

Legalized Sports Betting in the United States and Potential Impacts in Massachusetts



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SOCIAL AND ECONOMIC IMPACTS
OF GAMBLING IN MASSACHUSETTS

UNIVERSITY OF MASSACHUSETTS SCHOOL OF PUBLIC HEALTH AND HEALTH SCIENCES

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Authorship and Acknowledgements

Authorship

Rachel A. Volberg, Research Professor at the School of Public Health and Health Sciences, University of Massachusetts Amherst and Principal Investigator on the SEIGMA project. Dr. Volberg is the lead author of this report.

Valerie Evans, SEIGMA Project Manager and Biostatistician, School of Public Health and Health Sciences, University of Massachusetts Amherst. Ms. Evans reviewed the draft report and provided background research on the topic.

Martha Zorn, SEIGMA Data Manager, School of Public Health and Health Sciences, University of Massachusetts Amherst. Ms. Zorn was responsible for data cleaning, data management, and data analysis of the SEIGMA primary data and the production and checks of tables and figures.

Robert J. Williams, Professor in the Faculty of Health Sciences at the University of Lethbridge in Alberta, Canada, and Co-Principal Investigator on the SEIGMA project. Dr. Williams contributed to all sections of the report.

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Glossary of Terms

Collegiate vs Professional Sports

The main difference between collegiate and professional sports is the role of the athlete. Professional athletes are employees who are paid for their efforts while collegiate athletes are considered students first and athletes second (although Name, Image, & Likeness (NIL) policies may allow athletes to financially benefit from participating in collegiate or high school sports).

Esports

Events where audiences observe teams of players compete in organized, multiplayer video game competitions for monetary prizes. Members of such teams are considered professional gamers.

Gross Gaming Revenue (GGR)

Gross gaming revenue refers to the total amount of cash wagered in a specified period of time less any amounts paid out in prizes or winnings.

Handle

Handle refers to the total amount wagered by bettors over a specified period of time without accounting for prizes or winnings paid out to bettors.

Loot box

In online gaming, a loot box refers to a box of virtual items that players must pay for before they know exactly what it contains. These items can be particular pieces of equipment or costume.

Proposition (prop) betting

Proposition or prop bets are wagers made regarding the occurrence or non-occurrence during a game of an event not related to the game's final outcome (e.g., who will score the next touchdown, total score of both teams combined, etc.).

In-play betting

Bets that are made while the game is being played. In-play betting is distinct from proposition betting.

Executive Summary

The purpose of this report is to examine the current status of legalized sports betting in the U.S. including an assessment of the various legislative and operational models adopted, revenues generated, economic and social outcomes identified to date, and sports betting behavior observed in states where this activity has been legalized as well as in international jurisdictions where sports betting behavior has been investigated. The intent is to identify the economic and social outcomes associated with the introduction of sports betting to date and, based on this analysis, provide specific policy recommendations intended to optimize the economic and social benefits of sports betting in Massachusetts while minimizing economic and social harm.

The report begins with a brief history of sports betting in America and a discussion of the convergence between online gaming, online gambling, and sports betting; and follows with presentations of variation in sports betting legislation, regulatory frameworks, and operations across the 30 states and the District of Columbia that have legalized sports betting since 2018. This is followed by a review of the research literature on the demographics and behavior of sports bettors, attitudes towards sports betting, harms associated with sports betting, prevention of sports betting harms, the economic impacts of sports betting, and the relationship between sports betting and the pandemic. The literature review is followed by presentation of survey data from two recent U.S. national surveys carried out by the National Council on Problem Gambling and a review of findings from cross-sectional surveys and cohort research carried out in Massachusetts since 2013.

Synthesizing the **social impacts** thus far:

- Sports betting occurs in all demographic groups, but is most popular among young, well-educated men.
- National online panel data show an increase in sports betting participation between 2018 and 2021 (20% to 26% for traditional sports betting and 17% to 24% for fantasy sports betting). Massachusetts-specific online panel data also shows an increase in sports betting from 2013/2014 to 2022 (13.2% to 23.8%), although there are some methodological differences between the surveys that may partly account for the increase. Participation rates have increased presumably due to the legalization of sports betting during this period (10 states in 2019; 13 in 2020; 23 in 2021; 30 in 2022) as well as the national upsurge in sports betting advertising.
- The current prevalence rate of sports betting in Massachusetts using representative sampling is uncertain but estimated to be in the 13% - 20% range. The precise rate will be known when the results of the SEIGMA Follow-Up General Population Survey are analyzed in the next few months. National online panel data indicates that the current prevalence rate of sports betting in Massachusetts is very similar to the prevalence rate in other states where sports betting has been legally operational for several years.
- Coincident with the national increase in sports betting participation, there is evidence of some increase in national as well as Massachusetts-specific levels of gambling-related harm.
- Problem and at-risk gambling is significantly higher among sports bettors, including in Massachusetts. However, this is primarily because sports bettors are often involved in a wide range of gambling activities in addition to sports betting. When controlling for their involvement in other types of gambling there is very little evidence that sports betting is a riskier form of gambling (unlike electronic gambling machines and casinos).

- Legalizing sports betting in Massachusetts has the potential to increase rates of gambling-related harm among Massachusetts sports bettors as well as overall rates of problem gambling in the population. However, while this will certainly occur to some extent, the magnitude of these impacts is expected to be modest due to the fact that:
 - The current rate of sports betting in Massachusetts appears to be very similar to states that have been legally offering it for several years. This, in turn, is likely attributable to the fact that most sports betting is done online, and there have never been any significant barriers to Massachusetts residents wishing to gamble online out-of-state (even though it is illegal).
 - Only a small portion of the population currently participates or ever will participate in sports betting. Even if there are significantly higher rates of problem gambling among those who participate in sports betting in Massachusetts, this will have a fairly small effect on the overall problem gambling rate for the entire population.
- That said, concerns remain about the potential for gambling-related harm in Massachusetts for risk groups not previously involved in sports betting, such as adolescents, young adults, women, immigrants, individuals in recovery from gambling problems, and college athletes.

By comparison, there is very little research on the economic impacts of sports betting, such as job creation and recapture of gambling dollars from the illegal sports betting market or from neighboring jurisdictions that have already legalized sports betting.

Synthesizing what is known about the **economic impacts** thus far:

- There is mixed evidence regarding the question of substitution, or cannibalization, of other types of gambling when sports betting is introduced.
- With respect to revenue maximization, analysis conducted within this report suggests that this: requires having a *variety* of different online operators; may also require some land-based options; and is not contingent on having collegiate sports betting.
- Maximizing revenue is not the same as maximizing the economic benefits for the state. Sports betting can only have limited **net** economic benefit for the state's economy as it will primarily only be redistributing money that already exists within the state economy, rather than attracting new money from out-of-state. That said, economic benefits can still occur by:
 - Redirecting money back to the state that is currently being spent on illegal sports betting out-of-state.
 - Creating additional state-based jobs.
 - Creating tax revenue for the state government that is utilized for the good of the state populace.
- While there is limited potential for net economic benefits in Massachusetts, there is significant potential for economic harm if:
 - Sports betting causes high rates of problem gambling.
 - A significant portion of the revenue from sports betting operations leaves the state.

These conclusions are followed by a number of specific policy recommendations intended to optimize the economic and social benefits of sports betting in Massachusetts while minimizing economic and social harm. Recommendations cover types of operators, regulatory mandate, licensing fees, taxation rates, ongoing auditing and complaint resolution procedures, funding of problem gambling prevention, treatment and research, restrictions on provision, and restrictions on advertising and celebrity endorsement.

Introduction

This report examines the current status of legalized sports betting in the United States. Sports betting was legalized in 2018 when the Supreme Court declared the Professional and Amateur Sports Protection Act of 1992 (PASPA) unconstitutional. This opened the door for individual states to pass legislation to introduce sports betting which 30 states and Washington, DC have done in the four years since the PASPA decision. Given the novelty of legally available sports betting in the gambling landscape of the U.S. and the speed with which this form of gambling has become available to consumers, the Massachusetts Gaming Commission (MGC) requested the Social and Economic Impacts of Gambling (SEIGMA) research team to provide an overview report that would allow a more comprehensive understanding of the impacts that may occur with the introduction of this legal sports betting to Massachusetts.

The purpose of this report is to examine the current status of legalized sports betting in the U.S. including an assessment of the various operational models, revenues generated, economic and social outcomes identified to date, and gambling behaviors observed around sports betting in states where this activity has been legalized as well as in international jurisdictions where sports betting behavior has been investigated. The objectives of the report are to:

- identify the economic and social outcomes identified to date with the introduction of legalized sports betting in the many U.S. states with an operational sports betting industry;
- based on this analysis, hypothesize as to the likely impacts of legalized sports betting in Massachusetts; and
- provide policy recommendations intended to optimize the economic and social benefits of sports betting in Massachusetts while minimizing economic and social harms.

The MGC has already produced a substantial body of work related to sports betting and online gambling. Reports already published by the MGC investigate developments in internet gambling (McHugh, 2015) and daily fantasy sports (Crosby, Cameron, Macdonald, Stebbins, & Zuniga, 2016); review potential frameworks for regulating sports betting in Massachusetts (Connelly & Stempeck, 2018); assess the status of legalized sports betting in the U.S. (Howard, 2021); and make recommendations for measures to ensure that sports betting in Massachusetts will be conducted in a manner that minimizes harm (Vander Linden & Flores-Pajot, 2021).

This report contributes to the MGC's existing body of work by providing a brief assessment of the different regulatory frameworks implemented, operational models used, and revenues generated as well as reviewing research on sports betting behavior that has been conducted in the U.S. and internationally. The intent is to provide a more comprehensive understanding of the likely impacts of introducing sports betting in Massachusetts.

A Brief History of Sports Betting in America

Gambling has been pervasive in the United States since the country's founding (Matheson, 2021; Rose, 2010). The first sports gambling activity to gain traction in the U.S. was horse race betting in the mid- to late 1800s. It was in this period that the races that came to be known as the Triple Crown (the Belmont Stakes, the Preakness

Stakes, and the Kentucky Derby) were established. At the height of this period in the early 1900s, there were more than 300 racetracks across the country (Riess, 2014).

The early 1900s saw a rapid rise in the popularity of professional baseball which, given the dearth of legal betting channels, was accompanied by a swift increase in illegal gambling. This era came to an abrupt end in the 1920s when, in the wake of the 1919 Chicago White Sox game-fixing scandal, Kenesaw Mountain Landis was appointed as the first Major League Baseball commissioner to restore the integrity of the game and public confidence. A decade later, in the wake of the Great Depression, many states authorized some forms of gambling as a way to raise badly needed tax revenues. However, Nevada was the first and only state to legalize sports wagering in 1949 (Harris, 2020). Organized crime syndicates remained the dominant players in the sports betting market until the late 1950s when Congress enacted a broad swath of laws to cut off this illegal revenue stream. This included the Interstate Wire Act of 1961 which made it illegal to send sports gambling information or place bets on sports events across state lines through the use of any “wire communication facility.”

From the middle of the 20th Century through the 1980s, the Wire Act and other federal legislation made sports gambling largely illegal throughout the country. However, during this period, the Department of Justice decided that anti-gambling laws would remain a low-priority enforcement area and a substantial illegal sports betting market continued to flourish (Fielkow, Werly, & Sensi, 2017).

The PASPA Era

In the late 1980s, major scandal once again erupted around betting on baseball with the imposition of a lifetime ban from the sport for legendary baseball player and manager, Pete Rose, in 1989. During this same period, a growing number of states considered initiatives to allow sports betting as a way to provide relief from budget deficits (Woo, 2013). In 1992, spearheaded by Senator Bill Bradley, a former professional basketball player, Congress enacted the Professional and Amateur Sports Protection Act (PASPA). PASPA prohibited states from sanctioning or sponsoring sports gambling except in states where it had previously been allowed. This included Nevada but also Delaware, Montana, and Oregon, whose state lotteries were already offering parley betting on sports events (Rose, 2018).

Despite legal prohibition, sports betting continued to be popular throughout the country as evidenced in several population surveys of gambling participation carried out in this period (Gerstein, Volberg, Harwood, & Christiansen, 1999; Welte, Barnes, Wiczorek, Tidwell, & Parker, 2002; Welte, Barnes, Tidwell, Hoffman, & Wiczorek, 2015). Sports betting was widely tolerated for a variety of reasons, including the low priority given to prosecuting this activity by the Department of Justice, the normalization of sports betting through announcements of betting odds in sports broadcasts, and the rise in online sports betting internationally in the wake of widespread internet access (Lopez-Gonzalez & Griffiths, 2018).

In 2011, lawmakers in New Jersey led by then-Governor Chris Christie passed legislation to legalize sports betting in that state as a new source of revenue. Christie was immediately sued by the NCAA, NBA, NFL, NHL, and MLB on the grounds that the new state law violated PASPA. After years of lawsuits, the case reached the Supreme Court in 2018. In a triumph for states’ rights, the Supreme Court ruled 7-2 that the federal government could not prohibit states from allowing sports wagering. And thus began the latest “wave” of gambling legalization in the United States.

Post-PASPA Expansion

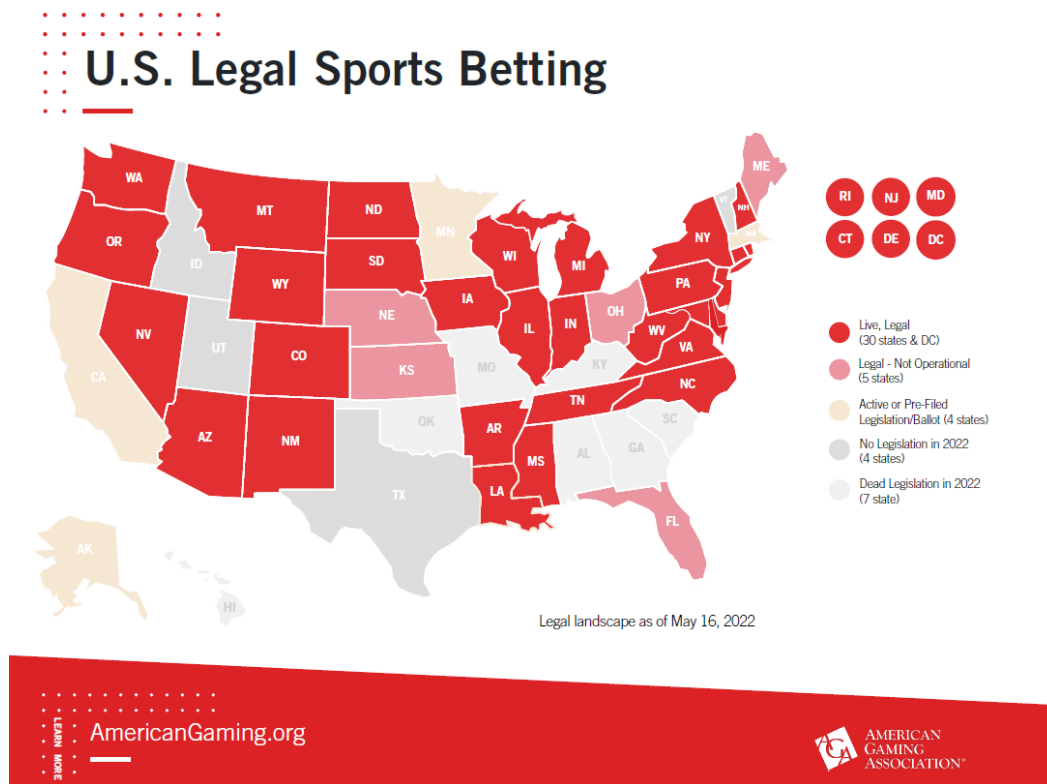
As mentioned, prior to PASPA being struck down in May of 2018, Delaware, Montana, Nevada, and Oregon had been legally operating sports betting for some time. Immediately after the PASPA decision, another three states (Mississippi, New York, and Pennsylvania), began offering sports betting based on previously passed (pre-filed)

legislation that legalized sports gambling in the event that PASPA was overturned while North Dakota began providing sports betting through tribal compacts governing Class III gaming.

In the wake of the PASPA decision, New Jersey quickly launched sports betting followed by four more states in 2018. By 2019, 10 states and the District of Columbia had legalized sports betting, followed by three states in 2020 and another 10 states in 2021. As of June 2022, sports betting was legal and operational in 30 states and the District of Columbia and was legal but not yet operational in another five states. Sports gambling legislation is presently under active consideration in an additional four states, including the State of Massachusetts.

Figure 1 below is from the American Gaming Association’s website as of May 16, 2022; similar to the 2021 version included in an earlier report to the MGC (Howard, 2021), it serves as a helpful synopsis of the status of sports betting across the country.

Figure 1: Status of Sports Gambling in the United States, 2022



Convergence Between Online Gambling and Sports Betting

The importance of the intersection between online gambling and sports betting is difficult to understate when considering the possible impacts of these types of gambling. While this report is focused on developments in sports betting in the U.S., this section offers some background on online gaming and online gambling to provide context.

As many observers have recognized, one of the most important technological changes of the last 40 years is the remarkable increase in the availability of computers and access to the internet. In 1984, only 8.2% of all households had a computer; by 2018, 91.8% of households reported owning a computer. In 1997, 18.0% of

households had home internet access; in 2018, 85.3% of households had access to the internet (Martin, 2021). Easy access to the internet revolutionized online gaming. Video games first became popular in the 1970s when video game systems, featuring consoles that could be connected to televisions and featuring interchangeable game cartridges, became available. During the 1980s and 1990s, video games increased in popularity assisted by improvements in computer technology. By the early 2000s, there was rapid migration from playing video games on consoles to playing these games online.

Researchers have long identified similarities between online gaming and gambling but there is growing concern that the boundaries separating these two arenas have become blurred. Researchers and regulators have noted the increased intersection between gambling and gaming, in the form of “free-to-play” social casino games, “loot boxes” offered inside online video games, and esports where audiences observe (and increasingly place bets on) teams of players competing in online video games for monetary prizes (McHugh, 2015). Derevensky and Griffiths (2019) identify five primary types of convergence between gambling and gaming. These include:

- the introduction of gambling elements into social media games;
- the use of social gaming features on online gambling sites;
- “gambification” of non-gambling games to provide players with opportunities to win items of value;
- consolidation of gaming and gambling operations within single organizations; and
- cross-marketing of online gambling sites to social game players.

In addition to this convergence, researchers point to structural characteristics common to both gambling and gaming that pose risks to players, such as random distribution of prizes, variable value of prizes, near-miss features, visual and sound cues associated with participation and reward, and variable schedules of reinforcement (Derevensky & Griffiths, 2019). In a separate study, Lopez-Gonzalez and Griffiths (2018) point out that these convergences have contributed significantly to the dramatic evolution of sports betting from a discontinuous form of gambling to a continuous form, with well-recognized increases in risk to players (Abbott, 2020; Allami et al., 2021; Dickerson & O'Connor, 2006).

In the wake of the passage of PASPA in the early 1990s, online access to sports betting in the U.S. was further restricted by the 2006 Unlawful Internet Gambling Enforcement Act (UIGEA), which prohibited processing of gambling transactions by American banks. UIGEA was intended to curb the popularity of the online poker industry and actually contained an exemption for fantasy sports betting, which was gaining in popularity in the early 2000s. As the MGC itself has noted, in contrast to the U.S., there is an enormous amount of legal and highly regulated online gambling activity outside the U.S. Stakeholders such as the American Gaming Association have argued that the widespread availability of illegal internet gambling opportunities available in the U.S. poses risks to bettors as well as loss of significant tax revenue and have supported the creation of state-controlled online gambling opportunities in the U.S. (Crosby et al., 2016).

The online sports betting industry is particularly well-established in the European Union and Australia where the digital realm, the sporting realm, and the gambling realm are deeply intertwined (Lopez-Gonzalez & Griffiths, 2018). Many European Union member states have introduced online gambling regulations in efforts to address the dramatic evolution of sports betting and online betting via mobile phones. Despite such regulation, recent developments have synchronized sports betting and sports watching, with both happening simultaneously and thus providing greater synergies between these adjacent industries.

Variation in Legislation

Although sports betting is now legal in nearly two-thirds of the states, there is substantial variation in the legislation that has been adopted in the different states (Howard, 2021). Some states have introduced very specific legislation to add sports betting to the gambling landscape while other states have included sports betting as part of larger legislative agendas. There are state-to-state differences in tax rates and tax revenue allocations, variations in age requirements and restricted betting types, as well as disparities in the funding of research and services for those experiencing harms related to their sports gambling involvement.

States with Legal Sports Betting

As mentioned earlier, four states were exempt from enforcing PASPA when it passed in 1992 as they already had operational sports betting in the form of sports lotteries or, in the case of Nevada, licensed sports pools. After the 2018 Supreme Court decision, many states quickly passed legislation to legalize and regulate or operate sports betting. Two states already had compacts in place that allowed tribal casino operators to host sportsbooks without state legislation although New Mexico did pass legislation in 2018 to formally allow sports betting. As of May 2022, 30 states and the District of Columbia had legal and operational sports betting in the United States (see Table A-1 in Appendix A). For readers unfamiliar with state acronyms, a key is provided in Table A-1.

Table 1: Variations in Permitted Sports Betting Operations

Permitted Types of Operations	Number	Percent	States
Online only	2	6.5	TN, WA
Land-based only	7	22.6	AR, DE, NM, NC, ND, SD, WI
Land-based & online	22	71.0	AZ, CO, CT, DC, IL, IN, IA, LA, MD, MI, MS, MT, NV, NH, NJ, NY, OR, PA, RI, VA, WV, WY
Total	31	100.0	

The earliest states to legalize sports betting after PASPA was overturned tended to follow the Nevada and New Jersey examples with licenses granted broadly to brick-and-mortar commercial casinos, racinos, tribal casinos, and/or state lotteries as well as online sports betting operators. Among the states that legalized sports betting prior to 2021, only three restricted sports betting operations to land-based venues. States that have legalized sports betting since the beginning of 2021 have taken more varied approaches. North Carolina, North Dakota, Washington,¹ and Wisconsin have amended state-tribal compacts to allow sports betting at tribal casinos but have not expanded sports betting beyond these locations. South Dakota permits sports betting only at casinos in Deadwood, a popular tourist destination. Louisiana has taken the most liberal approach and permits sports betting at commercial casinos, tribal casinos, racetracks and lottery outlets as well as mobile wagering through online sports betting operators.

Five states have legalized sports betting but have not yet launched operations. Kansas and Maine legalized both online retail sports books and sports betting with operations expected to begin late in 2022. In Maine, a

¹ In Washington, mobile sports betting is permitted outside the tribal casino only if it takes place on tribal land.

separate law that passed granting exclusive rights to online sports betting to the state's tribes is likely to complicate the start of sports betting operations in that state. Ohio legalized sports betting in late 2021 and both in-person and mobile betting are set to launch across the state at the beginning of 2023. Like Maryland, Ohio will make several types of licenses available, including online, in-person brick-and-mortar locations, and sports gambling lottery kiosks located in venues that already have a liquor permit. Nebraska legalized in-person sports betting in 2021 at the state's six racetracks; only retail sportsbooks will be legal when full operations begin. Finally, Florida officially launched sports betting in November 2021 after including the activity in the state's compact with the Seminole Tribe. However, the compact was challenged in federal court for violating the federal Indian Gaming Regulatory Act and sports betting in Florida has been suspended until the court challenge is resolved.

Overall, we concur with the report that the MGC published in 2021 that implementation of sports betting has varied widely across jurisdictions on many fronts (Howard, 2021). As the MGC report makes clear, although all of the states that have legalized sports betting have imposed some level of taxation on the activity, these tax rates vary widely and are often different between land-based and online sports betting offerings. Most, but not all, of the states impose licensing fees although legislators have been sensitive to the need to impose fees and tax rates that will be competitive with the unregulated market as well as attractive to potential licensees. There is also great variability in the types of wagers that can be placed, acceptable forms of payment, and what data may be used to establish odds and types of wagers. In an interesting contrast, there is great consistency across the states in setting the age requirement for betting on sports at 21 years; only four states (Montana, New Hampshire, Rhode Island, and Wyoming) permit individuals aged 18 and over to bet on sports.

Taxation

States have imposed taxes on the gross gaming revenues (GGR) generated from sports betting with varying amounts and conditions. GGR and state tax revenues for those states with operational sports betting in 2021 can be found in Tables A-2 and A-4 of Appendix A. Nevada and Iowa maintain the lowest tax rates in the U.S. at 6.8% of sports betting revenue while others, such as Delaware, Rhode Island, and New Hampshire, have tax rates at 50% or more. For some states, such as Nevada, Delaware, and Connecticut, these tax revenues contribute to the state's general fund which can be dispersed into education, health care, or public safety. Other states earmark a portion of these realized funds into specific state or local programs. In West Virginia, sports betting tax revenue goes into the Public Employees Insurance Agency Financial Stability Fund to reduce premiums and prevent benefit cuts. In addition to state tax rates, Mississippi and Pennsylvania have a city or county tax of <5% GGR which provides funding for local programs.

Differential tax rates exist between retail and online/mobile sports betting in several of states with online tax rates typically somewhat higher than land-based tax rates. New Jersey has imposed a 13% tax rate on online sports betting while the land-based tax rate is 8.5%; representing a 53% higher rate. New York, Illinois, Michigan, Washington, D.C., New Hampshire, and Louisiana also have higher rates to varying degrees for online sports betting compared to land-based ranging from only a couple of percentage points difference in New Hampshire to a 400% difference in New York State (10% land-based sports betting tax rate compared to a 50% tax rate for online sports betting).

Funding of Research and Problem Gambling Services

Despite a careful search for language related to problem gambling services in the sports betting enabling legislation for each state, we were only able to identify 15 states that allocated funds from sports betting tax revenues to provide services for people experiencing gambling problems or to conduct research on this new industry. Six of the states that do not provide funding for problem gambling services or gambling research (i.e., New Mexico, North Carolina, North Dakota, Washington, and Wisconsin) have sports betting only at tribal

casinos or on tribal land. The other nine states (i.e., Delaware, Illinois, Michigan, Mississippi, Montana, Nevada, Oregon, Rhode Island, and West Virginia) appear to provide no funding at all for either research or services for those experiencing gambling problems.

The states that do provide funding for services and/or research have taken different approaches. Several states have specified dollar amounts to be expended annually on problem gambling services; sums range from \$30,000 in South Dakota to \$300,000 in Iowa and Wyoming and none of these states provide any funding for research. Although Pennsylvania provides no funding for research, \$2 million or 0.2% of gross sports wagering revenue (whichever is greater) goes to a problem gambling treatment fund and a similar amount goes to the Pennsylvania Department of Health for alcohol treatment including cases with problem gambling comorbidities. Connecticut provides funding for problem gambling services and research through two mechanisms. Both an annual fee of \$500,000 on master license holders and 25% of fines levied on operators are allocated to support prevention and treatment services with one-fifth of these funds directed specifically to the Connecticut Council on Problem Gambling.

Table 2: Variations in Funding for Research and Services

	No. of States	Percent	Notes
No funding for services or research	15	48.4	Tribal sports betting only in 6 of these states
Services funded	12	38.7	Amount specified or proportion of tax revenues
Research and services funded	4	12.9	LA, MD, NJ, TN
Total	31	100.0	

Several other states have established funding for problem gambling services as a percentage of tax revenues generated by sports betting; these percentages range from 1% in New York to 2% in Arizona and Louisiana to 2.5% in Nebraska and Virginia. Among this group of states, only Louisiana provides funding for research although the amount or percentage is not specified. Illinois stipulates that 25% of tax revenues received from sports gambling must be allocated to problem gambling services including prevention, education, and treatment as well as training and credentialing for treatment providers. New Hampshire provides no funding for research and an unspecified amount of the revenues received by the sports betting regulator is allocated to pay for services for those experiencing gambling problems. Finally, the Colorado sports betting legislation does not fund research and also does not allocate funding for problem gambling services beyond what the state already allocates from revenues from other types of gambling.

In contrast to these other states, Maryland has created a funding mechanism for research on the sports betting industry by allocating \$1.5 million annually to establish research centers at Bowie State University and Morgan State University to establish a Center for the Study of Data Analytics and Sports Gaming at each university to study the impacts of sports betting. Maryland also provides an unspecified amount for a Problem Gambling Fund to be used for prevention and treatment. Tennessee has also taken a unique approach by allocating 5% of sports betting tax revenues to support both problem gambling services (prevention and treatment) and research. Finally, in an approach similar to Massachusetts, New Jersey requires an annual report on the impacts of sports wagering funded by levies on casino and racetrack licensees as well as allocating a percentage of licensing fees to fund services for those experiencing gambling problems.

States Proposing Sports Betting

The four states with sports betting legislation currently pending are Alaska, California, Massachusetts, and Minnesota. Each of these states faces obstacles to enactment of such legislation although the details are different in each case.

Sports betting is not expected to be legalized soon in Alaska despite support from the governor. Alaska has some of the strictest gambling laws in America and this conservative approach makes the likelihood of legal sports betting in the near future seem slim. At least one, and possibly as many as four, bills to legalize sports betting in California will be on the ballot in November 2022. The situation in California is complicated by the many groups interested in operating sports betting, including tribes, cardrooms, racetracks, and legal sportsbook operators such as DraftKings and FanDuel. As of this writing, two sports betting referenda have qualified for the November ballot; one is restricted to in-person betting at tribal casinos and racetracks with the introduction of online sports betting delayed for at least five years while the other would immediately allow mobile sports betting run by private companies and includes language that if both referenda pass, they both can become law. In Minnesota, sports betting legislation failed to survive the 2022 legislative session due to disagreements between state legislators and the tribes over the issue of online sports betting.

With respect to Massachusetts, both online wagering and fantasy sports betting have been legal and operational in Massachusetts for some years. As the MGC has pointed out, few Massachusetts residents are aware that Advanced Deposit Wagering (ADW) was introduced as early as 2001 to allow for online wagering on horse races in Massachusetts and elsewhere (Connelly & Stempeck, 2018). In 2016, daily fantasy sports betting was temporarily legalized and then permanently legalized in 2018 with oversight of this primarily consumer protection statute residing in the Office of the Attorney General.

Sports betting legalization has been under consideration in Massachusetts since 2019. While the Massachusetts House passed a sports betting bill at the end of the 2021 legislative session, the Massachusetts Senate did not pass a bill until April of 2022. As of this writing, a conference committee, composed of three state representatives and three state senators, has been convened and work began in early June to produce a compromise bill that would need to be passed in both chambers by the end of the legislative session in July in order to go to Governor Baker for signature and enactment.

The bills passed by the House and the Senate differ in many regards. However, observers agree that the main stumbling blocks are the issues of collegiate betting, the very different proposed tax rates in the two bills,² and restrictions on sports betting advertising and marketing as well as the use of credit cards for payment that are contained in the Senate bill.³ Other significant differences that will need to be resolved include the number of licenses that would be available for operators, how many online “skins” (or separate sports betting websites) would be available for the state’s casinos, and a provision in the House bill that would grant Massachusetts arena operators a small share of revenue derived from wagers on sports events held in those facilities.⁴

Soon after the Massachusetts Senate sports betting bill passed, the American Gaming Association published a letter urging the conference committee to permit betting on college sports, allow for less restrictive advertising,

² The Senate bill includes a tax rate of 20% for sports bets placed in retail locations and 35% for mobile wagering while the House bill proposes a tax rate of 12% on retail sports bets and 15% on mobile wagering.

³ State House News Service, *House-Senate sports betting negotiations kick off Thursday*. June 8, 2022.

⁴ VIXIO, *Massachusetts sports-betting conference committee faces daunting task*. May 25, 2022.

and adopt reasonable tax rates.⁵ This casino trade organization stressed that if the Senate version was enacted, the state would remain at a competitive disadvantage both with illegal operators as well as surrounding border states. The issue of collegiate sports betting is particularly contentious; two years ago, the presidents and athletic directors of seven major colleges and universities in the state wrote a letter to the legislature citing the risks posed by legal sports betting to their student athletes.⁶

⁵ Boston Globe, *Casino trade group's verdict on effort to exclude college games from Mass. Sports betting bill: Thumbs down*. May 19, 2022.

⁶ Boston Globe, *Mass. college presidents to state lawmakers: Don't allow betting on our sports teams*. September 11, 2020.

Variation in Regulatory Framework

In this section of the report, we consider the regulatory frameworks established by the states that have legalized sports betting. This includes numbers and types of operators, minimum age, restrictions, and tax rates. As the MGC has already recognized, two important considerations in how sports betting is legalized and regulated pertain to capturing revenues that are presently flowing to the illegal sports betting market and establishing consumer protections that are unavailable to those patronizing the illegal market (Connelly & Stempeck, 2018). Full details of state-specific regulatory frameworks for states with active sports betting can be found in Table A-2 of Appendix A. A description of the methodology used to extract information included in this section of the report can be found in Appendix B.

Types of Regulators

There are notable differences between states in terms of agencies that have been given responsibility for licensing and regulating or operating sports betting. The most common approach, adopted in 14 states (45.2%), has been to designate the agency responsible for regulating casinos as the sports betting regulator. The next most common approach, adopted by eight states (25.8%), has been to give responsibility for licensing and regulating or operating sports betting to the Lottery Commission. Another approach, taken in four states (12.9%), has been to include sports betting in compacts with tribes already operating Class III gaming, thus giving the tribes responsibility for regulating this new form of gambling. Only one state, Arkansas, has designated the Racing Commission as the sports betting regulator; presumably because there are only two large racinos in the state that offer casino gambling. In Maryland, the State Lottery and Gaming Control Agency oversees all forms of gambling in the state and has been designated as the sports betting regulator. In Mississippi, sports betting at commercial casinos is regulated by the Mississippi Gaming Commission while sports betting at the three tribal casinos is regulated by the Choctaw Gaming Commission. In Oregon, responsibility for regulating sports betting is split between the tribal Gaming Commission and the state Lottery Commission.

Types of Operations

There are also notable differences between states in terms of the types of operators that are permitted to offer sports betting as well as in the number of licenses available, and required licensing fees. Each state that has legalized sports betting has had to balance the demands of existing operators in the jurisdiction with other stakeholders that would like to offer sports betting as an adjunct to other retail services, such as bars and restaurants or sports arenas. Detailed information on the types of operators allowed in each state is presented in Table A-3 in Appendix A.

The most common pattern is for states to authorize commercial casinos, racetracks, and online operators to obtain licenses and offer sports betting; five states have adopted this approach. Five states have authorized tribal casinos to offer sports betting while Arizona has authorized both tribal casinos and sports arenas to offer sports betting. Another three states have authorized commercial casinos and tribal casinos to offer sports betting and two states have authorized commercial casinos and online operators to offer sports betting. Another three states have authorized commercial casinos, tribal casinos, and online operators to offer sports betting and yet another three states have designated the lottery as the authorized operator of sports betting. Two states, Connecticut and Oregon, have authorized the lottery and the states' tribal casinos to operate sports betting. The remaining five states have opted for different mixes of authorized operators, including lotteries, commercial casinos, tribal casinos, racetracks, sports arenas, and online operators.

Table 3: Variations in Permitted Operators

Permitted Operators	Number	Percent	States
Tribal casinos	6*	19.3	AZ, NM, NC, ND, WA, WI
Lottery	3	9.7	MT, NH, RI
Online operators	2	6.5	TN, WY
Commercial casinos & tribal casinos	3	9.7	MS, NY, SD
Lottery & tribal casinos	2	6.5	CT, OR
Commercial casinos & online operators	2	6.5	NV, VA
Commercial casinos & racetracks & online operators	5	16.1	IL, IN, NJ, PA, WV
Commercial casinos & tribal casinos & online operators	3	9.7	CO, IA, MI
Other Combinations	5	16.1	AR, DE, DC, LA, MD
Total	31	100.0	

*AZ permits sports arenas to operate sports betting as well.

The number of land-based licenses as well as online licenses also varies widely between states. While Nevada stands out in having granted 54 licenses to brick-and-mortar casinos, Montana chose a much more “convenience-style” approach by granting 141 licenses to conduct sports betting at bars and restaurants that hold a liquor license. Mississippi also licenses a relatively large number of land-based establishments (n=26) which include both commercial casino and tribal casino operators. With respect to online licenses, seven states permit 10 or more licenses. Colorado (n=26) and New Jersey (n=22) stand out in terms of the number of licenses permitted while Iowa, Michigan, Indiana, Pennsylvania, and Virginia permit between 10 and 20 licenses. Most of the other states that grant licenses for online sports betting permit between one and nine operators while 11 states only permit land-based licensees and do not provide for online sports betting.

Licensing Fees

Many states require licensing fees for sports betting operators although the fee structures vary by state. Of the 31 U.S. jurisdictions which currently offer sports betting, 16 states require initial license fees for operators. Initial license fees range from a \$100 annual fee for each sports betting kiosk in Montana to \$20,000,000 in Illinois for an online license fee. Some states have opted for different initial license fees depending on whether the licensee offers land-based or online betting. For example, the Illinois Gaming Board collects an initial license fee of \$10 million from land-based operators while this initial fee is twice as much for online operators. Renewal license fees also vary. Of the 16 states that require initial licensing fees, only Nevada does not require a renewal license fee of its sports betting operators. The renewal license fees range from \$1,200 for retail and mobile operators every two years in Colorado to \$750,000 annually in Tennessee. At least 10 states have formally decided not to require licensing fees for sports betting operators.⁷ Detailed information about license fees imposed in each jurisdiction is provided in Table A-2 in Appendix A.

⁷ Several states where sports betting became operational in 2021 have not yet implemented licensing fees. Others have modified fee structures, such as Connecticut which does not have licensing fees but requires annual payments to the Department of Consumer Protection as a variable regulatory oversight fee.

Restrictions

All states with operational sports betting have implemented some, or several, types of restrictions, whether it be enforcing an age requirement to place bets with sportsbooks, account registration requirements, or restricted bet types. Most states have a 21+ age restriction on sports betting; seven states allow 18+ to participate. Some states have variable ages for participation depending on the gambling format. Oregon allows most gambling at 18 years old; however, for VLTs, gamblers need to be at least 21. New York State's commercial casinos require gamblers to be 21+ while the age for gambling at tribal casinos is 18+. Aside from age restrictions, states can also enforce sportsbook account registration requirements. Half of states with operational sports betting (n=16) do not formally require individuals to register with online sportsbooks or fund their accounts in-person. In contrast, Nevada and Illinois require in-person registration of online sportsbook accounts.

One of the most contentious restrictions associated with the operationalization of sports betting across the United States is restricting bet types, specifically, whether or not to allow betting on (a) in-state collegiate games and (b) proposition betting. Of the states currently with operational sports betting industries, thirteen states do not have any restrictions on bet types. The remaining states (n=19) predominantly restrict bets on in-state collegiate teams or proposition betting on any collegiate events. There are some exceptions. Iowa, for example, allows proposition betting on out-of-state collegiate teams but not on individual college athletes. Wisconsin extends the restriction to include amateur sports as well as collegiate sports. Illinois allows bets on in-state collegiate teams but the bets must be placed in-person, not online, and can only be made on game outcomes, not an individual athlete's performance. Sports betting in Oregon is regulated by both the Tribal Gaming Commission and the Oregon Lottery and, while the Oregon Lottery has prohibited betting on any collegiate sports, tribal gaming does not have this restriction. A consideration of the implications of allowing betting on collegiate sports can be found in the *Discussion*. Detailed information about restrictions on the types of bets imposed in different jurisdictions is presented in Table A-2 in Appendix A.

Implementation

Many states have chosen to fully implement their new sports betting legislation by authorizing in-person betting at land-based locations as well as online sports websites simultaneously. A few states have chosen to authorize land-based operations initially and delayed online sports betting. For example, New Jersey, Pennsylvania, and Louisiana delayed the introduction of online sports betting by several months after it was available at land-based locations. In New York State, legislation was passed in 2013 to allow commercial and tribal casinos to offer sports betting beginning in 2019 but did not sanction an online option at the time. However, the approved state budget for FY22 included a provision to allow sports betting that was estimated to be worth approximately \$500 million per year; online sports betting became operational in New York State on January 1, 2022.

Variation in Operations

There is relatively little information available about how sports betting operations are conducted across the states that have legalized this type of gambling beyond contrasting land-based only, online only, and a combination of land-based and online operations. Media stories tend to focus on how much is spent on sports betting while scholarly research tends to focus on the characteristics of sports bettors, rates of participation in sports betting, and the impact of the introduction of sports betting on other forms of gambling.

In their report to the American Gaming Association on the potential economic impacts of sports betting legalization, Oxford Economics (2018) identified jobs, income, and tax revenue as the main areas of impact. They noted that the direct economic impacts of jobs and income generated by legal sports betting operations would depend primarily on a shift in spending from illegal to legal markets. They further noted that the indirect and induced effects⁸ of legal sports betting would not be entirely new since a portion of these effects already occur as a result of illegal sports betting although a portion would represent a net gain. In this section of the report, we focus on tax revenues and job creation since these are two of the few metrics available.

As the MGC has noted, one of the important unknown features of the sports betting market is the potential size of this market and the share of this market that legal operators can capture (Connelly & Stempeck, 2018). While the size of the illegal sports betting market is uncertain, estimates have ranged from \$50 billion to \$192 billion in annual revenues (Eilers & Krejci Gaming, H2 Gambling Capital; cited in Connelly & Stempeck, 2018). In a report commissioned by the American Gaming Association, Oxford Economics (2017) estimated the likely revenues from legalized sports betting based on three models of availability and three tax rates.⁹ Applied to Massachusetts, this approach projects that the Massachusetts legal sports betting market would yield tax revenues between \$8.6 million in the limited availability/low tax rate scenario and \$61.3 million in the convenient availability/high tax rate scenario. Compared with annual tax revenues from the Massachusetts Lottery (\$1.1 billion in 2019¹⁰) and the state's casinos (\$168.7 million in 2019), these estimates suggest that legal sports betting in Massachusetts will have far less impact economically than the state's other two major legal types of gambling.

Jobs in the Sports Betting Industry

In their report on the anticipated economic impacts of legal sports betting in the United States, Oxford Economics (2017) projected that the industry could grow to be a \$41.2 billion industry, potentially generating \$8 billion in federal, state, and local taxes, creating up to 216,671 jobs, and adding \$22.4 billion to GDP.¹¹ This compares to \$40.8 billion in tax revenues and nearly 1.8 million jobs generated by the far more mature casino industry (Oxford Economics, 2018). However, five years later, these optimistic projections regarding the size of

⁸ Direct effects are expenditures made by consumers of a good or service. Indirect effects are business-to-business purchases needed to create or provide a good or service. Induced effects are generated by spending of employees of the business providing the good or service.

⁹ The three models of availability were limited availability (on-site at casinos only, no online), moderate (on-site at casinos plus retail locations), and convenient (on-site at casinos plus retail locations plus online) while the three tax rates were 6.8%, 10.0%, and 15.0%.

¹⁰ <https://www.masslottery.com/about/news/lottery-rev-announcement>, accessed June 30, 2022.

¹¹ Industry size included both handle and "downstream impacts of that spending" (p. 4) while the job creation estimate included 86,819 direct jobs and 129,852 indirect and induced jobs.

the sports betting industry and related features do not appear to have been realized. It is also unclear whether the thousands of jobs projected in the 2017 report have been realized.

Information on job creation in the sports betting industry is sparse. Multiple online searches primarily yielded links to online recruiting websites such as Indeed or to job opening announcements by online sports betting operators such as BetMGM. We were able to find two scholarly sources of information about the number of jobs created by the new sports betting industry in individual states. Meister and Johnson (2019) claimed that from its inception in 2013 through the end of 2018, New Jersey's online sports betting industry generated 6,552 full-time equivalent jobs with 1,851 of these jobs (or 28.2%) created in 2018 alone. These researchers estimated that the 6,552 jobs created in New Jersey represented \$410 million in wages. In a press release in mid-November 2021, Washington State University reported on a presentation by Dr. Kahlil Philander to the Washington State Gambling Commission in which he described the results of a survey of Washington residents' gambling behavior and stated that sports betting at the tribal casinos in Washington would create an estimated 273 jobs directly related to the introduction of sports betting.¹² Given the dearth of information, it is clear that the employment aspect of the introduction of sports betting requires substantial scholarly attention.

Tax Revenues from Sports Betting

To understand tax revenues derived from sports betting across the jurisdictions that have legalized this type of gambling since 2018, we extracted data on 2021 handle, gross gaming revenue, tax rates, and tax revenue for each state.¹³ This information is presented in Table A-4 in Appendix A along with information about per capita GGR and tax revenues. As Connelly and Stempeck (2018) have pointed out, much of the media coverage of sports betting focuses on handle (the amount wagered over a period of time) rather than on gross gaming revenues (GGR; the proportion of handle retained by sportsbooks over the same period of time).

Among states that legalized sports betting prior to 2021, handle in 2021 totaled \$52.7 billion and ranged from a low of \$8.0 million in the District of Columbia to a high of \$10.9 billion in New Jersey. In many cases, handle size is driven by the state's population since sports betting is generally geographically limited to individuals who are located within the state's boundaries (geo-fencing). This likely explains why some states have relatively low handle, such as Montana (1.1 million population) with \$47.2 million and Arkansas (3.0 million population) with \$64.8 million in 2021. Similarly, states with relatively high handle benefit from large numbers of individuals who travel to that state specifically to bet on sports. This is the likely explanation for New Jersey's handle since New Jersey sports betting operators had several years before New York legalized sports betting in which to attract New York City residents to travel a short distance to bet on sports in New Jersey (Waldstein, 2021). Likewise, Nevada's handle of \$8.7 billion is undoubtedly due to the many out-of-state visitors who travel to Las Vegas to gamble.

It is helpful to consider the relationship between handle and gross gaming revenues across the states that legalized sports betting prior to 2021 to understand how this varies. While Connelly and Stempeck (2018) noted that sportsbook operators typically clear about 5% of handle, sports betting hold among these states actually averaged 9.2% and ranged from a low of 5.6% in Nevada and Iowa to a high of 21.4% in Delaware. Besides Delaware, only operators in Arkansas, Mississippi, Montana, and New York retained gross gaming revenues in the double digits, from 11.2% in Mississippi to 13.6% in Montana. Operators in all of the other states that legalized sports betting prior to 2021 retained gross gaming revenues that ranged from 7.0% in Colorado to 9.2% in Oregon. As shown in Table A-4, gross gaming revenues per capita average \$37 among states that legalized

¹² <https://everett.wsu.edu/washington-sports-betting-poised-for-rapid-growth/>

¹³ <https://www.legalsportsbetting.com/revenue-tracker/>

sports betting prior to 2021 and vary substantially from a high of \$158 in Nevada to less than \$5 in Arkansas, New York, and District of Columbia.

State tax revenues derived from sports betting vary widely depending on both the amount of gross gaming revenues and the tax rate(s) established in each state. As noted above, tax rates on sports betting revenues vary and are often different for land-based operators compared with online operators. Tax rates also vary based on whether a state's lottery has been designated to operate sports betting. Delaware and Rhode Island stand out with 51.0% and 50.0% tax rates, respectively, on both land-based and online operators. New Hampshire imposes a 50.0% tax rate on land-based operators and a 51.0% tax rate on online operators. While sports betting in New York is regulated by the State Gaming Commission rather than the state lottery, it imposes a 51.0% tax rate on online operators but only a 10.0% tax rate on land-based operators. Pennsylvania, where sports betting is regulated by the state's Gaming and Control Board, also stands out with a 36.0% tax rate on both land-based and online operators with 34.0% going to the state and 2% going to counties where these operators are located.

Among states that legalized sports betting prior to 2021, tax revenues in 2021 totaled \$527.7 million and ranged from a low of \$699,155 in Oregon to a high of \$171.9 million in Pennsylvania. As shown in Table A-4, tax revenues per capita average \$5 among states that legalized sports betting prior to 2021 and vary substantially from a high of \$18 in Rhode Island to less than a dollar in Arkansas, District of Columbia, New York, and Oregon. Despite the high tax rates in Delaware and Rhode Island, tax revenues derived from sports betting in these states were relatively low compared to other jurisdictions, at \$13.1 million and \$20.1 million, respectively. States with relatively high tax revenues from sports betting, such as Illinois, New Jersey, and Pennsylvania, tended to have lower rates of hold on handle (approximately 7.5% in all three states compared to 9.2% on average) but with tax rates ranging from 8.5% in New Jersey to 16.0% in Illinois to 36.0% in Pennsylvania (compared to 14.9% on average). Generating significant tax revenues from legal sports betting requires appreciably greater handle (perhaps due to better capture of the illegal sports betting market) than the average of \$2.8 billion across all of the states that legalized sports betting prior to 2021.

Identified Outcomes

Sports betting is a common type of gambling in the U.S. and has been since well before the Supreme Court struck down PASPA in 2018. When the first national gambling survey was conducted in 1975, 61% of the population gambled, with 25% of the population gambling on sports and 24% playing the lottery (Kallick, Suits, Dielman, & Hybels, 1976). Twenty-five years later in 1999-2000, another national survey found that 82% of Americans had gambled in the past year, with 20% betting on sports and 66% playing the lottery (Welte et al., 2002). A replication of this survey carried out a decade later found that past year gambling, lottery participation, and sports betting had all gone down significantly (to 77%, 62%, and 16% respectively) (Welte et al., 2015). The only type of gambling participation that had increased significantly was past year online gambling (from 0.3% to 2.1%). As the National Gambling Impact Study Commission commented nearly a quarter century ago, “even when Americans understand the illegality of sports wagering, it is easy to participate in, widely accepted, very popular and, at present, unlikely to be prosecuted” (1999, p. 2-14).

In this section of the report, we review information about sports betting behavior and impacts from three sources, including (a) a literature review of peer-reviewed published research that examines sports betting in jurisdictions worldwide, (b) findings from the National Survey on Gambling Attitudes and Gambling Experiences (NGAGE) carried out in 2018 with state-level findings from jurisdictions where sports betting was legal at the time of the survey, and (c) evidence from several studies of gambling in Massachusetts carried out between 2013 and 2021, including a baseline general population survey, two online panel surveys, and the Massachusetts Gambling Impact Cohort (MAGIC) study which collected data between 2013 and 2019. These resources are helpful in understanding the likely effects of the pending introduction of legal sports betting in Massachusetts.

Literature Review

Sports Betting Prevalence, Demographics, and Behavior

In this section, we review recent research on sports betting behavior and the demographic characteristics of sports bettors. Much of this research has been carried out in Australia, where the last decade has seen exponential growth in sports betting and where this type of gambling is one of the few gambling forms attracting increased participation in what is considered a mature gambling market (Hing, Russell, & Browne, 2017). In the same study, the authors note that the growth of online gambling has fueled concerns that it is contributing to the growth of gambling problems in Australia.

In an important population study of sports betting behavior in Australia, Armstrong and Carroll (2017a, 2017b) analyzed data from the 2015 Household, Income and Labour Dynamics in Australia (HILDA) survey. The HILDA study commenced in 2001 with approximately 20,000 residents from nearly 8,000 households and consists of annual assessments conducted primarily face-to-face. In 2015, questions about gambling and problem gambling were included in the survey for the first time. The results of the survey are generalizable to the Australian population aged 15 and over. In 2015, the researchers found that 8% of Australian adults had engaged in sports betting in the past year and 3% were regular, monthly sports bettors. Sports bettors were overwhelmingly male (88%), with 75% aged 18-49, and 70% working fulltime. Sports bettors were also more likely to reside in major Australian cities.

Despite having more restricted sports betting opportunities,¹⁴ these findings align quite well with results of a Canadian national study of gambling in 2018 ($n = 24,982$), where 7.9% of adults reported engaging in sports betting in the past year, with 1.9% being regular, monthly bettors (Williams et al., 2021a). Similarly, Canadian sports bettors were overwhelmingly male (76.1%) and age 18-49 (68.3%). They also tended to have a higher household income and higher educational attainment than the general Canadian population (Williams et al., 2021b).

In another Australian study, Hing, Russell and Browne (2017) conducted an online survey to identify the demographic, behavioral, and psychological risk factors for gambling problems among individuals who bet on sports online. Comparing moderate risk and problem gamblers to non-problem and low risk gamblers, the researchers identified the demographic risk factors for online sports betting problems as being male, younger, with lower income, born outside of Australia, and speaking a language other than English. The main behavioral risk factor was more frequent sports betting, while psychological risk factors included higher psychological distress and more negative attitudes towards gambling.

Another recent study in Australia used an opt-in online panel survey of regular sports bettors and regular esports bettors to understand differences in these two groups of gamblers with respect to gambling involvement, gambling harms, and gambling problems. The Short Gambling Harms Screen (SGHS) was used to assess gambling harms and the Problem Gambling Severity Index (PGSI) was used to assess gambling problems. The authors note that little is known about who participates in esports which is presently a niche gambling activity but is rapidly gaining in popularity. Compared to sports bettors, this study found that esports bettors were younger, more likely to have attended university but less likely to have high incomes, and more likely to speak a non-English language at home. Esports bettors were more likely than sports bettors to meet problem gambler criteria (64.8% vs 17.3%) and more likely to experience at least one gambling harm (81.9% vs 45.3%). The researchers concluded that esports bettors are more likely to experience gambling problems compared to their sports betting counterparts, potentially stemming from their involvement in emerging video-game gambling products such as esports skin betting and skin gambling (on games of chance) (Greer, Rockloff, Russell, & Lole, 2021).

Researchers in Australia and the United States have commented on the apparent increase in female participation in sports betting. Hing, Russell and Browne (2017) hypothesize that women find online gambling environments less intimidating, less stigmatizing, more anonymous and safer compared to land-based gambling venues. They cite at least two studies that found that women online gamblers were more likely to be influenced by gambling advertisements than their male counterparts and caution that women may be more susceptible to the proliferation of sports betting advertising in Australia which is commonplace before and during sports broadcasts.

In the United States, Yakowicz (2022) writes that women are a key demographic group targeted by the sports betting industry. This reporter references research by the American Gaming Association showing that 31% of core sports betting customers are women as well as a dramatic increase in the number of women using sports betting apps such as DraftKings and FanDuel in recent years. He argues that women are more comfortable betting on sports on mobile apps rather than in person at casinos and concludes that online sports operators are changing their advertising strategies in hopes of expanding their customer base to include more women.

¹⁴ Prior to 2021, Canadians could legally only participate in “sports lotteries” provided by the provincial lottery operator. This required land-based purchase of sports lottery tickets where the person had to bet on the outcome of *two or more* sporting events.

Adolescents are another potentially vulnerable group when it comes to sports betting expansion. A study in Ohio explored esports betting among adolescents in high schools around the state and examined relationships between esports betting, problem gambling, problem video gaming, and psychological problems (Marchica, Richard, Mills, Ivoska, & Derevensky, 2021). Using data collected from 6,810 adolescents, the researchers identified a subset of 1,348 individuals who had gambled and played video games in the past year. One-fifth (20%) of these adolescents had bet on esports in the past year and this behavior correlated positively with other types of gambling, problem gambling, problem video gaming, and externalizing behaviors. The researchers concluded that esports betting may be particularly appealing to adolescents who also play video games and argued that regulators must be vigilant to ensure codes of best practices are applied to esports betting operators to protect underage individuals.

Finally, it is helpful to consider psychological characteristics that have been implicated in the development of gambling problems related to sports betting. In a recent, small European study, Killick and Griffiths (2021) explored how technological advances and changing consumer behavior has led to a rapid increase in in-play sports betting. They noted that increased access to online gambling markets, aided by the availability of smartphone devices, has driven the popularity of in-play betting throughout Europe. In an earlier study, the same researchers concluded that in-play sports betting had the potential to be more harmful than more traditional types of gambling (Killick & Griffiths, 2019).

In Australia, Hing and colleagues (2018) conducted an online survey to identify predictors of impulse sports betting, which can undermine the effectiveness of consumer protection measures. A sample of 1,816 Australian sports bettors completed the survey. The researchers found that impulse betting was common and accounted for nearly half of all past year sports bets. Nearly 15% of the respondents made all of their sports bets on impulse and more impulsive bettors had less experience of sports betting but more frequent participation. It is a concern that these more impulsive bettors preferred in-play betting over bets on game outcomes.

Sports Betting, Attitudes, and Advertising

In the wake of the deregulation of the online gambling industry in Britain in 2005, researchers have noted the negative impacts of the confluence of a rapid increase in gambling advertisements, growing technological proficiency of the British population, and widespread internet access through mobile phones on the British population and, particularly, on young adults. In Australia, several researchers have noted the prolific advertising, attractive inducements, and wide range of betting opportunities available to Australians as well as its online availability (Gainsbury, 2012; Hing, Cherney, Blaszczynski, Gainsbury, & Lubman, 2014; Sproston, Hanley, Brook, Hing, & Gainsbury, 2015). These researchers consistently argue that while these features of the sports betting industry drive up participation, they may also increase the potential for sports betting to contribute to gambling harms.

Dunlop and Ballantyne (2021) recently explored how marketing strategies of online sports gambling bookmakers have shaped gambling habits. Based on semi-structured interviews with young adults (aged 18-28 years), these researchers identified the main reasons for opening online betting accounts as the promise of advertised promotions and bonuses and recommendations from friends. The researchers make several interesting observations relevant to sports betting expansion in the U.S., including that online sports betting is an industry where product differentiation is negligible and that online gambling participation in Britain is experiencing phenomenal growth among young people, with university students identified as the fastest growing sector. Given the lack of product differentiation, preferences of customers for specific operators are largely influenced by promotional offers to existing customers. They note that there was a 600% increase in gambling advertising following deregulation of the sector in 2007 and point to the recent regulatory response in 2018 to require gambling advertisements to feature an explicit responsible gambling message.

In another recent study, Global Sport Institute (2022) reports on an online, opt-in panel survey of sports betting focused on perceptions and awareness of sports betting as well as attitudes and acceptance of sports betting in the United States. Attitudes towards sports betting legalization among the 2,400 participants ranged from 44% who favored allowing sports betting to 16% who opposed sports betting legalization. The remaining 37% of respondents neither favor nor oppose sports betting legalization. Results of the survey showed that those most aware of sports betting were younger men with relatively high incomes and a strong interest in sports generally. One interesting finding was that 44% of the respondents in this survey recalled seeing sports betting advertisements. Respondents from geographic regions in the U.S. where sports betting is legal reported seeing sports betting advertisements more frequently than those from regions where sports betting was not yet legal. Respondents indicated that seeing an advertisement slightly increased the likelihood that they would place a sports bet.

Sports Betting and Gambling Harms

Many researchers and commentators have argued that increases in sports betting participation will lead to increases in experiences of gambling harms. In a recent study in Australia, Booth and colleagues (2021) interviewed 2,112 Australian adults and inquired about perceptions of the harmfulness of nine popular gambling products that are known to be associated with gambling harms. Four of these gambling products, including EGMs, casino table games, race betting, and sports betting, were perceived by a majority of the respondents to be harmful. The researchers concluded that efforts were needed to ensure that Australians, and gamblers in particular, understand the levels of harm associated with popular gambling products.

In the HILDA study in Australia, Armstrong and Carroll (2017b) noted that 41% of regular sports bettors report experiencing one or more gambling problems in the past year and 46 cents of every dollar spent on sports betting by regular sports bettors came from a person with moderate to severe gambling problems. In another Australian study, Russell and colleagues (2019) examined gambling harms in relation to online gambling. Based on an online survey of 1,813 Australians, the researchers found that the majority of gambling harm is experienced by low risk and moderate risk gamblers rather than problem gamblers. This finding is similar to studies based on large population surveys conducted in Finland (Browne, Volberg, Rockloff, & Salonen, 2020) and in Massachusetts (Volberg, Evans, Zorn, & Williams, 2020). The 2019 study by Russell and colleagues also found that gambling expenditure, number of accounts with different online operators, number of different promotions used, and impulsiveness were significantly higher among individuals experiencing any gambling harm compared to those not experiencing harm.

In a small but interesting study of sports betting in Ireland, Columb and O'Gara (2018) conducted an online survey to better understand online gambling behavior. The study found that sports betting was the most popular online gambling activity and mobile apps were the most common method used to access online gambling operators. The study also found that 75% of the respondents (n=208) had borrowed money or sold possessions to fund their gambling while 30.9% strongly agreed that the potential dangers of gambling should be made clear to consumers.

Preventing Sports Betting Harm

One important argument in favor of legalizing sports betting is that, since most of this behavior takes place online, there are enhanced opportunities for sports betting operators to monitor player behavior and provide feedback when involvement becomes risky. In light of this argument, it is interesting that Global Sport Institute (2022) found that the majority of respondents in their survey (66%) indicated that they would place fewer sports bets if the activity could only be done in person instead of on mobile apps or on websites. The majority of these

respondents supported policies aimed at curbing “gambling addiction,” with betting limits and treatment programs identified as the most popular measures.

Following the recent, rapid expansion of sports betting in Spain, Lopez-Gonzalez, Estévez, and Griffiths (2019) conducted focus groups with male sports bettors in treatment for gambling problems to examine their perceptions of sports betting. Participants reported that the lack of negative associations and the presence of positive connotations with sports betting compared with other types of gambling sanitized sports betting and led to acceptance of this form of gambling as harmless.

An early study of online sports betting examined behavioral markers of problematic sports gambling using data from a European online sports betting operator (LaBrie & Shaffer, 2011). Based on two years of data from nearly 50,000 subscribers to *bwin*, a sub-group of individuals who closed their accounts was identified and their patterns of sports betting behavior examined. The researchers found that these account closers bet more often and with larger amounts than sports bettors who had not closed their accounts and were more likely than other sports bettors to exhibit intense betting behavior soon after joining the platform. The researchers argued that pattern recognition tools could be used to identify online sports bettors concerned about their behavior and assist them to avoid further problems.

In a more recent effort to respond to growing concerns about the negative impacts of online sports betting, five major gambling operators in Britain organized to develop an algorithm to estimate users’ risk for gambling harm based on recent behavior on their websites. Using account closures, setting deposit limits, and exceeding deposit limits as proxies for gambling harm, McAuliffe and colleagues (2022) examined the effectiveness of this algorithm in identifying risky gambling among online sports bettors. Seven behavioral markers constituted the measure of harm, including spikes in spending, high frequency of play, increases in frequency of play, late-night play, deposit frequency, failed deposits, and use of multiple payment methods. The researchers found that few users exceeded the threshold for any of the behavioral markers on an average day although a larger percentage of users were classified as at risk during the two-year study period. They concluded that automated risk algorithms represent a promising frontier of consumer protection in the gambling industry but asserted that routine evaluation was necessary to ensure continued improvement.

In an study looking at the impact of the recent expansion of sports betting in the U.S. on those experiencing gambling problems, van der Maas and colleagues (2022) analyzed posts to an online mutual support group for those experiencing gambling problems. The posts were from a five-year period (2016–2020) and the researchers used Interrupted Time Series Analysis to examine differences in the number and nature of posts before and after online sports betting was first introduced outside of Nevada in 2018. The researchers found that there was an immediate increase and rapid growth in the number of posts on the website while thematic analysis showed both increased discussion of sports events after 2018 as well as increased criticism of states seeking to legalize sports betting. The authors suggested that monitoring online mutual support communities could provide early indications of the impacts of major policy changes such as sports betting legalization on gambling behaviors and impact.

In a report originally prepared for the NCPG, Winters and Derevensky (2019) commented on several aspects of sports betting that raise concerns about problem gambling. They noted that sports are a paramount part of American culture and sports gamblers often report that wagering heightens interest in watching sports. Sports betting is extremely popular and interest is heightened by a growing number of sports-related programs on television, cable, and websites that reach millions of people. They commented on research from Australia suggesting that 59% of online gamblers are sports bettors while, in Europe, online sports betting accounts for 37% of total online gambling. They concluded by identifying the consistent association of excessive sports

betting with gambling problems and pointed out that professional and former professional athletes score high on measures of gambling problems. Finally, Winters and Derevensky recommended regular monitoring of sports betting behavior and noted the need to adjust current prevention, treatment, and public health policies to incorporate unique features of sports betting. They suggested that policy makers and regulators should be prepared for rapid decision making as sports betting evolves in the U.S. and called for responsible gambling messaging tailored for sports betting targeting young, educated men.

In a different 2019 review of the research literature, a report to the Alberta government focused on online gambling in the province and made several important points (Alberta Gambling Research Institute, 2019). These included:

- Noting the considerable worldwide variability in legal online gambling;
- No evidence was found that the advent of online gambling had cannibalized land-based gambling;
- Population prevalence of online gambling was found to be strongly related to its legal availability, the range of games available, and how long online gambling had been available;
 - Britain was one of the first jurisdictions to enact liberal online gambling laws in 2005 and, in 2017, had the world's highest prevalence rate of online gambling;
- Some people will gamble online despite the lack of a legal online provider in a jurisdiction;
- Online gambling poses a higher risk for harm due to its structural characteristics;
- There is evidence of greater harm among online gamblers compared with non-online gamblers;
 - Although online gambling is associated with greater gambling problems, people experiencing gambling problems often simply add online gambling to a wide repertoire of gambling activities;
- The main risks of providing a legal online site are increased social harm and the potential for increased monetary flow outside the jurisdiction unless a large portion of the market is captured to offset the expansion of the market that occurs with legalization; and
- The impact of safer legal online gambling sites tends to be limited due to online gamblers continuing to patronize illegal sites, employment of relatively weak responsible gambling tools, and low player utilization of these tools.

Economic Impacts of Sports Betting

We were unable to identify a substantial body of research examining the economic impacts of sports betting expansion internationally or in the United States. In Britain, research interest in the economic impact of new forms of gambling dates back to the mid-1990s when the National Lottery was introduced. Economists were particularly interested in the impact of the lottery introduction on Britain's longstanding sports betting industry which was uniquely composed of football (soccer) pools. Forrest (1999) and Miers (1996) both examined the issue of substitution and found that the introduction of the lottery significantly cannibalized football pool betting.

More recently in Spain, Espadafor and Martínez (2021) investigated the societal impacts of the sudden increase in the availability of sports betting outlets (betting houses) on vulnerable populations. Using a differences-in-differences approach, the researchers found that an influx of new betting houses near high schools was correlated with a decline in educational performance at these schools, with a particularly large impact on public schools in less advantaged areas. Noting the lack of research on the impacts of gambling beyond the individual or psychological level, the researchers argued that their study provided evidence of negative societal effects of sports betting expansion particularly in increasing inequality of educational opportunities in Spanish society.

With respect to the economic impacts of sports betting in the U.S., we identified two recent papers that considered whether consumer substitution (or cannibalization) was a feature of the introduction of legal sports betting. Humphreys (2021) examined this issue specifically in West Virginia where sports betting became

operational in August 2018. West Virginia had substantial gambling opportunities prior to legal sports betting, including a lottery that began in 1984, five licensed casinos offering table games and video lottery terminals (VLTs; also known as electronic gambling machines), and up to five VLTs located at approximately 1,300 stand-alone establishments around the state that also sell alcohol. This analysis found a substantial impact on gambling tax revenues with a \$45.4 million reduction in VLT tax revenue (compared to tax revenue from the fiscal year prior to legal sports betting) offsetting the \$2.6 million in new tax revenue from sports betting during the first 19 months of operation. As Humphreys noted, states already generate substantial tax revenues from non-sports gambling and the introduction of sports betting has the potential to affect revenues from other types of gambling negatively.

The other study of consumer substitution focused on Iowa where sports betting became operational in August 2019 (Goss & Miller, 2021). In an effort to explore the potential national implications of the rapid rise of legal sports betting in the U.S., the authors examined the possibility that the introduction of sports betting could result in decreased overall casino profits and negatively affect tax revenues from Iowa casinos. While they noted that the introduction of other forms of gambling, such as a state lottery, had resulted in observable cannibalization, their analysis showed that the introduction of sports betting in Iowa did not cannibalize non-sports betting gambling revenue but, instead, increased the tax revenues collected from Iowa casinos. While the available research is limited, it does appear that the impact of the introduction of sports betting on tax revenues from other types of gambling is not easy to predict.

In the same journal issue as Humphreys (2021), Matheson (2021) speculated on the likely winners and losers in the expansion of sports betting in the U.S. He noted that while sports book operators and mobile app developers are likely winners, casinos and lotteries may be winners or losers depending on the level of cannibalization. Sports leagues may also be winners or losers; once PASPA was struck down, the leagues became more supportive of sports betting legalization since it could lead to higher fan interest as well as making it easier for regulators to uncover suspicious betting behavior. He identified two important losers in connection with sports betting legalization: sports with high levels of fan interest but low player salaries, such as college athletes, are at significant risk of corruption and individuals vulnerable to gambling problems will be newly exposed to sports gambling and experience harms.

Sports Betting and Covid

Finally, we identified research on the impacts of the pandemic on sports betting in two European jurisdictions. In a study of European online sports bettors, Auer, Malischning and Griffiths (2020) compared the behavior of a sample of online sports bettors before and after Covid measures were introduced. The researchers were provided access to player data from a large European online gambling operator with players from Finland, Norway, Sweden, and Germany. Given numerous cancellations and postponement of sports events, the researchers were not surprised to find significant reductions in the amounts wagered by sports bettors during the pandemic. With regard to substitution, the researchers found significant reductions in sports bettors' spending on online casino games indicating that these gamblers did not switch to playing more online casino games when their preferred type of gambling was unavailable.

In another study of the impacts of the pandemic on sports betting behavior, Wardle and colleagues (2021) conducted an online, cross-sectional survey of British individuals who bet at least monthly on sports before the pandemic. Using bivariate and multivariate approaches, they found that 29.8% of male sports bettors and 33.4% of female sports bettors stopped gambling altogether during the initial lockdown in Britain. During lockdown, 17.3% of men and 16.5% of women started participating in a new form of gambling. Among men, odds ratios for problem gambling were higher among those starting a new gambling activity during lockdown. Among women,

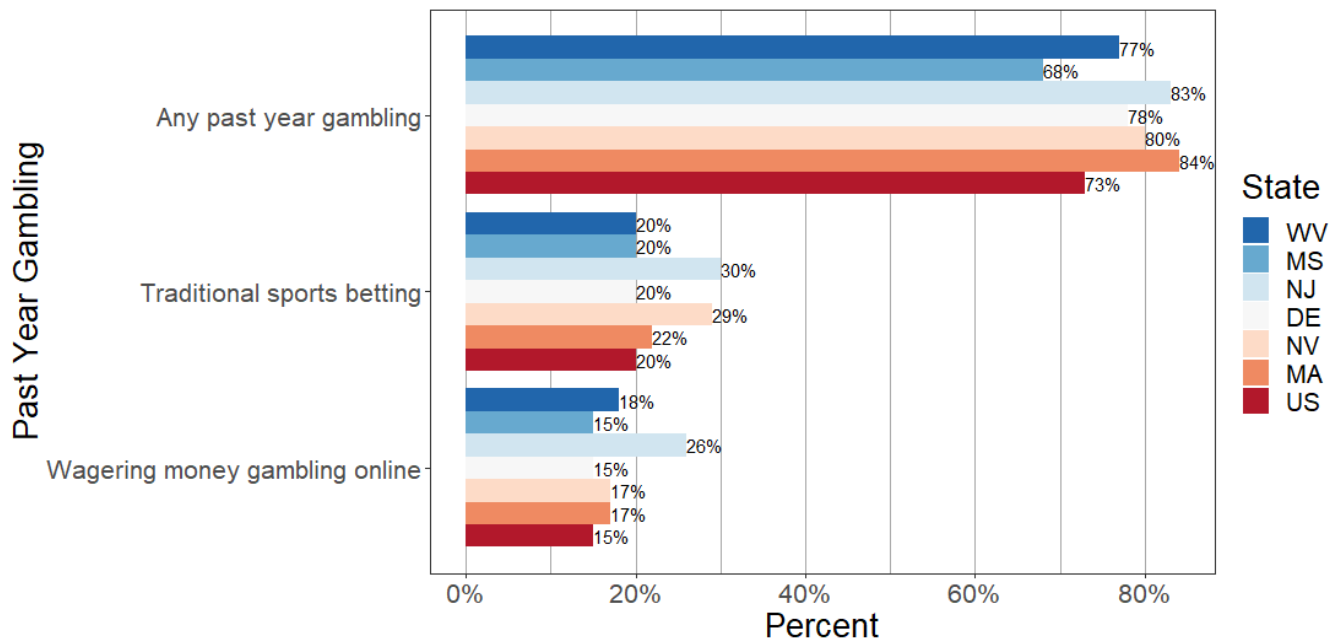
odds ratios for problem gambling were higher among those who increased their frequency of any type of gambling as well as among those shielding for health reasons.

National Survey on Gambling Attitudes and Gambling Experiences (NGAGE)

We now turn from the scholarly research to focus on a recent national survey of sports betting in the United States. In collaboration with the survey vendor Ipsos, the National Council on Problem Gambling (2021) conducted a nation-wide opt-in online panel survey in November 2018 with a total of 3,000 adults. In addition to the national sample, this first National Survey on Gambling Attitudes and Gambling Experiences (NGAGE 1) included supplemental surveys of 500 individuals in each state. Both the national data and the supplemental state data were weighted to match 2020 U.S. census estimates for gender, age, and educational attainment. That said, it must be recognized that there are behavioral differences in opt-in online panel samples (higher rates of gambling and problem gambling) that are not corrected for by demographic weighting (e.g., Pickering & Blaszczynski, 2021; Williams, Lee & Back, 2013).

Using these data, it is nonetheless possible to compare gambling participation rates between individual states as well as with the country as a whole. Figure 2 shows the proportion of NGAGE 1 respondents who had participated in any type of gambling in the past year, those who had participated in traditional sports betting, and those who wagered online from the U.S. sample and the Massachusetts sample, as well as individual states that had legal and operational sports betting prior to the survey, including Nevada, Delaware, New Jersey, Mississippi, and West Virginia.

Figure 2: Selected Past-year Gambling Participation Rates in the US, MA, and States with Legal Sports Betting in 2018



This figure shows that there was substantial variability in gambling participation rates across these jurisdictions in 2018. Massachusetts had the highest rate of any past year gambling followed by New Jersey and Nevada. The lowest rate of any past year gambling across the different jurisdictions was Mississippi which is likely due to the fact that there was no lottery in the state until January, 2020. Turning to traditional sports betting in 2018, Nevada and New Jersey had the highest rates of past year participation while participation rates across all of the other states were much lower despite the fact that sports betting had been legalized in all of these jurisdictions

except Massachusetts. Finally, it is clear that the past year participation rate in online gambling in 2018 was substantially higher in New Jersey than in any of the other states or nationally. This is at least partly due to the greater availability of online sports betting in New Jersey, which has 22 online operators compared to far fewer online operators in any of the other jurisdictions except Nevada.

A second NGAGE survey (NGAGE 2) was carried out in April 2021 with a total of 2,000 adults in the national sample. No supplemental state surveys were conducted. The questionnaire was nearly identical to the NGAGE 1 questionnaire and covered such topics as gambling participation, sports betting, problematic gambling behavior (although not an entire validated problem gambling screen¹⁵), positive play, and beliefs and opinions about problem gambling. Based on notes from a webinar on NGAGE 2 hosted by the NCPG on April 5, 2022,¹⁶ Don Feeney, the NGAGE Principal Researcher, reported that past year participation in sports betting increased from 20% in 2018 to 26% in 2021. Fantasy sports participation increased from 17% in 2018 to 24% in 2021, and online gambling participation increased from 15% in 2018 to 25% in 2021. Feeney reported that the pandemic had a strong effect on overall gambling participation with 18% of respondents reporting gambling more often during the pandemic shutdown.

With respect to gambling problems, Feeney noted that responses of “many times” increased for three of the four questions assessing risky gambling behavior. These questions assessed whether respondents had relied on others for financial help due to gambling (Financial Problems, increased from 2% to 6%), lied to hide their gambling from others (Lying, increased from 2% to 6%) and felt restless or irritable when trying to quit or cut down on gambling (Withdrawal, increased from 3% to 7%). Increases in risky gambling behaviors were heavily concentrated among adults aged 18 to 44. Feeney also reported that risky gambling behaviors were strongly associated with the number of types of gambling with which individuals were engaged.

Sports Betting in Massachusetts

In this section, we review the results of research related to sports betting within the larger SEIGMA research program that has been underway in Massachusetts since 2013. First, we present data on gambling participation in the Massachusetts adult population along with details on the demographics and problem gambling status of sports bettors in the state in 2013/2014. Second, we present data on gambling participation in the baseline online panel survey completed in Massachusetts in 2013/2014 and compare these rates to gambling participation rates from the general population survey. We also present data on the rates of sports betting and problem gambling prevalence among sports bettors in the baseline online panel survey completed in 2013/2014 compared with a follow-up online panel survey that was fielded earlier this year. This is followed by a comparison of the demographics of sports bettors in the two online panel surveys. Focusing more narrowly on the follow-up online panel survey, we present the results of an analysis controlling for overall gambling engagement among monthly gamblers in the follow-up online panel survey and a separate analysis of participation in illegal and legal online sports betting among past year gamblers in the follow-up online panel survey. We also present results of an analysis of the types of sports betting accessed by sports bettors in the follow-up online panel survey. Finally, we present data on gambling participation among members of the Massachusetts Gambling Impact Cohort (MAGIC) study to assess changes in gambling participation, including sports betting, within a high-risk sample of Massachusetts adults who were assessed five times between 2013 and 2019.

¹⁵ Four items were included in the NGAGE questionnaire assessing the DSM-5 criteria of Tolerance, Withdrawal, Financial Problems, and Lying. These questions also form part of either the Brief Biosocial Gambling Screen (BBGS; Gebauer et al., 2010) or the Lie/Bet questionnaire (Johnson et al., 1997). Response options included “Not in the past 12 months,” “Once,” “A few times,” and “Many times.”

¹⁶ NGAGE 2.0 Key Findings and Practical Data Application, Webinar, April 5, 2022 (notes by Volberg).

There are some limitations to the studies conducted in Massachusetts. The BGPS and the two online panel surveys utilize cross-sectional data, which limits our ability to draw any causal conclusions from the data. With respect to the BGPS, the 36.6% response rate attained in the survey is a potential limitation since a low response rate increases the likelihood that the sample is not representative of the population due to sampling bias. While we attempted to minimize systematic bias by introducing the study as a survey of “health and recreation,” the response rate for the BGPS was lower than desirable and, as a consequence, generalization of our results should be undertaken with care. Another limitation of the BGPS is that the questionnaire was translated into Spanish but not into other languages. Some communities in Massachusetts have high proportions of adults with no or limited English language abilities. By not providing surveys in additional languages, we were unable to include such individuals in our survey.

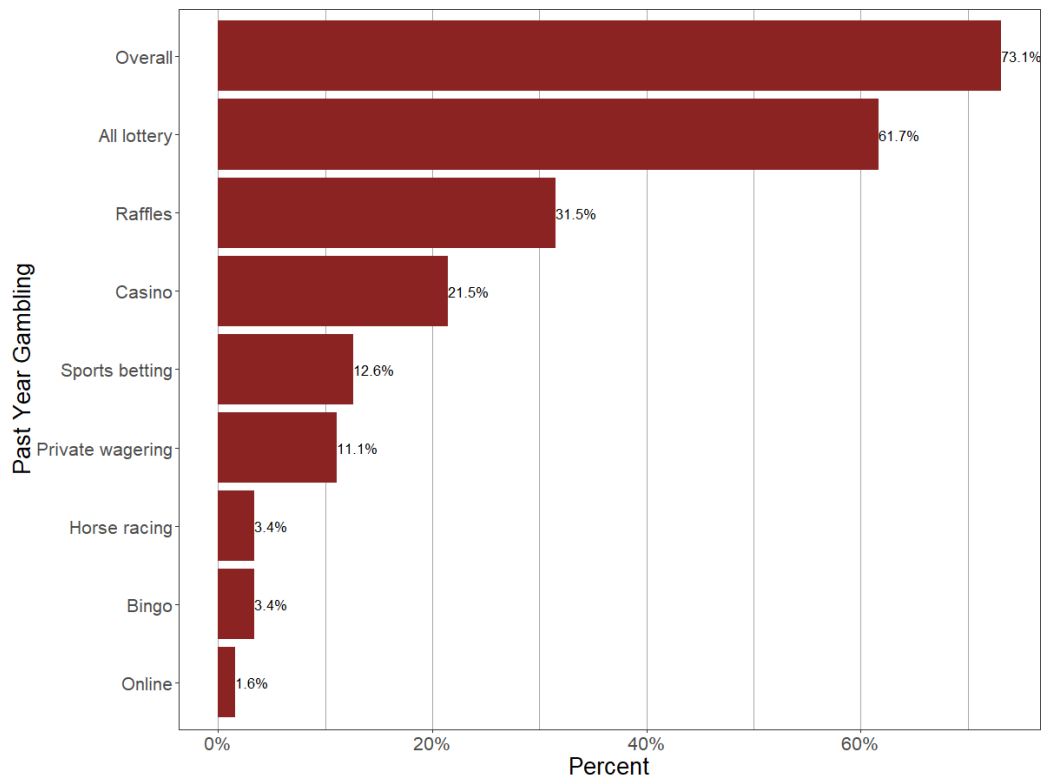
With respect to the two online panel surveys, the main limitation is the non-representative nature of online panels since panelists are not randomly selected but have opted to enroll in the panel. Although online panels are usually stratified to be demographically representative of the population, behavioral differences typically exist. Another limitation of the online panel surveys is that the questionnaire was only administered in English. The primary limitation of the MAGIC study is that the results are for the cohort and cannot be generalized to the Massachusetts adult population.

Massachusetts Baseline General Population Survey

Cross-sectional and longitudinal research carried out by the SEIGMA research team has shown sports betting to be a significant gambling format in Massachusetts, albeit illegal, since these studies began in 2013. Population participation in individual types of gambling in Massachusetts was established in the Baseline General Population Survey (BGPS) conducted in 2013-2014 which resulted in 9,578 completed surveys (Volberg et al., 2017).

The frequency of past year participation in different types of gambling in the adult general population (18+) in Massachusetts is shown in Figure 3. This figure shows that, prior to the introduction of casinos in Massachusetts, participation in lottery games was 61.7%, higher than participation in any other types of gambling. Past year casino gambling at out-of-state casinos was 21.5% which prior research suggested represented approximately \$1 billion in Massachusetts gambling revenues captured by Connecticut and Rhode Island casinos (Barrow & Borges, 2011). Although sports betting was illegal when the survey was carried out, the past year rate of participation in sports betting among Massachusetts adults in 2013-2014 was 12.6% while past year participation in online gambling was 1.6%.

Figure 3: Past Year Participation in Gambling in BGPS (weighted)



*Source: Volberg et al. (2017)

Beyond sports betting participation, data from the BGPS provide information about the demographics of sports bettors in Massachusetts as well as the problem gambling prevalence rate (Volberg et al., 2017). Based on the BGPS, men were more than twice as likely to have bet on sports in the past year compared to women. Adults aged 25 to 54 were more likely to have bet on sports in the past year compared to adults aged 65 and older. Respondents with a college or graduate degree were more likely to have bet on sports compared with those with less education (less than high school or some college) and those with doctorates. Homemakers, disabled, and retired individuals were less likely to bet on sports, as were respondents with annual household incomes less than \$50,000 compared to those who made more than \$100,000.

Other gambling activities that past year sports bettors were most likely to have done included playing the lottery (82.6%) and purchasing raffles (55.4%). Finally, while the prevalence of problem gambling in the adult Massachusetts population was 2.0% in 2013/2014, the prevalence of problem gambling among past year sports bettors was significantly higher at 6.5%. It is also notable that the rate of sports betting increased in relation to gambling type, with 3.9% of recreational gamblers, 13.2% of at-risk gamblers and 28.1% of problem gamblers betting on sports on a monthly basis.

Comparing the BGPS and the Baseline Online Panel Survey

Simultaneous to the BGPS, a Baseline Online Panel Survey (BOPS) was fielded in Massachusetts from October 2013 – March 2014 with 5,046 completed surveys obtained (Williams et al., 2017). While these data are not representative of the Massachusetts adult population, they are useful in assessing changes in gambling behavior over time. Since gambling participation rates among members of online panels are significantly higher than participation rates in the general population, these data cannot be generalized to the population.

Table 4 shows unweighted past year gambling participation rates among the BGPS and BOPS respondents for the full range of types of gambling available to Massachusetts adults in 2013-2014.

Table 4: Past Year Participation in Gambling in BGPS and BOPS (unweighted)

Gambling Format	BGPS (n=9,578)		BOPS (n=5,046)	
	%	95% CI	%	95% CI
All gambling	73.0%	(72.1, 73.9)	78.2%	(77.1, 79.3)
All lottery	60.3%	(59.3, 61.3)	73.2%	(72.0, 74.4)
Traditional	57.2%	(56.2, 58.1)	69.7%	(68.4, 71.0)
Instant games	36.1%	(35.2, 37.1)	50.5%	(49.1, 51.9)
Daily games	12.3%	(11.6, 12.9)	17.8%	(16.7, 18.8)
Raffles	36.2%	(35.3, 37.2)	21.1%	(20.0, 22.3)
Casino	19.2%	(18.4, 20.0)	30.6%	(29.3, 31.9)
Sports betting	10.7%	(10.1, 11.3)	13.2%	(12.3, 14.2)
Private wagering	8.8%	(8.2, 9.4)	15.2%	(14.3, 16.3)
Horse racing	3.4%	(3.1, 3.8)	6.2%	(5.6, 6.9)
Bingo	3.0%	(2.7, 3.4)	8.7%	(8.0, 9.5)
Online	1.1%	(1.0, 1.5)	6.0%	(5.4, 6.7)

This table shows that past year participation in every type of gambling was significantly higher among the BOPS panelists compared with the BGPS participants with the exception of raffles (which was significantly lower). Casino gambling among Massachusetts panelists was nearly a third higher than the casino participation rate in the unweighted BGPS survey and past year participation rates among Massachusetts panelists were almost twice as high for private wagering and horse race betting, nearly two-thirds higher for bingo, and nearly six times higher for online gambling compared with participation rates in the unweighted BGPS. While past year sports betting among Massachusetts panelists was significantly higher compared to the BGPS participants, the magnitude of the difference was much smaller than for most other gambling types.

Comparing the Baseline and Follow-up Online Panel Surveys

In March 2022, the SEIGMA research team fielded a Follow-up Online Panel Survey (FOPS) with 3,041 completed surveys obtained. The FOPS sample was obtained from a different vendor than the BOPS sample and included a smaller sample than the BOPS. Although possible, it is unlikely that any members of the BOPS sample participated in the FOPS since they were conducted eight years apart. The question wording was also slightly different between the surveys so as to accommodate the newer forms of sports betting available in 2022 compared to 2013/2014. In the BOPS the question asked “In the past 12 months, how often have you bet money on sporting events (this includes sports pools),” where the FOPS asked “In the past 12 months, how often have you bet money or gambled on sports (this includes social betting, online betting, fantasy sports, and esports).” While the full results of the FOPS have not yet been published, the availability of the FOPS data means that we can compare the two surveys to potentially understand changes in sports betting behavior and the demographics of sports bettors among online panelists from Massachusetts. Table 5 provides information about participation in sports betting and problem gambling status in the BOPS and FOPS.

Table 5: Comparing Past Year Sports Bettors in BOPS and FOPS (unweighted)

Sports bettor in the past year		BOPS (n=5,046)		FOPS (n=3,041)	
		%	95% CI	%	95% CI
Any sports betting (total)		13.4%	(12.4, 14.3)	23.8%	(22.3, 25.4)
Total number of gambling types engaged in	1	4.2%	(2.7, 5.7)	2.9%	(1.7, 4.1)
	2	6.9%	(5.0, 8.8)	6.3%	(4.6, 8.1)
	3	12.4%	(9.9, 14.9)	9.1%	(7.0, 11.2)
	4	16.8%	(14.0, 19.6)	12.0%	(9.6, 14.4)
	5+	59.7%	(55.9, 63.4)	69.7%	(66.3, 73.0)
PPGM	Recreational gambler	55.8%	(52.0, 59.5)	40.3%	(36.7, 43.8)
	At-risk gambler	25.2%	(21.9, 28.5)	24.1%	(21.0, 27.3)
	Problem gambler	9.7%	(7.5, 12.0)	9.2%	(7.1, 11.4)
	Pathological gambler	9.3%	(7.1, 11.5)	26.3%	(23.1, 29.6)

This table shows a past year sports betting prevalence rate of 23.8% in the 2022 FOPS, which is close to the 22.0% found for MA in the 2018 NGAGE study. This table also shows an apparent increase in sports betting participation from the 13.4% in the 2013/2014 BOPS. However, as mentioned, this could be due to differences in question wording or survey company. That said, there may well have been some increase due to the introduction of legal Daily Fantasy Sports (DFS) wagering in Massachusetts in 2016. The significantly higher rate of pathological gambling prevalence in the FOPS compared to the BOPS is also notable. Here again, differences in question wording or survey company may have affected these results. The question of whether the changes between the BOPS and the FOPS are real or artifactual will be informed by our upcoming analysis of data from the Follow-up General Population Survey (FGPS) which was completed in March, 2022.

Turning to demographic changes among sports bettors among online panelists in Massachusetts, Table 6 shows that there has been an apparent significant increase in the proportion of sports bettors aged 25-34 and a significant decrease of sports bettors aged 55-64 between 2013-2014 and 2022. Similarly, the proportion of Hispanic sports bettors doubled between 2013-2014 and 2022 while the proportion of non-Hispanic White sports bettors declined significantly. One third of sports bettors in both surveys were never married.

Table 6: Comparing Demographics of Past Year Sports Bettors in BOPS and FOPS (unweighted)

Sports bettor in the past year		BOPS (n=667)		FOPS (n=725)	
Gender	Male	70.9%	(67.5, 74.4)	66.9%	(63.5, 70.3)
	Female	29.1%	(25.6, 32.5)	32.6%	(29.1, 36.0)
Age	18-20	3.4%	(2.1, 4.8)	3.6%	(2.2, 4.9)
	21-24	13.5%	(10.9, 16.1)	12.6%	(10.1, 15.0)
	25-34	22.3%	(19.2, 25.5)	30.6%	(27.3, 34.0)
	35-54	37.2%	(33.5, 40.9)	36.7%	(33.2, 40.2)
	55-64	14.1%	(11.5, 16.7)	8.0%	(6.0, 10.0)
	65-79	8.7%	(6.6, 10.8)	7.6%	(5.7, 9.5)
	80+	0.7%	(0.1, 1.4)	1.0%	(0.3, 1.7)
Ethnicity	Hispanic	9.0%	(6.8, 11.2)	18.8%	(15.9, 21.6)
	Black alone	4.8%	(3.2, 6.4)	5.9%	(4.2, 7.7)
	White alone	81.3%	(78.3, 84.2)	70.1%	(66.7, 73.4)
	Asian alone	3.7%	(2.3, 5.2)	4.3%	(2.8, 5.7)
	Other	1.2%	(0.4, 2.0)	1.0%	(0.3, 1.7)
Marital Status	Never married	33.1%	(29.5, 36.7)	32.3%	(28.9, 35.7)

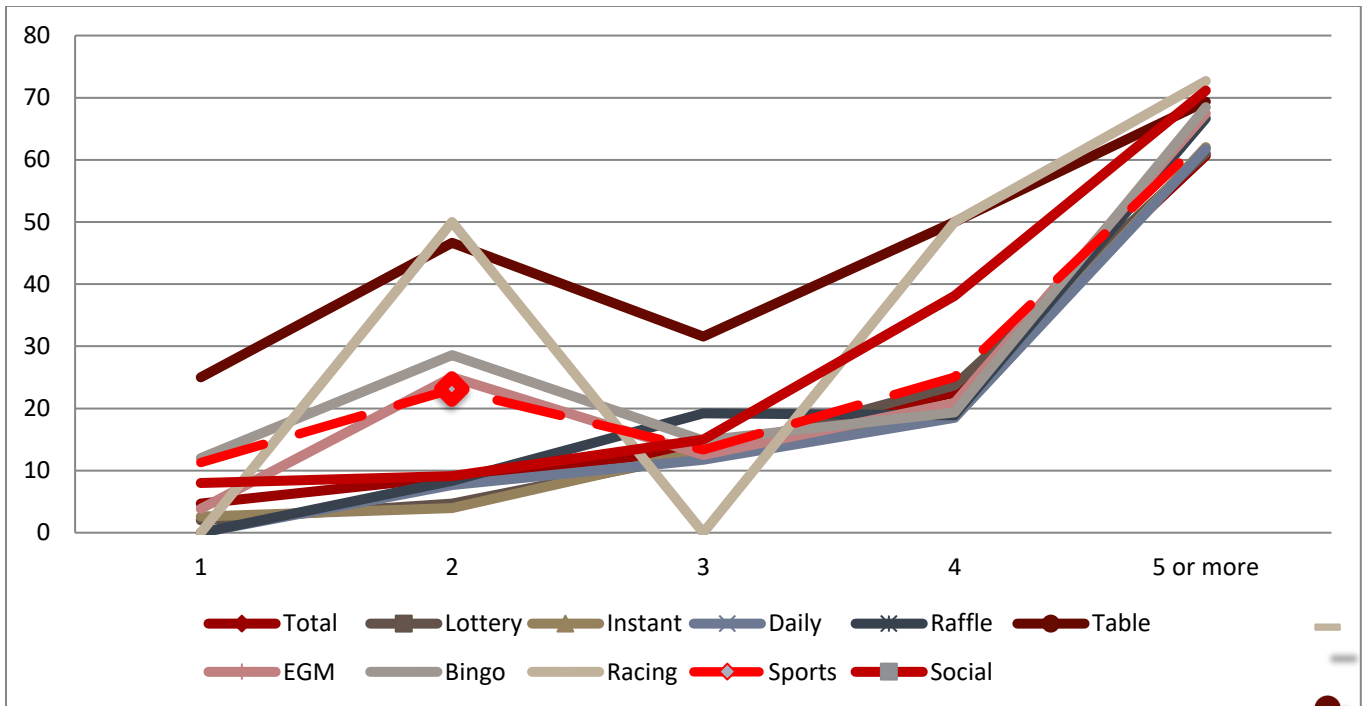
Sports bettor in the past year		BOPS (n=667)		FOPS (n=725)	
	Living with partner	12.5%	(10.0, 15.0)	14.2%	(11.7, 16.7)
	Married	41.2%	(37.5, 44.9)	43.4%	(39.8, 47.1)
	Divorced or Separated	10.7%	(8.3, 13.0)	7.9%	(5.9, 9.8)
	Widowed	2.6%	(1.4, 3.8)	2.2%	(1.1, 3.3)
Education	Less than high school	3.9%	(2.4, 5.4)	3.4%	(2.1, 4.8)
	HS or GED	16.1%	(13.3, 18.9)	19.6%	(16.7, 22.5)
	Some college	33.2%	(29.6, 36.8)	28.4%	(25.1, 31.7)
	BA	30.3%	(26.8, 33.8)	30.6%	(27.3, 34.0)
	Graduate or professional degree	16.4%	(13.6, 19.3)	17.9%	(15.1, 20.7)
Employment	Employed	71.3%	(67.8, 74.7)	70.9%	(67.6, 74.2)
	Unemployed	5.9%	(4.1, 7.7)	7.6%	(5.7, 9.5)
	Homemaker	2.9%	(1.6, 4.1)	3.2%	(1.9, 4.4)
	Student	8.5%	(6.3, 10.6)	6.2%	(4.4, 8.0)
	Retired	8.6%	(6.5, 10.8)	7.7%	(5.8, 9.7)
	Disabled	2.9%	(1.6, 4.1)	4.4%	(2.9, 5.9)
Income	Less than \$15,000	6.1%	(4.2, 8.0)	7.4%	(5.5, 9.4)
	\$15,000 - <\$30,000	10.2%	(7.8, 12.5)	9.1%	(7.0, 11.2)
	\$30,000 - <\$50,000	19.5%	(16.4, 22.6)	14.9%	(12.3, 17.5)
	\$50,000 - <\$100,000	36.9%	(33.1, 40.7)	30.5%	(27.1, 33.8)
	\$100,000 - <\$150,000	20.3%	(17.2, 23.5)	21.9%	(18.9, 24.9)
	\$150,000 or more	6.9%	(4.9, 8.9)	12.7%	(10.3, 15.1)
	Prefer not to answer	.	(. , .)	3.4%	(2.1, 4.8)

Focus on the Follow-up Online Panel Survey

To better understand the relationship between sports betting and problem gambling, we examined the impact of level of gambling involvement on rates of problem gambling among monthly gamblers in the FOPS to determine whether the significant association with problem gambling is due to their specific involvement in sports betting or their overall engagement in gambling. Figure 4 presents problem gambling rates among monthly gamblers in the FOPS who engaged in an increasing number of types of gambling. This analysis controls for both specific types of gambling and for gambling involvement. This figure shows that the rate of problem gambling increases substantially as the number of gambling formats with which they engage increases.

When controlling for overall gambling engagement, gambling on casino table games is the only type of gambling that stands out as unambiguously riskier as it is associated with higher rates of problem gambling at every level of gambling involvement (except five or more types where problem gambling rates converge). By comparison, sports betting does not appear to confer significantly elevated risk. An identical analysis was conducted on the BGPS and BOPS and published in Mazar et al. (2020). The findings were very similar, with an elevated risk profile only for casino participation.

Figure 4: Problem Gambling Prevalence Relative to Gambling Type and Level of Gambling Involvement (FOPS monthly gamblers)



It is worth noting that newly introduced forms of gambling tend to be associated initially with high rates of problem gambling. However, controlling for gambling involvement demonstrates that the actual risk of a new type of gambling may not be higher than the riskiness of more established types of gambling.

Illegal Online Sports Betting in the FOPS

Detailed information about sports gambling formats was collected in the FOPS survey. Respondents who acknowledged having gambled on sports in the past year were asked where and how they bet on sports. Options included:

- Office sports pools or social betting against friends or family
- Placing bets with a legal, land-based sportsbook outside of Massachusetts
- Placing bets with a legal, land-based sportsbook within Massachusetts
- Placing bets with an illegal/underground land-based sportsbook or bookmaker in Massachusetts
- Placing bets on sporting events with an online sportsbook outside of Massachusetts
- Placing bets on sporting events with an online sportsbook within Massachusetts

Legal sports betting includes office sports pools or friendly betting, placing bets with a land-based sportsbook outside of Massachusetts, placing bets with a legal, land-based sportsbook within Massachusetts and placing bets on sports events with an online sportsbook outside of Massachusetts. Illegal sports betting includes placing bets with an illegal land-based bookmaker in Massachusetts and placing bets on sports events with an online sportsbook within Massachusetts. Respondents were then classified as having done no sports betting, only legal sports betting, both legal and illegal sports betting, and only illegal sports betting.

Figure 5: Legality of Sports Betting Behavior in FOPS Sample (unweighted)

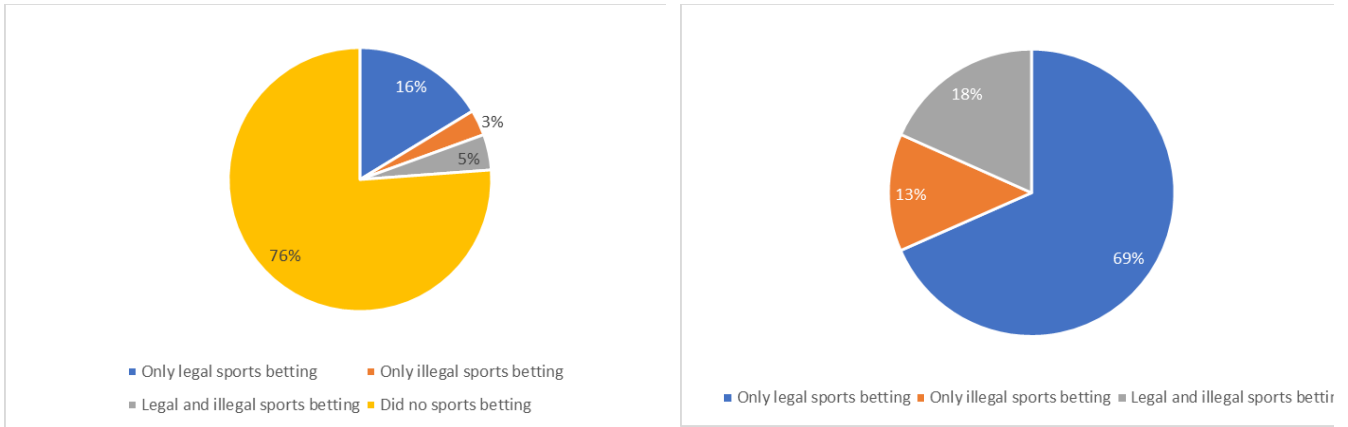


Figure 5 shows that the great majority of FOPS respondents (76%) did not engage in any sports betting in the past year while 24% of FOPS respondents did bet on sports in the past year. Among those who bet on sports, just over two-thirds (69%) did so only through legal avenues while 18% bet on sports through both legal and illegal avenues and 13% bet on sports only through illegal avenues. Recent international research suggests that the COVID pandemic has led to increases in online gambling, and this combined with the rapid increase in legal sports betting in the United States may explain an increase in online sports betting but we have no data yet to support this speculation.

Figure 6: Legality of Sports Betting Behavior by Problem Gambling Status (unweighted)

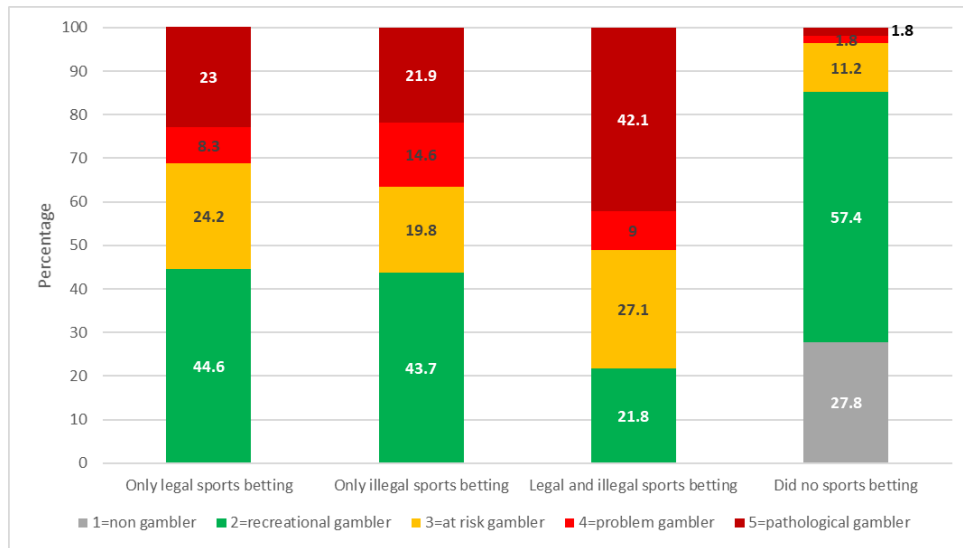


Figure 6 presents information about problem gambling among FOPS respondents engaged in legal and/or illegal sports betting in the past year. This figure clearly shows that the proportion of respondents experiencing gambling problems is higher among individuals engaged in both legal and illegal sports betting in the past year compared with those engaged only in legal sports betting.

Types of Sports Betting in the FOPS

Panelists who had bet on sports in the past year were asked about the specific types of sports betting they had done. Options included betting on professional sporting events, participating in sports pools or lotteries, engaging in fantasy sports betting, and betting on sports in which the panelist had participated.

Table 7: Type of Sports Betting by Gambling Type

Sports bettor in the past year		Recreational gambler		At Risk Gambler		Problem/Pathological Gambler	
Type of sports betting engaged in	Betting on professional sporting events	39.3%	(34.7, 43.9)	26.3%	(22.1, 30.4)	34.4%	(30.0, 38.9)
	Sports pools/lotteries	35.9%	(30.1, 41.8)	24.3%	(19.1, 29.6)	39.8%	(33.8, 45.7)
	Fantasy Sports betting	48.7%	(42.3, 55.1)	20.1%	(14.9, 25.2)	31.2%	(25.3, 37.1)
	Betting on sports that you participated in yourself	34.9%	(24.7, 45.2)	28.9%	(19.2, 38.7)	36.1%	(25.8, 46.5)
Number of types of sports betting engaged in	1	40.7%	(36.5, 44.9)	22.8%	(19.2, 26.3)	36.5%	(32.4, 40.6)
	2	35.5%	(27.6, 43.4)	31.2%	(23.6, 38.9)	33.3%	(25.5, 41.1)
	3-4	47.5%	(35.0, 60.1)	19.7%	(9.7, 29.7)	32.8%	(21.0, 44.6)

Table 7 presents this information by gambling type along with information about the number of types of sports betting panelists had done in the past year. The only significant difference is that panelists who participated in sports pools or lotteries were less likely to be recreational gamblers compared to panelists who had engaged in fantasy sports betting.

Massachusetts Cohort Data

In addition to cross-sectional data, data from the Massachusetts Gambling Impact Cohort (MAGIC) study, a longitudinal cohort study carried out between 2013 and 2019 provides insight into sports betting behavior in Massachusetts (MAGIC Research Team, 2021). This study completed five assessments of a cohort of 3,139 Massachusetts residents selected from the BGPS and stratified by risky gambling behavior. Detailed questions about gambling participation were asked in each wave of the MAGIC study along with numerous other items. Table 8 presents information about gambling participation rates across all five waves of the study.¹⁷

¹⁷ We used a maximum-corrected measure of effect size (Berry, Johnston, & Mielke, 2007). (<https://stats.stackexchange.com/questions/9867/effect-size-of-cochrans-q>)

Table 8: Changes in Gambling Participation within the MAGIC Cohort from Wave 1 to 5 among those who completed all five waves (n = 2087; unweighted)¹⁸

	WAVE 1 Sep 13, 2013 – Apr 2, 2014		WAVE 2 Mar 20 – Jun 23, 2015		WAVE 3 Apr 8 – Jul 8, 2016		WAVE 4 Apr 12 – Jun 27, 2018		WAVE 5 Mar 28 – Jun 11, 2019		Test for change	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	p-value	Effect size
Traditional Lottery	70.4	(68.4, 72.3)	70.2	(68.3, 72.1)	75.0	(73.1, 76.8)	72.0	(70.0, 73.8)	73.1	(71.2, 74.9)	<.0001	.0054
Daily Lottery Games	18.1	(16.5, 19.8)	20.0	(18.3, 21.7)	35.2	(33.2, 37.2)	33.5	(31.5, 35.5)	31.8	(29.8, 33.8)	<.0001	.0584
Instant Lottery Tickets	47.4	(45.3, 49.5)	47.1	(45.0, 49.3)	50.9	(48.8, 53.0)	48.2	(46.1, 50.3)	48.1	(45.9, 50.2)	.0024	.0020
ANY LOTTERY PRODUCT	73.0	(71.1, 74.8)	72.8	(70.9, 74.7)	78.6	(76.8, 80.3)	75.5	(73.7, 77.3)	76.1	(74.3, 77.9)	<.0001	.0094
Raffle Tickets	45.8	(43.7, 47.9)	43.9	(41.8, 46.0)	46.8	(44.7, 48.9)	48.0	(45.9, 50.1)	46.2	(44.1, 48.3)	.0123	.0015
Bingo	4.4	(3.6, 5.4)	5.1	(4.2, 6.1)	7.0	(6.0, 8.2)	7.7	(6.7, 9.0)	7.3	(6.3, 8.5)	<.0001	.0067
Electronic Gambling Machines	Not asked		Not asked		22.2	(20.5, 24.0)	21.0	(19.3, 22.8)	23.8	(22.0, 25.6)	.0093	.0023
Table Games	Not asked		Not asked		12.5	(11.1, 13.9)	13.3	(11.9, 14.8)	13.0	(11.6, 14.5)	.5122	.0003
Out-of-State Casinos	33.4	(31.4, 35.4)	33.0	(31.1, 35.1)	22.6	(20.9, 24.4)	19.7	(18.1, 21.5)	15.7	(14.2, 17.3)	<.0001	.0635
Massachusetts Casinos	No MA casinos		No MA casinos		6.8	(5.8, 7.9)	7.1	(6.1, 8.2)	16.3	(14.8, 18.0)	<.0001	.0442
Horse Race Betting ^a	6.3	(5.4, 7.5)	6.8	(5.8, 8.0)	5.6	(4.7, 6.7)	6.4	(5.5, 7.5)	5.2	(4.4, 6.3)	.0108	.0016
Sports Betting	17.0	(15.5, 18.7)	18.7	(17.1, 20.4)	17.7	(16.2, 19.4)	17.3	(15.8, 19.0)	17.2	(15.7, 18.9)	.2963	.0006
Private Gambling	13.5	(12.1, 14.2)	14.7	(13.2, 16.2)	Not asked		Not asked		Not asked		.1191	.0488
Other Types of Gambling	Not asked		Not asked		4.7	(3.9, 5.7)	5.0	(4.2, 6.0)	5.0	(4.2, 6.1)	.7754	.0001
Online Gambling	1.3	(0.9, 1.9)	1.8	(1.3, 2.5)	7.1	(6.1, 8.3)	7.3	(6.3, 8.5)	6.3	(5.3, 7.4)	<.0001	.0287
ANY PAST YEAR GAMBLING	85.5	(83.9, 86.9)	84.7	(83.1, 86.2)	87.3	(85.8, 88.6)	87.5	(86.0, 88.8)	86.3	(84.8, 87.7)	.0002	.0026

Note: the data collection periods listed for each Wave represent the 95% Assessment Window

^aWave 1 and 2 only included horse racing, while Waves 3,4, and 5 included horse and dog racing.

¹⁸ MAGIC Research Team (2021). <https://www.umass.edu/seigma/sites/default/files/MAGIC%20FINAL%20REPORT.pdf>

The table shows that participation in sports betting was consistent, between 17.0% and 18.7% over the course of the study. In the final report, daily lottery, instant lottery tickets, traditional lottery, and sports betting participation were identified as the types of gambling most robustly associated with both concurrent and future problem gambling in Massachusetts (MAGIC Research Team, 2021). Also in the final report, the research team commented on an increase in problem gambling in 2018 (Wave 4) and 2019 (Wave 5) relative to Wave 1 in 2013-2014. Most of this increase was driven by an increased rate of problem gambling relapse in remitted individuals. This, in turn, was potentially due to increased publicity and media attention concerning casinos and gambling, as the increase occurred prior to the actual opening of MGM Springfield and Encore Boston Harbor.

There are two important implications deriving from this research finding. The first is that devoting resources to the successful treatment of existing problem gambling may need to be higher priority than preventing new cases in Massachusetts. The second is that the increase in relapsed problem gambling that occurred in Wave 4 was prior to the opening of MGM Springfield and Encore Boston Harbor. The publicity associated with the future opening of casinos may be as problematic as their actual increased physical availability. While prior research has established that advertising is a precipitator for relapse in problem gamblers (Binde, 2009, 2014; Parke, Harris, Parke, Rigbye, & Blaszczynski, 2014; Planzer & Wardle, 2011), we are unaware of any other study that has shown this same effect for media coverage. Taken together, these findings suggest the importance of restricting sports betting advertising once this gambling type is legalized in Massachusetts.

As noted earlier, legally provided sports betting was introduced in Massachusetts for the first time in the form of online daily fantasy sports (DFS) in 2016, and this specific type of sports betting has been shown to have an association with problem gambling (Nower, Volberg, & Caler, 2017). There have been other reports of sports betting being strongly associated with problem gambling in the literature (Russell et al., 2019; Williams, Lee, & Back, 2013; Winters & Derevensky, 2019). Furthermore, a multivariate analysis of the cross-sectional predictors of problem gambling from the BGPS confirmed that monthly sports bettors had elevated rates of problem gambling in Massachusetts (Mazar, Zorn, Becker, & Volberg, 2020). Going forward, a Follow-up General Population Survey (FGPS) completed in March 2022 will help assess whether there have been any significant changes in the pattern of sports betting participation since the introduction of casinos in Massachusetts. The FGPS will also shed more definitive light on whether there has been a statewide increase in problem gambling in recent years.

Discussion

As noted at the beginning of this report, our objectives are to (a) identify the economic and social outcomes observed to date with the introduction of legal sports betting in the United States, and (b) based on analysis of this information, hypothesize on the likely impacts of introducing legal sports betting in Massachusetts. In this section of the report, we summarize findings on the outcomes of the introduction of legal sports betting, review particular areas of concern, draw a number of conclusions from the existing evidence, and end with several policy recommendations for consideration in the future.

Outcomes Identified to Date

Outcomes identified to date include social impacts, economic impacts, and a number of issues of concern. These include identification of groups at risk (e.g., women, youth, immigrants, college athletes), the convergence of sports betting and online gambling and gaming, and the relationship between sports betting and advertising.

Economic Impacts

Research on the economic impacts of legal sports betting is extremely limited with only a few published articles available for review. The one area where some research has been completed relates to the issue of whether legal sports betting results in cannibalization of other types of gambling. Even in this area, the evidence is mixed, with an analysis of West Virginia data showing that there can be significant substitution of VLT spending in favor of sports betting and a study in Iowa finding no impact on revenues generated by Iowa casinos following the introduction of sports betting at casinos. While it is likely that sports book operators, including land-based and online operators, will benefit from sports betting legalization in Massachusetts, it is difficult to predict whether sports bettors will add legal sports betting to their repertoire or simply substitute betting on sports for spending on other types of gambling.

In preparing this report, we consulted with the SEIGMA Economic and Fiscal Impacts team at the University of Massachusetts Donahue Institute (UMDI). These researchers noted that the economic impacts of sports betting in Massachusetts will depend on who engages with this type of gambling and what these individuals would otherwise be doing with the money they decide to spend on legal sports betting. In studying the economic impacts of casinos in Massachusetts, the SEIGMA research team has focused on new and reallocated spending by casino patrons and on the direct, indirect, and induced impacts of casino operations such as employment and business-to-business spending. In considering legal sports betting in Massachusetts, the SEIGMA team notes that the question of recapture of sports betting money spent by Massachusetts residents in other states will be important along with reallocation by Massachusetts residents particularly from other types of gambling in the state. If there is reallocation, this is likely to have little impact on gross gaming revenues since the hold on sports betting is usually much lower than the hold for slot machines or table games. However, it could potentially be negative in terms of employment since the mix of jobs could be very different depending on the channels through which sports betting is made available (land-based only, online only, casino sports books, or non-casino sports books).

While the likely economic impacts of the introduction of legal sports are difficult to assess, given the dearth of information, issues that clearly require research attention include:

- Extent of capture of the illegal sports betting market by the legal sports betting industry

- Whether reallocation affects spending on lottery products and on gambling at casinos
- Employment impacts of legal sports betting including number and quality of jobs
- Fiscal impacts, including the question of whether projections of tax revenues meet projections

Social Impacts

In contrast to research on the economic impacts of sports betting legalization, there is a more extensive body of research focused on the social impacts, albeit largely focused on the issue of prevalence rates and problem gambling. Based on research in multiple jurisdictions, including international as well as U.S. and Massachusetts studies, it is clear that sports betting is most popular among young, well-educated men (although sports betting operators are increasingly targeting young women in hopes of increasing the size of the sports betting market).

National research shows that the level of sports betting participation in Massachusetts prior to its legalization is already equivalent to participation in other states where sports betting has been operational for several years. The rate of participation in online gambling in Massachusetts is also similar to participation rates in these other states. The follow-up national study carried out by the NCPG found increases in participation in sports betting, fantasy sports betting, and online gambling between 2018 and 2021 as well as significant increases in three of the four gambling harms measured in that survey.

Research in Massachusetts found a sports betting prevalence rate of 12.6% in 2013-2014, which was much lower than other more popular forms of gambling such as traditional lotteries, instant lottery tickets, raffles, and casinos, but higher than private betting between individuals, horse racing, and bingo. While not representative of the Massachusetts population, baseline and follow-up online panel surveys in the state identified a significant increase in sports betting participation between 2013-2014 and 2022 which may have been due to the introduction of legal DFS betting and the recent national upsurge in sports betting advertising. The online panel data suggest that there may have been a significant increase in sports betting participation among those aged 25-34 and among Hispanics as well as a substantial increase in the rate of problem gambling, particularly at the most severe end of the continuum. These data suggest that, like Massachusetts casino gamblers, Massachusetts sports bettors may have already adapted to the widespread availability of sports betting. However, concerns remain about the potential impacts of legal sports betting in Massachusetts for vulnerable groups not previously involved in sports betting, such as adolescents, young adults, and women, individuals in recovery from gambling problems, and college athletes. The current prevalence rate of sports betting in Massachusetts will not be known for certain until the results of the FGPS are analyzed, but based on online panel data is estimated to have likely increased and currently be in the 13% – 20% range.

There was a significantly higher rate of problem and at-risk gambling among sports bettors in Massachusetts compared with the general population and with gamblers in general as well as high rates of monthly sports betting among people experiencing gambling problems. In the MAGIC study, while the rate of sports betting participation changed very little over the six-year study, sports betting and lottery participation were the types of gambling robustly associated with both concurrent and future gambling problems.

The relationship between sports betting and problem gambling is not straightforward. While people who bet on sports tend to have higher rates of problem gambling, this does not identify the unique contribution of sports betting to problem gambling, as most sports bettors engage in several different types of gambling, all of which likely contribute to their problems. In the FOPS, when controlling for the number of gambling formats engaged in, sports betting did not appear to confer additional risk (unlike casino table game participation). This same result was previously identified in the BGPS and BOPS and published in Mazar et al. (2020). A recent unpublished analysis of the Canadian National Study data further replicated this result (Williams, personal communication).

Issues of Concern

Vulnerable Groups and Sports Betting

Beyond Massachusetts, there is broad concern among researchers and prevention and treatment professionals nationally and internationally about the impacts of legal sports betting on adolescents, young adults (particularly those in higher education and entering the workforce), and gamblers in recovery. This is reflected in the focus on problem gambling in much of the research on sports betting. Additional concerns have been raised about efforts to expand the sports betting market to women as researchers have noted an increase in female participation in sports betting in Australia. Derevensky and Griffiths (2019) note that the lack of age restrictions for online gaming and esports as well as the normalization of gambling in society at large may lead to increases in online gambling participation, including legal and illegal sports betting, followed by increases in gambling harms in these vulnerable groups. One study in Spain identified an important impact on education with the influx of new sports betting outlets near schools correlated with a decline in educational performance in schools located in disadvantaged areas.

Athletes and Sports Betting

Consideration of the potential social impacts resulting from the introduction of sports betting to a jurisdiction should also include potential impacts to the athletes themselves. Unlike casino gambling, sports betting has a human element which makes the athletes vulnerable not only to developing gambling problems themselves but also to potential malfeasance by individuals who may want to interfere with the athletes' performance to tip the odds of winning in their favor. Members of the SEIGMA Economic and Fiscal Impacts team have commented that sports with high fan interest but low player salaries are at the most significant risk of corruption.

The mental health of professional athletes has been a concern to worldwide athletic organizations as well as to U.S. national organizations, such as the NCAA.¹⁹ While the development of gambling problems by elite athletes is an increasing concern, minimal research has been devoted to the topic thus far. A recent systematic literature review by Håkansson and colleagues (2021) found only eight studies that investigated gambling problems in athletes and most reported a higher rate of problem gambling in athletes compared to the general population. Seven studies were conducted in Europe and one in Australia. All investigated professional/elite athletes in various sports, including soccer, handball, and hockey. Problem gambling among athletes was determined to be higher than that of the general population in five of the eight studies; the Australian study found the opposite to be true. Due to the limited number of studies available and the inconsistent findings, the authors suggest that additional research is needed.

In recent years, media coverage has reported gambling to be one of the most important mental health issues for elite athletes. Several professional sports associations in Britain expressed deep concern over the growing accessibility and usage of sports betting applications by its members and endorsement contracts given to athletes by sports betting companies that include enticements like free bets (*The Independent*, August 1, 2019).²⁰ Aside from the athletes themselves developing gambling problems, the temptation to accept a bribe to change the outcome of a particular game or play may be overwhelming, particularly for amateur athletes who are paid very small amounts for their participation compared to their professional counterparts. There have been several sports gambling scandals over the years where outcomes were decided by such manipulation. In the U.S., several national collegiate and professional sports organizations, such as the NCAA, MLB, and NFL, have organization-level rules which prohibit sports betting by athletes specifically on the sport they participate in and

¹⁹ <https://www.ncaa.org/sports/2016/5/2/mental-health-best-practices.aspx>

²⁰ <https://www.independent.co.uk/archive/2019-08-01>

any strategic sharing of information to benefit sports bettors.²¹ More locally, and as mentioned previously, the presidents and athletic directors from seven top-level Massachusetts colleges and universities penned a letter to the Massachusetts State House in 2020 opposing any bill that would legalize collegiate sports betting due to the potential serious risk to their athletes.²²

Convergence of Sports Betting and Online Activities

Another area of concern relates to the convergence of sports betting with online gaming, including esports, and online gambling. As with concerns about vulnerable groups, the focus here is largely on risks to adolescents who are easily able to access online gaming through social media. Online gaming is not subject to age restrictions and elements of online gaming, such as loot boxes, as well as specific types of online gaming, such as esports, raise concerns about the exposure of young people to risky activities with which they have little experience. In our view, the structural characteristics of online gambling and gaming pose risks to players as these activities evolve to look more like continuous forms of gambling that are known to be associated with gambling problems. In Australia, esports is a particular concern because these players are younger and, while well-educated, have relatively low incomes compared with sports bettors. In addition to their marginalized status in Australian society, esports players are much more likely than other gamblers to meet criteria for problem gambling.

Sports Betting and Advertising

A final area of concern relates to advertising by sports book operators, both land-based and online, and the possible effects of gambling advertising on gambling behavior. Research supports the notion that exposure to advertising may increase the tendency to bet on sports and sports book operators have made no secret of their interest in using advertising to increase market share and develop new sports betting customers. In Britain, there has been a recent effort by the U.K. Gambling Commission to constrain sports betting advertising and there are now measures in place in Britain that require sports betting advertisements to include responsible gambling messages.

Conclusions

This section of the report focuses on conclusions reached based on an analysis of handle and gross gaming revenues per capita as well as our review of the research literature and survey data from the U.S. and Massachusetts. Data in support of these conclusions and the recommendations that follow is presented in Table A-4 and Table A-5 in Appendix A.

Revenue Maximization

In terms of revenue maximization, analysis of sports betting handle and GGR per capita across states suggests that this:

- *Requires online operators.* This is due to the fact that (a) the large majority of sports betting worldwide is done online rather than in land-based venues; and (b) worldwide, sports betting is the number one online gambling activity (as it is one of the formats best suited to this modality).
- *Is associated with having a variety of different online operators.* As seen in Table A-5, there is a robust 0.561 correlation between GGR per capita and number of online sportsbooks. This arises from the fact that licensing more operators results in more availability as well as creating commercial competitiveness, which increases the quality of the commercial offerings.

²¹ <https://www.ncaa.org/sports/2016/4/29/sports-wagering.aspx>
http://content.mlb.com/documents/8/2/2/296982822/Major_League_Rule_21.pdf
<https://nflcommunications.com/Documents/2018%20Policies/2018%20Gambling%20Policy%20-%20FINAL.pdf>

²² Boston Globe, *Mass. college presidents to state lawmakers: Don't allow betting on our sports teams*. September 11, 2020.

- *May also require some land-based options.* Again, this makes sense due to increased availability. There is insufficient evidence that would speak to the relative advantage or disadvantage of different types of land-based operators.
- *Is not contingent on having collegiate sports betting* (i.e., there is only a small amount of revenue loss by prohibiting betting on collegiate sports with Table A-5 showing a correlation of -0.232 between GGR per capita and level of restriction on collegiate sports).

Economic Benefits and Harms

While the above analysis points to the best ways of maximizing revenue, maximizing revenue is not the same as maximizing the economic benefits for the state of Massachusetts. The fundamental economic problem with legal sports betting in the Commonwealth is that almost all the patronage and revenue will come from Massachusetts residents.²³ Thus, sports betting can only have limited *net* economic benefit for the Massachusetts economy as it will primarily only be redistributing money that already exists within the economy. That said, economic benefits can still occur by:

- Redirecting money back to Massachusetts that is currently being spent on illegal sports betting out-of-state
- Creating additional Massachusetts-based jobs
- Creating tax revenue for the state government that is utilized for the good of the Commonwealth²⁴

On the other hand, while there is limited potential for net economic benefits, there is significant potential for economic harm if:

- Sports betting causes high rates of problem gambling
- A significant portion of the revenue from sports betting operations leaves the state

Problem Gambling

There are legitimate concerns about the potential for a legalized offering of sports betting to increase the rate of problem gambling.²⁵ However, while this will certainly occur to some extent, the magnitude of this increase is expected to be small due to the fact that:

- Only a small portion of the population currently participates or ever will participate in sports betting (it will never have the patron base of lotteries or even casinos). Thus, even if there are significantly higher rates of problem gambling among the approximately 18% of people who participate in sports betting in Massachusetts, this will have a fairly minor overall effect on problem gambling rates for the entire population.
- The significant association between sports betting and problem gambling is not necessarily due to sports betting being inherently a riskier form of gambling. Rather, the significant association is due to two factors.

²³ This is due to the inability to accept out-of-state online bets because of the Wire Act. (Note: this is another reason to have some land-based options, as there will be a small amount of true monetary inflow from out-of-state sports bettors who have travelled to MA land-based sportsbooks).

²⁴ Some would argue that redirecting money from the private sector economy to the government is a negative economic impact. In addition, MA may be the perfect setting for sports betting to flourish because the high proportion of adolescents, young adults, college students, well-educated young women, and devoted sports fans as well as the high penetration of mobile devices and internet use offer extremely inviting targets for online sports betting promotion.

²⁵ Legalization of any product provides a legal sanction and increased availability, which in turn, tends to increase patronization and overall problem rates.

- The first is that it is the newest type of gambling, which historically creates enthusiastic demand in the first few years before people become more cautious (all forms of gambling create the most problems in the first few years after their introduction with problems decreasing thereafter).
- The second factor is because sports bettors tend to be involved in many different types of gambling, and it is their heavy gambling involvement that is primarily responsible for higher rates of problem gambling. Two of the three studies that have controlled for level of gambling involvement have found very little evidence that sports betting is a format itself that confers special risk (unlike electronic gambling machines and casinos).

In conclusion, if provided in the right fashion, an opportunity theoretically exists for legalized sports betting to create some modest economic benefits for Massachusetts that can offset a small and temporary increase in gambling-related harm.

Policy Recommendations

The following are policy recommendations that we believe would optimize the economic and social benefits of sports betting in Massachusetts while minimizing economic and social harm. These recommendations are made independent of the current legal and regulatory considerations and constraints that may exist in the Commonwealth. Some of these recommendations derive from analyses contained in this report (#1); some are more “commonsensical” regulatory and economic recommendations (#2 – #5), and some recommendations are derived from the general research literature (#6).

1. License a **variety of online operators** as well as **some land-based operators**, but **limit these licenses to operators who are based in Massachusetts**.
 - a. This both maximizes revenue potential as well as ensuring that this revenue and associated employment stays primarily within the state.
 - b. A variety of online operators increases the quality of the commercial offerings, which provides benefits to the consumer and is also important in trying to recapture out-of-state sports betting.²⁶
2. Include sports betting in the **regulatory mandate** of the Massachusetts Gaming Commission. Having a single regulator for all types of gambling in the state best ensures efficiency of operation and consistency of regulation and enforcement across all types.
3. Avoid **licensing fees** so as to encourage new entrants into the field to create commercial competitiveness and a better quality/value product.
4. Have low to mid-range **taxation rates** to encourage entrants and competitiveness as well as provide some benefit for the state government. Do not penalize online operators with higher tax rates than land-based operators but, instead, make them equivalent.
5. Require a portion of this tax revenue to be directed to regular **auditing** of the integrity of the commercial offerings and potentially creating an **ombudsman** for complaint resolution.
6. Require a portion of this tax revenue to be directed to **prevention, treatment, and research** so as to provide ongoing mitigation of harm and continual investigation of ways of maximizing benefits.

²⁶ Research in Canada shows that it takes many years for newly created provincially-operated online gambling sites to recapture a significant portion of out-of-province online gambling. Factors associated with greater ‘regulatory capture’ are (a) number of years the provincial site has been operating; (b) diversity of online gambling offerings (sites with more circumscribed offerings have lower regulatory capture); and (c) commercial competitiveness with the out-of-province offerings.

- a. Further require operators to provide player data to the Massachusetts Gaming Commission on a regular basis and to cooperate with researchers to allow a full assessment of the impacts of legalized sports betting in Massachusetts. Access to player data would potentially provide an early warning system of emerging issues.
- b. Minimum age 21 for participation (Williams, West & Simpson, 2012)
- c. Prohibition of betting on any collegiate sports in *any* jurisdiction (Grady & Clement, 2005; Nelson et al., 2007; Vandall & Lanier, 2021)
- d. Prohibition of in-play sports betting (which is disproportionately utilized by problem gamblers) (Killick & Griffiths, 2019; Lopez-Gonzalez et al., 2019; Parke & Parke, 2019)²⁷
- e. Require responsible gambling features for all online sites:
 - i. Deposit, loss, time, and betting limits (Auer & Griffiths, 2013; Auer et al., 2020) that should be presented at sign-up/registration or before first betting session and be opt-out rather than opt-in
 - ii. Self-banning option that would apply to all Massachusetts-based online sites (Gainsbury, 2014; Kotter et al., 2018; Nowatzki & Williams, 2002)
 - iii. Readily available info on cumulative monetary losses and time spent (Auer & Griffiths, 2015; Heirene et al., 2022; Wohl et al., 2017)
 - iv. Automated alerts for patterns of betting that predict future self-banning (Auer et al. 2018; Auer & Griffiths, 2020; Jonsson et al., 2019; Lischer, 2019)
 - v. Restricting bonuses and reward associated with increased expenditure. At the same time, providing bonuses for responsible gambling (e.g., taking a self-assessment of problem gambling; correctly identifying gambling fallacies; establishing and staying within pre-commitment limits). (Williams et al., 2012; Wohl, 2018)
- f. Restrict advertising and celebrity endorsement as it (Binde, 2014; Derevensky et al., 2010; Syvertsen et al., 2022; Williams et al., 2012)
 - i. Tends to promote subsequent involvement in young people
 - ii. Precipitates relapse in recovered addicts
 - iii. Counteracts the effectiveness of public health messages advocating limited use

²⁷ Prohibition of in-play sports betting could conflict with market re-capture since this is a standard offering on most offshore sports betting website.

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Appendix A

With the exception of Table A-3, all of the tables in this Appendix present jurisdictions in the order of when sports betting became legal and operational from the earliest to the most recent.

Table A-1: States with Legalized Sports Betting as of February 2022

State		Legislation Passed/Signed	Sports Betting Operational	Regulator
Nevada	NV	March 19, 1949	March 19, 1949	Nevada Gaming Commission & The Gaming Control Board
Delaware	DE	May 14, 2009 (initially signed) May 14, 2018 (enacted)	June 5, 2018	Delaware Lottery
New Jersey	NJ	June 11, 2018	June 14, 2018 (online sportsbooks: August 2018)	New Jersey Casino Control Commission
Mississippi	MS	March 13, 2017	August 1, 2018	Mississippi Gaming Commission (commercial) & Choctaw Gaming Commission (tribal)
West Virginia	WV	March 3, 2018	August 30, 2018	West Virginia Lottery Commission
New Mexico	NM	May 14, 2018	October 16, 2018	Tribal gaming commissions
Pennsylvania	PA	October 30, 2017	November 17, 2018 (online sportsbooks: May 2019)	Pennsylvania Gaming and Control Board
Rhode Island	RI	June 22, 2018	November 26, 2018	Rhode Island Lottery Commission
Arkansas	AR	November 6, 2018	July 1, 2019	Arkansas Racing Commission
New York	NY	June 30, 2013 (online sportsbooks: April 2021)	July 16, 2019 (online sportsbooks: January 2022)	New York State Gaming Commission
Oregon^a	OR	April 2019	August 27, 2019	Tribal Gaming Commission & Oregon Lottery Commission
Iowa	IA	May 13, 2019	August 15, 2019	Iowa Racing and Gaming Commission
Indiana	IN	May 8, 2019	September 1, 2019	Indiana Gaming Commission
Illinois	IL	June 3, 2019	March 9, 2020	Illinois Gaming Board
Michigan	MI	December 20, 2019	March 11, 2020	Michigan Gaming Control Board
Montana	MT	May 3, 2019	March 11, 2020	Montana Lottery
Colorado	CO	May 29, 2019	May 1, 2020	Colorado Limited Gaming Control Commission & Colorado Division of Gaming
District of Columbia	DC	May 3, 2019	May 28, 2020	DC Office of Lottery and Gaming

State		Legislation Passed/Signed	Sports Betting Operational	Regulator
New Hampshire	NH	July 12, 2019	August 12, 2020	New Hampshire Lottery Commission
Tennessee	TN	May 24, 2019	November 1, 2020	Tennessee Lottery
Virginia	VA	April 22, 2020	January 21, 2021	Virginia Lottery Board
North Carolina	NC	July 26, 2019	March 18, 2021	Cherokee Tribal Gaming Commission
Wyoming	WY	April 5, 2021	September 1, 2021	Wyoming Gaming Commission
Arizona	AZ	April 15, 2021	September 9, 2021	Arizona Department of Gaming
South Dakota	SD	March 29, 2021	September 9, 2021	South Dakota Commission on Gaming
Washington	WA	March 25, 2020	September 9, 2021	Washington State Gambling Commission
Connecticut	CT	May 27, 2021	September 30, 2021	Connecticut Department of Consumer Protection
Louisiana	LA	June 11, 2020	October 6, 2021 (Tribal) October 31, 2021 (Casino)	Louisiana Gaming Control Board
Florida^b	FL	May 25, 2021	November 1, 2021	Seminole Tribe of Florida
Wisconsin	WI	July 1, 2021	November 30, 2021	Office of Indian Gaming and Regulatory Compliance
North Dakota	ND	January 25, 1993 (compact approved)	December 1, 2021	Tribal gaming commissions
Maryland	MD	May 18, 2021	December 10, 2021	State Lottery & Gaming Control Commission

^a Already legal prior to 1992 Supreme Court ruling

^b Currently suspended for violating the US Indian Gaming Regulatory Act; pending appeal.

Note: In this context, the 'State' column includes the District of Columbia for presentation purposes.

Two additional states, Nebraska and Ohio, are poised to operationalize sports betting legislation on May 27, 2022 and January 1, 2023, respectively.

Table A-2: Regulatory Frameworks for States with Legalized Sports Betting

State	Authorized Operators	License Fees	Number of Land-based Sportsbooks	Number of Online Operators	Restrictions on Bet Type	Age Restriction
Nevada	Commercial casino & online operators	\$500 initial license fee No renewal fee	54	16	none	21+
Delaware	DE Lottery through racinos (limited to state's 3 casinos) and lottery retail (college/pro football parlay cards)	No initial license fee No renewal fee	3	N/A	in-state collegiate teams and events	21+
New Jersey	Commercial casino, racetrack & online operators	\$100,000 initial license fee \$100,000 (minimum) annual renewal fee	12	22	in-state collegiate teams and events	21+
Mississippi	Commercial & tribal casino operators	No initial license fee No renewal fee	26	2	none	21+
West Virginia	Commercial casino, racino & online operators	\$100,000 initial license fee \$100,000 renewal fee every 5 years	5	7	none	21+
New Mexico	Tribal casino operators	No initial license fee No renewal fee	4	N/A	none	21+
Pennsylvania	Commercial casino, racino OTB & online operators	\$10,000,000 initial license fee \$250,000 renewal fee every 5 years	14	13	none	21+
Rhode Island	RI Lottery through commercial casinos & online operators	No initial license fee No renewal fee	2	1	in-state collegiate teams and events	18+
Arkansas	Commercial casino & racino operators	No initial license fee No renewal fee	3	N/A	none	21+
New York	Upstate commercial & tribal casino operators	No initial license fee No renewal fee	11	9 (not yet operational)	in-state collegiate teams and events	21+ (commercial) 18+ (tribal)
Oregon	OR Lottery through kiosks, retailers & online Tribal casino operators	No initial license fee No renewal fee	3	1	all collegiate teams and events (Lottery)	18+ (21+ VLT)
Iowa	Commercial casino, tribal casino & online operators	\$45,000 initial license fee \$10,000 annual renewal fee	18	17	prop betting on all collegiate events that are not sanctioned by the	21+

State	Authorized Operators	License Fees	Number of Land-based Sportsbooks	Number of Online Operators	Restrictions on Bet Type	Age Restriction
					relevant sports league	
Indiana	Commercial casino, racino, OTB & online operators	\$100,000 initial license fee \$50,000 annual renewal fee	14	12	prop betting on all collegiate events	21+
Illinois	Commercial casino, racetrack, sports arena & online operators	\$10,000,000 initial license fee (land-based) \$20,000,000 initial license fee (online) \$1,000,000 renewal fee every 4 years	9	6	in-state collegiate team bets must be in-person, not online, and only on game outcomes, not individual performances	21+
Michigan	Commercial casino, tribal casino & online operators	\$150,000 initial license fee (includes \$50,000 application fee) \$50,000 annual renewal fee	16	14	none	21+
Montana	MT Lottery through bars and restaurants that hold a liquor license, through a mobile phone at licensed locations	\$100 annual fee for each kiosk placed	141	1	none	18+
Colorado	Commercial casino, tribal casino & online operators	\$2,000 initial master license fee \$250 biannual master renewal fee \$1,200 initial license and biannual renewal fee (retail/mobile operators)	16	26	prop betting on all collegiate events that are not sanctioned by the relevant sports league	21+
District of Columbia	DC Lottery licensed retail locations & online and private operators DC Lottery online; stadium & online operators; other brick and mortar facilities outside a 2-block radius of stadiums	Up to \$500,000 initial license fee \$250,000 renewal fee every 5 years	6	3	in-district collegiate teams and events	18+
New Hampshire	NH Lottery through online and retail agents	No initial license fee No renewal fee	3	1	in-state collegiate teams and events	18+
Tennessee	Online operators	\$750,000 initial license fee \$750,000 annual renewal fee	0	8	prop betting on all collegiate events	21+

State	Authorized Operators	License Fees	Number of Land-based Sportsbooks	Number of Online Operators	Restrictions on Bet Type	Age Restriction
Virginia	Commercial casino & online operators	\$250,000 initial fee (3-year license) \$50,000 application fee for each named principal of the applicant \$200,000 renewal fee	0	10	in-state collegiate teams and events, prop betting on all collegiate events	21+
North Carolina	Tribal casino operators	N/A	2	N/A	none	21+
Wyoming	Online operators that operate in at least three U.S. regulated jurisdictions	\$100,000 initial license fee \$50,000 renewal fee every 5 years	1	2	none	18+
Arizona	Tribal casino operators Professional sports venues/teams	TBD	12	9	prop betting on all collegiate events	21+
South Dakota	Commercial & tribal casino operators	No initial license fee No renewal fee	5	N/A	in-state collegiate teams and events, prop betting on all collegiate events	21+
Washington	Tribal casino operators	N/A	3	N/A	in-state collegiate teams and events	18+
Connecticut	Tribal casinos and online operators CT Lottery through retailers & online	\$250,000 initial regulatory oversight fee (online) ^b \$100,000 annual regulatory oversight renewal fee (online) \$20,000 initial and annual regulatory oversight renewal fee (lottery retailers)	6	3	in-state collegiate teams	21+
Louisiana	Commercial casino, tribal casino, racetrack & online operators. LA Lottery through online and kiosks in local bars and restaurants. All wagering restricted to 55 of 64 state parishes (constitutional amendment November 3, 2020)	\$750,000 initial application and license fee (operators) \$500,000 renewal fee every 5 years (operators) \$350,000 initial application and license fee (platform providers) \$250,000 renewal fee every 5 years (platform providers)	12	5	none	21+
Florida^a	Seminole Tribe of Florida Online operators	No initial license fee No renewal fee	0	0	prop betting on all collegiate events	21+

State	Authorized Operators	License Fees	Number of Land-based Sportsbooks	Number of Online Operators	Restrictions on Bet Type	Age Restriction
Wisconsin	Tribal casino operators	N/A	1	N/A	in-state collegiate teams, amateur sports	21+
North Dakota	Tribal casino operators	N/A	1	N/A	none	21+
Maryland	A1 and A2 licenses: Commercial casinos, racetracks, sports arenas, online operators (A1 = casinos with more than 1,000 slot machines or a professional sports stadium; A2 = casinos with fewer than 1,000 slot machines) B1 and B2 licenses: Maryland State Fair, OTBs, commercial bingo facilities and a host of other small businesses (B1 = more than 25 employees or \$3 million in gross sales; B2 = fewer than 25 employees or \$3 million in gross sales)	\$2,000,000 initial license fee (A1) \$500,000 renewal fee every 5 years (A1) \$1,000,000 initial license fee (A2) \$300,000 renewal fee every 5 years (A2) \$250,000 initial license fee (B1) \$50,000 initial license fee (B2) \$50,000 renewal fee every 5 years (B1) \$10,000 renewal fee every 5 years (B2)	5	N/A	none	21+

^a Florida sports betting currently suspended (as of June 2022) pending legal appeal.

^b No license fees for tribal operators or CT Lottery but annual regulatory oversight fee to the Department of Consumer Protection.

Note: N/A indicates not applicable.

As noted above, Table A-3 presents the states in alphabetical order rather than in the order of when sports betting became legal and operational.

Table A-3: Permitted Operators by State

State	Online Operators	Commercial Casinos	Tribal Casinos	Lottery	Racetracks	Sports Arenas	Bars, Restaurants & Other
Arizona			X			X	
Arkansas		X			X		
Colorado	X	X	X				
Connecticut	X		X	X			
Delaware				X			
District of Columbia	X			X		X	X
Florida	X		X				
Illinois	X	X			X	X	
Indiana	X	X			X		
Iowa	X	X	X				
Louisiana	X	X	X	X	X		X
Maryland	X	X			X	X	X
Michigan	X	X	X				
Mississippi		X	X				
Montana				X			X
Nevada	X	X					
New Hampshire				X			
New Jersey	X	X			X		
New Mexico			X				
New York		X	X				
North Carolina			X				
North Dakota			X				
Oregon			X	X			
Pennsylvania	X	X			X		
Rhode Island				X			
South Dakota		X	X				
Tennessee	X						
Virginia	X	X					
Washington			X				
West Virginia	X	X			X		
Wisconsin			X				
Wyoming	X						
	17	16	13	11	8	4	

Table A-4: Per Capita Sports Betting Gross Gaming Revenue and Tax Revenue for FY2021^a

State	2021 Census Population	Year Launched	# Land based sportsbooks	# of online operators	Total operators	Restrictions on collegiate sports	2021 Handle	Handle per capita	2021 Gross Gaming Revenue	GGR as % of Handle	GGR per capita	State Tax Revenue	Tax Revenue as % of GGR	Tax Revenue per person
NV	3,104,614	1949	54	16	70	0	\$8,734,691,127	\$2,813	\$489,773,843	5.60%	\$158	\$33,059,736	6.80%	\$11
DE	989,948	2018	3	0	3	1	\$121,833,797	\$123	\$26,119,858	21.40%	\$26	\$13,059,931	50.00%	\$13
NJ	9,267,130	2018	12	22	34	1	\$10,935,903,539	\$1,180	\$816,030,698	7.50%	\$88	\$69,362,609	8.50%	\$7
MS	2,961,279	2018	26	2	28	0	\$586,086,026	\$198	\$65,868,088	11.20%	\$22	\$5,269,446	8.00%	\$2
WV	1,793,716	2018	5	7	12	0	\$528,449,201	\$295	\$43,578,527	8.20%	\$24	\$3,704,176	8.50%	\$2
PA	12,964,056	2018	14	13	27	0	\$6,552,109,118	\$505	\$505,523,748	7.70%	\$39	\$171,878,074	34.00%	\$13
RI	1,097,379	2018	2	1	3	1	\$454,457,990	\$414	\$39,351,496	8.70%	\$36	\$20,069,262	51.00%	\$18
AR	3,025,891	2019	3	0	3	0	\$64,833,381	\$21	\$8,064,042	12.40%	\$3	\$1,048,327	13.00%	\$0
NY	19,835,913	2019	11	9	20	1	\$115,404,057	\$6	\$13,114,975	11.40%	\$1	\$1,114,773	8.50%	\$0
OR	4,237,256	2019	3	1	4	2	\$331,599,513	\$78	\$30,398,002	9.20%	\$7	\$699,155	2.30%	\$0
IA	3,190,369	2019	18	17	35	0*	\$2,041,475,330	\$640	\$113,881,249	5.60%	\$36	\$7,686,986	6.80%	\$2
IN	6,805,985	2019	14	12	26	0*	\$3,829,411,987	\$563	\$306,012,834	8.00%	\$45	\$29,071,221	9.50%	\$4
IL	12,671,469	2020	9	6	15	1	\$7,021,763,067	\$554	\$527,623,581	7.50%	\$42	\$85,158,445	16.10%	\$7
MI	10,050,811	2020	16	14	30	0	\$3,965,906,303	\$395	\$319,165,053	8.00%	\$32	\$26,809,864	8.40%	\$3
MT	1,084,225	2020	141	1	142	0	\$47,170,000	\$44	\$6,426,000	13.60%	\$6	\$546,210	8.50%	\$1
CO	5,812,069	2020	16	26	42	0*	\$3,878,719,332	\$667	\$270,074,634	7.00%	\$46	\$8,372,315	3.10%	\$1
DC	689,545	2020	6	3	9	1	\$8,030,749	\$12	\$628,847	7.80%	\$1	\$65,977	10.50%	\$0
NH	1,388,992	2020	3	1	4	1	\$703,903,943	\$507	\$42,611,213	6.10%	\$31	\$4,261,123	10.00%	\$3
TN	3,975,218	2020	0	8	8	0*	\$2,730,400,000	\$687	\$232,100,000	8.50%	\$58	\$46,420,000	20.00%	\$12
		Average					\$2,771,165,708	\$511	\$202,965,615	9.20%	\$37	\$27,771,454	14.90%	\$5

Note: Restrictions on collegiate sports betting are: (0) None/few, (1) No betting on in-state collegiate, and (2) No betting on any collegiate sports.

*State prohibits proposition bets on collegiate sports.

Table A-5: Correlations Derived from Table A-4

Correlation with Handle per Capita	Correlation with GGR per capita	
-0.876	-0.805	Year Launched (-.040 and -.150 with NV removed)
0.133	0.081	# Land based sportsbooks (.789 and .724 with MT removed)
0.543	0.561	# online sportsbooks
0.261	0.215	Total number sportsbooks (.793 and .754 with MT removed)
-0.234	-0.232	Level of restriction on collegiate sports

Appendix B: Methods

Sources of Information

Available materials on the legislation, operation, and results of sports betting from the 30 states with legalized sports betting at the beginning of this project were obtained. Materials were sourced from official state websites, operator websites, and national organizations such as the American Gaming Association and the National Council on Problem Gambling. These materials were compared in order to determine similarities and differences in legislation, implementation, and outcomes (if available). Areas of review included legislation, regulatory frameworks, sports betting operations, and outcomes (e.g., tax revenues, social/behavioral).

American Gaming Association

The American Gaming Association's (AGA; <https://www.americangaming.org/>) membership includes key stakeholders from the gaming industry. The organization has resources available on national gambling statistics and state gambling policies.

National Council on Problem Gambling

The National Council on Problem Gambling (NCPG; <https://www.ncpgambling.org/>) is an organization tasked with promoting programs and services for individuals affected by problem gambling at both a national and local level. The NCPG conducted the National Survey of Gambling Attitudes and Gambling Experiences (NGAGE 1; <https://www.ncpgsurvey.org/>) in November 2018 as a national survey of 3000 participants as well as individual state samples (which included 500 participants from Massachusetts).

Government Websites

State government websites were utilized to research legislation around sports betting for each state. Information gathered included the history of legislation in the state, the legislative sessions in which sports betting-relevant legislation was passed as well as when sports betting became operational in each state and the circumstances around that process, and if research/treatment resources were included in the legislation. In many cases, the legislation legalizing sports betting identified state-level agencies tasked with the regulation of this new gambling format. Therefore, the websites of these state agencies were reviewed to obtain information about the regulatory frameworks being used such as licensing procedures, numbers and types of operators, restrictions, defined tax rates, and tax revenues.

Operator Websites

Individual operator websites within each state were accessed in order to obtain information about when operations began, what models were used, and what revenues were generated.

Literature Review

The literature review is not a formal systematic review which uses standard critical methods to identify, define and assess research evidence on a topic of interest. Instead, we searched PubMed and Google Scholar for pertinent research based on the search terms *sports betting* and *sports wagering* in conjunction with *athletes*, *problem gambling*, *gambling behavior*, *economic impacts* and *social impacts*. Resulting titles and abstracts were screened for relevance and full text of articles of interest was reviewed for incorporation into the Literature Review and Issues of Concern sections of this report. In addition, media outlets/newspapers were searched for relevant, timely articles discussing sports betting/wagering to add additional context when required.