,200	\$ 58,100	65.10%	13.50%	-0.095	0.009	2.240	3.437	0.084	0.169	0.085
Attala, MS	0.07	-0.03	\$ 35,900	\$ 49,900	39.00%	-12.90%	-0.007	-0.012	3.060	3.623	-0.274	-0.822	-0.548
Avoyelles Parish, LA	0.06	0.00	\$ 34,000	\$ 54,800	61.20%	9.60%	-0.091	-0.063	1.608	2.690	-0.631	-0.371	0.26
Bernalillo, NM	0.16	-0.03	\$ 84,600	\$ 128,300	51.70%	-8.50%	0.194	0.225	4.147	3.901	1.68	0.842	-0.838
Broward, FL	0.29	0.03	\$ 91,300	\$ 128,600	40.90%	-9.40%	0.074	0.072	2.840	4.649	0.569	1.343	0.774
Brown, WI	0.16	0.05	\$ 62,200	\$ 116,100	86.70%	3.80%	0.137	0.166	2.650	3.009	0.884	0.344	-0.54
Carlton, MN	0.08	0.00	\$ 45,200	\$ 85,400	88.90%	16.70%	-0.055	-0.054	2.600	3.343	0.751	0.921	0.17
Cherokee, NC	0.20	0.03	\$ 53,100	\$ 86,000	62.00%	-3.10%	-0.016	0.006	1.397	1.205	0.498	-0.497	-0.995
Forest, WI	0.14	0.03	\$ 38,700	\$ 77,400	100.00%	17.10%	-0.102	-0.068	3.575	4.653	1.592	1.937	0.345
Maricopa, AZ	0.45	0.13	\$ 84,700	\$ 121,300	43.21%	-16.79%	0.150	0.180	5.362	5.803	2.515	1.126	-1.389
<b>New London, CT</b>	<b>0.02</b>	<b>-0.03</b>	<b>\$ 148,900</b>	<b>\$ 142,200</b>	<b>-4.50%</b>	<b>-0.30%</b>	<b>0.042</b>	<b>0.066</b>	<b>2.848</b>	<b>4.463</b>	<b>0.296</b>	<b>0.532</b>	<b>0.236</b>
Riverside, CA	0.30	0.15	\$ 138,800	\$ 146,500	5.50%	-26.80%	-0.120	-0.125	6.010	8.140	2.57	2.952	0.382
San Bernardino, CA	0.19	0.04	\$ 128,500	\$ 131,500	2.30%	-30.00%	-0.113	-0.122	6.226	8.727	2.786	3.539	0.753
<b>San Diego, CA</b>	<b>0.12</b>	<b>-0.03</b>	<b>\$ 186,200</b>	<b>\$ 227,200</b>	<b>22.00%</b>	<b>-10.30%</b>	<b>0.058</b>	<b>0.069</b>	<b>5.093</b>	<b>6.013</b>	<b>1.355</b>	<b>0.471</b>	<b>-0.884</b>
<b>Scott, MN</b>	<b>0.54</b>	<b>0.46</b>	<b>\$ 90,800</b>	<b>\$ 157,300</b>	<b>73.20%</b>	<b>1.00%</b>	<b>-0.069</b>	<b>-0.066</b>	<b>4.070</b>	<b>3.324</b>	<b>2.043</b>	<b>0.878</b>	<b>-1.165</b>
Average	0.199	0.068	\$ 81,756	\$ 112,738	51.48%	-2.64%	-0.008	0.011	3.446	4.344	1.017	0.842	-0.175
Mega-3 average	0.224	0.132	\$ 141,967	\$ 175,567	30.23%	-3.20%			4.003	4.600	1.231	0.627	-0.604

**Table 7: Total county revenue and spending for casino counties**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log of Total Revenues	Log of Total Expenditures	Growth in Revenues 1987-1997	Growth in Spending 1987-1997	Log of Total Revenues Large Counties	Log of Total Expenditures Large Counties	Growth in Revenues 1987-1997 Large Counties	Growth in Spending 1987-1997 Large Counties
Casino Existed in County in that Year	-0.029 (1.160)	-0.039 (1.488)	-0.018 (0.393)	-0.021 (0.468)	0.032 (0.874)	0.018 (0.464)	0.073 (1.300)	0.046 (0.764)
Large Casino Existed in County in that Year	0.043 (0.997)	0.083 (1.900)	-0.012 (0.105)	0.047 (0.415)	0.008 (0.149)	0.059 (1.142)	-0.026 (0.206)	0.066 (0.494)
Constant	10.529 (4738.088)**	10.505 (4394.949)*	0.812 (90.490)*	0.836 (94.718)*	12.968 (2291.934)**	12.965 (2195.468)**	0.865 (64.989)*	0.882 (62.172)**
Observations	12387	12387	3095	3095	3068	3068	767	767
R-squared	0.990	0.990	0.000	0.000	0.989	0.988	0.002	0.002

Robust t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%

**Table 8: Per-Capita Effects on Total Revenue and Spending**

	(1)	(2)	(3)	(4)
	log revenues/cap All counties	log spending/cap All counties	log revenues/cap Large Counties	log spending/cap Large Counties
Casino Existed in County in that Year	-0.077 (4.105)**	-0.087 (4.060)**	-0.048 (2.015)*	-0.062 (2.288)*
Large Casino Existed in County in that Year	0.011 (0.293)	0.050 (1.351)	-0.018 (0.347)	0.032 (0.647)
Constant	0.073 (26.268)**	0.376 (164.395)**	0.958 (232.414)**	0.955 (212.535)**
Observations	12276	12276	3068	3068
R-squared	0.940	0.938	0.962	0.955

Robust t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%

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**Notes:**

<sup>1</sup> National Gambling Impact Study, 1999. The commission further estimated that because of a range of factors from lost productivity to increased crime, each of the nation's 7.5 million problem gamblers costs society an average of around \$10,550 over the course of their lifetime. The Australian Official Productivity Commission's estimation for the yearly social cost of individual problem gambling covered a range from \$560 to \$52,000. See Productivity Commission, *Australia's Gambling Industries*, Report 10 (Canberra: AusInfo, 1999).

<sup>2</sup> William N. Evans and Julie H. Topoleski, "The Social and Economic Impact of Native American Casinos" (September 2002). NBER Working Paper, No. W9198. These results show this strongly only after four or more years of casino operation.

<sup>3</sup> Jonathan B. Taylor, Matthew B. Krepps, and Patrick Wang, "The National Evidence on the Socioeconomic Impacts of American Indian Gaming on Non-Indian Communities," Harvard Project on American Indian Economic Development, John F. Kennedy School of Government, working paper PRS 00-01 (April 2000), available at [http://www.ksg.harvard.edu/hpaied/pubs/pub\\_010.htm](http://www.ksg.harvard.edu/hpaied/pubs/pub_010.htm). We also look more carefully at these cases – as well as the similarly large San Diego facilities in Barona Reservation. We find, however, that these casinos do not generate qualitatively different results than the other large casinos.

<sup>4</sup> Daniel E. Bosley, House of Representative, Boston State House, memo to Speaker Thomas Finneran, April 28, 1997; available at the Massachusetts Municipal Association website at [http://www.mma.org/news/news\\_archives/state\\_budget\\_archive/fy98\\_state\\_budget/casino.txt](http://www.mma.org/news/news_archives/state_budget_archive/fy98_state_budget/casino.txt)

<sup>5</sup> Wherever the outcomes we examine are not on a per-capita basis, we use the logarithmic mean of total changes as the standard way to measure changes relative to the size of their absolute amounts.

<sup>6</sup> We use data from the U.S. Census Bureau's 1982, 1987, 1992, and 1997, the available years in which the Census of Governments recently took place. We include the 1982 and 1992 data rather than simply compare 1987 to 1997, so as to better estimate fixed county effects.

<sup>7</sup> Unlike Evans and Topoleski, we include counties from Colorado, Iowa, Mississippi, Nevada, Oklahoma, and South Dakota.

<sup>8</sup> Because they opened before 1990, five "big slot" counties are excluded from this sample. The resulting sample nonetheless had an average of 2,439 slot machines per county.

<sup>9</sup> For an overview of Minnesota casinos, see <http://www.mnindiangaming.org/template.cfm?view=links>. The Barona boasted 3,333 slot machines in the year 2000 and sat in an urban center of 2.8 million people. See <http://www.barona.com/casino/index.cfm>

<sup>10</sup> The regression analysis also looks at the subset of all counties with large casinos. Larger casinos generally tend to locate in more-populous counties.

<sup>11</sup> Starting with county-level Census data on the logarithmic mean of population growth between 1990 and 2000, we subtract state-wide growth rates to isolate the county-effects from state-wide trends. If we had not used the log, we would not know whether our results might only indicate that larger counties add more people than small ones each year – a finding which could be true even if the rate of growth were slower in large cities.

<sup>12</sup> The T-statistic for this regression was 1.98.

<sup>13</sup> At Indian casinos tribe members fill only a fraction of the jobs. The National Indian Gaming Association estimates that three-quarters of employees at Indian casinos are non-Indian, and that in Connecticut the non-Indian portion is much higher. According to the Swift Commission, The high rate of unionization in Las Vegas and Atlantic City contributes to substantially higher wages than would be typical for unskilled service jobs, but not in Reno where unionization is low. Las Vegas casino wages still averaged only \$26,000, though employees enjoyed relatively high levels of health care and pension coverage. See, "Swift Commission": The Commission to Study the Potential Expansion of Legalized Gaming, "Expanded Legalized Gaming in Massachusetts: A Presentation of Gaming Regulation, Economic Development Impact, Fiscal Impact and Social and cultural Impact", Prepared for Governor Jan Swift, Dec. 31, 2002, pp. 12, 19, 21.

<sup>14</sup> Following this logic, the government of Sri Lanka permits only foreigners to gamble at casinos.

<sup>15</sup> Joseph Faldetta, the President of the Atlantic City Restaurant and Tavern Association testified to the National Gambling Impact Study Commission how among the 311 taverns and restaurants listed in the 1978 director before casinos, only 66 remained 19 years later (NGISC, chapter 7, p. 7-5). Many businesses were

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demolished for the casinos. It is not clear whether an 83 percent attrition rate for bars and restaurants over 19 is especially high in resort areas. Rose also points to a strong trend toward closing before the casinos were approved; and he notes that the number of restaurants and bars in the larger metropolitan area increased. See Adam Rose and Associates, *The Regional Impacts of Casino Gambling: Assessment of the Literature and Establishment of a Research Agenda*, report prepared for the National Gaming Impact Study (November 5, 1998), cited in Swift Commission, p. 27.

<sup>16</sup> Taylor, Krepps, and Wang (2000), Table 4.

<sup>17</sup> Taylor, Krepps, and Wang, 2000. See also "Casino Gaming and Local Employment Trends," Federal Reserve Bank of St. Louis *Review*, 86 (January/February 2004), pp. 9-22.

<sup>18</sup> We use standard county-level Bureau of Labor Statistics BEA (10) data and compare logarithmic means to capture the relative rather than absolute size of change.

<sup>19</sup> With a T-statistic of -0.01, this relationship is not, however, statistically significant.

<sup>20</sup> With a T-statistic of 0.59, this relationship is not, however, statistically significant.

<sup>21</sup> For a full review, see Swift Report (2002), pp. 39-45.

<sup>22</sup> Heywood T. Sanders, "Convention Center Follies." *Public Interest*, no. 132 (Summer 1998), pp. 58-72; Alan Altshuler and David Luberoff, *Mega-Projects: The Changing Politics of Urban Public Investment* (Washington, D.C.: Brookings Institution Press, 2003), pp. 243-247.

<sup>23</sup> Only in the first case do we utilize county and year fixed effects.

<sup>24</sup> With a T-statistic of -0.78, this slight negative effect was not statistically significant.

<sup>25</sup> The slightly slower rate of total spending in these casino counties compared to state averages, alongside the slightly faster spending increases we shall see in education, police, and roads does not necessarily mean that other policy areas suffered from spending cuts. In the aggregate, the data does suggest that other spending areas on average grew slower than the state average, but the scale of these differences are relatively trivial, especially given that roughly half of the counties sat above and below the state average for each type of spending. With a T-statistic of -0.45 for total spending, this relationship was also not statistically significant.

<sup>26</sup> Moreover, the results were not produced by a tendency for *states* that approve casinos to also tend to have slower local revenue and spending growth. We found the county effects persisted even when we adjusted outcomes to statewide averages. Looking at per-capita fiscal results in the smaller sub-samples, we find less consistent results. Among populous counties the negative per-capita effects on spending and revenues are larger. Among large-capacity casinos we find positive results on spending, but negative results in revenue among those large-slot counties that also have high populations.

<sup>27</sup> The T-statistic was -2.30.

<sup>28</sup> Kathleen McCormick, "In the Clutch of Casinos: Nearby towns are refusing to cry 'Uncle'," *American Planning Association Journal* (June 1997), cited in Swift Commission (2002), p. 31.

<sup>29</sup> Swift Commission (2002), p. 29.

<sup>30</sup> We tried looking only at counties with 40,000 populations or greater, 60,000 or greater, and 100,000 or greater.

<sup>31</sup> The T-statistic for this relationship was -1.12.

<sup>32</sup> In order to measure changes relative to the size of absolute amounts we measure the log of dollar spending. Without adjusting for per-pupil, our results show an increase in education spending from the rising population in casino counties.

<sup>33</sup> Measuring on a per-pupil basis, the sample of all counties and the sample of large counties appeared to have slower gains in educational spending, but only because of the *states* which introduced these casinos. Within these samples, counties introducing casinos increased education spending by 12 percent less per-pupil than other counties that did not introduce casinos. This effect disappeared when we looked only at large (1,760 slot plus) casino counties. Further analysis, shows moreover that these effects are spurious. Casinos located more often in states that spent more slowly on education. *Examining the results relative to state averages eliminates any differences in educational spending levels.*

<sup>34</sup> The T-statistic is 0.49.

<sup>35</sup> The low relative population growth in New London County means that we find similar results if we were not measuring spending on a per-pupil basis. In nominal rather than per-pupil terms, the New London County area saw a 97 percent increase in educational spending from \$172 million in 1987 to \$338 million in 1997. This increase surpassed the average area spending increase of 84 percent across Connecticut.

<sup>36</sup> From some perspectives, shifting dollars from scratch tickets to slot machines would be beneficial for Massachusetts. Lotteries draw revenue from the poor more than casinos. Slot machines and most table games

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also return more of each dollar to players. Generous revenue-sharing agreements like those at Foxwoods that give the state a quarter of slot revenues could exceed the 21 percent of Lottery revenue currently distributed to the government in Massachusetts. Unlike the Lottery, the private sector would bear almost all casino operating expenses. And far more tourists would visit the Commonwealth for casinos than to play games offered by the state lottery commission.

<sup>37</sup> Legislators hesitate to part with the unrestricted aid for the communities they represent. Cities and towns enjoy little discretion about how to spend most of their revenues because programs earmark municipal funds for things like libraries, police-career incentives, and pensions. The largest portion of local aid is dedicated to education, which comprises the largest portion of most town budgets. Behind targeted education funds, Lottery aid stands as the second-largest source of all local aid, and the only form of aid to grow over the past decade.

One study by Saint Mary's College Professor of Political Science, Patrick Pierce, finds that the prior existence of a lottery is a better predictor of whether a state will approve casinos than fiscal health, religious belief, the party in power, or even whether neighboring states host casinos. Data from the same researcher suggests a slight tendency for casino approvals to follow in lottery states particularly when lottery revenues sag. See, respectively, Patrick A. Pierce, "Roll the Dice: The diffusion of casinos in American states," paper presented at the annual meeting of the West Virginia Political Science Association, Morgantown, West Virginia, October 1997; Patrick A. Pierce and Donald E. Miller, *Gambling Politics: State Governments and the Business of Betting* (Boulder CO: Lynn Lynne-Rienner, forthcoming in 2004).

<sup>38</sup> "Additional assistance," the other sizeable component of local aid, has long been frozen at FY1992 levels. For a breakdown of local aid by type, see <http://www.dls.state.ma.us/cherry/04/csr04000.doc>

<sup>39</sup> In addition, \$7 million went for the Massachusetts Cultural Council and \$655,000 to the Massachusetts Council on Compulsive Gambling.

<sup>40</sup> Adam Rose and Associates, "The Regional Economic Impacts of Casino Gambling: Assessment of the Literature and Establishment of a Research Agenda," prepared for the National Gambling Impact Study Commission (Washington, D. C., Nov. 1998), final draft, p. 18.

<sup>41</sup> Center for Policy Analysis, "Comparative Lottery Analysis: The Impact of Casinos on Lottery Revenues and Total Gaming Revenues," prepared for the State Senate of Rhode Island, Economic Series no. 53 (May 2004).

<sup>42</sup> Deloitte & Touche, *A Massachusetts Economic Development Initiative: Impacts Resulting from the Development of a Gaming and Entertainment Center in Southeastern Massachusetts, Estimates of Gaming Revenue and Impact on Lottery*, July 12, 2002, cited in Swift Commission, 2002, pp. 47-51.

<sup>43</sup> Melissa Schettini Kearney, "State Lotteries and Consumer Behavior" (unpublished manuscript Sept 2003), also published in earlier form as National Bureau of Economic Research, working paper 9330 (November 2002).

<sup>44</sup> Deloitte & Touche, *A Massachusetts Economic Development Initiative: Impacts Resulting from the Development of a Gaming and Entertainment Center in Southeastern Massachusetts, Estimates of Gaming Revenue and Impact on Lottery*, July 12, 2002, cited in Swift Commission, 2002, pp. 47-51.

<sup>45</sup> Jeffery Dense, Emily Hodgson, and Clyde W. Barrow, "Casino Gaming and State Lotteries: A Fiscal Impact Analysis" (North Dartmouth: Center for Policy Analysis, 1999), also cited in Swift Commission report, p. 48.

<sup>46</sup> The Swift Commission report comes to a similar conclusion (p. 50).

<sup>47</sup> See, for instance, Harvey N. Chinn, "The Case Against Legalized Gambling" at <http://www.ncalg.org/library/library.asp?url=Harvey%20Chinn%20The%20Case%20Against%20Legalized%20Gambling.htm>

<sup>48</sup> The analysis also includes data from 1980 to better identify county-fixed effects.

<sup>49</sup> These data are available at <http://www.ct.gov/eecd/lib/eecd/20/14/Housing%20sales%20prices%2096-99.xls> The data is prepared by the Connecticut Economic and Policy Council from raw sales price data submitted by municipal assessors to the Connecticut Office of Policy. The assessments may be more reliable than self-reported data, although home sales may not fully represent the value of the larger stock of county housing. For instance, some kinds of homes might be sold more often than others. For a discussion, see Peter Englund, John M. Quigley, and Christian L.Redfearn, "Do Housing Transactions Provide Misleading Evidence about the Course of Housing Values?" (February 1, 1999), *Berkeley Program on Housing and Urban Policy. Working Papers: Working Paper W99-004*. Available at [http://repositories.cdlib.org/iber/bphup/working\\_papers/W99-004](http://repositories.cdlib.org/iber/bphup/working_papers/W99-004)

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<sup>50</sup> With a T-statistic of -0.44, this relationship is not statistically significant.

<sup>51</sup> The drop might reflect an inflow of low-wage casino workers into the area, which may have prompted construction of more low-end housing. On the other hand, lower income service workers would be more likely to rent.

<sup>52</sup> This number was calculated through an equal weighting of all 20 municipal areas. Data was not available for Preston for 1999, so 1998 data was substituted. Omitting the Preston results entirely yields a result that also rounds to 47 percent.

<sup>53</sup> Richard C. McCorkle, "Pathological Gambling in Arrestee Populations," National Institute of Justice, NJC no. 196677 (Washington, D.C.: U.S. Department of Justice, 2002).

<sup>54</sup> D W Dutton ; L R Watson ; K H Ebert ; B J Lipman ; G R Hamilton, "Money Laundering: Rapid Growth of Casinos Makes Them Vulnerable," Report to the Permanent Subcommittee on Investigations, Senate Committee on Governmental Affairs, General Accounting Office, GAO/GGD-96-28 (Washington, D.C., 1996); Alan A. Block ; Sean Patrick Griffin, "Build It, and They Will Come: Narcotics and Money Laundering in the Leeward Islands," *Journal of Contemporary Criminal Justice*, 15 Issue:4 (November 1999), pp. 397-420.

<sup>55</sup> See, for example, "Crime follows money," *Gambling Magazine*, article #22/60, available online at <http://www.gamblingmagazine.com/articles/22/22-60.htm> ; see also Louisiana Casinos website <http://www.casinosoflouisiana.com/factmyth.htm> ; and speech by American Gambling Association President, Frank J. Fahrenkopf, testimony before the National Gambling Impact Study Commission, August 19, 1997, available at [http://www.americangaming.org/Press/speeches/speeches\\_detail.cfv?ID=84](http://www.americangaming.org/Press/speeches/speeches_detail.cfv?ID=84) Earl L., Grinols, and J. D. Omorov , "Development or Dreamfield Illusions?: Assessing Casino Gambling's Costs and Benefits," *Journal of Law and Commerce* (199): 16, 1, pp. 49-88; Earl L. Grinols and David B. Mustard. "Measuring Industry Externalities: The Curious Case of Casinos and Crime," Working paper, March 2001. Revised April 2004 and available at <http://www.terry.uga.edu/~dmustard/casinos.pdf>

<sup>56</sup> The peak crime year was 1994 with 1785 crimes. These crimes include homicide, rape, robbery, aggravated assault, burglary, larceny, and motor-vehicle theft. Data comes from Connecticut State Police Crime and Analysis Unit and FBI Uniform Crime Reports as discussed in Swift Commission Report (2002), p. 69.

<sup>57</sup> A comprehensive and even-handed review of the conflicting literature on crime and casinos was conducted by Gary J. Smith and Harold J. Wynne for the Alberta Gaming Research Institute "A Review of the Gambling Literature in the Economic and Policy Domains" (October 2000). It can be found at <http://www.abgaminginstitute.ualberta.ca/documents/reviews/economic.pdf> Another study also found inconsistent results when examining seven jurisdictions in Mississippi, Missouri, Iowa, and Illinois. Though no overall trends were consistent, their most significant results showed increased levels of burglary and drug violations with the introduction of new casinos. See Grant B. Stitt, Mark Nichols, and David Giacopassi, "The Effect of Casino Gambling on Crime and Quality of Life in New Casino Jurisdictions," National Institute of Justice, NJC no. 187679 (Washington, D.C.: U.S. Department of Justice, 2000).

<sup>58</sup> NORC (1999). The study examined the incidence of Part I crimes, which include homicide, rape, robbery, aggravated assault, burglary, larceny, and motor-vehicle theft.

<sup>59</sup> Evans and Topolesky, 2002, p. 42.

<sup>60</sup> Taylor, Krepps, and Wang (2000), Table 4.

<sup>61</sup> As for individual-state studies, The Montana Gambling Study Commission examined the relationship between six types of crime and video gambling machines. They found that for each additional \$1 million in gambling tax revenue, about 172 more crimes could be expected to occur. Other findings within the study suggest conflicting conclusions. See Polzin, P. E., J. Baldrige, D. Doyle, J. T. Sylvester, R. A. Volberg & W. L. Moore. "Final Report to the Montana Gambling Study Commission." In *The 1998 Montana Gambling Study: A Report to the Governor and the 56<sup>th</sup> Legislature* by the Gambling Study Commission. (Helena, MT: Montana Legislative Services Division, 1998).

[http://www.rilin.state.nj.us/gen\\_assembly/gaming/gambling.htm](http://www.rilin.state.nj.us/gen_assembly/gaming/gambling.htm)

A Nebraska survey of 268 women in emergency hospital care, found that those who thought their partners had a gambling problem were over ten times as likely to be victims of intimate partner violence. See, "Problem Gambling and Intimate Partner Violence," *The Wager: Weekly Addiction Gambling Education Report*, 8, 7 (Harvard Medical School , Feb. 12, 2003) reviewing R.L. Muelleman, T. DenOtter, M.C. Wadman, et. al., "Problem gambling in the partner of the emergency room department patient as a risk factor for intimate partner violence," *The Journal of Emergency Medicine*, 23, 3 (2002), pp. 307-312.

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Atlantic City, New Jersey saw very large increases in crime after casino legalization, far greater than the surrounding counties or the state as a whole. See Office of Legislative Research, Connecticut General Assembly, *OLR Research Report*, 95-R-0510 (February 15, 1995). However, when the New Jersey Crime Commission added the visitor population into the per-capita calculations they found that casinos in Atlantic City did not actually increase crime per-capita (Swift Commission Report (2002), p. 67).

One study of riverboat casinos in Iowa and Illinois found that residents felt significantly less positive about legalized gaming in their state seven years after the casinos were introduced than they were two years after. Opinions about crime and “community amenities and activities” largely predicted how positive respondents were about gambling. See, Cathy C.C. Hsu, “Resident’s Support for Legalized Gaming and Perceived Impacts of Riverboat Casinos: Changes in Five Years,” *Journal of Travel Research*, 38 (May 2000), pp. 390-396.

<sup>62</sup> A separate report by Connecticut’s Attorney General states that when Foxwoods first opened in Ledyard, Connecticut the town saw an approximately 100 percent increase in state police activity in the area, including a 192 percent increase in arrests between 1991 and 1993. See Attorney General Joseph Curran, Jr., *The House Never Loses and Maryland Cannot Win: A Report on the Impact of Casino Gaming on Crime* (October 16, 1995).

<sup>63</sup> Office of Legislative Research, Connecticut General Assembly, *OLR Research Report*, 2002-R-0768 (October 7, 2002).

<sup>64</sup> NORC (1999), pp. 45-46.

<sup>65</sup> Ernie Goss and Edward Morse, “The Impact of Casino Gambling on Bankruptcy Rates: A County Level Analysis” Creighton University Research Reports (Omaha, Neb., March 2004). Counties were match with non-casino counties based on population, population density, census region and family income.

<sup>66</sup> In only five cases, however were the results statistically significant The casino community without an associated rise in bankruptcy, Biloxi, Mississippi, hosted the only destination casino in the sample. See Mark Nichols, Grant B. Stitt, and David Gicopassi, “Casino Gambling and Bankruptcy in New U.S. Casino Jurisdictions,” National Institute of Justice, (Washington, D.C.: U.S. Department of Justice, 2001).

<sup>67</sup> John M. Barron, Michael E. Staten and Stephanie M. Wilshusen, “The Impact of Casino Gambling on Personal Bankruptcy Filing Rates,” *Contemporary Economic Policy*, 20 (October 2002), pp. 440-455.

<sup>68</sup> Patrons at the largest destination casinos such as Foxwoods come disproportionately from outside the county. The small sample size prevents us from controlling for independent effects associated with the particular state or the year in which casinos were introduced.

<sup>69</sup> Alabama, Alaska, Arkansas, Georgia, Hawaii, Kentucky, Maryland, Nebraska, New Hampshire, Ohio, Tennessee, Vermont, and Virginia prohibit both casinos and slot machines. Rhode Island, and South Carolina prohibit casinos but have active slot machine parlors; and Maine prohibits casinos, but approved slot machines in November 2003. The Pennsylvania legislature approved casinos and slot parlors in July 2004 with active support from the Governor. See Ernie Goss and Edward Morse, “The Impact of Casino Gambling on Bankruptcy Rates: A County Level Analysis” Creighton University Research Reports (Omaha, Neb., March 2004), p. 1 for the January 2003 casino tally.

<sup>70</sup> Based on an annual average spending of \$653, the reported state average for fiscal year 2003 according to the North American Association of State and Provincial Lotteries, available at <http://www.naspl.org/sales&profits.html>

<sup>71</sup> According to an NFO WorldGroup survey, 77 percent of casino trips from the Bay State head to Connecticut. See, Harrah’s Survey 2003, p. 23.

<sup>72</sup> Daniel J. O’Tool, *Casino Gambling in Massachusetts: The Economic Impacts*, a dissertation submitted to the London School of Economics and Political Science for the MSc in Regional and Urban Planning Studies (August 1999), p. 6.

<sup>73</sup> <http://www.masslottery.com/pdfs/Annualreport2003.pdf>

<sup>74</sup> “Changing Bets: How Time influences payoffs and probability,” *The Wager: Weekly Addiction Gambling Education Report*, 7, 49 (Harvard Medical School, Oct. 2, 2003) reviewing M.D. Sagristano, Y. Trope, and N. Liberman, “Time-dependent gambling: Odds now, money later,” *Journal of Experimental Psychology* (2002), pp. 131, 364-376.

<sup>75</sup> The 2001 reduction led to an 8 percent increase; the 2003 move increased revenues more than 10 percent. See Massachusetts State Lottery Commission, FY 2003 Annual Report, p. 3.

<sup>76</sup> National Association of State and Provincial Lotteries <http://www.naspl.org/sales&profits.html> After a small sag in 2003 revenues, the Lottery Commission’s advertising budget was increased to \$5 million.

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<sup>77</sup> Jonathan Taylor, Joseph Kalt, and Kenneth Grant, “Public Policy Analysis of Indian Gaming in Massachusetts,” The Harvard Project on American Indian Economic Development, John F. Kennedy School of Government, Harvard University, May 13, 2002, p. 8.

<sup>78</sup> Administrative expenses, commissions, and bonuses consumed 7.3 cents of every dollar. Massachusetts State Lottery Commission website <http://www.masslottery.com/pdfs/infopack.pdf>. Net revenues fell by 1 percent in FY 2003. See [http://www.mma.org/news/news\\_files/state\\_budget\\_news/fy04\\_state\\_budget/lottery\\_revs\\_12-22-03.html](http://www.mma.org/news/news_files/state_budget_news/fy04_state_budget/lottery_revs_12-22-03.html) Lottery proceeds were diverted to fill holes in the state budget after the 1990-1991 recession. The annual diversions, which reached \$170 million in 1995, ended in fiscal year 2001 – only to begin again in 2002. For a full discussion, see [http://www.mmaplan.org/lottery\\_facts.html](http://www.mmaplan.org/lottery_facts.html)

<sup>79</sup> An analysis of lottery spending and resident income in Chicago similarly found that predominantly African-American zip codes had higher lottery sales. See Leah Samuel, “The Poor Play More,” *Chicago Observer* (Oct 2002), available at <http://www.chicagoreporter.com/2002/10-2002/lotto1/lotto1.htm> Research using unusually rich data on Powerball in Connecticut suggest that the lower-income players participate more in the lottery games with lower expected payoffs. See Emily Oester, “Are All Lotteries Regressive? Evidence from Powerball,” *National Tax Journal* (forthcoming).

<sup>80</sup> According to 2002 data, the Massachusetts State Lottery spent 71 percent of gross revenue on prizes.

<sup>81</sup> See also, with broadly similar results, John W. Welte, Grace M. Barnes, William F. Wieczorek, et al. “Gambling Participation in the U.S.—Results from a National Survey,” *Journal of Gambling Studies*, 18 (Winter 2002).

<sup>82</sup> J.L. Mikesell, J.L. 1994. “State Lottery Sales and Economic Activity,” *National Tax Journal* 47 (1): 165-171.

<sup>83</sup> The state also authorizes betting on horses at a small number of county fairs. See <http://www.mass.gov/src/>

<sup>84</sup> Simulcast revenue, bet at Massachusetts tracks on races at other tracks, has outpaced “live” bets on races at Massachusetts tracks by more than three-to-one since 2001. Commonwealth of Massachusetts State Racing Commission Annual Report (various years) See also, <http://www.mass.gov/src/HANDLE.HTM>; Scott Van Voorhis, “A touch day at the races; Conn. casinos, lottery games pain industry,” *The Boston Herald*, March 31, 2004. Nationally, Revenues from horse racing fell by 18 percent nationally from 1982 to 2000 (Evans and Topoleski, 2002, p. 11).

<sup>85</sup> Cummings Associates, *Creating New Revenues for the Commonwealth: A \$550 Million Solution* (December 2002), p. 8.

<sup>86</sup> “Some call slot machine bill a giveaway. Senate backers insist tracks need licenses,” *Boston Globe*, Oct. 19, 2003.

<sup>87</sup> <http://www.masslottery.com/Bingo/RafflesCasino.htm>

<sup>88</sup> <http://www.masslottery.com/pdfs/infopack.pdf> and

<http://www.masslottery.com/pdfs/Annualreport2003.pdf>

<sup>89</sup> <http://www.masslottery.com/pdfs/Annualreport2003.pdf>

<sup>90</sup> *Harrah’s 2003 Survey 2003: Profile of the American Casino Gambler*, Harrah’s Entertainment, Inc., 2003, pp. 20-23.

<sup>91</sup> *Harrah’s 2003 Survey 2003: Profile of the American Casino Gambler*, Harrah’s Entertainment, Inc., 2003, pp. 20-23.

<sup>92</sup> Foxwoods uses state-of-the art database and customer “loyalty cards” to track players and match information against third-party data to identify patrons who are worth giving the red carpet treatment to keep them coming back. See Kim S. Nash, “Casinos Hit Jackpot With Customer Data,” *Computerworld*, 35 (July 2001), pp. 16-18. On visitor and restaurant numbers see, <http://www.foxwoods.com/Home/PressCenter/>

<sup>93</sup> As reviewed in Jonathan Taylor, Joseph Kalt, and Kenneth Grant, “Public Policy Analysis of Indian Gaming in Massachusetts,” The Harvard Project on American Indian Economic Development, John F. Kennedy School of Government, Harvard University, May 13, 2002, p. 6.

<sup>94</sup> Center for Policy Analysis, “Patron Origin Analysis: Foxwoods Resort Casino and Monegan Sun Casino,” prepared for the State Senate of Rhode Island, Economic Series no. 53 (May 2004); Daniel Bosley, Memorandum on Gaming Proposals to Speaker Finneran (April 28, 1997), available at

[http://www.mma.org/news/news\\_files/state\\_budget\\_news/budget\\_news\\_files/casino.txt](http://www.mma.org/news/news_files/state_budget_news/budget_news_files/casino.txt) The 1999 and 2004 studies by the Center for Policy Analysis postdate these criticisms, but use essentially the same methodology. See also, Jonathan B. Taylor, Joseph P. Kalt, Kenneth W. Grant II, “Public Policy Analysis of Indian Gaming in Massachusetts,” A report to the government of the Wampanoag Tribe of Gay Head (Aquinnah), The

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Harvard Project on American Indian Economic Development, John F. Kennedy School of Government, Harvard University (May 13, 2002).

<sup>95</sup> The latter estimate is based upon reported slot-machine revenue and estimations of non-slot revenue from gaming and revenues from hotel, shopping, and other amenities. See Clyde W. Barrow, “New England Casino Gaming: A Foxwoods Resort and Mohegan Sun, 2004 Update,” Center for Policy Analysis, University of Massachusetts Dartmouth (January 2004), p. 6.

<sup>96</sup> Daniel J. O’Toole, “Casino Gambling in Massachusetts: The Economic Impacts,” masters dissertation in Regional and Urban Planning Studies at the London School of Economics (August, 1999), p. 3 from Center for Policy Analysis, University of Massachusetts, Dartmouth, *The Economic & Fiscal Impact of Three Casinos & Entertainment Resorts in Massachusetts: Salisbury Beach, Hampden, Bristol Counties*, (The Vision Group, February 1999). p. 7.

<sup>97</sup> <http://casinocity.com/link/index.cfm?version=rw&Id=330600&Op=web>

<sup>98</sup> Governor Donald L. Cacieri, “State of the State Address” (February 3, 2004), available at <http://www.governor.ri.gov/statemessage04.shtml>

<sup>99</sup> Deloitte & Touche, “A Massachusetts Economic Development Initiative: Impacts Resulting from the Development of a Gambling and Entertainment Center in Southeastern Massachusetts: Analysis Performed for a Native American Joint Venture Partnership” (July 12, 2001), as cited in the Swift Report (2002), p. 23.

<sup>100</sup> *Boston Globe*, Nov. 7, 2003.

<sup>101</sup> An earlier Gloucester boat failed quickly, as did a Provincetown gambling boat (*Boston Globe*, Nov. 6, 2003). The same company is reported to have approached potential sites in Quincy (*Boston Globe*, Nov. 24, 2003).

<sup>102</sup> <http://www.gamblingmagazine.com/articles/40/40-197.htm>

<sup>103</sup> For contrasting opinions, see Cummings Associates, *Creating New Revenues for the Commonwealth: A \$550 Million Solution* (December 2002), legal appendix; and Daniel Boseley, Memorandum on Gaming Proposals to Speaker Finneran (April 28, 1997), available at

[http://www.mma.org/news/news\\_files/state\\_budget\\_news/budget\\_news\\_files/casino.txt](http://www.mma.org/news/news_files/state_budget_news/budget_news_files/casino.txt) Tribes in some states operated casinos without compacts to force negotiations when they felt the law was on their side. See, Evans and Topoleski, 2002, p. 9.

<sup>104</sup> Cummings Associates projects that if the Commonwealth introduced slot machines at race tracks, the subsequent addition of an Indian Casino in the state would actually diminish total state revenues, even though total gambling would increase. This is possible, they speculate, because the revenue-sharing arrangements on casino table games are likely to be much less than the high tax rates that can be levied on race-track slots.

<sup>105</sup> The Commission to Study the Potential Expansion of Legalized Gaming, “Expanded Legalized Gaming in Massachusetts: A Presentation of Gaming Regulation, Economic Development Impact, Fiscal Impact and Social and cultural Impact”, Prepared for Governor Jan Swift, Dec. 31, 2002, p. 11.

<sup>106</sup> Office of Legislative Research, Connecticut General Assembly, *OLR Research Report*, 95-R-0177 (January 10, 1995) and 96-R-1077 (August 21, 1996). The second memorandum of understanding increased the county share to 12 percent.

<sup>107</sup> Jonathan Taylor, Joseph Kalt, and Kenneth Grant, “Public Policy Analysis of Indian Gaming in Massachusetts,” The Harvard Project on American Indian Economic Development, John F. Kennedy School of Government, Harvard University, May 13, 2002, p. 5.

<sup>108</sup> Swift Commission, p. 18 citing Deloitte & Touche, *A Massachusetts Economic Development initiative Impacts Resulting from the Development of a Gambling and Entertainment Center in Southeastern Massachusetts*, July 12, 2001.

<sup>109</sup> Swift Commission, p. 36.

<sup>110</sup> *Boston Globe*, Nov. 6, 2003; *Boston Globe*, Nov. 7, 2003. See also, “Issue: Casino Gambling” at <http://www.02133.org/issue.cfm?ID=106>

<sup>111</sup> *Boston Globe*, Oct. 19, 2003; Massachusetts Municipal Association, State House News (May 1, 2003), available at [http://www.mma.org/news/news\\_files/state\\_budget\\_news/fy04\\_state\\_budget/gambling\\_5-1-03.html](http://www.mma.org/news/news_files/state_budget_news/fy04_state_budget/gambling_5-1-03.html) The Governor originally proposed a plan to collect \$75 million from neighboring states in return for *not* authorizing any casino gambling in Massachusetts – a plan that did not attract the necessary interest from neighboring casinos. Aides to the Governor subsequently proposed on March 31, 2003 to auction five-year licenses for three video slot machine parlors in the Commonwealth and to claim 44 percent of their gross revenues.

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<sup>112</sup> Daniel E. Bosley, House of Representative, Boston State House, memo to Speaker Thomas Finneran, April 28, 1997; available at the Massachusetts Municipal Association website at [http://www.mma.org/news/news\\_archives/state\\_budget\\_archive/fy98\\_state\\_budget/casino.txt](http://www.mma.org/news/news_archives/state_budget_archive/fy98_state_budget/casino.txt) Revenues from horse racing fell by 18 percent nationally from 1982 to 2000 (Evans and Topoleski, 2002, p. 11).

<sup>113</sup> The first tribe is a separate Wampanoag group, located in Mashpee, have filed for federal recognition. They seek to build a casino on trust land outside of Cape Cod. (See, David Kibbe, "Wampanoags Hold Trump Card in Gambling Debate," *Standard Times*, April 13, 2003, A1.) The second is the Nipmuc tribal council of central Massachusetts and northeast Connecticut who entered into a partnership with Lakes Entertainment, Inc., a national gambling firm that advanced \$4.3 million in upfront expenses in order to eventually manage a casino modeled after Foxwoods and Mohegan Sun. According to a report by the Minnesota-based Lakes Entertainment Inc., the firm has advanced the tribe \$4.2 million to be paid back, with interest once the tribe has put land in trust and established legalized gambling. (See, Lakes Entertainment Inc., October 18, 2003, "Corporate Overview" [http://media.corporate-ir.net/media\\_files/nsd/laco/LACO\\_Outlook\\_1003B.pdf](http://media.corporate-ir.net/media_files/nsd/laco/LACO_Outlook_1003B.pdf)). The Bureau of Indian Affairs had also rejected the Nipmucs' application in 2001, citing the fact that they could only produce documentation for 54 percent of their members back to the 19<sup>th</sup> century tribe. The rejection reversed a decision in the waning days of the Clinton Administration to federally recognize the Nipmucs (See, *Boston Globe*, Nov. 24, 2003). Since joining with the management company the Nipmuc Nation purged 1,074 of its approximately 1,600 members from the tribal rolls – two thirds of the tribal family – to strengthen the genealogical link to the nineteenth century tribe. A separate Dudley-based Chaubunagungamaug band of the Nipmucs broke off in 1996 and had also appealed for federal recognition (See "Nipmuc tribe vows to continue fight for federal recognition," *The Boston Globe*, June 19, 2004. The Dudley-based tribe distinguishes themselves as Nipmucks rather than Nipmucs.

The BIA's rejected federal recognition for both Nipmuc bands and the Cape band of Wampanoags, stating that both tribes effectively dissolved in the nineteenth century. The decision marked a changed of course for the BIA, which had recognized two prior applications over the two previous years. The Nipmuc tribe intends to appeal the BIA decision. See, Jack Encarnacao, "Tribe Plans Appeal: Nipmucs Object to a US Decision," *The Boston Globe*, June 20, 2004.

<sup>114</sup> The casino number seems suspiciously high given that the only commercial casinos at the time were in Nevada. Respondents may have included table games at fundraisers for Churches and other charities. See, John W. Welte, Grace M. Barnes, William F. Wiczorek, et al. "Gambling Participation in the U.S.—Results from a National Survey," *Journal of Gambling Studies*, 18 (Winter 2002), pp. 315, citing M. Kallick, D. Suits, T. Dielman, et al, *A survey of American gambling attitudes and behavior* (Ann Arbor, MI, Institute for Social Research: 1979).

<sup>115</sup> National Opinion Research Center, *Gambling impact and behavioral study* (Chicago, 1999), as cited in John W. Welte, Grace M. Barnes, William F. Wiczorek, et al. "Gambling Participation in the U.S.—Results from a National Survey," *Journal of Gambling Studies*, 18 (Winter 2002), pp. 315.

<sup>116</sup> John W. Welte, Grace M. Barnes, William F. Wiczorek, et al. "Gambling Participation in the U.S.—Results from a National Survey," *Journal of Gambling Studies*, 18 (Winter 2002), pp. 313-337. The large discontinuity of this study with the 1998 NORC study is that the 2000 study included some other forms of gambling such as buying a ticket to win a non-cash prize, which yielded an 82 percent total gambling participation rate.

<sup>117</sup> The study used a measure of "involvement" that includes both winnings and losses because this is a superior indicator of pathological gambling.

<sup>118</sup> Twenty-seven percent of respondents over 65 years of age gambled at casinos. See *Harrah's 2003 Survey 2003: Profile of the American Casino Gambler* Harrah's Entertainment, Inc., 2003., p. 13.

<sup>119</sup> Harrah's Survey 2003, p. 18.

<sup>120</sup> American Gaming Association, *2003 State of the States* (Washington, D.C., 2003), p. 13. A NFO WorldGroup study found consistent increases in casino patronage with increasing income from 21 percent of those earning less than \$35,000 per year to 34 percent of those earning \$95,000 or above. See Harrah's Entertainment, Inc., 2003., p. 13.

<sup>121</sup> Welte, et al. (2002), table 4.

<sup>122</sup> Blacks are actually somewhat less likely to play the lottery or Keno than whites (58 versus 64 percent), while Hispanics are somewhat more likely (64 percent). But in dollar terms of involvement, Black players are

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heavier bettors at an average \$884 per year, and Hispanics at \$450 per year, than whites at \$256 per year. See Welte, et al. (2002), table 3.

<sup>123</sup> John W. Welte, Grace M. Barnes, William F. Wiczorek, et al. "Gambling Participation in the U.S.—Results from a National Survey," *Journal of Gambling Studies*, 18 (Winter 2002), pp. 325-28. See also similar results when socio-economic effects are defined in terms on the basis of the prevailing socio-economic traits of neighborhood in which respondents live: John W. Welte, William F. Wiczorek, Grace M. Barnes, et. al., "The Relationship of Econological and Geographic Factors to Gambling Behavior and Pathology," *Journal of Gambling Studies* (forthcoming).

<sup>124</sup> These racial patterns have held across time. In the first national gambling survey of 1975 found that whites were somewhat more likely to gamble than nonwhites (62 versus 52 percent), but less likely to be heavy bettors. John W. Welte, Grace M. Barnes, William F. Wiczorek, et al. "Gambling Participation in the U.S.—Results from a National Survey," *Journal of Gambling Studies*, 18 (Winter 2002), pp. 315, citing M. Kallick, D. Suits, T. Dielman, et. al, *A survey of American gambling attitudes and behavior* (Ann Arbor, MI, Institute for Social Research: 1979).

<sup>125</sup> In combined terms of casino/track participation, the New England participation rate of 39 percent exceeds the national average of 37 percent, but falls behind the 42 percent rates in the Midwest and West. Welte, et al. (2002), table 3. Looking just at casino gambling, New England's 29 percent participation rate outpaces the national average of 24 percent, and is exceeded only by the 32 percent rate in the Midwest (Table 4).

<sup>126</sup> H.J. Shaffer and M.N. Hall, "Updating and reining meta-analytic prevalence estimates of disordered gambling behavior in the United States and Canada," *Canadian Journal of Public Health*, 92, 3 (2001), as cited in *The Wager: Weekly Addiction Gambling Education Report*, 8, 26 (Harvard Medical School, June 25, 2003).

<sup>127</sup> Gerstain, et. al., 1999. A point that the literature does not address is that individuals with prior gambling problems could be drawn to counties with casinos, and casinos also tend to locate in depressed areas – both of which might independently correspond with higher rates of pathological gambling.

<sup>128</sup> An important change may have begun with a 1969 Corporate Gaming Act in Nevada permitted publicly traded corporations to hold gambling licenses for the first time. Before that time publicly-traded corporations could not own and operate casinos because – in order to prevent criminal elements from wielding influence through stock ownership, Nevada law required all owners of a casino to be licensed by state regulators. Shortly thereafter established corporations such as Hilton, MGM, Holiday Inn, and Ramada entered the casino industry. William R. Eadington, "The Economics of Casino Gambling," *The Journal of Economic Perspectives* 13 (Summer 1999), p. 175. Respectability may also drive the growing acceptance of gambling. A GTEch annual National Gaming Survey (2000) asked respondents whether "Gambling is a highly regulated industry." Sixty-eight percent of those approving of legalized gambling agreed, compared to only 36 percent of those who disagreed with legalization. On Holiday Inn's purchase of Harrah's and the positive market evaluation of this move, see George Sternlieb and James W. Hughes, *The Atlantic City Gamble* (Washington D.C.: Twentieth Century Fund, 1983), pp. 6.

<sup>129</sup> Paul Teske and Bela Sur, "Winners and Losers: Politics, Casino Gambling, and Development in Atlantic City," *Policy Studies Review*, 10 (Spring 1991).

<sup>130</sup> Paul Teske and Bela Sur, "Winners and Losers: Politics, Casino Gambling, and Development in Atlantic City," *Policy Studies Review*, 10 (Spring 1991), p. 130.

<sup>131</sup> Melissa Schettini Kearney, "State Lotteries and Consumer Behavior" unpublished manuscript (Sept 2003), p. 2; National Association of State and Provincial Lotteries <http://www.naspl.org/rankpercap.html>

<sup>132</sup> Melissa Schettini Kearney, "State Lotteries and Consumer Behavior" unpublished manuscript (Sept 2003), p. 1. The 2002 sales figure is \$43 billion, according to the National Association of State and Provincial Lotteries. See <http://www.naspl.org/rankpercap.html>

<sup>133</sup> Peter W. Moran, "Great Expectations: The Legitimization of Gambling in America, 1964-1995," *The Journal of Popular Culture* (Summer 1997), pp. 49-65.

<sup>134</sup> Cummings Associates projects that if the Commonwealth introduced slot machines at race tracks, the subsequent addition of an Indian Casino in the state would actually diminish total state revenues, even though total gambling would increase. This is possible, they speculate, because the revenue-sharing arrangements on casino table games are likely to be much less than the high tax rates that can be levied on race-track slots.

<sup>135</sup> Evans and Topoleski, 2002, p. 11.

<sup>136</sup> Casinos operated by the Hualapai in Arizona and the Lummi tribe in Washington State closed their casinos for lack of business. See Evans and Topoleski, 2002, p. 14.

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- <sup>137</sup> Evans and Topoleski, 2002, p. 13.
- <sup>138</sup> Eadington, 1999.
- <sup>139</sup> [http://www.americangaming.org/industry/factsheets/statistics\\_detail.cfv?id=7](http://www.americangaming.org/industry/factsheets/statistics_detail.cfv?id=7)
- <sup>140</sup> The 30-state tally comes from <http://www.gamblinganswers.com>, accessed on April 26, 2004. The states and the number of casinos are: Arizona (19), California (47), Colorado (42), Connecticut (2), Delaware (1), Florida (4), Idaho (3), Illinois (9), Indiana (9), Iowa (16), Kansas (4), Louisiana (16), Michigan (19), Minnesota (16), Mississippi (31), Missouri (10), Montana (4), Nebraska (1), Nevada (227), New Jersey (13), New Mexico (13), New York (2), North Carolina (1), North Dakota (5), Oregon (7), South Dakota (31), Texas (2), Washington (18), West Virginia (4), Wisconsin (15). This count excludes gambling parlors in Oklahoma. The state hosts 35 percent of all recognized tribe members in the nation and many Indian bingo halls and video bingo halls; but the state does not permit Las Vegas-style casinos (Evans and Topoleski, 2002., p. 20).
- <sup>141</sup> Cummings, p. 5.
- <sup>142</sup> Ernie Goss and Edward Morse, "The Impact of Casino Gambling on Bankruptcy Rates: A County Level Analysis" Creighton University Research Reports (Omaha, Neb., March 2004), pp. 1-5.
- <sup>143</sup> Ernie Goss and Edward Morse, "The Impact of Casino Gambling on Bankruptcy Rates: A County Level Analysis" Creighton University Research Reports (Omaha, Neb., March 2004), Table 1.
- <sup>144</sup> Harrah's Survey 2003, p. 16. Twelve percent of respondents stated they did not know or chose "other" rather than slot machines.
- <sup>145</sup> One study of problem gamblers who sought treatment in Connecticut found that those who prefer slot machines had bankruptcy rates two to four times higher than pathological gamblers who preferred other games. See, N.M. Petry, "A Comparison of Treatment-Seeking Pathological Gamblers Based on Preferred Gambling Activity," *Addiction*, 98 (2003).
- <sup>146</sup> "The Tug of the Newfangled Slot Machine," *The New York Times Magazine*, May 9, 2004.
- <sup>147</sup> "The Tug of the Newfangled Slot Machine," *The New York Times Magazine*, May 9, 2004.
- <sup>148</sup> Each state defines and regulates different kinds of gaming devices differently. Except in Delaware, laws distinguish video lottery terminals and video poker from slot machines. Consumers may not notice the difference. For a comprehensive discussion, see Christian Capital Advisors, LLC, "Central Systems for Machine Gaming: A Good Policy?" (Dec. 22, 2003), pp. 4-8. Available at <http://www.cca-i.com/central%20systems%20for%20machine%20gaming.pdf>
- <sup>149</sup> Christian Capital Advisors, LLC, 2003, pp. 18-21.
- <sup>150</sup> New Mexico, Louisiana, Iowa, West Virginia, Rhode Island, Delaware, New York, Maine, and Oregon.
- <sup>151</sup> Cummings, pp. 4-12.
- <sup>152</sup> Department of Legislative Services, Office of Policy Analysis, "Overview of Issues Related to Video Lottery Terminals," Annapolis, Maryland (January 29, 2003) [http://mlis.state.md.us/Other/Gaming\\_2003.pdf](http://mlis.state.md.us/Other/Gaming_2003.pdf)
- <sup>153</sup> Ernie Goss and Edward Morse, "The Impact of Casino Gambling on Bankruptcy Rates: A County Level Analysis" Creighton University Research Reports (Omaha, Neb., March 2004), Table 1.
- <sup>154</sup> Eadington (1999), p. 187.
- <sup>155</sup> William N. Evans and Julie H. Topoleski, "The Social and Economic Impact of Native American Casinos" (September 2002). NBER Working Paper No. W9198, p. 8.
- <sup>156</sup> For a full explanation of this complex agreement see, <http://www.cga.state.ct.us/2001/rpt/olr/htm/2001-r-0599.htm>
- <sup>157</sup> Swift Commission (2002), p. 42, Table 3-1. The Swift Commission heard that tribal gaming ultimately might ultimate allow for the largest potential revenue shares because of federal tax exemptions. California's 2004 compact, by contrast, provides 10 percent of slot revenue, plus licensing fees. See, [http://www.governor.ca.gov/state/govsite/gov\\_htmldisplay.jsp?sCatTitle=%20&sFilePath=/govsite/spotlight/2004compacts.html](http://www.governor.ca.gov/state/govsite/gov_htmldisplay.jsp?sCatTitle=%20&sFilePath=/govsite/spotlight/2004compacts.html)
- <sup>158</sup> Massachusetts has the highest reported spending on lobbying per-capita in the nation. In 2002 lobbyists reported spending \$54 million, a sum equal to \$8.46 per Massachusetts resident. See Common Cause Massachusetts, press release (May 15, 2003), available at <http://www.commoncause.org/states/massachusetts/Lobbying%20CPI%20Release.pdf>
- <sup>159</sup> <http://opensecrets.org/industries/indus.asp?Ind=N07>
- <sup>160</sup> <http://opensecrets.org/industries/indus.asp?Ind=N07&year=2000>
- <sup>161</sup> Harrah's Entertainment website [http://www.harrahs.com/about\\_us/index.html](http://www.harrahs.com/about_us/index.html) , viewed Mar.27, 2004.

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<sup>162</sup> Peter H. Stone, "The K Street Jackpot from Indian Casinos," *National Journal*, 34 (April 2002), pp. 1148-1150.

<sup>163</sup> The 2004 data are current up until July. See, <http://www.opensecrets.org/industries/contrib.asp?Ind=N07&Cycle=2004> and <http://www.opensecrets.org/industries/contrib.asp?Ind=N07&Cycle=2002>

<sup>164</sup> State Secretary's Office Lobbyist Division, available at [http://db.state.ma.us/sec/pre/stat\\_results.asp](http://db.state.ma.us/sec/pre/stat_results.asp) See also, "Lobbyists Busy as Senate Weighs a Gambling Bill," *Boston Globe*, Nov. 6, 2003; David Kibbe, "Lobbyists Ready Push on Gambling," *Standard Times*, September 16, 2003, A1.

<sup>165</sup> For employment, unemployment, bankruptcy, and crime the T-stats are calculated by: first, limiting the sample to county-year observations for the 16 big casino counties; second, calculating the county mean-state mean for each year (that is, the relative mean); and finally, regressing the relative mean on the dummy for whether the casino existed in that year in order to pick up the change in the relative mean after the casino is introduced.

<sup>166</sup> We examine relative change by examining the logarithmic mean. For more detailed 2000-2001 data on spending distribution, see National Center for Education Statistics, "Revenues and Expenditures for Elementary and Secondary Education: School Year 2000-01," *Statistics in Brief* (May 2003) available at <http://nces.ed.gov/pubs2003/2003362.pdf>

<sup>167</sup> E. Matthew Quigley, "Issues in Economics," *Regional Review* Federal Reserve Bank of Boston (Q1, 2003), pp.3-5.

<sup>168</sup> Census of Government Area Level file, used with permission from Katherine Baicker, Dartmouth College Department of Economics.

<sup>169</sup> We include the 1982 and 1992 data rather than simply compare 1987 to 1997, so as to better estimate fixed county effects.