

REGULATING UNDERGROUND INDUSTRY: AN ECONOMIC ANALYSIS OF SPORTS BETTING

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Abstract

Estimates suggest that up to \$380 billion is illegally gambled on sporting events every year. This paper estimates the potential tax revenue the United States could collect if it acted as the legal operator of two separate types of sports betting games. Building on previous work the basic calculations suggest that by operating a legal head-to-head sports betting operation, the U.S. could generate anywhere from \$977 million to \$24 billion annually in tax revenue while a parlay card-type game could generate between \$189 million and \$1.4 billion. This paper is one of the first to calculate the potential revenues from legalizing this underground industry.

Introduction

The debate over how to meet budget imbalances occurs almost every year at every level of government. To meet those gaps, a variety of revenue-raising options are often proposed and one option that makes regular appearances is introducing or expanding some form of gambling. New casinos, expanded lottery games, video lottery terminals (VLTs), and off-track betting parlors (OTBs), are the most common forms of legal gaming available. In fact, two out of every three Americans place a bet in casinos, lotteries, or office sports pools every year (Jones, 2004).

Many forms of gambling are legal in the United States and most create significant profits for retailers and revenues for state and local governments. The large illegal sports betting market in the U.S. generates between \$80 billion and \$380 billion annually (National Gambling Impact Study Commission (NGISC), 1999), easily exceeding the roughly \$80 billion annual gross revenues from casinos and

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lotteries (Kearney, 2005). Although estimates for individual states are not available, the Kings County District Attorney (2004) estimates that in New York State, illegal sports betting reaches \$30 billion a year; 8 percent to 38 percent of the nationwide total.

In 1992, the federal government banned legal sports gambling in all states save four (Delaware, Montana, Nevada and Oregon) because those states had established gaming already in place. Recently proposed legislation in New Jersey (New Jersey Assembly Bill, No. 3493) has re-opened the discussion about sports betting and the real possibility of a challenge to the federal prohibition. In Nevada, \$2 billion in legal sports betting per year generates approximately \$8 million in tax revenues. In Oregon, sports betting is operated in the same way as a lottery with annual revenues around \$2.5 million. New Jersey estimates that the state would collect \$4 million to \$5 million per year if the industry were legalized. These amounts are less than 1 percent of total state revenues and hence would have a marginal impact on the state's fiscal condition.¹ But legalizing sports betting introduces a number of questions, not only about the potential economic impacts, but the appropriateness of using gambling revenues for a number of government services, ranging from education to transportation.

This paper reports the potential tax revenue the United States could collect if it acted as the operator, or legal bookmaker, of two separate types of sports betting games. Although the Professional and Amateur Sports Protection Act (PASPA), passed in October 1992, currently prohibits sports betting at the state level and would require states to challenge the law at the federal level, the calculations estimate the *total* tax revenue that could be raised if the law were repealed. The estimates are based on previous research by Schwabish and Simas (2005), where we suggested that by operating a legal head-to-head sports betting operation, New York State could generate anywhere from \$290 million to \$1.9 billion in annual tax revenues. Extending the analysis to the entire nation, the analysis suggests a range of \$977 million to \$24 billion, based on the two estimates of total illegal betting from the NGISC (1999). A parlay card-type sports betting game would generate significantly less revenue—between \$189 million and \$1.4 billion—but may incur fewer social costs. The paper is one of the first attempts to calculate the potential revenues from sports betting. The analysis omits significant negative and positive potential spillovers from legal sports gambling and although a substantial literature has analyzed these spillovers with respect to lotteries and casinos, sports betting introduces a new dynamic that has yet to be evaluated.

History of Sports Betting²

The 1992 Professional and Amateur Sports Protection Act barred states from constructing local sports betting programs. Only four states—Delaware, Montana, Nevada, and Oregon—where sports betting systems were already in existence, were omitted from the ban. To date, only Nevada and Oregon allow legal sports betting, although Oregon only permits betting through its lottery-based games. In Nevada, a wide range of sports betting is available, with head-to-head betting the most common. Estimates put total sports betting at approximately \$2 billion per year. Large sporting events, such as the Super Bowl, generate additional economic benefits in tourism-related dollars.

Oregon's Sports Action game, introduced in 1989, provides odds for a number of football games every play week with bettors choosing a winner for each game (see Figure 1).³ By creating a lottery-style sports betting game, the state protects itself against changing odds and because the odds are designed to create a 50-50 chance of winning, Sports Action is purely a game of chance. Sports Action bettors may choose to wager \$2, \$3, \$4, \$5, \$10, or \$20 per ticket, but a majority of bettors purchase the \$5 tickets. Weekly payouts range from 60 percent to 65 percent (Oregon Lottery, 2004a) and the roughly 2 million bets placed each year raise between \$1.5 million and \$2.5 million for a range of services in the state.

In New Jersey, in an effort to capture revenue from sports betting, Assemblyman Jeff Van Drew proposed to legalize the practice (New Jersey State Assembly, 2005), which would first require a state constitutional amendment and then a challenge to the 1992 federal law. Regardless, Van Drew predicts that introducing legal sports betting would provide the state with \$5 million to \$8 million a year in additional casino tax revenues (New Jersey State Assembly, 2005). The New Jersey experiment will help set the tone for other states looking to cash in on the gambling industry. The estimates in the next section will attempt to quantify the potential revenues accruing from legal sports betting but, as in Schwabish and Simas (2005), omit a number of related effects.

The Economics of Gambling⁴

There is a well-established literature on gambling and its effects on consumers, businesses and communities. There remain a host of unanswered questions: What impact does gambling have on crime, bankruptcy, and suicide rates? How does gambling reduce other forms of consumption and what are the effects on other forms of state and local revenues? What place does government regulation have in gambling markets? As states and localities debate ways to fill budget holes, gambling provides a way to generate millions of dollars. This paper does not quantify all of the potential impacts from sports betting but provides a reasonable approximation of the gross revenues the government could expect if specific forms of sports betting were allowed.

Over the past thirty years, nearly every state in the U.S. has added some form of gambling. From casinos to lotteries to horseraces, Americans can now bet on a wide range of activities with an ever-expanding list of options within each. Gross revenues from legalized gambling reached \$72.9 billion in 2003 with over 80 percent accounted for by casinos and state lotteries (Kearney, 2005). The nearly \$14 billion in revenues raised from state lotteries are dedicated to a variety of areas, including education, economic development, transportation and the environment, to name a few (North American Association of State and Provincial Lotteries (NASPL), 2005).

Figure 1

The figure shows a sample 'SPORTS ACTION' entry form. It is divided into three main sections:

- How Many? (Top):** A grid where the user marks the number of games they want to play. The grid has 13 rows (numbered 1-13) and 2 columns (numbered 1-2).
- How Many? (Middle):** A grid where the user marks the total number of Sports Action games they want to play. The grid has 13 rows (numbered 1-13) and 2 columns (numbered 1-2).
- Pick the Winner (Bottom):** A grid where the user marks the number of their selection below the team abbreviations. The grid has 13 rows (numbered 1-13) and 2 columns (numbered 1-2).

At the bottom of the form, there is a section for 'TOTAL TICKETS' and 'SUBTOTAL' with a grid for marking the number of tickets and the amount of the bet.

The gambling industry generates jobs and creates a magnet for tourists. Commercial casinos employ roughly 370,000 people and generate an additional 450,000 jobs in related businesses (American Gaming Association, 2004a). Over the past decade, more than 157,000 jobs were created in the casino industry, a growth rate of 79 percent. These gross job creation figures are supported by the work by Evans and Topoleski (2002), who find that counties with new Indian casinos have approximately a 5 percent increase in the number of jobs.

Opponents of gambling and related activities point to a series of negative spillover effects, the most prevalent being increases in crime. Using national data between 1977 and 1996, Grinols and Mustard (2001) find increases in crime rates following casino openings. Pathological gambling problems are also part of this literature (see Lesieur, 1998). Volberg (1996) shows that the lifetime prevalence of problem gambling ranges across states from 1.7 percent in Iowa to 7.3 percent in New York.⁵ A number of studies have examined the distributional impacts of gambling showing that lotteries are generally regressive (see Clotfelter and Cook, 1989; Oster, 2004; Kearney, 2005 and references therein).

The growth in Internet gambling has produced an array of complications for the domestic gambling market—What role does international law play? How can governments track Internet gambling winnings? The General Accountability Office (GAO) (2002) suggests that the online gambling industry generates approximately \$5 billion in revenues each year, a number that continues to grow. The near-universal availability of the Internet in offices now makes online gambling easily accessible. ComScore (2002)—a consultant company specializing in consumer behavior—found that people spent an average of 20.2 minutes per month at gambling websites, although those who visited gambling sites from home spent about three times as long as those who visited these sites from work. Compared to 9.8 average monthly minutes people spent at health-information sites, 35.8 minutes at travel sites, 52.8 minutes for general news sites, and 62.0 minutes at sports sites, online gambling may have a noticeable impact on worker productivity. As states ponder legalizing sports betting, it is unclear how Internet gambling will affect potential revenues and subsequent behavioral decisions by residents.

The spillover effects can also affect other industries and total government revenues. In an interesting study of Indian casinos and the Arizona state lottery, Siegel and Anders (2001) find that a 10 percent increase in the number of slot machines decreases state lottery sales by 2.8 percent. Elliott and Navin (2002) show that lottery revenues decline (or are “cannibalized”) by the introduction of both casinos and pari-mutuel betting. Madhusudhan (1996) argues that casino revenues are a limited and unstable revenue base for states to base projections upon. Hence, the total impact of legal gambling combines the potential negative effects from bankruptcy, poverty, and crime with the positive spillover effects of job creation and tourism markets. Research continues to explore these issues to help inform and educate policy makers looking to raise additional revenue for a variety of government-sponsored services.

Economic Impact

While backers of legal sports betting argue that legalization will help control the existing underground economy, sufficient data to assess the economic impacts of legal gambling are difficult to

obtain. In this section, a series of calculations estimate the potential revenue the United States could capture from legalizing sports betting. These calculations are based on those found in Schwabish and Simas (2005), along with available research on lotteries, casinos and other underground economic activities. As in Schwabish and Simas (2005), two scenarios are proposed. In the first, the U.S. government would be the legal operator of head-to-head sports betting. In this scenario, the government would operate sports books as an OTB-type operation where the bettor would place head-to-head bets on any number of games. The second scenario is a parlay card-type game, where bettors pick winners for an entire menu of games, similar to the Sports Action game in Oregon. This creates a pure chance betting game for final outcomes in professional sports.

As outlined in Schwabish and Simas (2005), there are four reasons why legalizing sports betting will not result in a complete shift from the illegal market to the legal market. First, either due to tax avoidance or conflict of interest (i.e., professional athletes), many bettors simply do not want the government to know that they are gambling. Second, bookmakers in the illegal market extend significant lines of credit; due to debt concerns, government-sponsored sports betting will arguably not offer the same convenience. Third, as a way to reduce the amount of risk, the government may adjust the odds, either nationally or locally. This will effectively reduce the bettors' probability of winning. Finally, neighborhood bookmakers offer a convenient and familiar way to place bets. A government-sponsored system will not maintain the same familiarity and thus lose potential clients.

Although a full shift from the illegal market to the legal market may not occur with legalized gambling, it may attract people who had previously never bet on sports. This is clearly the missing counterfactual for this study. Results from a recent Gallup Poll (Jones, 2004) however, suggest that two out of every three Americans have played some form of gaming with nearly one-half having purchased a state lottery ticket. Prior to the introduction of Oregon's Sports Action game, Buursma (1989) found that 71 percent of Oregonians said they would play the game. Since the late-1980s, only video poker and casino gambling have increased while gambling on professional sports has declined by 12 percentage points and betting on college sports has fallen by 6 percentage points (Jones, 2004). Although the popularity of most types of gambling have declined, there is still a large potential market for sports and other types of gambling.

In addition to new gamblers and people who shift their betting from the illegal market to the legal market, there is a third group of potential bettors—people who substitute sports betting for other forms of legal gambling. If legalizing sports betting “cannibalizes” other forms of legal gambling, the overall increase to state revenues could be negligible (see Siegel and Anders (2001) and Elliott and Navin (2002) as discussed in the previous section). Kearney (2002) shows that households finance new lottery gambling not by substituting away from other forms of gambling but by reducing their non-gambling consumption. Hence, the reduction in consumption spending will reduce sales tax revenue and have an impact in other areas of the economy, but it also suggests that legal sports betting might not replace existing lottery or casino revenues.

This methodology misses a wide range of secondary negative (and positive) spillover effects. For example, legal sports betting would create jobs and subsequent tax revenues, but also introduce potential increases in crime, bankruptcy rates and gambling addiction rates. Schwabish and Simas (2005) provide a comprehensive list of elements, which are not captured by the calculations. The most important include impacts on labor market behavior (e.g., hours worked or participation rates)⁶; sports betting's behavioral impact on different parts of the income distribution⁷; influence of enforcement and prosecution of organized crime; and moral and social issues (NGISC, 1999).

Head-to-Head Sports Betting

Schwabish and Simas (2005) calculate the total revenue impact of legal sports gambling for New York State in two steps—the analysis in this section extends this approach to the nation. The first step estimates gross profits by adding the amount of money new bettors would bring to the market to the share of the illegal market that would shift to the legal sector. In the second, net revenues are calculated by subtracting operating costs and contributions to problem gambling prevention programs.

The potential revenue shift from the illegal market to the legal market is based on two sources. For New York State, as used in Schwabish and Simas (2005), an estimate of \$30 billion is taken from the Kings County District Attorney (2004). Nationwide, an \$80 billion to \$380 billion range is taken from NGISC (1999). Both of these include gambling on college sports, which account for approximately one-third of all sports bets (American Gaming Association, 2004b). Following New Jersey's legislation, which prohibits gambling on college sports, it is assumed that legal sports betting nationwide would also prohibit gambling on college sports; hence, one-third of these totals are deducted. This leaves a potential illegal sports betting market of \$20 billion in New York States and between \$53 billion and \$253 billion nationwide.

Of course, the government only captures a share of these totals—payouts to winners must first be deducted. Using arrest records from six New York City bookmakers between 1995 and 2000, Strumpf (2003) finds that illegal bookmakers paid out more than 85 percent in total betting volume to winners. At this rate the government would keep only 15 percent of total betting volume, which translates to \$3 billion in New York State and \$8 billion to \$38 billion for the country as a whole.⁸ Given the earlier discussion of the possible less-than-full shift from the illegal to the legal sports betting market, it is certainly conceivable that the government would only capture a share of the pool of money remaining after prize payouts. As in Schwabish and Simas (2005), four different percentages (10 percent, 25 percent, 50 percent, 75 percent) represent a range of take-up rates.

The second source of legal bettors are new bettors. Again, following Schwabish and Simas (2005), 10 percent of the 18-and-over population for New York State (1.5 million people) and the U.S. (100.9 million) is multiplied by the median annual sports betting expenditure (\$240) as found by Goldfarb Consultants Inc. (1999; see also Clotfelter and Cook, 1989, p. 24). These inputs result in new bets worth \$353 million in New York State and \$2.4 billion nationwide. Again adjusting for payouts to winners using Strumpf's (2003) 15 percent figure, the total possible pool of money from new bettors is \$53 million for

New York State and \$363 million nationwide. Before arriving at final revenue estimates, operating costs—estimated at 15 percent of total profits (Cornstein, 2004)—are deducted from total profits. Finally, a donation of 1 percent of gross profits to problem gambling programs is deducted, following the rate used by the Oregon Lottery (2004b).

The entire methodology is captured in Table 1 and combines the \$80 billion to \$380 billion estimate of the nationwide illegal sports betting from NGISC (1999) with \$363 million generated from new bettors (10 percent of the 18-and-over population wagering \$240 per year) and take-up rates and costs used in Schwabish and Simas (2005). At the low end (\$80 billion), legal sports betting across the nation could generate between \$977 million and \$5.3 billion. At the high end (\$380 billion), legal sports betting could generate between \$3.5 billion and \$24.2 billion. Estimating these potential impacts in New York State, the analogous State Net Profit totals from Schwabish and Simas (2005) are \$296 million, \$674 million, \$1.3 billion, and \$1.9 billion.

Table 1. Economic Impact of Head-to-Head Sports Betting in the United States (\$ in millions)						
Gross Profit from Illegal Market*	Times Portion move to Legal	Plus Gross Profit from New Gamblers**	Equals Total Legal Gambling	Minus Operating Costs (15%)	Minus Problem Gambling Prevention (1%)	Equals Total Net Profit
Low Estimate						
\$8,000	10%	\$363	\$1,163	(\$174)	(\$12)	\$977
\$8,000	25%	\$363	\$2,363	(\$354)	(\$24)	\$1,985
\$8,000	50%	\$363	\$4,363	(\$654)	(\$44)	\$3,665
\$8,000	75%	\$363	\$6,363	(\$954)	(\$64)	\$5,345
High Estimate						
\$38,000	10%	\$363	\$4,163	(\$624)	(\$42)	\$3,497
\$38,000	25%	\$363	\$9,863	(\$1,479)	(\$99)	\$8,285
\$38,000	50%	\$363	\$19,363	(\$2,904)	(\$194)	\$16,265
\$38,000	75%	\$363	\$28,863	(\$4,329)	(\$289)	\$24,245
*Calculated by subtracting one-third of the NGISC's (1999) estimate of the illegal sports betting market (Low Estimate: \$80 billion; High Estimate: \$380 billion) for college sports (American Gaming Association, 2004b) and then multiplying by Strumpf's (2003) estimate of net revenue share (15 percent).						
**Calculated by assuming 10 percent of U.S. 18-and-over population wagers \$240 per year, multiplied by Strumpf's (2003) estimate of net revenue share (15 percent).						
Sources: Jones, 2004; Goldfarb Consultants Inc., 1999; Oregon Lottery, 2004b; Schwabish and Simas, 2005.						

Christiansen (2003) is perhaps the only other researcher who has attempted to calculate the potential revenues accruing from sports gambling. His calculations are based on the NGISC's (1999) \$80 billion estimate of total nationwide illegal sports betting. Assuming sports books' takeout⁹ equals either 4.6 percent or 5.79 percent, he estimates gross revenues for retailers at either \$3.68 billion or \$4.63 billion (see Table 2). Applying a state-level 7.5 percent tax rate, he then estimates total revenues for U.S. states would equal either \$276 million or \$347 million. Although the approach taken here is slightly more sophisticated, applying Christiansen's (2003) methodology to the \$30 billion estimate provided by the

Kings County District Attorney (2004), New York State revenues would be either \$104 or \$130 million. Subtracting one-third of each figure for collegiate gambling, as assumed in Table 1, decreases potential (low-end) revenues to \$184 million and \$232 million (Table 2, bottom panel).

The key difference, of course, is that the calculations in Table 1 assume that the state would operate the sports book as opposed to Christiansen's (2003) assumption that a private entity would operate the sports book. Hence, the appropriate comparison to the state-operated scenario in Table 1 is the shaded rows in the bottom panel of Table 2. These estimates, upwards of \$5.3 billion at the low-end and over \$24 billion at the high end fall within the range of figures reported in Table 1. Furthermore, the reported figures for New York State (\$920 million to \$1.16 billion in Table 2) are well within the \$296 million to \$1.93 billion range found in Schwabish and Simas (2005).

Table 2. Potential Sports Gambling Revenue (based on Christiansen, 2003)			
(\$ in millions)			
	Nationwide-Low Estimate¹	Nationwide-High Estimate²	New York State³
Total Handle	\$80,000	\$380,000	\$30,000
Gross Gambling Revenue			
Takeout percentage (4.60%)	\$3,680	\$17,480	\$1,380
Takeout percentage (5.79%)	\$4,632	\$22,002	\$1,737
Net Gambling Revenue			
State Tax Rate (7.5%)	\$276	\$1,311	\$104
State Tax Rate (7.5%)	\$347	\$1,650	\$130
Total Handle Minus Collegiate Betting	\$53,333	\$253,333	\$20,000
Gross Gambling Revenue			
Takeout percentage (4.60%)	\$2,453	\$11,653	\$920
Takeout percentage (5.79%)	\$3,088	\$14,668	\$1,158
Net Gambling Revenue			
State Tax Rate (7.5%)	\$184	\$874	\$69
State Tax Rate (7.5%)	\$232	\$1,100	\$87
Sources: ¹ Christiansen (2003), NGISC (1999); ² Author's calculations, NGISC (1999); ³ Author's calculations, Kings County District Attorney (2004).			

The bottom line from Tables 1 and 2 is twofold. First, the methodology used in Schwabish and Simas (2005) and adopted here falls reasonably close to the only other set of published estimates (Christiansen, 2003). Second, if the objective of legalized sports betting is to raise revenue for states, it is in the states' interest to run the sports book themselves rather than allow private businesses to run the sports book and tax their profits.

Parlay Card Sports Betting

The revenue implications are significantly different if legal sports betting is instituted as a parlay card game (Table 3). Since the illegal sports betting market is a different form of gambling than parlay card games, it is conceivable that the state would not capture any of the illegal market. In fact, the two markets are so different that a parlay card-type game is more akin to introducing a new lottery than to introducing sports betting. As such, it is assumed that parlay card games do not capture any of the existing illegal sports betting

market.⁸ Instead, some portion (10 percent, 25 percent, 50 percent, or 75 percent) of the existing 18-and-older population is projected to gamble \$240 per year (as assumed earlier). The higher capture rate (75 percent) is based on Buursma's (1989) results from a 1989 survey in Oregon, and the lower rates (10 percent, 25 percent, 50 percent) are included to illustrate the range of potential state revenues. Combining these four inputs, Total Legal Gambling is estimated to fall between \$6.8 billion and \$50.7 billion (Table 3, Column 4).

The Sports Action parlay card game in Oregon pays out approximately 65 percent of total revenues in prizes, although by law Oregon lottery games must pay out 85 percent of *total* revenues (from all lottery games) in prizes and to other programs; hence, the payout rate could be much higher. However, the 65 percent payout rate is similar to the approximate 70 percent payout rate for lotteries across the country (NASPL, 2004), and at that rate, total taxable profits range from \$2.4 billion to \$17.7 billion. If an 8 percent tax rate were assessed, this type of game would raise between \$189 million and \$1.4 billion for the federal government. At the state level, if an 8 percent tax rate were assessed in New York, the parlay card game would only raise between \$10 million and \$76 million (see Appendix Table). This low estimate is not surprising—if revenue from Oregon's Sports Action game is adjusted for differences in the two state's populations, a parlay card game in New York would be expected to generate approximately seven times as much revenue as Oregon's 2.7 million residents, or roughly \$16 million.

The calculations in Table 3 assume that the private market would run the parlay card game and the government would capture the assumed 8 percent sales tax. In this case the last three columns in Table 3 calculate the potential total net profits retailers would earn from the game. Assuming 15 percent of revenues go toward labor costs and a mandatory 1 percent contribution to gambling prevention programs, retailers' net profits would range from \$1.8 billion to \$13.5 billion. In New York State, these estimates range from \$94 million to \$702 million and bound the \$356 million in 2004 retailer profits from the New York State Lottery (New York State Lottery, 2005). If state governments acted as operators of the game—similar to state-level lotteries—the tax revenue amounts could be used as retailer commissions and the dollar figures in the final column would then be considered states' net profits. The revenue implications of this latter scenario are substantially larger than those from a game where retailers collect net profits.

Table 3. Economic Impact of Parlay Card Sports Betting (\$ in millions)

U.S. Population ('000s)	Times Portion of New Gamblers	Times Annual Bet Amount	Equals Total Legal Gambling	Minus Payouts (65%)	Equals Taxable Profits	Yields Revenue at 8% Tax Rate*	Minus Labor Costs (15%)	Minus Problem Gambling Prevention (1%)	Equals Retailer Net Profit (\$M)
281,421	10%	\$240	\$6,754	(\$4,390)	\$2,364	\$189	(\$355)	(\$24)	\$1,797
281,421	25%	\$240	\$16,885	(\$10,975)	\$5,910	\$473	(\$886)	(\$59)	\$4,491
281,421	50%	\$240	\$33,771	(\$21,951)	\$11,820	\$946	(\$1,773)	(\$118)	\$8,983
281,421	75%	\$240	\$50,656	(\$32,926)	\$17,730	\$1,418	(\$2,659)	(\$177)	\$13,474
*Oregon currently charges an 8 percent tax on its sports betting games and the pending New Jersey sports betting games would also charge this rate (New Jersey Assembly Bill No. 3493, 2004). Nevada, which has a full range of sports betting operations in its casinos, currently assesses a state tax rate of 6.25 percent, the lowest in the nation.									
Sources: Jones, 2004; Goldfarb Consultants Inc., 1999; Clotfelter and Cook, 1989; Oregon Lottery, 2004b; Schwabish and Simas, 2005.									

Conclusion

Illegal sports betting generates up to \$380 billion a year across the country. If legalized, between \$977 million and \$24.4 billion could be collected in tax revenue across the country, which, if divided equally, translates to approximately \$500 million per state. This amounts to roughly 4 percent of states' total tax revenues in 2001 and around 4 percent of state's total revenues. With parlay card games, like that found in Oregon, total revenues would yield a fraction of that amount—less than \$1.5 billion, but total retailer revenues could exceed \$13 billion. And although gambling is typically legislated at the state level, the estimates in this paper demonstrate the significant monetary returns legalizing the industry might provide to the government.

The analysis misses a wide range of secondary effects and those effects may dwarf the positive revenue gains presented in this study. Increases in crime rates, bankruptcy rates and gambling addiction rates threaten the social fabric and ultimately the economic health of the country. Further, dedicating gambling revenues to a variety of services—most notably education—raises questions of how society should set its goals with respect to government revenues and the public provision of goods and services. These questions, and many more, need to be more fully explored and this paper is a very simple addition to a growing literature.

REFERENCES

- American Gaming Association. 2004a. "Factsheet: Casino Employment." <http://www.americangaming.org>.
- American Gaming Association. 2004b. "Factsheet: Sports Wagering." <http://www.americangaming.org>.
- Buursma, Bruce. "Oregon to up lottery ante with sports betting." *Chicago Tribune* (July 1989).
- Christiansen, Eugene M. "Super Bowl Redux: The Revenue Potential of Sports Betting." *Insight: The Journal of the North American Gambling Industry* (February 2003).
- Clotfelter, Charles T. and Philip J. Cook. *Selling Hope: State Lotteries in America*, National Bureau of Economic Research, Harvard University Press, Cambridge, Massachusetts, 1989.
- ComScore Networks. "High Rollers Take Note: Online Casinos are Serious About Luring You In, Reports Jupiter Media Metrix," 2002, <http://www.comscore.com/press/release.asp?id=272>.
- Cornstein, David B. 2004. Chair, New York City Off Track Betting Corporation. Personal interview. December 13. As cited in Schwabish and Simas (2005).
- Elliott, Donald S. and John C. Navin. "Has Riverboat Gambling Reduced State Lottery Revenue?" *Public Finance Review*, Vol. 30, No. 3 (May 2002): 232-47.
- Evans, William and Julie Topoleski. "The Social and Economic Impact of native American Casinos." National Bureau of Economic Research Working Paper 9198. (September 2002).
- Forrest, David and Robert Simmons. "Sport and Gambling." *Oxford Review of Economic Policy*, Vol. 19, No. 2 (December 2003): 598-611.

- Goldfarb Consultants Inc. "Quick Draw Research: Report from Goldfarb Consultants to the New York Lottery." From the North American Association of State and Provincial Lotteries website, 1999, <http://www.naspl.org>. Extracted December 27, 2004.
- Grinols, Earl L. and David B. Mustard. "Business Profitability versus Social Profitability: Evaluating Industries with Externalities, the Case of Casinos," *Managerial and Decision Economics*, Vol. 22, Issue 1-3 (January-May 2001): 143-62.
- Imbens, Guido W., Donald B. Rubin and Bruce Sacerdote. "Estimating the Effect of Unearned Income on Labor Supply, Earnings, Savings, and Consumption: Evidence from a Survey of Lottery Players." NBER Working Paper No. 7001. Cambridge, MA: National Bureau of Economic Research. March 1999.
- Jones, Jeffrey. "Gambling a Common Activity for Americans," The Gallup Organization article, March 24, 2004.
- Kearney, Melissa Schettini. "The Economic Winners and Losers of Legalized Gambling." Paper prepared for the *National Tax Journal* Spring 2005 forum on gambling in the United States.
- Kearney, Melissa Schettini. "State Lotteries and Consumer Behavior." NBER Working Paper No. 9330. Cambridge, MA: National Bureau of Economic Research. November 2002.
- Kings County District Attorney's Office. As quoted in "Let Sports Betting Aid Schools: Biz Boss." Stefan C. Friedman, *New York Post* (December 4, 2004).
- Lesieur, Henry R. "Costs and Treatment of Pathological Gambling." *Annals of the American Academy of Political and Social Science*, Vol. 556 (March 1998): 153-71.
- Madhusudhan, Ranjana G. "Betting on Casino Revenues: Lessons from State Experiences." *National Tax Journal*, Vol. 49, No. 3 (September 1996): 401-12.
- National Gambling Impact Study Commission. "Final Report: Gambling in the United States." 1999. <http://govinfo.library.unt.edu/ngisc/>.
- New Jersey State Assembly. Appropriations Committee Statement to Assembly Bill, No. 3493 (January 10, 2005).
- New Jersey Assembly Bill, No. 3493. Introduced November 8, 2004 by Assemblyman Jeff Van Drew and Assemblyman Louis D. Greenwald.
- North American Association of State and Provincial Lotteries. 2004. <http://www.naspl.org>.
- Oregon Lottery. 2004a. "Sports Action," <http://www.oregonlottery.org/general/allocate/>.
- Oregon Lottery. 2004b. "Where Profits Go," http://www.oregonlottery.org/general/allocate.
- Oster, Emily. "Are All Lotteries Regressive? Evidence from the Powerball." *National Tax Journal*, Vol. 57, No. 2 (June 2004): 179-87.
- Schwabish, Jonathan A. and Michael R. Simas. Hidden Revenue: Regulating the Underground Economy of Sports Betting." *Partnership for New York City Issue Brief No. 3*, New York, New York (February 2005).
- Siegel, Donald and Gary Anders. "The Impact of Indian Casinos on State Lotteries: A Case Study of Arizona." *Public Finance Review*, Vol. 29, No. 2 (March 2001): 54-62.

U.S. Census Bureau. 2004-2005. "State Governments—Revenue by State: 2001." Statistical Abstract of the United States. Washington, DC: U.S. Census Bureau, 284.

Strumpf, Koleman S. "Illegal Sports Bookmakers." Working Paper, University of North Carolina at Chapel Hill. February 2003.

United States Senate. Congress, 102. Public Law No: 102-559, A bill to prohibit sports gambling under state law. 1992.

Volberg, Rachel A. "Gambling and Problem Gambling in New York: A 10-year Replication Survey, 1986 to 1996." *Report to the New York Council on Problem Gambling* (July 1996).

Appendix Table. Economic Impact of Parlay Card Sports Betting (\$ in millions)									
NYS Population ('000s)	Times Portion of New Gamblers	Times Annual Bet Amount	Equals Total Legal Gambling	Minus Payouts (65%)	Equals Taxable Profits	Yields State Revenue at 8% Tax Rate*	Minus Labor Costs (15%)	Minus Problem Gambling Prevention (1%)	Equals Retailer Net Profit (\$M)
15,000	10%	\$240	\$360	(\$234)	\$126	\$10	(\$19)	(\$1)	\$96
15,000	25%	\$240	\$900	(\$585)	\$315	\$25	(\$47)	(\$3)	\$239
15,000	50%	\$240	\$1,800	(\$1,170)	\$630	\$50	(\$95)	(\$6)	\$479
15,000	75%	\$240	\$2,700	(\$1,755)	\$945	\$76	(\$142)	(\$9)	\$718
*Oregon currently charges an 8 percent tax on its sports betting games and the pending New Jersey sports betting games would also charge this rate (New Jersey Assembly Bill No. 3493, 2004). Nevada, which has a full range of sports betting operations in its casinos, currently assesses a state tax rate of 6.25 percent, the lowest in the nation.									
Sources: Jones, 2004; Goldfarb Consultants Inc., 1999; Clotfelter and Cook, 1989; Oregon Lottery, 2004b; Schwabish and Simas, 2005.									

ENDNOTES

1. Revenue data from U.S. Census Bureau (2004-2005), Table No. 441.
2. This section includes a very brief description of the recent history of legal sports betting in the United States. A more thorough treatment can be found in Schwabish and Simas (2005).
3. Oregon offered a second lottery-based sports betting game called Scoreboard in 2003. The concept is the same as in Sports Action and is designed as a game of chance.
4. This is not a summary of the entire literature. For an excellent and thorough review, see Kearney (2005).
5. Volberg (1996) included those states that had legal gambling in the state at the time. The prevalence of problem gambling in New York State rose from 4.2 percent in 1986 to 7.3 percent in 1996.
6. Imbens et al. (1999) show that large lottery winnings result in a decline of about 9 work-hours per year. Also certainly of interest is the impact of gambling on worker productivity, especially with the availability of online gambling.

7. Existing gambling research (Kearney, 2002; Forrest and Simmons, 2003) has shown that low-income households often experience the greatest negative impacts from problem gambling by foregoing expenditures on food, mortgage, rent or other bills.
8. This 15 percent figure may be underestimated because bookies have greater payout rates than comparable state-run games. However, this figure is the only one available in the literature and is used in Schwabish and Simas (2005). If, say, a 30 percent take-out rate were used instead, potential profits (see Table 1) would essentially double.
9. The takeout is defined as the percentage of total bets retained by the sports book; in other words, the sport books' gross revenues.