



UNIVERSITY OF MASSACHUSETTS SCHOOL OF PUBLIC HEALTH AND HEALTH SCIENCES

Social and Economic Impacts of Casino Introduction to Massachusetts

Report to the Massachusetts Gaming
Commission

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ACRONYMS

BGPS	Baseline General Population Survey (2013/2014)
BOPS	Baseline Online Panel Survey (2013/2014)
BTPS-Everett	Baseline Targeted Population Survey – Everett (2013/2014)
BTPS-Plainville	Baseline Targeted Population Survey – Plainville (2014)
BTPS-Springfield	Baseline Targeted Population Survey – Springfield (2015)
CT	Connecticut
EBH	Encore Boston Harbor Casino
EBH H&SC	Encore Boston Harbor Host & Surrounding Communities
EGM	Electronic Gambling Machine (slot machines, video lottery terminals)
FGPS	Follow-up General Population Survey (2021/2022)
FOPS	Follow-up Online Panel Survey (2022)
FTPS-Everett	Follow-up Targeted Population Survey – Everett (2021/2022)
FTPS-Plainville	Follow-up Targeted Population Survey – Plainville (2016/2017)
FTPS-Springfield	Follow-up Targeted Population Survey – Springfield (2019/2020)
FY	Fiscal Year for Massachusetts (July 1 – June 30) (e.g., FY24 is Jul 1, 2023 – Jun 30, 2024)
GGR	Gross Gaming Revenue (revenue after prizes but before operational expenses)
H&SC	Host & Surrounding Communities ('host' municipality where casino resides; 'surrounding communities' are municipalities adjacent to the host community which the Massachusetts Gaming Commission deems likely to experience impacts from the casino)
MA	Massachusetts
MAGIC	Massachusetts Gambling Impact Cohort (2013-2019)
MDPH	Massachusetts Department of Public Health
ME	Maine
MGC	Massachusetts Gaming Commission
MGM	MGM Springfield Casino
MGM H&SC	MGM Springfield Host & Surrounding Communities
NAICS	North American Industry Classification System
NH	New Hampshire
NY	New York
OPS23	Online Panel Survey 2023
OPS24	Online Panel Survey 2024
PPC	Plainridge Park Casino
PPC H&SC	Plainridge Park Host & Surrounding Communities
PPGM	Problem and Pathological Gambling Measure
REMI	Regional Economic Models Incorporated
RI	Rhode Island
SEIGMA	Social and Economic Impacts of Gambling in Massachusetts

EXECUTIVE SUMMARY

Casino gambling was legalized in Massachusetts in 2011. In March 2013, a contract was awarded to the authors of the present report to investigate the impacts of future casinos to the state. This investigation is known as the Social and Economic Impacts of Gambling in Massachusetts study ([SEIGMA](#)) and constitutes the most comprehensive investigation of casino impacts ever undertaken. Extensive social and economic baseline data was collected prior to the opening of the three new casinos: Plainridge Park Casino (PPC) in 2015, MGM Springfield in 2018, and Encore Boston Harbor (EBH) in 2019. Extensive primary and secondary data were subsequently collected to identify potential impacts of casino introduction and [55 interim reports and academic publications](#) on the impacts have been produced thus far. The present report is our **summative report on the impacts** to date that draws on the findings of these prior reports, supplemented with publicly available secondary data, information extracted from other agency reports, and a small amount of newly collected SEIGMA primary data.

The Executive Summary begins with our identification of the Overall Socioeconomic Impacts, followed by a presentation of the specific Social and Health Impacts and the specific Economic and Fiscal Impacts, followed by our Conclusions and Recommendations.

OVERALL IMPACTS

The introduction of casinos to Massachusetts (MA) has had some significant **positive impacts**, with the following being the main ones:

1. The **primary benefit is that it has significantly increased overall economic activity and employment in Massachusetts, particularly in regions proximate to the casinos, and particularly for the construction and operation of the Encore Boston Harbor casino.** This is due to (a) the billions of dollars spent by the out-of-state casino companies constructing the venues; (b) the billions in ongoing gaming and non-gaming revenue, the bulk of which is from Massachusetts residents who were previously spending this money out-of-state as well as a portion coming from new out-of-state patrons; (c) the large downstream ripple effects in the Massachusetts economy from this monetary investment and recapture. While the economic gains clearly outweigh the losses, losses still occur in the form of the annual casino profits that leave the state.
2. **Casino tax on gross gaming revenue (GGR) provides hundreds of millions of dollars to the state government,** which is then used to benefit towns and cities as well as the citizenry of Massachusetts more generally.
3. **An additional leisure option** has been made available to Massachusetts residents.

However, legalized casino gambling also has significant **negative impacts**:

1. **Much of this additional economic activity derives from the expenditures of at-risk and problem gamblers.** While the actual population prevalence of problem and at-risk gambling did not increase, the revenue drawn from this vulnerable segment of the population likely has increased. The lack of impact on problem gambling prevalence is likely due to the high level of casino gambling participation that existed prior to the introduction of Massachusetts casinos and the very close proximity of Rhode Island and Connecticut casinos that have been in operation since the early 1990s.

2. There is **some cannibalization and/or negative impacts on other industries**, as evidenced by an accelerated decrease in charitable gambling gaming revenue; a decrease in food services and drinking establishments in Plainville, Springfield, and Hampden County; the fact that most casino patrons reported spending less on things because of their casino gambling, particularly restaurants, bars, and other types of gambling; and by the fact that ~75% of casino employees left other full-time employment.
3. There is some evidence of a **small increase in certain types of crime** at the casino and Host & Surrounding Community (H&SC) level as well a small but significant statewide increase in illegal gambling.
4. There is **some increase in traffic volume near the casinos**, as well as **traffic accidents and impaired driving**.
5. Most Massachusetts residents (68%) now believe **that gambling 'is too widely available'**, which compares to only 16% prior to casino introduction.

SOCIAL AND HEALTH IMPACTS

Casino introduction into Massachusetts has been associated with:

Attitudes

- No significant change in attitudes concerning the **'harm versus benefit of gambling'** and whether **'gambling should be legal'**.
- Changes in attitudes concerning the **'current availability of gambling'**. Prior to any casino opening most people believed the current availability of gambling in MA was 'fine'. However, after all three casinos had opened most people had changed their opinion and indicated that gambling was 'too widely available'.
- Changes in attitudes concerning the **anticipated impact of the casinos**. Prior to any casino opening most people believed the impact of the new casinos for MA would be either harmful or beneficial, with roughly an equal number endorsing each viewpoint. After the casinos opened, opinions moderated, with the opinion that the new casinos were 'neither harmful or beneficial' increasing significantly and becoming the most common sentiment at a statewide level.
- Changes in attitudes concerning the **anticipated impact of the new casino to their specific community**. Prior to casino opening most people in the Plainridge Park Casino Host & Surrounding Communities (PPC H&SC) and the MGM Springfield Casino Host & Surrounding Communities (MGM H&SC) believed the impact of the new casino would be either harmful or beneficial, with roughly an equal number endorsing each viewpoint. After the casino opened, opinions moderated, with the opinion that the casino had been 'neither harmful nor beneficial' increasing significantly. (Note that this question was not asked in the EBH H&SC).

Gambling Behavior

- Significant increases in **patronage of MA casinos** (which is to be expected).
- Significant decreases in **patronage of out-of-state casinos** by MA residents, as well as residents of the Encore H&SC region. There was more of a mixed pattern in the PPC and MGM H&SC's. There was no significant change in out-of-state casino patronage in the PPC H&SC in 2016/2017 (following the opening of PPC in 2015) and no significant change in the MGM H&SC in 2019/2020 (following the opening of MGM in

2018). However, by 2021/2022 out-of-state casino patronage had declined in both regions to levels below what existed prior to any MA casino opening.

- Statewide decreases in **overall casino patronage** (in or out-of-state). There was more of a mixed pattern in the PPC and MGM H&SC's, with there being an increase in overall casino patronage in the year after the local casino opened, but with overall casino patronage in 2021/2022 returning to levels that existed prior to any casino opening (or potentially even below that level).
- No changes in the **rates of participation for most other types of gambling**, although there is some evidence of a slight decline in lottery participation, as well as continued declines in raffles and horse racing (that began prior to casino introduction) and a further increase in online gambling.

Problem Gambling & Related Indices

- No significant change in the **prevalence of problem gambling** at either the state or a H&SC level although there may have been a temporary statewide increase in 2018 and 2019.
- No significant change in the **demographic profile of problem gamblers**, with the exception that problem gamblers in 2021/2022 were somewhat younger than in 2013/2014.
- Some evidence of a decline in the **level of treatment seeking** for problem gambling.
- A decrease in the number of **personal bankruptcy filings** at both state and H&SC level.
- No evidence of an association with **adverse family indices** (divorce, separation, restraining orders, domestic violence, child welfare/maltreatment) at either state or H&SC level.
- No evidence of an association with the number of **suicides** at either state or H&SC level.
- An increase in the **proportion of casino gambling revenue derived from at-risk and problem gamblers** (from 74% in 2013/2014 to 90% in 2021/2022).

Crime

- No significant change in **statewide levels of crime**, although there has been a small but significant increase in illegal gambling offenses beginning in 2019.
- No significant change in **H&SC rates of crime**, with property crime decreasing in all H&SCs and violent crime decreasing in all H&SCs except PPC H&SC. However, there have been increases in certain specific crimes that have a theoretical relationship with gambling: i.e., fraud/con games, theft, and domestic violence in the PPC H&SC; purse-snatching, shoplifting, fraud, and extortion in the MGM H&SC; burglary, theft from vehicles, and prostitution in the EBH H&SC.
- No significant change in **host-community rates of crime**, with property crime actually decreasing and violent crime remaining unchanged. That said, all three casinos became one of the highest locations for crime and calls for service in their community and one of the higher sites in their H&SC.

Other Social Indices

- An increase in **population** in both Everett and Plainville, but not Springfield.
- No significant impact on **educational systems** in Plainville, Springfield, or Everett.
- A 9.9% increase in **traffic volume** in Plainville, a 12.2% increase in Springfield, and between a 6.2% and 16.7% increase in Everett.
- Increased **traffic accidents** in Everett in 2016 and 2017 and Plainville in 2017 and 2018 (although Plainville had a decrease in 2015 and 2016). As large alcohol-serving establishments, the casinos also contribute to increased rates of impaired driving, estimated to be tens of thousands of trips per year. In turn, this has

been associated with a few dozen additional crashes in the host communities, as well as Hampden County in 2019.

- Increased **noise** due to casino construction and increased traffic.

ECONOMIC AND FISCAL IMPACTS

Casino introduction into Massachusetts has been associated with the following:

Direct Economic Impacts

- **Casino construction** has created significant direct economic benefits for MA, particularly for regions close to the casinos, and particularly for the building of Encore Boston Harbor (EBH).
 - All three casino companies are based outside of MA and spent considerable money within MA building these facilities (\$250 million for PPC; \$960 million for MGM; and \$1.6 billion for EBH).
 - Casino construction supported full-time employment for roughly 554 employees building PPC during the 14-month construction; 1,251 employees building MGM working for a year at some point during the 40-month construction; and roughly 6,765 employees building EBH working for a year at some point during the building's 42-month construction. The large majority of these construction employees were from MA.
- **Casino operation** has also had significant direct economic benefits for MA, particularly for regions close to the casino, and particularly for the operation of EBH.
 - Total Gross Gaming Revenue (GGR) from all three casinos has been between \$1.1 and \$1.2 billion per year in the last three years, not including non-gaming revenue, estimated to be an additional ~\$321 million/year. Most of this is recaptured money previously being spent at out-of-state casinos (MA residents currently account for ~77.8% of MA casino revenue) plus a smaller amount of new money from out-of-state residents. That said, there is still a high level of out-of-state casino patronage, with MA residents currently estimated to account for 51.5% of RI casino GGR and 14.0% of CT casino GGR. When considering outflow to other states versus inflow from out-of-state residents, MA currently has a net loss of ~\$360 million/year. While considerable, it is much lower than the ~\$664 million/year loss that occurred prior to the introduction of MA casinos.
- **Casino operating expenses** also provide significant direct economic benefits to MA, particularly for regions close to the casinos.
 - One of the main expenses is the MA GGR tax. MA state revenue from the GGR tax has increased from \$78 million in FY2016 to roughly \$330 million in FY2023. This money is distributed to 12 different funds in MA, with the largest being Local Aid to MA's 351 cities and towns.
 - Other operational expenses are purchases from vendors, the annual lease, and various taxes/payments to federal, state, and local governments with total amounts estimated to be ~\$450 million/year with roughly half of being spent within MA.
 - Annual wages are estimated to be \$270.5 million/year with the vast majority being paid to MA residents, most of whom live close to the casino.
- Casino operation also provides significant **direct employment** to MA residents, with between 4,400 and 5,000 people working at the casinos at any given time. While most employees left other full-time employment to take these positions, there was some net new employment with ~1,100 people previously either being unemployed, having multiple jobs, or having part-time employment.
- While casino operation largely has had positive economic impacts, there are also some **negative impacts**:

- Other industries have lost workers, as ~75% of casino employees left other full-time employment.
- Other sectors of the economy have lost revenue, as between 46.1% and 79.9% of casino patrons report spending less on other things, particularly restaurants and bars and other types of gambling.
- Annual MA casino profits leave MA, as all three casino companies are owned by corporations with headquarters in other states and with no other properties in MA.
- MA casino wages are not high, with only 39.1% of employees being paid a 'living wage' for the county they reside in (although this is higher than what is found in the broader Accommodation and Food Services sector).

Total Economic Impacts

The direct economic impacts of casino operation create additional indirect economic ripple effects through the economy. Thus, the current section speaks to the *total economic impacts*.

Economic Modeling of Total Construction Impacts

REMI economic modeling estimates that in total, the construction of the three casinos supported:

- 18,891 **full-time job years** (a portion of which was 'net new' employment)
- \$14.0 billion in **increased economic activity (output)**.
- \$2.2 billion in net **new economic activity (value added)**.
- \$1.5 billion in **personal income**.

Economic Modeling of Total Operational Impacts

PPC Total Economic Impacts

- 2,417 full-time jobs each year (a portion of which is 'net new'), with 1,633 in the private sector. Just over two-thirds of employment occurs in the four-county Greater Boston region, which includes Norfolk County (where PPC is located)
- \$505.5 million of increased economic activity (output) each year.
- \$362.4 million in net new economic activity (value added) each year.
- \$143.7 million in personal income each year.

MGM Total Economic Impacts

- 6,287 full-time jobs each year (a portion of which is 'net new'), with 4,929 in the private sector. Just over 60% of employment occurs in the three-county Pioneer Valley region, which includes Hampden County (where MGM is located).
- \$974.2 million of increased economic activity (output) each year.
- \$640.1 million in net new economic activity (value added) each year.
- \$356.9 million in personal income each year.

EBH Total Economic Impacts

- 9,867 full-time jobs each year (a portion of which is 'net new'), with 7,483 in the private sector. Approximately 75% of these jobs are in the four-county Greater Boston region which includes Middlesex County (where EBH is located).
- \$1.7 billion of increased economic activity (output) each year.
- \$1.3 billion in net new economic activity (value added) each year.
- \$1.1 billion in personal income each year.

Secondary Data

- Consistent with increased economic activity: the **total number of businesses** has increased in all host communities and counties; there has been a 55.3% decrease in **business bankruptcies** in all three host

counties; and the **total number of businesses in different sectors** has increased for most sectors in both the host community and county. However, there have also been **decreases in food services and drinking places in Plainville, Springfield, and Hampden County** potentially due to consumer reallocation of spending from this sector to the casino.

- In terms of **casino impacts on other types of gambling**:
 - There does not appear to be any significant impact on MA lottery revenue.
 - The number of live horse races continues to decline, although the amount wagered is largely unchanged.
 - Charitable gambling continues to decline with casino introduction plausibly accelerating this decline.
- Consistent with increased **employment**:
 - Employment has increased in all host communities, with employment in Plainville and Everett increasing at a rate above the MA average.
 - Unemployment rates dropped in all host communities and counties, largely paralleling the decreased rates occurring statewide.

Real Estate Impacts

- In terms of **residential real estate**:
 - PPC has not had any obvious impact in Plainville and Surrounding Communities.
 - MGM has not had any broad impact in Springfield and Surrounding Communities, although there is an increase in multi-home sales and some reports of gentrification in Springfield.
 - EBH has unknown impacts in Everett and Surrounding Communities, although key informants report a 'hot' property market and some gentrification.
- In terms of **commercial real estate**:
 - PPC has not had any broad impact in Plainville and Surrounding Communities although there has been an increase in Plainville commercial building inventory.
 - MGM has not had any obvious impact in Springfield or Surrounding Communities.
 - EBH introduction has been associated with an increase in commercial building inventory and lease rates in Everett.

MATCHED COMMUNITIES COMPARISON

- Changes in the three casino host communities were compared to changes in communities matched to each host community on the basis of 10 social, economic, and demographic indices, but not having a casino within 25 miles.
- No socioeconomic or demographic variable had consistent changes in the same direction across all three host communities relative to the matched communities.
- Assuming impacts are somewhat casino and host community specific:
 - Everett, with the largest casino and a fairly small population, had increased median household income; increased job growth; increased labor force participation rate; and increased population.
 - Plainville was found to have an increased population and an increased percentage of the population that is Hispanic.
 - Springfield was found to have an increased percentage of the population that is Hispanic.

CONCLUSIONS & RECOMMENDATIONS

In general, the following **conclusions** are warranted based on the present results:

1. The introduction of casinos to Massachusetts has significantly increased overall economic activity and employment in Massachusetts, particularly in regions proximate to the casinos, and particularly for the construction and operation of Encore Boston Harbor.
2. Furthermore, casino tax on gross gaming revenue (GGR) provides hundreds of millions of dollars to the state government, which is then used to benefit towns and cities.
3. While the economic gains outweigh the losses:
 - There has been some cannibalization and/or negative impacts on other industries.
 - There is still a fairly high level of out-of-state casino patronage.
 - Losses still occur in the form of annual casino profits that leave the state.
4. Casinos have not increased the prevalence of problem gambling, likely attributable to the ready availability of casino gambling in neighboring states since the early 1990s.
5. There have been fairly minimal negative social impacts of casino introduction, with the exception of:
 - A small increase in certain types of crime at the casino and Host & Surrounding Community (H&SC) level as well as a small but significant statewide increase in illegal gambling.
 - Some increase in traffic volume near the casinos, as well as traffic accidents and impaired driving.
 - Attitudinal changes, with most MA residents now indicating that gambling 'is too widely available'.
6. An important concern is that much of the additional economic activity derives from the expenditures of at-risk and problem gamblers, who are estimated to account for 90% of casino revenue in 2021/2022.

The following **recommendations** derive from our conclusions:

1. A fourth casino in Region C would likely produce additional out-of-state casino recapture without a significant negative social impact. However, MA residents already believe that gambling is too widely available and overall casino patronage in MA appears to be declining.
2. There needs to be a reduction of the industry's financial reliance on at-risk and problem gamblers as the 90% of revenue from this 9.9% of the population is much too high. This could be facilitated with:
 - a. automated alerts to gamblers showing risky behavior
 - b. rewarding responsible gambling rather than total gambling expenditure
 - c. restricting ATM access and/or withdrawal amounts
 - d. implementing mandatory pre-commitment and/or incentivizing voluntary use of pre-commitment
 - e. implementing and promoting third party initiation of self-exclusion.
3. Periodic reassessment of these findings would be valuable, as casino gambling is always in flux due to changing consumer interests and increased competition.
4. The above findings do not apply to legalized sports betting or online gambling as the economic benefits of these formats appear to be much smaller and the risk of social harm is likely much greater due to lack of prior exposure. A comparable study on the socioeconomic impacts of sports betting and/or online gambling is warranted.

INTRODUCTION

In November 2011, an [Act Establishing Expanded Gaming in the Commonwealth](#) was passed by the Legislature and signed by Governor Deval Patrick (Chapter 194 of the Acts of 2011). This legislation permitted casinos and slot parlors to be introduced in Massachusetts under the regulatory auspices of the Massachusetts Gaming Commission (MGC). The Expanded Gaming Act also required MGC to establish “an annual research agenda” to understand the social and economic effects of casino gambling. In March 2013, MGC awarded a contract to a team at the University of Massachusetts Amherst to conduct this research. This research project is known as the Social and Economic Impacts of Gambling in Massachusetts ([SEIGMA](#)) study.

Comprehensive social and economic baseline data were collected prior to the opening of the three new casinos: Plainridge Park Casino (PPC) in June 2015, MGM Springfield in August 2018, and Encore Boston Harbor (EBH) in June 2019. Extensive primary and secondary data were subsequently collected to identify potential impacts of casino introduction and [55 interim reports and academic publications](#) on the impacts have been produced thus far. The present report is our **summative report on the impacts** to date that draws on the findings of these prior reports, supplementing these findings with publicly available secondary data, information extracted from other agency reports, and a small amount of newly collected SEIGMA primary data that has not previously been reported on.

The theoretical framework and guiding methodological principles utilized in the present study (and all SEIGMA studies) has been detailed in our prior summative reports (i.e., SEIGMA Research Team, 2018, 2019) and is reproduced in APPENDIX A: SEIGMA Methodology.

There are five main sections to the present report:

1. The preceding **Executive Summary**, which summarizes all the main findings.
2. A brief **History of Legal Gambling in Massachusetts and its Current Availability** to contextualize the changes in gambling availability that have occurred.
3. Identification and discussion of the **Data Sources** utilized for the analysis.
4. The **Impact Section**, which is the main body of the report. The three subsections are the Social & Health Impacts, the Economic & Fiscal Impacts, and the Matched Community Comparison.
 - *Social & Health Impacts* are subdivided into the *Specific Impact Area* (Attitudes, Gambling Behavior, Problem Gambling & Related Indices, Crime, Other Social Indices). Each Specific Impact Area is further subdivided into *Statewide Impacts* and *Regional Impacts*.
 - *Economic & Fiscal Impacts* are subdivided into *Direct Economic Impacts*, *Total Economic Impacts*, and *Real Estate Impacts*. Direct and Total Economic Impacts are subdivided into *Construction Impacts* and *Operating Impacts*. Total Economic Impacts is additionally subdivided into *Economic Modeling* and *Secondary Data*. Real Estate Impacts is subdivided into *Residential* and *Commercial*.
 - *Matched Community Comparison*. This is a comparison of changes in demographic, social and economic indices over time in the host town or city where the casino is located compared to changes in the same indices in towns/cities that have been matched to the host community by virtue of their similar demographic, social and economic profile, with the exception of not having any casino within 25 miles.

- As will be seen, for some impact areas the data is limited and/or the ability to attribute changes to casino introduction is tenuous, whereas for other impact areas the data is rich and the ability to attribute observed changes to casino introduction is strong.

5. **Conclusions & Recommendations** that derive from our findings.

Of final note, the narrative for this report is intended to be fairly 'high level' and non-technical because of the vast amount of data and results that are being presented and to make the report more accessible to a general audience. Readers interested in more in-depth understanding of the specific methodology and/or statistical results are encouraged to access the original reports.

HISTORY AND CURRENT AVAILABILITY OF LEGAL GAMBLING IN MASSACHUSETTS

The indigenous peoples of North America (and New England) have a long cultural history of gambling for at least 1,000 years prior to European colonization (Binde, 2005; Culin, 1907; Salter, 1974, 1980; Williams, Stevens & Nixon, 2011). Gambling was also common in colonial New England among European immigrants who brought their gambling traditions with them, with horse racing, cockfighting, bullbaiting, card games, dice games, and raffles/lotteries being particularly popular (Findlay, 1986; Schwartz, 2006). Indeed, legal lotteries played an important role in colonial America (including Massachusetts) in financing both private and public ventures such as roads, colleges, libraries, and military ventures as an alternative to direct taxation (Rabushka, 2010; Schwartz, 2006). Nevertheless, there have always been certain segments of society that opposed gambling and total bans and/or bans on certain types did periodically occur. One of those periods was the late 1890s when a combination of religious denouncement and lottery scandals contributed to the eventual banning of virtually all forms of gambling in most of the United States (Schwartz, 2006; Thompson, 2001).

Horse and Dog Racing

On-site pari-mutuel wagering¹ on horse and dog races was re-legalized in Massachusetts in 1934 to support agriculture, improve horse breeding, and raise government revenue (General Court of Massachusetts, 1934a; Abt, Smith & Christiansen, 1985). Since that time, pari-mutuel wagering on live racing has been continuously available at several racetracks and agricultural fairs within the state (Temple, 2009, 2010). In 1983, simulcast wagering was also legalized, permitting racetracks to broadcast and accept bets on horse and dog races occurring at tracks outside Massachusetts. In 2001 'Advance Deposit Wagering' was also introduced, allowing bettors to place bets online through licensed horse race betting sites.

A decline in racing revenue and attendance began in the 1980s (Temple, 2009, 2010). Furthering this decline was the fact that live dog racing was banned in Massachusetts in 2009 causing the end of live greyhound racing at Wonderland Greyhound Park and Raynham Taunton Greyhound Park (Moskowitz, 2009) (these two facilities continued to offer simulcast betting). To help support the remaining horse racing industry 18% of gross profits on slots and electronic table games at Plainridge Park Casino (and 2.5% from MGM Springfield and Encore Boston Harbor casinos) goes to the [Race Horse Development Fund](#) which was created as part of the Expanded Gaming Act to support the horse racing industry. Money in the Race Horse Development Fund is further divided among three main programs. The majority (80%) of funds are for the purpose of increasing the prize money (purse) at the track, whereas 16% is used for horse breeding programs, and 4% is put towards health insurance and pensions for racing industry workers.

As of 2024, live horse racing in Massachusetts occurs only at Plainridge Racecourse in Plainville (in the form of harness racing) from April - November, with simulcast wagering available year-round. Slot machines, electronic table games, and lottery ticket terminals were added to this facility in June 2015, resulting in a name change to

¹ Pari-mutuel betting is a betting system in which the winning payout for a particular outcome (e.g., certain horse coming in first place) is not fixed but rather varies as a function of how much money is bet on that outcome relative to other outcomes. In general, the size of the winning payout decreases as a function of the amount of money that is bet on that outcome. The purpose of this system is to help ensure the gambling provider 'breaks even' regardless of which outcome occurs. (In pari-mutuel systems the gambling provider makes a profit by taking out a fixed percentage of the overall amount of money wagered).

[Plainridge Park Casino](#). Simulcast wagering also currently exists in Massachusetts at [Raynham Park](#) in the Town of Raynham and [Suffolk Downs](#) in East Boston.² A total of 11 licensed [online horse race betting sites](#) currently exist in Massachusetts for Advance Deposit Wagering.

- In 2013, the handle (total amount of money wagered) at Suffolk Downs, Plainridge Racecourse, and the two dog tracks where simulcast wagering was still offered totaled \$277,555,095, with the vast majority wagered on simulcast racing (97.3%) rather than live racing (2.7%), and with 69.2% of this total being wagered at Suffolk Downs (Massachusetts Gaming Commission, 2014).
- In 2022, the total horse racing handle in Massachusetts totaled \$270,882,698, with 96.1% of this being on simulcast racing and 3.9% on live racing, and with 71.7% of this total being wagered online via Advance Deposit Wagering (Massachusetts Gaming Commission, 2022).

The takeout rates (percentage of the betting pool that is retained by the racetrack) in Massachusetts are [19%](#) for bets on win, place, and show and [26%](#) of the total wagered on all other types of bets, resulting in payback rates to the bettor of 81% and 74% respectively.

The legal age to bet on horse and dog races in Massachusetts is 18. The Massachusetts Gaming Commission Division of Racing is responsible for regulating the Massachusetts horse racing industry (beginning in 2012).

Charitable Gambling

Partly due to the economic problems associated with the Great Depression, bingo (historically known as ‘beano’) was legalized in 1934 contingent on the revenue being directed to charitable, civic, educational, fraternal, or religious organizations and a license being granted by the local municipality (General Court of Massachusetts, 1934b; Pender et al., 2014). Bingo was banned again in 1943 due to the involvement of organized crime, but re-legalized in 1971.

In 1969, these same community groups, as well as veteran’s organizations and a wider range of service organizations and clubs (collectively known as ‘charitable groups’), were permitted to also conduct ‘raffles and bazaars’,³ again contingent on a license being granted by the local municipality (General Court of Massachusetts, 1969). These raffles and bazaars are generally specific to the local town or city where the license is issued and have taken the form of (a) small scale lotteries with either cash or merchandise prizes, (b) instant lottery tickets (‘break-open tickets’, ‘pull-tabs’, ‘charity tickets’); and (c) short-term ‘casino events’ that involve the provision of casino table games. In 1973 oversight of charitable gambling transferred from the Department of Public Safety to the Massachusetts Lottery Commission.

- In 2013 total gross charitable gambling revenue (before prizes and expenses) was \$66.5M, with 49.6% of this on bingo (157 licensed bingo operators), 29.8% on raffles, 20.0% on instant lottery tickets, and 0.6% on casino events (Massachusetts Lottery Commission, 2013).
- In 2022 total gross charitable gambling revenue (before prizes and expenses) had declined to approximately \$38M, with 33.5% of this on bingo (75 licensed bingo operators), 42.4% on raffles, 24.1% on instant lottery tickets, and 0.03% on casino events (Massachusetts Lottery Commission, 2022).

² Suffolk Downs ended live racing in 2019.

³ Raffles being legally defined as the selling of tickets for prizes that are awarded based on chance and bazaars being legally defined as a place maintained by the sponsoring organization to hold chance-based gambling events.

Bingo revenue and participation have actually been in decline since the mid-1980s. At its peak in 1984, gross bingo revenue was \$180.3 million with 916 different organizations operating bingo games in the state (The Patriot Ledger, 2017).

The legal age to participate in charitable gambling in Massachusetts is 18. The Charitable Gaming Division of the Massachusetts State Lottery Commission is responsible for regulating charitable gambling.

Lottery

The lottery was legally reinstated in Massachusetts in 1971 to generate revenue for the 351 cities and towns in the state. Using a formula established by the Legislature, cities and towns receive approximately 20% of annual lottery sales. These funds are not earmarked for any specific programs which allows the cities and towns to decide how they wish to spend the funds. Starting with a weekly draw game in 1972, the Lottery has added numerous other products, most notably instant lottery tickets in 1974 (the first U.S. state to do so), a daily numbers game in 1976, and a variety of traditional, large jackpot games in the 1980s and 1990s. In 1993, the Lottery introduced an electronic version of Keno, which is offered every few minutes on monitors in approximately 1,200 bars, restaurants, and similar establishments around the state. In 1996, the Lottery joined five other states to create a multi-state lottery game that allowed for much larger maximum prizes. The Massachusetts Lottery maintains a statewide network of approximately 8,000 retail sales agents, including chain stores, supermarkets, gas stations, convenience stores, and corner stores. These retailers earn commissions on lottery sales and bonuses on prizes claimed.

In FY2014, Massachusetts Lottery revenues totaled \$4,863,373,000 with 69.6% of these revenues accounted for by instant games (Massachusetts Lottery Commission, 2014). In FY2023, Massachusetts Lottery revenues totaled \$6,148,777,000 with 65.8% of these revenues accounted for by instant games (Massachusetts Lottery Commission, 2023). In the same fiscal year, the Lottery paid out a total of \$4.3 billion in prizes; this 72.9% return to players is one of the highest in the country. Massachusetts residents also spend the most per capita on the lottery in the United States (i.e., \$805 per capita in 2020 with New York next at \$456) (LendingTree, 2022).

The legal age to purchase lottery products in Massachusetts is 18. The Massachusetts State Lottery Commission is responsible for regulating the Massachusetts lottery.

Casinos

Casinos and other venues providing electronic gambling machines (EGMs) and/or casino table games have been pervasively available in all neighboring states except Vermont long before their legalization in Massachusetts. In Rhode Island, Lincoln Park racetrack (now Twin River Casino) and Newport Jai Alai (now Newport Grand Casino) added video lottery terminals in 1992. Table games were added to Twin River Casino in 2013. Tiverton Casino Hotel (owned by Twin River) opened in September 2018 and has 1,000 electronic gambling machines and 32 table games. In Connecticut, Foxwoods Casino introduced table games in 1992 and slot machines in 1993, and Mohegan Sun opened in 1996 with both table games and slot machines. For many years the tribally-owned Foxwoods Casino and Mohegan Sun were the largest casinos in the world, and they continue to be among the largest. In New York State several tribally-owned casinos opened beginning in 1993, and video lottery terminals were added to nine different New York State racetracks beginning in 2001. Additional large-scale casinos have been added in more recent years. This includes the \$510 million Resorts World New York City in 2011, the Rivers Casino and Resort in Schenectady in 2017, and the \$1.2 billion Resorts World Catskills that opened in Monticello in 2018. In New Hampshire, several different venues have been providing casino table games and a limited number of electronic gambling machines for many years, operating under that state's charitable

gambling laws. Maine has had casinos with slot machines and table games since 2005. Of final note, casino cruises operated out of Massachusetts ports from 1998 to 2013 (Wikipedia, 2024). These ships provided slot machines and casino table games to customers once they were at least three nautical miles from the coast where federal rather than state laws applied. No casino cruises are currently in operation in Massachusetts.

Table 1 is a list of all current venues within 100 driving miles of the Massachusetts state line that provide electronic gambling machines (slots, video poker, etc.) (EGMs) and/or casino table games (including poker).

Within Massachusetts, casinos were not permitted until 2011 when the [Act Establishing Expanded Gaming in the Commonwealth](#) permitted casinos and slot parlors to be introduced in Massachusetts under the regulatory auspices of the Massachusetts Gaming Commission (MGC). Three casino licenses were available, with one allocated for the Greater Boston region (Region A), one for Western Massachusetts (Region B), and one for Southeastern Massachusetts (Region C). A single license for a slot parlor was also available, with no geographic restriction as to its location. The three regions defined in the legislation (and the counties they include) are illustrated in Figure 1.

As of 2024, two casino applications and one slot parlor application have been approved and three facilities have opened. To date, no casino application has been approved for Region C (southeastern Massachusetts). The details of these venues are contained in Table 2, Table 3, and Table 4 and their geographic location is shown in Figure 2 and Figure 3. These figures also illustrate the ‘host’ community where the casino is located and the ‘surrounding communities’, which are defined as municipalities proximate to a host community which the Massachusetts Gaming Commission deems likely to experience impacts from the new venue ([see Massachusetts Gaming Commission](#)).

The legal age to gamble at a casino in Massachusetts is 21.

Table 1. Venues Containing EGMs and/or Casino Table Games within 100 Miles of MA State Line in 2024

State	Facility	Date First Providing EGMs &/or Table Games	Current Gaming Space Square Footage	Current # EGMs	Current # Live Table Games	Driving Distance (miles) from MA State Line
Rhode Island	Bally's Tiverton Casino	2018 ^a	33,000 ^a	1,000 ^c	32 ^c	1
Rhode Island	Bally's Twin River Lincoln	1992 ^e	162,000 ^c	4,100 ^c	11 ^c	4
Rhode Island	Newport Grand Casino (closed 2018)	1992 ^a	50,000 ^b	1,100 ^d	0 ^d	17
Connecticut	Foxwoods Resort Casino	1992 ^a	340,000 ^c	3,420 ^c	265 ^c	43
Connecticut	Mohegan Sun	1996 ^a	310,000 ^c	3,800 ^c	308 ^c	48
New York	Rivers Casino & Resort Schenectady	2017 ^b	50,000 ^c	1,150 ^c	83 ^c	43
New York	Saratoga Casino Hotel	2004 ^a	55,000 ^c	1,630 ^c	0	53
New York	Resorts World Catskills	2018 ^b	100,000 ^c	1,730 ^c	170 ^c	88
New York	Empire City at Yonkers Raceway	2006 ^a	290,000 ^c	5,000 ^b	0 ^d	94
New York	Monticello Gaming & Raceway (closed 2019)	NA	40,000 ^b	1,550 ^b	NA	92
New Hampshire	Seabrook Poker Room	2006 ^b	9,125 ^c	500 ^c	38 ^c	2
New Hampshire	Chaser's Poker Room & Casino	2017 ^b	NA	0	16 ^c	2
New Hampshire	Aces and Eights at Hampton Beach Casino	2014 ^b	NA	92 ^c	4 ^c	3
New Hampshire	Gate City Casino	2017 ^a	NA	300 ^c	29 ^c	3
New Hampshire	Cheers Poker Room & Casino (closed 2019)	2017 ^b	NA	0	37 ^b	4
New Hampshire	River Casino & Sports Bar	2008 ^d	8,000 ^d	0 ^c	18 ^c	5
New Hampshire	Wonder Casino	2009 ^d	NA	50 ^c	13 ^c	14
New Hampshire	Filotimo Casino	2010	NA	0 ^c	37 ^c	20
New Hampshire	Lakes Region Casino	2011 ^a	3,500 ^c	12 ^c	17 ^c	59

Source: a = online news report; b = World Casino Directory; c = CasinoCity.com; d = verified via phone call from SEIGMA team; e = Wikipedia; NA = not available.

Figure 1. The Three Regions as Defined in the Massachusetts Expanded Gaming Act



Table 2. Plainridge Park Casino

Venue	Host Community	Surrounding Communities	Opening Date	Current Gambling Availability	Current Amenities	Owners	Notes
Slot Parlor	Town of Plainville (in Norfolk County)	Foxborough Wrentham (in Norfolk County) Attleboro Mansfield North Attleborough (in Bristol County)	June 24, 2015	925 slot machines and electronic table games; several instant ticket and lottery ticket terminals; 5/8-mile live harness racing track + simulcast betting	Several restaurants, bars, and food court eateries, with nightly entertainment available at one of its lounges. 1,620 parking spaces. 55,000 sq ft clubhouse for simulcast operations and live race viewing.	Owned and operated by Penn Entertainment (formerly Penn National) with corporate headquarters in Pennsylvania.	Opened initially in 1999 as a seasonal harness racing track with additional simulcast betting ('Plainridge Racecourse'). 198,000 sq ft total area.



Table 3. MGM Springfield

Venue	Host Community	Surrounding Communities	Opening Date	Gambling Availability	Amenities	Owners	Notes
Region B Casino	City of Springfield (in Hampden County)	Agawam Chicopee East Longmeadow Longmeadow Holyoke Ludlow Wilbraham West Springfield (in Hampden County)	August 24, 2018	1,500+ slot machines, 63 table games	Hotel with 240 rooms, meeting and convention space, spa, movie theatre, retail and restaurant space. ~3,400 parking spaces. 126,000 sq ft gaming space	Owned and operated by MGM Resorts International with corporate headquarters in Nevada.	760,000 sq ft in total.



Table 4. Encore Boston Harbor

Venue	Host Community	Surrounding Communities	Opening Date	Gambling Availability	Amenities	Owners	Notes
Region A Casino	City of Everett (in Middlesex County)	Cambridge Malden Medford Melrose Somerville (in Middlesex County) Boston (in Suffolk County) Lynn (in Essex County)	June 23, 2019	2,700+ slot machines, 185+ table games, poker room.	Hotel with 671 rooms, meeting and convention space, spa, retail and restaurant space. 3,731 parking spaces (2,931 on-site). 190,000 sq ft gaming space	Owned and operated by Wynn Resorts with corporate headquarters in Las Vegas.	3,100,391 sq ft in total. Name change from 'Wynn Boston Harbor'.



Figure 2. Location of the Three Existing Casinos in Massachusetts

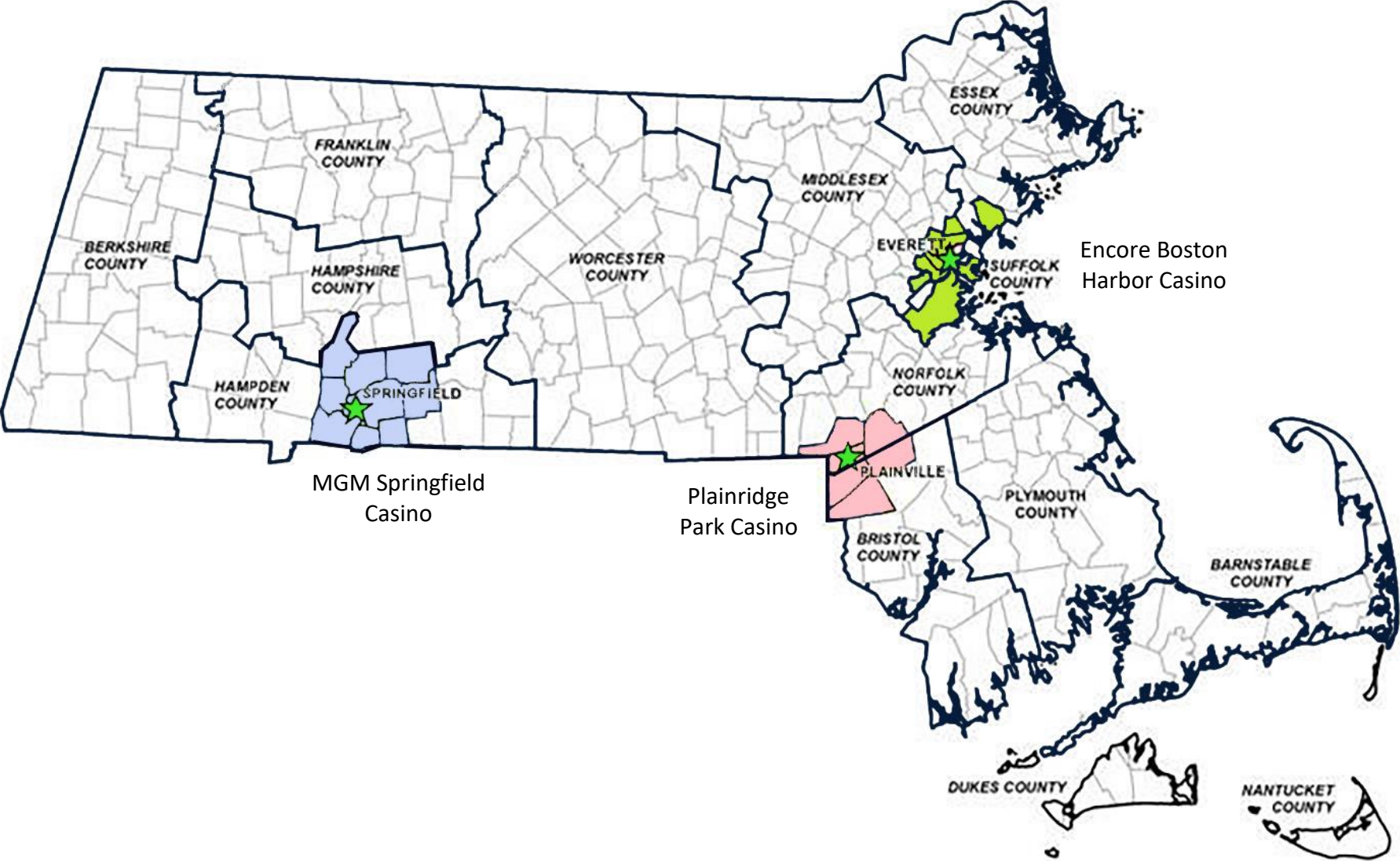
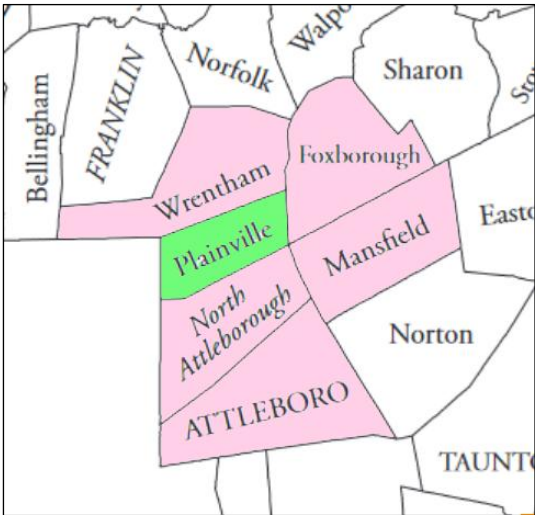
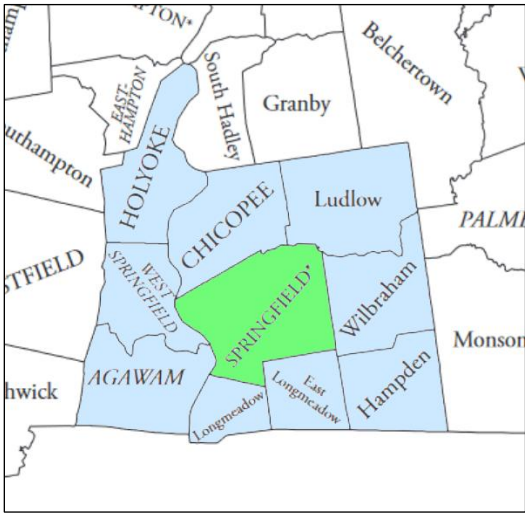


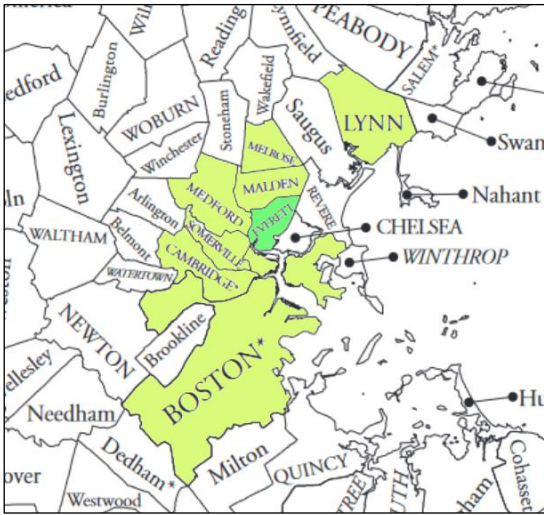
Figure 3. The Host and Surrounding Communities for the Three Casinos



Plainridge Park Casino



MGM Springfield Casino



Encore Boston Harbor Casino

Sports Betting

In August 2016 [fantasy sports betting](#), which is conducted online, was legalized in Massachusetts (restricted to age 21 and older).

In August 2022 an [Act to Regulate Sports Wagering](#) legalized all other types of sports betting (with a few exceptions). There are three categories of sports wagering licensees: Category 1 for the three licensed casinos; Category 2 for racetracks and/or horse-racing simulcast centers; Category 3 for online/mobile operators.

The following licenses had been approved as of January 2024:

- Category 1: Encore Boston Harbor; MGM Springfield; Plainridge Park Casino
- Category 2: none
- Category 3 (tethered): BetMGM, tethered to MGM Springfield; Caesar's Sportsbook, tethered to Encore; Fanatics Betting & Gaming, tethered to Plainridge Park Casino; Penn Sports Interactive, tethered to Plainridge Park Casino; and WynnBet, tethered to Encore Boston Harbor.
- Category 3 (untethered): Bally Bet; Betr; Betway; DraftKings; and FanDuel.⁴

On January 31, 2023 in-person sports betting began at the three casinos. On March 10, online sports betting began at the 10 online websites. Wagering on all sports is permitted with the exception that no wagering is permitted on any collegiate team located in Massachusetts unless the team is participating in a tournament.

The legal age for sports betting in Massachusetts is 21 and wagers must physically occur within the state.

Online Gambling

Sports betting is currently the only legal form of online gambling in Massachusetts.

Social Gambling

Bets between individuals are legal if the winning amount is [\\$5 or less](#).

⁴ [Betr](#) and [WynnBet](#) were both previously licensed Category 3 sports wagering operators from February 2023 through early 2024, but did not renew their licenses following completion of their temporary, one-year licenses.

DATA SOURCES FOR THE PRESENT STUDY

The present study employed a **mixed methods research strategy** that utilized both primary and secondary data collection/analysis as well as quantitative and qualitative research methods. Gambling is just one of many economic forces contributing to the dynamic social and economic landscape of Massachusetts, making disentangling gambling's unique contribution difficult. The use of multiple methods aids in this task, as it allows for triangulation of findings.

The following is a brief description of the data sources utilized in the present report. In most cases the results have been extracted directly from the original [55 interim reports and academic publications](#), but there are some cases where additional analyses have been undertaken, and some cases where new primary data has been collected. At the end of this section a summary table is provided of the data sources and the socioeconomic impact area they apply to.

General Population Surveys (BGPS & FGPS)

Population surveys provide information on three key areas relevant to the impact of casino introduction:

- **Public attitudes.** An argument can be made that the general public's current support or non-support of casinos (and legalized gambling more generally) is as important as its objective beneficial or detrimental effects.
- **Level and pattern of gambling participation.** When a new type of gambling is made available there is typically an increase in population participation in this new form. However, what needs to be established is (a) the magnitude of the increase; and (b) whether increased participation is associated with negative impacts on other types of gambling. Concerning this latter point, one of the reasons for the creation of casinos in Massachusetts was to decrease money that was going to out-of-state casinos. In addition, there has been some concern about whether Massachusetts casinos would cannibalize Massachusetts lottery revenue.
- **Population prevalence of problem gambling.** With increased participation there is often an increase in problems. Here again, what needs to be established is the magnitude of the increase, as well as whether there are specific segments of society that are more impacted than others. In the present study the Problem and Pathological Gambling Measure (PPGM) (Williams & Volberg, 2014) was used to assess problem gambling. Relative to other instruments, the PPGM varies less as a function of gender, age, and ethnicity (Williams & Volberg, 2014), is better suited to capture the multidimensional nature of problem gambling (Christensen et al., 2019; Molander & Wennberg, 2023), and is better able to differentiate between levels of severity in both general populations and clinical contexts (Molander & Wennberg, 2023).

A **Baseline General Population Survey (BGPS)** was conducted between September 2013 and May 2014 with adult (18+) Massachusetts residents ([Volberg et al., 2017](#)). 'Address-Based Sampling (ABS)' was employed, which is currently the gold standard for optimizing sample representativeness (Harter et al., 2016; Iannacchione, 2011; Olson et al., 2021). A random sample of residential addresses provided by the U.S. Postal Service were sent a letter inviting the person in the household with the next birthday to go online and complete the survey. The letter contained a \$1 incentive and offered a \$10 Amazon gift-code if the online survey was completed within 14 days. If respondents had not completed the survey four weeks after the initial letter, they were sent a paper version of the survey, a \$5 incentive, and a return envelope. Every address that failed to complete the survey via mail or online and whose household had been matched with a landline telephone number was then called and given the opportunity to complete the survey over the telephone. All surveys were available in both English and Spanish. In the end, a total of **9,578** adults (18+) completed the questionnaire with 40% completing online, 52% completing on paper, and 7% completing on the phone. A final

response rate of **36.6%** was obtained (AAPOR RR3). All BGPS data in this report has been weighted to match the population census.

Volberg, R.A., Williams, R.J., Stanek, E.J., Houpt, K.A., Zorn, M., Rodriguez-Monguio, R. (2017). *Gambling and Problem Gambling in Massachusetts: Results of a Baseline Population Survey*. Amherst, MA: School of Public Health and Health Sciences, University of Massachusetts Amherst.

After all three casinos had opened, the **Follow-Up General Population Survey (FGPS)** was conducted between September 2021 and April 2022 using the same survey company (NORC at the University of Chicago) and the same Address-Based sampling procedure (Volberg et al., 2023). In the end, a total sample of **6,293** adults (18+) completed the questionnaire with 74.7% completing online, 23.6% completing on paper, and 1.7% completing on the phone. A final response rate of **27.5%** was obtained (AAPOR RR3). All FGPS data in this report has been weighted to match the population census. The question of when to field the FGPS required balancing opposing considerations. These included concerns about the ability to attribute changes in attitudes and behaviors specifically to the introduction of casinos given the passage of time, wanting to field the FGPS in the same September – March time frame as the BGPS, the likely impact of COVID-19 on gambling behavior given casino closures and capacity restrictions in 2020 and 2021, and the pending legalization of sports betting in Massachusetts which made it desirable to carry out the survey sooner rather than later. The final decision on when to field the survey was made with input from the MGC and members of the MGC’s Research Review Committee.

Volberg, R.A., Williams, R.J., Zorn, M., Evans, V. (2023). *Gambling and Problem Gambling in Massachusetts: Results of a Follow-up Population Survey*. Amherst, MA: School of Public Health and Health Sciences, University of Massachusetts Amherst.

Targeted Population Surveys of Casino Host & Surrounding Communities

In addition to the statewide general population surveys, Baseline and Follow-Up ‘Targeted Population Surveys’ were conducted in the geographic areas where the new casinos were built to assess attitudes, gambling participation, and problem gambling. These targeted areas include the ‘host’ community where the casino is located as well as the ‘surrounding communities’ which are defined as municipalities proximate to a host community and which the Massachusetts Gaming Commission deems likely to experience impacts from the new venue (see Figure 3). There are both ‘Baseline Targeted Population Surveys’ (before the casino has opened) and ‘Follow-Up Targeted Population Surveys’ (after the casino has been opened for at least one year). The same methodology utilized in the general population surveys was employed in these Targeted Surveys. These surveys are briefly described in Table 5. All Targeted Population Survey data in this report has been weighted to match the population census for these areas. The full reports on each of these surveys contain more extensive information on both methodology and results: [SEIGMA Research Team \(2019\)](#) for Plainridge Park Casino, [Volberg et al., 2020](#) for MGM Springfield. Targeted Population Surveys were not conducted for Encore Boston Harbor because the General Population Surveys included sufficient numbers of residents of Everett and the surrounding communities to analyze changes in problem gambling prevalence over time.

Table 5. Targeted Population Surveys in SEIGMA

Geographic Area	Baseline Targeted Survey	Casino	Follow-Up Targeted Survey
Plainridge Park Casino H&SC <ul style="list-style-type: none"> Plainville (host), Attleborough, Foxborough, Mansfield, North Attleborough, Wrentham 	<ul style="list-style-type: none"> Baseline Targeted Population Survey – Plainville (BTPS-Plainville) May – Jul 2014 N = 1,093; 28.2% response rate 	<ul style="list-style-type: none"> Plainridge Park Casino Opened June 24, 2015 	<ul style="list-style-type: none"> Follow-Up Targeted Population Survey – Plainville (FTPS-Plainville) Oct 2016 – Feb 2017 N = 1,012; 27.7% response rate
MGM Springfield H&SC <ul style="list-style-type: none"> Springfield (host), Agawam, Chicopee, East Longmeadow, Holyoke, Longmeadow, Ludlow, Wilbraham, West Springfield 	<ul style="list-style-type: none"> Baseline Targeted Population Survey – Springfield (BTPS-Springfield) Feb – Jul 2015 N = 1,131; 31.7% response rate 	<ul style="list-style-type: none"> MGM Springfield Opened August 24, 2018 	<ul style="list-style-type: none"> Follow-Up Targeted Population Survey – Springfield (FTPS-Springfield) Oct 2019 – Jan 2020 N = 1,134; 16.7% response rate
Encore Boston H&SC <ul style="list-style-type: none"> Everett (host), Boston, Cambridge, Lynn, Malden, Medford, Melrose, Somerville 	<ul style="list-style-type: none"> Baseline Targeted Population Survey – Everett (BGPS-Everett) (a subsample of the Baseline General Population Survey) Sep 2013 – May 2014 N = 1,155; 36.6% response rate 	<ul style="list-style-type: none"> Encore Boston Harbor Opened June 23, 2019 	<ul style="list-style-type: none"> Follow-Up Targeted Population Survey – Everett (FTPS-Everett) (a subsample of the Follow-Up General Population Survey) Sep 2021 - Apr 2022 N = 1,782, 27.5 response rate

SEIGMA Research Team (2019). *Social and Economic Impacts of Plainridge Park Casino: 2018*. Amherst, MA: School of Public Health and Health Sciences, University of Massachusetts Amherst.

Volberg, R.A., Zorn, M., Evans, V., Stanek, E.J., Williams, R.J. (2020). *Impact of MGM Springfield on Gambling Attitudes, Participation, and Problem Gambling*. Amherst, MA: School of Public Health and Health Sciences, University of Massachusetts Amherst.

Online Panel Surveys (BOPS, FOPS, OPS23)

Online panels are commonly used in market research and increasingly in academic studies (Callegaro et al., 2014; Göritz et al., 2007). The advantages of online panel surveys are that (a) the validity of answers to ‘sensitive questions’ (e.g., gambling) tends to be higher in self-administered formats (Tourangeau & Smith, 1996; van der Heijden, van Gils, Bouts, & Hox, 2000); (b) everyone has agreed and expects to be contacted (unlike telephone surveys); (c) the results are obtained in a much shorter period of time; and (d) they are much less expensive than probability sampling surveys (Olson et al., 2021). The main limitation of online panels is that panelists are not randomly selected but rather self-enrolled. While online panel companies generally stratify their samples to be demographically representative of the population, significant behavioral biases typically remain that are not corrected by this stratification or by demographic weighting (e.g., Pickering & Blaszczynski, 2021; Williams, Zorn, Volberg & Evans, 2023). In particular, online panels contain people with much higher levels of gambling and problem gambling. However, these behavioral biases are an advantage in

studies such as SEIGMA where these biases can be utilized to obtain a higher ‘yield’ of people with gambling problems to better understand the features of this important subgroup.

While the online panel surveys have been used in SEIGMA primarily to understand the nature of MA problem gamblers, they can be used in a similar manner to the ABS surveys to examine changes from one time period to the next because the behavioral biases are constant across surveys. To date there have been three online panel surveys in Massachusetts as listed in Table 6 (online panel surveys will continue on an annual basis for the foreseeable future). All online panel data in this report has been weighted to match the population census.

Table 6. Online Panel Surveys in Massachusetts

Survey	Time Period	Sample Size	Survey Company
Baseline Online Panel Survey (BOPS)	October 2013 – March 2014	5,046	Ipsos ⁵
Follow-Up Online Panel Survey (FOPS)	March 2022	3,038	Qualtrics
Online Panel Survey 2023 (OPS23)	March – May 2023	3,380	Qualtrics
Online Panel Survey 2024 (OPS24)	March - April 2024	TBD	Qualtrics

Williams, R.J., Pekow, P.S., Volberg, R.A., Stanek, E.J., Zorn, M., & Houpt, K.A. (2017). *Impacts of Gambling in Massachusetts: Results of a Baseline Online Panel Survey (BOPS)*. Amherst, MA: School of Public Health and Health Sciences, University of Massachusetts Amherst.

Williams, R.J., Zorn, M., Volberg, R.A. & Evans, V. (2023). *Can the Behavioral Biases of Opt-In Online Panels be Eliminated or Reduced through Corrective Weighting?* Amherst, MA: School of Public Health and Health Sciences, University of Massachusetts Amherst.

Massachusetts Gambling Impact Cohort (MAGIC)

The **M**assachusetts **G**ambling **I**mpact **C**ohort (MAGIC) is a prospective study of gambling and problem gambling conducted in Massachusetts from September 2013 to September 2019. Multi-modal address-based sampling recruitment was utilized to recruit a statewide sample of 3,139 adults, 18 and older, with the sample over-selected for individuals at higher risk of future problem gambling. The cohort was assessed five times over a six-year period with the vast majority of assessments being self-administered online. The assessment collected comprehensive information on gambling-related behavior, attitudes, motivations, context, fallacies; problem gambling; physical health; mental health; substance use and abuse; social functioning; personality; and demographics. A retention rate of 79.7% was achieved in Wave 5 (75.9% of the original 3139 Wave 2 respondents). All MAGIC data in the present report is unweighted.

MAGIC Research Team (2021). *MAGIC: A Six Year Longitudinal Study of Gambling and Problem Gambling in Massachusetts*. Amherst, MA: School of Public Health and Health Sciences, UMass Amherst. April 16, 2021.

⁵ Online panel surveys also differ somewhat in their panel membership (and prevalence rates of various disorders), which is primarily why comparisons in the present study are limited to the FOPS versus the OPS23.

Table 7. Details of the 5 Waves of MAGIC

Wave	Beginning and End Dates	95% Assessment Window	Inter-Assessment Interval	Eligible Sample	Completed Surveys	Questionnaire Length	Survey Administration Modality	Response Rate	Retention Rate
1	Sep 13, 2013 – Jul 1, 2014	6.75 months (Apr 2, 2014)	Not applicable	Not applicable	Not applicable ^a	Short	44% online, 50% paper, 6% phone	36.6%	Not applicable
2	Mar 20, 2015 – Oct 13, 2015 (95.2% prior to PPC opening)	3.0 months (Jun 23, 2015)	16.8 months	4,860	3,139	Short	58% online, 36% paper, 5% phone	65.1%	Not applicable
June 24, 2015 Opening of Plainridge Park Casino (PPC)									
3	Apr 8, 2016 – Aug 18, 2016	3.0 months (Jul 8, 2016)	12.0 months	3,139	2,450	Comprehensive	76% online, 24% paper	Not applicable	78.1%
4	<i>Apr 2017 – Jul 2017</i>	<i>Postponed due to budgetary constraints</i>							
4	Apr 12, 2018 – Nov 12, 2018 (99.7% prior to MGM opening)	2.5 months (Jun 27, 2018)	24.0 months	3,015	2,444	Comprehensive	84% online, 16% paper	Not applicable	81.1%
August 24, 2018 Opening of MGM Springfield									
5	Mar 28, 2019 – Sep 13, 2019 (96.3% prior to Encore opening)	2.5 months (Jun 11, 2019)	11.5 months	2,989	2,382	Comprehensive	88% online, 12% paper	Not applicable	79.7%
June 23, 2019 Opening of Encore Boston Harbor									

^a Of the 3,139 participants in Wave 2, 2,096 could be matched to the same survey participant and his/her survey in Wave 1.

Beginning and End Dates: date of the first completed assessment to the last completed assessment.

95% Assessment Window: number of months from the first completed assessment to the last completed assessment for 95% of respondents.

Inter-Assessment Interval: length of time between the median completion in previous wave to the median completion in current wave

Eligible Sample: members of the designated cohort (i.e., people who completed Wave 2) minus individuals unable to participate due to death or permanent medical incapacitation.

Completed Surveys: total number of surveys from the eligible sample deemed complete, defined as having completed at least 7 of the 10 primary questions on gambling participation.

Questionnaire Length: refers to whether it was a relatively short survey focused on gambling or a more comprehensive survey that included potential etiological predictors of problem gambling.

Survey Administration Modality: percent of surveys self-administered online; self-administered via a mailed paper survey; and administered via a telephone interview.

Response Rate: completed surveys as a percentage of the sample eligible for recruitment.

Retention Rate: completed surveys as a percentage of the eligible cohort membership.

Key Informant Interviews

Key informant interviews were conducted with individuals who live or work in or around Plainville, Springfield, and Everett after the casino in each community had opened. The goal was to gain an on-the-ground understanding from local experts about their perception of the impacts of the new casino. For each community, the SEIGMA team identified 'key' contacts who, through their professional expertise and experience working in the locale, would be well positioned to comment on any changes they had observed. If a key informant agreed to an interview, a 45–90-minute interview was conducted in person, by telephone, or by video conference (Zoom) with questionnaires tailored to the position of the key informant, as they were expected to speak in their professional capacity when commenting on the impacts of the casino. Interviews were video and/or audio recorded and transcribed. The interviews were not confidential as officials/representatives spoke in their professional capacity and in their area of expertise.

In **Plainville** a total of 3 interviews were conducted from January 2018 to March 2018 with:

- Jennifer Thompson, Town Administrator, Plainville, MA
- Kathleen Parker, Treasurer, Plainville, MA
- Lou LeBlanc, Chairman, Board of Health, Plainville, MA
- We also contacted Plainville's Housing Authority, but board members were unwilling to participate in interviews concerning Plainville's housing market

In **Springfield** a total of 9 interviews were conducted from September 2019 to May 2020 with:

- Rebecca Bishop, Director, Gambling Prevention Technical Assistance Center, Education Development Center
- Dr. Stephen Boos, Medical Director, Family Advocacy Center, Baystate Health Systems
- Jessica Collins, Executive Director, Public Health Institute of Western Massachusetts
- Amy Gabriela, Senior GameSense Advisor at MGM Springfield, Massachusetts Council on Gaming and Health
- Chrismery Gonzalez, Program Lead, Office of Problem Gambling Prevention, Department of Health and Human Services, City of Springfield
- Joesiah Gonzalez, Director of Youth Services, New North Citizens Council
- Ronn Johnson, President and CEO, Martin Luther King, Jr. Family Services
- Frank Robinson, Vice President, Public Health and Community Relations, Baystate Health Systems
- Dr. Jessica Wozniak, Manager, Clinical Research & Development, Family Advocacy Center, Baystate Health Systems

In **Everett** a total of 7 interviews were conducted from November 2021 to April 2022 with:

- Karl Allen, Economic Development Specialist, City of Chelsea, MA
- David Auerbach, Health Policy Researcher, Brandeis University
- Diana Jeong, Vice President, Greater Malden Asian American Community Coalition
- Meera Krishnan, Founder and lead organizer, Malden Neighbors Helping Neighbors
- Kira Landauer, Community Health Educator, Division on Addiction, Cambridge Health Alliance
- Liliana Patino, Director, (Eliot) Family Resource Center
- Dinanyili Paulino, Chief Operating Officer, La Colaborativa

Focus Groups

Focus groups were conducted to capture the qualitative sentiments concerning the impacts of these new venues. As with key informant interviews, the purpose was to gain a closer understanding from people who live and/or work with communities around the casinos. We reached out to prospective participants and for those who accepted, grouped them thematically around their area of expertise (e.g., economic development, health, community work) and scheduled 60-90 minute focus group meetings via video conference (Zoom). Interviews were video and audio recorded and transcribed. The interviews were not confidential as officials/representatives spoke in their professional capacity and in their area of expertise.

In **Springfield** a total of 4 focus groups were conducted from April 12, 2021 to May 5, 2021:

- Focus Group 1
 - Only one person showed up, so in practical terms it was a key informant interview with Michael Di Pasquale, Founder, Make-It-Springfield, Cofounder, UMass Design Center in Springfield, and UMass Amherst Assistant Professor of Regional Planning
- Focus Group 2
 - Mary Kay Wydra, President, Greater Springfield Conventions and Visitors Bureau
 - Ethel Griffin, Associate Director, Revitalize Community Development Corporation
 - Denise Jordan, Executive Director, Springfield Housing Authority
 - Jeffrey Hayden, Vice President of Business & Community Services, Holyoke Community College
- Focus Group 3
 - Timothy Sheehan, Chief Development Officer, City of Springfield Office of Planning & Economic Development
 - Rick Sullivan, President & CEO, Western Massachusetts Economic Development Council
 - Brenda Evans, Community Liaison, Center for Community Health Equity Research, UMass Amherst
 - Jessica Collins, Executive Director, Public Health Institute of Western Massachusetts
 - Malukah Jeffries, Coalition Coordinator, Gandara Center
- Focus Group 4
 - Ariana Williams, Public Health Programs Director, Martin Luther King, Jr. Family Services
 - Xavier Williams, Project Director, Men of Color Health Awareness

In **Everett** there was 1 focus group held on June 7, 2022:

- Alexander Fidalgo, Training Associate, Training & Capacity Building, Health Resources in Action
- Chien-Chi Huang, Founder and Executive Director, Asian Women for Health
- Jina Kim, Program Navigator, Asian Task Force Against Domestic Violence

Secondary Data

Secondary data was used primarily to triangulate findings from our primary data. Secondary data informs the following indices: problem gambling and related indices; crime; other social indices; and indirect economic impacts.

The data necessary for these analyses was available online from various state and federal government agencies and included personal bankruptcy filings; suicides; domestic violence; protective/restraining orders; divorce rate; child abuse; public assistance; crime rates (property; violent; DUIs, illegal gambling); overall population; # English learners in school; vehicle crashes and DUI-related injuries; # business establishments; employment, and unemployment rates. When available, comparisons were made at a host county level compared to the state and/or a host community level compared to the county.

Crime Impact Reports

Beginning in 2015 a series of reports were commissioned by the Massachusetts Gaming Commission to study the impacts of casino introduction on crime rates, with almost all of these reports being produced by Christopher Bruce, Crime Analysis Consultant. The data contained in these reports is derived from: (a) Gaming Enforcement Unit records (a division of the Massachusetts State Police); (b) local police records (crimes and non-crime calls for service were included) for the each of the communities in each of the host and surrounding communities (with comparisons to rates prior to casino openings); and (c) reviews of police narratives and discussions with officers and analysts at the different police departments. In 2023 and 2024 two additional reports were produced by Justice Research Associates. The results of these studies have been extracted from these reports and reproduced here.

Bruce, C.W. (2015). *Assessing the Impact of Gambling on Public Safety in Massachusetts Cities and Towns: Baseline analysis of crime, call-for-service, and collision data in the Plainville region*. August 24, 2015.

Bruce, C.W. (2016). *Assessing the Impact of Gambling on Public Safety in Massachusetts Cities and Towns: Analysis of Changes in Police Data after the First Year of Operation at Plainridge Park Casino*. April 12.

Bruce, C.W. (2016). *Assessing the Impact of Gambling on Public Safety in Massachusetts Cities and Towns: Analysis of Changes in Police Data after the First Year of Operation at Plainridge Park Casino*. December 12.

Bruce, C.W. (2018). *Assessing the Impact of Gambling on Public Safety in Massachusetts Cities and Towns: Analysis of Changes in Police Data after Two Years of Operation at Plainridge Park Casino*. March 1.

Bruce, C.W. (2018). *Assessing the Impact of Gambling on Public Safety in Massachusetts Cities and Towns: Baseline Analysis of Crime, Call-for-Service, and Collision Data in the Communities near MGM Springfield*. October 18.

Bruce, C.W. (2019). *Assessing the Impact of Gambling on Public Safety in Massachusetts Cities and Towns: Analysis of Changes in Police Data Following Four Months of Activity at MGM Springfield*. May 19.

Bruce, C.W. (2019). *Assessing the Impact of Gambling on Public Safety in Massachusetts Cities and Towns: Analysis of Changes in Police Data Following Eight Months of Activity at MGM Springfield*. November 1.

Bruce, C.W. (2019). *Assessing the Impact of Gambling on Public Safety in Massachusetts Cities and Towns: Analysis of Changes in Police Data Following Four Years of Activity at Plainridge Park Casino*. November 1.

Bruce, C.W. (2019). *Assessing the Impact of Gambling on Public Safety in Massachusetts Cities and Towns: Baseline Analysis of Crime, Call-for-Service, and Collision Data in the Communities near Encore Boston Harbor*. November 1.

Bruce, C.W. (2020). *Assessing the Impact of Gambling on Public Safety in Massachusetts Cities and Towns: Analysis of Changes in Police Data Following One Year of Activity at MGM Springfield*. February 20.

Bruce, C.W. (2020). *Assessing the Impact of Gambling on Public Safety in Massachusetts Cities and Towns: Analysis of the Influence of Encore Boston Harbor on its Surrounding Community During its First Six Months of Operation*. May 7.

Bruce, C.W. (2021). *Assessing the Impact of Gambling in Massachusetts: Updates on MGM Springfield and Encore Boston Harbor*. March 25.

Bruce, C.W. (2022). *Assessment of the Casinos' Impacts on Operating Under the Influence (OUI) and OUI-Involved Traffic Collisions*. January 27.

Justice Research Associates (2023a). *Analysis of the influence of Encore Boston Harbor on its surrounding community. Crime comparison covering periods before COVID-19, during closure and restricted opening, and the period since reopening*. May 4.

Justice Research Associates (2023b). *Assessing the Influence of Gambling on Public Safety in Massachusetts Cities and Towns: Crime Comparison Analysis of Changes in the MGM Springfield Region 2013-2022*. December.

Casino Construction Impact Reports

An important economic impact is the money spent by the casino companies to build the casinos, which includes architectural design, engineering, and the actual construction. Three reports by the University of Massachusetts Donahue Institute capture the direct spending, employment, and wages related to the construction of each of the casinos as well as the estimated indirect economic impacts to Massachusetts.

Motamedi, R., & Peake, T. (2017). *The Construction of Plainridge Park Casino: Spending, Employment, and Economic Impacts*. Amherst, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group. March 7.

Motamedi, R., Hall, A., Aron, E., Dinnie, I., & Swotes, J. (2019). *The Construction of MGM Springfield: Spending, Employment, and Economic Impacts*. Hadley, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group, October 1

Motamedi, R., Hall, A., & Dinnie, I. (2020). *The Construction of Encore Boston Harbor: Spending, Employment, and Economic Impacts*. Hadley, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group, November 17.

Patron and License Plate Surveys

Patron and License Plate Surveys were conducted at each of the three Massachusetts casinos as detailed in the table below. These surveys provide data regarding casino patron geographic origin and self-reported expenditures, which is important in establishing the influx of new revenue from out-of-state residents, the recapture of casino revenue that was previously leaving the state, and the extent to which the revenue is drawn primarily from the local community. These surveys also establish the extent to which casino expenditure has been redirected from other sectors of the economy ('reallocated spending') as the surveys also inquire about what people are spending less on because of their casino patronage.

Table 8. Patron and License Plate Surveys

Casino	Time Period	Patron Survey	License Plate Survey
Plainridge Park Casino	February 2016 & July/August 2016	N = 479 22.4% response rate	N = 5,483 vehicles
MGM Springfield	February/March 2019 & July/August 2019	N = 878 21.2% response rate	N = 9,502 vehicles
Encore Boston Harbor	April 2022	N = 440 15.4% response rate	N = 4,628 vehicles

The timing of the patron surveys and the specific sampling periods were selected so as to obtain as representative a sample as possible. This involved (a) waiting at least 6-12 months after the casino opened to allow patronage volume and demographic characteristics to settle;⁶ (b) splitting the data collection between the winter and the summer to take account of potential seasonal differences in patronage⁷; (c) spreading data collection over a two-week time span; and (d) sampling during both peak (Saturday) and non-peak (Monday) days as well as during peak and non-peak hours. The demographic characteristics of refusals in terms of age category, race category, and gender were also recorded and used to weight the obtained sample.

Salame, L., Williams, R.J., Zorn, M., Peake, T., Volberg, R.A., & Stanek, E.J. (2017). *Patron and License Plate Survey Report: Plainridge Park Casino 2016*. Amherst, MA: School of Public Health and Health Sciences, University of Massachusetts Amherst.

Salame, L., Williams, R.J., Zorn, M., Peake, T., Stanek, E.J., Mazar, A., & Volberg, R.A. (2020). *Patron and License Plate Survey Report: MGM Springfield 2019*. Amherst, MA: School of Public Health and Health Sciences, University of Massachusetts Amherst.

Salame, L., Williams, R.J., Zorn, M., Peake, T., Evans, V., & Volberg, R.A. (2023). *Patron and License Plate Survey Report: Encore Boston Harbor 2022*. Amherst, MA: School of Public Health and Health Sciences, University of Massachusetts Amherst.

AirSage Cell Phone Location Analysis

Cell phone location data was employed in 2023 to shed additional light on the geographic origin of casino patrons to the three Massachusetts casinos. AirSage (<https://airsage.com/>) is a telecommunications company based in Atlanta that began collating GPS data in 2016 and now has more than 5 billion location signals from more than 200 million mobile devices. AirSage collects, curates, and analyzes large volumes of location data to sell to businesses and universities for commercial or research purposes. Target Location Analysis is one AirSage product that provides device counts for a particular point of interest. Visitor information such as home location (county), visitation levels at the location, duration of stay, and estimated demographic profile of visitors can be obtained from this type of location data.

AirSage was contracted to provide cell phone location data for all cell phones detected at the three Massachusetts casinos as well as the eight major casinos within 100 miles of the state border for 14 consecutive days in January 2023 (January 16 – 29) and in October 2023 (October 2 – 15). This provides a fairly comprehensive picture of the casino's actual patronage, as more than 90% of U.S. adults currently carry a smartphone (Pew Research Center, 2024) which typically contains several apps that track location (e.g., Google Maps) (and very few people turn off their cell phones and/or disable all the apps that provide tracking). The eleven casinos selected for the present study are listed below, along with information pertaining to size and gambling opportunities provided by each casino. In total, there were 1,213,741 cell phones detected in this four-week period (results between the two time periods were added together).⁸

⁶ Ideally the Encore Boston Harbor survey would have been conducted in February/March 2020, some 8-9 months after the opening date of June 23, 2019, however, it was delayed due to the COVID-19 pandemic.

⁷ As no seasonal variation was identified for PPC and MGM a single season was selected for Encore.

⁸ Budget limitations prevented Resorts World Catskills from being included in the analysis even though it was within 100 miles (i.e., 88 miles). However, we were able to substitute a different New York state casino (Resorts World New York), as

Table 9. Casinos within 100 miles of Massachusetts Border included in the AirSage analysis

State	Casino	Date First Providing EGMs &/or Table Games	Current Square Footage	Current # EGMs	Current # Table Games	Driving Distance (miles) from MA State Line
MA	Plainridge Park Casino	2015	55,000	1,250	0	0
MA	Springfield MGM	2018	109,000	1,814	102	0
MA	Encore Boston Harbor	2019	210,000	1,800	254	0
RI	Bally's Tiverton Casino	2018	33,000	1,000	32	1
RI	Bally's Twin River Lincoln	1992	162,000	4,100	11	4
CT	Foxwoods Resort Casino	1992	340,000	3,420	265	43
CT	Mohegan Sun	1996	310,000	3,800	308	48
NY	Rivers Casino & Resort Schenectady	2017	50,000	1,150	83	43
NY	Saratoga Casino & Raceway	2004	55,000	1,630	0	53
NY	Empire City at Yonkers Raceway	2006	290,000	5,000	0	94
NY	Resorts World New York City	2011	330,000	6,500	1300	113

The geographic origin of cell phones detected at these venues was used to estimate: (a) the percentage and amount of Massachusetts casino revenue that comes from each state (as well as each Massachusetts county), and (b) the percentage and amount of casino revenue that other states are receiving from Massachusetts residents. This data informs the 'direct economic impacts.'

Note that all cell phones that were detected for 18 days or more during the months of January or October (based on data collection period) were excluded from the patron counts, as these were deemed to most likely be employees of the casino. However, this 18-day cut-off was subsequently determined to be insufficient to effectively exclude most part-time employees, who are estimated to constitute about 36% of all employees (and would represent thousands of individuals for the larger casinos). Thus, a 50% reduction in the counts was made in the 'home county' for all casinos, where the large majority of casino employees reside. The detailed rationale for this additional 'home county' adjustment is contained in [Appendix B](#).

Casino Operation Impact Reports

A series of four 'operating' reports by the University of Massachusetts Donahue Institute document direct casino revenue, employment, wages, vendor spending, and fiscal impacts from taxes and other assessments paid to the state as well as estimated indirect economic impacts of this spending to the state of Massachusetts.

Peake, T. & Motamedi, R. (2017). *Plainridge Park Casino First Year of Operation: Economic Impacts Report*. Amherst, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group. October 6.

the data was available for this casino from another study conducted for the state of Connecticut (Gemini Research, 2024). Even though Resorts World New York was 113 miles away it is a reasonable substitute as it is a much larger casino more likely to attract MA residents (i.e., 6500 EGMs, 1300 tables, 330,000 sq ft vs 1730 EGMs, 170 tables, 100,000 sq ft. at Catskills).

Peake, T. & Breest, K. (2020). *The Economic Impacts of Plainridge Park Casino: Four Years of Operations*. Hadley, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group. January 20.

Peake, T., Breest, K., & Aron, E. (2020). *MGM Springfield First Year of Operation: Economic Impact Report*. Hadley, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group. September.

Breest, K., Aron, E., McKenzie, R., Peake, T., Talagan, B. (2023). *Encore Boston Harbor, First Three and a Half Years of Operation: Economic Impacts Report, 2022*. Hadley, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group.

New Employee Surveys at Plainridge Park Casino, MGM Springfield, and Encore Boston Harbor

A series of three reports by the University of Massachusetts Donahue Institute details the employment opportunities offered by the casino operators and characteristics of their workforces at the point of hire. Key information collected from each successful job applicant included: employment status prior to hire; whether the applicant currently works for the operator or is a new hire; reasons for seeking the job, whether the applicant moved to take the position; and training received in preparation for work at the casino.

Table 10. New Employee Surveys

Casino	Survey Dates	Sample Size
Plainridge Park Casino	March 2015 - March 2017	1,056
MGM Springfield	Mar 2018 – Dec 2019	2,468
Encore Boston Harbor	Jan 2019 – Dec 2021	2,729

University of Massachusetts Donahue Institute (UMDI) (2017). *New Employee Survey at Plainridge Park Casino: Analysis of First Two Years of Data Collection*. May 10.

Hall, A., Breest, K., Aron, E. (2020). *New Employee Survey at MGM Springfield: March 2018 through December 2019*. Hadley, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group. June.

Breest, K., Aron, E., Hall, A. (2022). *New Employee Survey at Encore Boston Harbor: January 2019 through December 2021*. Hadley, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group. September.

A related study is the study of job quality at the casinos:

Breest, K., Aron, E., McKenzie, R., Peake, T., Talagan, B. (2023). *Assessment of Job Quality at Massachusetts Casinos, 2022*. Hadley, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group

Real Estate Impact Reports

Three reports provide a summary of trends in the residential real estate markets for the host communities of Plainville and Springfield, and trends in the commercial real estate market for Plainville, Springfield, and Everett. The data for these analyses were based primarily on property sales reported by the Massachusetts Department of Revenue Division of Local Services, the [CoStar](#) proprietary database, Zillow, MLS (Multiple Listings Services) and Massachusetts Association of Realtors.

Renski, H. & Peake, T. (2018). *Real Estate Impacts of the Plainridge Park Casino on Plainville and Surrounding Communities*. Amherst, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group. September 18.

Renski, H., Peake, T., Hall, A., McAuliffe, D., & Astor, J. (2019). *Real Estate Impacts of MGM Springfield in Springfield and Surrounding Communities*. Hadley, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group. September 23.

Peake, T., Breest, K., Aron, E., Dinnie, I. (2021). *SEIGMA Commercial Real Estate Report*. Hadley, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group. September.

Matched Community Comparison

One method for more strongly attributing socioeconomic changes to the introduction of casinos is a matched control comparison where changes in the set of communities receiving casinos are compared against changes in an economically, socially, and demographically similar set of communities that did not receive casinos and are not proximate to any casinos. Baseline matching was done in 2014 with follow-up results being presented for 2024 (unpublished).

Nichols, M.W. (2014). *Measuring the Economic Effects of Casinos on Local Areas: Applying a Community Comparison Matching Method*. November 5.

The table below provides a listing of each of the data sources utilized in the present report and the specific socioeconomic impact area they apply to.

Table 11. Summary of Data Sources and the Socioeconomic Area they Apply to

		Socioeconomic Area							
		Attitudes	Gambling Behavior	Problem Gambling & Related Indices	Crime	Other Social Indices	Direct Economic Impacts	Total Economic Impacts	Real Estate & Housing
Data Source	General Population Surveys								
	Targeted Population Surveys of H&SCs								
	Online Panel Surveys (BOPS, FOPS, OPS23)								
	MA Gambling Impact Cohort (MAGIC)								
	Key Informant Interviews								
	Focus Groups								
	Secondary Data								
	Crime Impact Reports								
	Casino Construction Impact Reports								
	Patron & License Plate Surveys								
	AirSage Cell Phone Location Analysis								
	Casino Operation Impact Reports								
	New Employee Surveys								
	Real Estate Impact Reports								
	Matched Community Comparison								

SOCIAL AND HEALTH IMPACTS

The *Social & Health Impacts* section is organized by *Specific Impact Area* (i.e., Attitudes, Gambling Behavior, Problem Gambling & Related Indices, Crime, Other Social Indices). Within each of these areas both statewide and regional impacts are identified. The beginning of each section provides a summary of the findings for that impact area.

ATTITUDES

The main **attitudinal impacts** of introducing casinos to Massachusetts (MA) are as follows:

- Prior to any casino opening, the majority of MA residents and residents of each casino Host & Surrounding Community (H&SC) believed the **harm of gambling to society** outweighed the benefits, with this sentiment being largely unchanged or increasing slightly after the casino(s) opened.
- Prior to any casino opening, the majority of MA residents and residents of each H&SC believed that **some types of gambling should be legal and some types illegal**, with the percentage of people endorsing this particular viewpoint being largely unchanged or increasing slightly after the casino(s) opened.
- Prior to any casino opening, most MA residents and residents of each H&SC believed the **current availability of gambling in MA** was ‘fine’, with this sentiment increasing further in the Plainridge Park Casino Host & Surrounding Community (PPC H&SC) after PPC opened. However, after all three casinos had opened most MA residents as well as all three H&SCs had changed their opinion and now indicated that gambling was ‘too widely available’.
- Prior to any casino opening, most MA residents as well as residents of each H&SC believed the **impact of the new casinos for MA** would be either ‘harmful’ or ‘beneficial’, with roughly an equal number of people endorsing each of those two viewpoints (albeit with the ‘beneficial’ sentiment being slightly higher everywhere except in the EBH H&SC). After the casino(s) opened, opinions moderated, with the sentiment that the new casinos were ‘neither harmful or beneficial’ increasing significantly in the state as well in all H&SCs (and being the most common sentiment in the state as well as in the EBH H&SC).
- Prior to the casino opening in their area, people in both the PPC H&SC and the MGM H&SC believed the **impact of the new casino to their community** would be either ‘harmful’ or ‘beneficial’, with roughly an equal number of people endorsing each viewpoint. After the casino opened, opinions in both H&SCs moderated, with the opinion that the casino had been ‘neither harmful or beneficial’ increasing significantly in both areas. Here again, a significant percentage of people continued to believe that the impact had been either harmful or beneficial, with roughly equal numbers of people on both sides.

Statewide Impacts

Figure 4 illustrates Massachusetts adult (18+) beliefs about the harm versus benefit of gambling for society both before the casinos were opened (Baseline General Population Survey; BGPS; 2013/2014) and after

(Follow-Up General Population Survey; FGPS; 2021/2022). As seen, many more people believe that gambling causes more harm than benefit, with a slight increase in this opinion post-casino opening. The 28% to 32% increase in the 'harm somewhat outweighs the benefits' is the only statistically significant change (at the $p < .05$ level), but it has a very small effect size (.08)⁹.

Figure 4. Belief about Benefit versus Harm of Gambling for Society

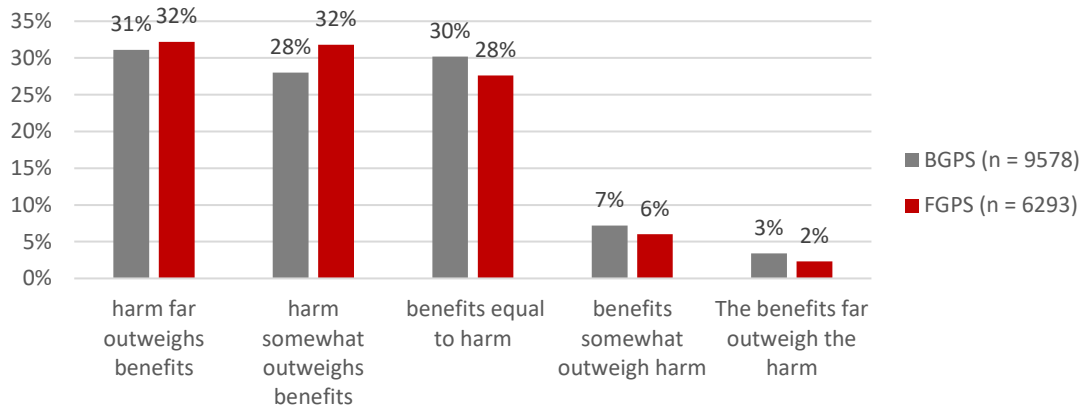


Figure 5 shows attitudes towards the legality of gambling in Massachusetts both before (BGPS) and after (FGPS) the casinos were opened. In both time periods most MA adults indicated that they believed some types of gambling should be legal and some should be illegal, with this opinion increasing somewhat in the FGPS and there being a decrease in the belief that all types of gambling should be legal. All of the differences between the BGPS and the FGPS in this figure are statistically significant although the effect sizes are small (.25 to -.21).

Figure 5. Opinion about Legalized Gambling in Massachusetts

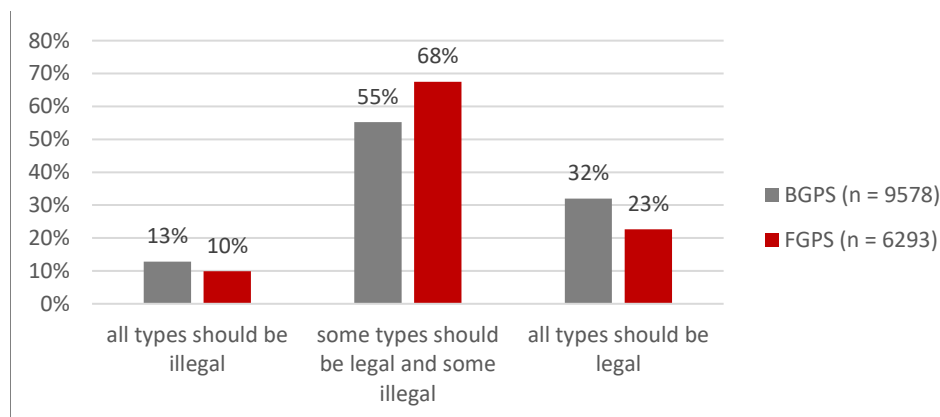
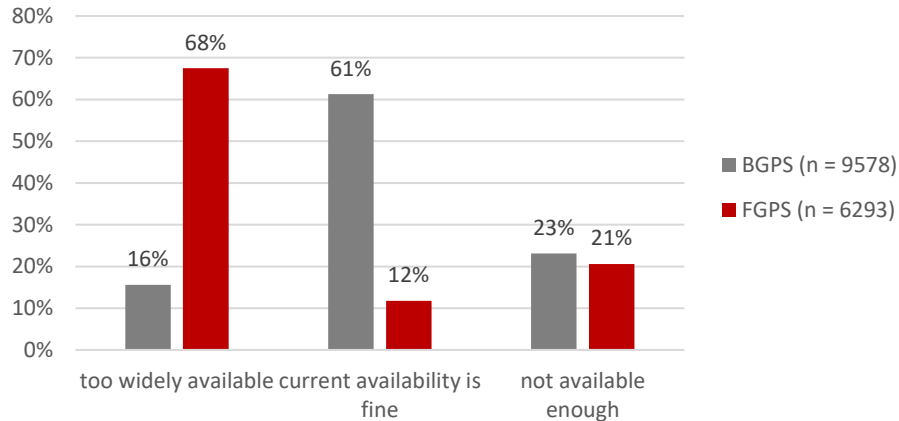


Figure 6 illustrates opinions about the availability of gambling opportunities in Massachusetts before (BGPS) and after (FGPS) the casinos were opened. Here we see a major change, with 61.3% in the BGPS indicating that the current availability was fine, but only 11.8% having this opinion after the casinos opened. Rather, in the FGPS the most common opinion was that gambling was too widely available (expressed by 67.5% of MA adults). These specific changes are statistically significant with large effect sizes (1.12 to -1.10).

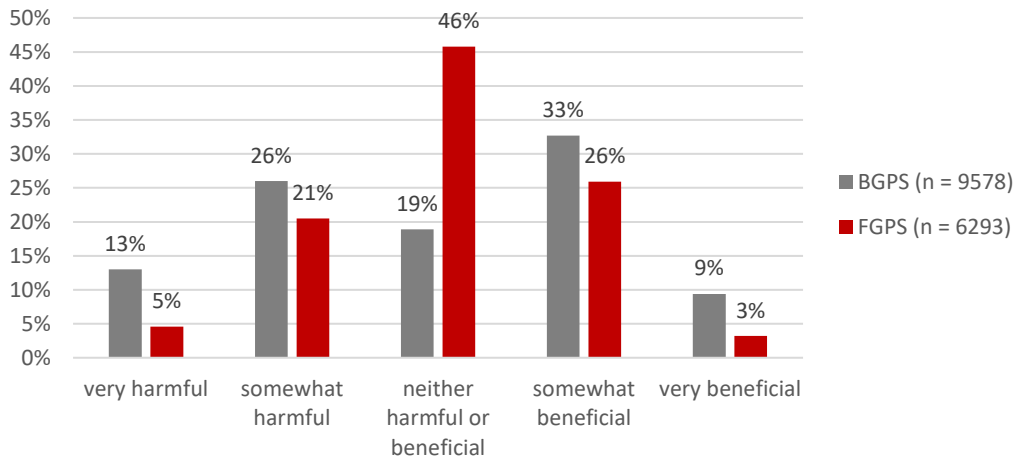
⁹ Cohen's h was used to test for effect sizes and conventional cutoffs were used to determine whether the effects were small, medium or large (https://en.wikipedia.org/wiki/Cohen%27s_h).

Figure 6. Beliefs about Gambling Availability in Massachusetts



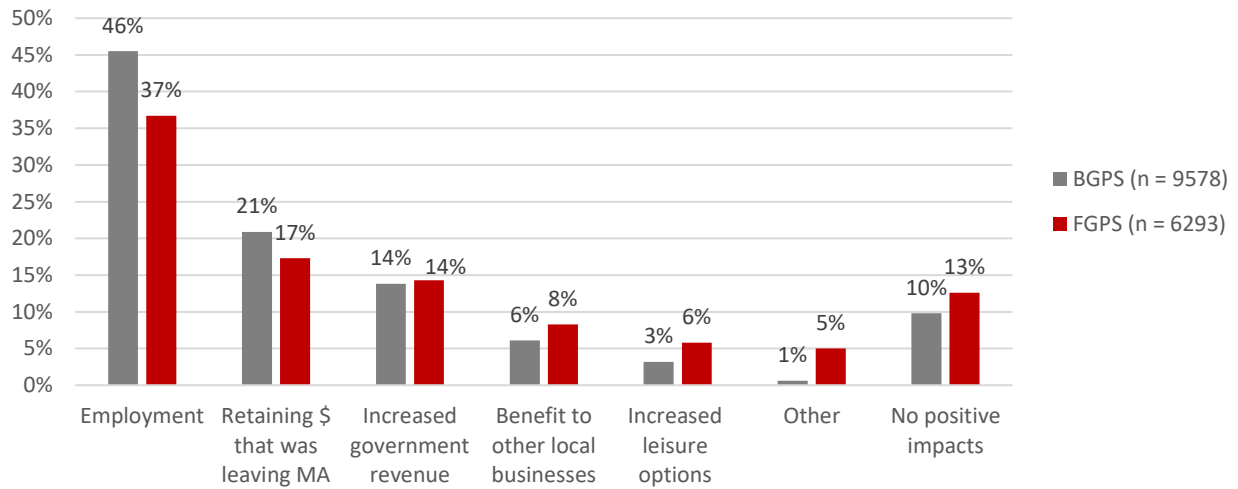
Before the casinos opened, people were asked what they believed the future impact of the three new casinos would be. After the casinos opened people were asked what they believed the *actual impact* had been (Figure 7). Pre-casino opinions were divided, with 39% believing they would be harmful and 42.1% believing they would be beneficial. Opinions moderated after the casinos had opened, with the most common opinion now being that the casinos were neither harmful nor beneficial (45.8%), with smaller numbers indicating they had had a beneficial (29.1%) or harmful impact (25.1%). All of the differences between the BGPS and the FGPS in this figure are statistically significant and effect sizes range from small to medium (-.31 to .59).

Figure 7. Anticipated vs. Actual Impact of the Three New Casinos in Massachusetts



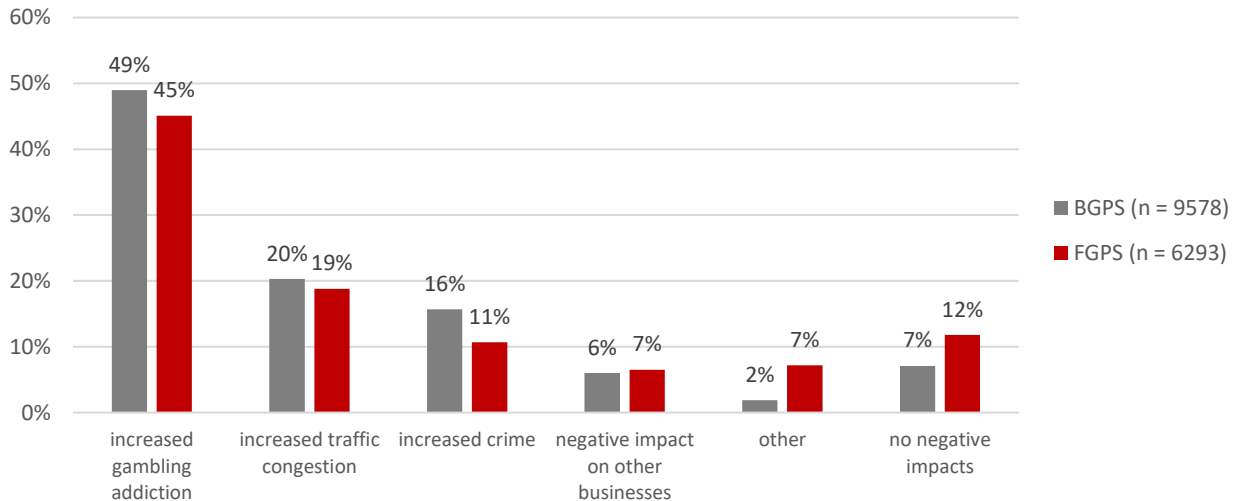
Before the casinos were opened people were asked what they believed the single most positive impact of the three new casinos would be. After the casinos opened they were asked what they believed the most positive impact actually had been. As seen in Figure 8, the pattern of endorsement was very similar in both time periods, with employment and retaining money that was leaving the state being the most commonly identified positive impacts. That said, after opening there were fewer people endorsing these two impacts, and somewhat more indicating 'increased leisure options' and 'benefit to other local businesses'. All of these changes except 'increased government revenue' were statistically significant, but with small effect sizes (-.18 to .29).

Figure 8. Anticipated vs. Actual Most Positive Impact of the Three New Casinos in Massachusetts



Similarly, before the casinos were opened people were asked what they believed the single most negative impact would be, and then after the casinos opened they were asked what they believed the most negative impact actually had been. As seen in Figure 9, addiction and increased traffic congestion were seen as the most negative impacts at both time periods. After opening, the pattern of endorsement was very similar, albeit with slightly fewer people endorsing these two negative impacts, and slightly more endorsing ‘other impacts’ and ‘no negative impacts’. There was also a decrease in the percentage of people who reported ‘increased crime’. All of these changes except ‘negative impacts on other businesses’ and ‘increased traffic congestion’ were statistically significant, but with small effect sizes (-.15 to .27).

Figure 9. Anticipated vs. Actual Most Negative Impact of the Three New Casinos in Massachusetts



Regional Impacts

Plainridge Park Casino Host & Surrounding Communities

Table 12 illustrates attitudes toward gambling in the Plainridge Park Casino Host & Surrounding Communities (PPC H&SC) in 2014, roughly one year before PPC opened, compared to 2016/2017, roughly a year after PPC opened. The data is from the Baseline Targeted Population Survey (BTPS-Plainville) and the Follow-Up Targeted Population Survey (FTPS-Plainville).

The pattern of attitudes and attitudinal changes is similar to what was found for the state as a whole. More specifically: most people in the PPC H&SC region believed (a) the overall harm of gambling outweighed the benefits to society, and that (b) some types of gambling should be legal and some types illegal; with there being no significant change in these attitudes after PPC opened. Also, before PPC opened opinions were quite divided between people who believed the casinos would be harmful (33.8%) or beneficial (44.1%) with these opinions moderating somewhat after PPC had opened due to an increase in the belief that the casinos were neither harmful or beneficial (32.0%, increasing from 22.2%), but with almost equal numbers still indicating they had a harmful (34.6%) or beneficial impact (33.4%). A similar pattern was seen in a question which asked about the anticipated versus actual impact of the new casino *to their specific community*. As was the case in the previous question, opinion was divided pre-PPC opening, and moderated somewhat after it opened, with the biggest change in post-PPC sentiment being an increase in the belief that casinos were neither beneficial nor harmful (35.4%, up from 25.1%). However, more people now believed the casino was harmful (36.8%) than beneficial (27.8%) (which compares to a more evenly divided opinion pre-opening: 37.7% and 37.2% respectively). The main difference from the state was that people in the PPC H&SC region were more accepting of the new casino, as there was a significant increase (from 60.5% to 73.7%) reporting that the current availability of gambling opportunities was ‘fine’ one year after PPC opened (whereas statewide most people reported that gambling was ‘too widely available’). It should be noted that the effect sizes for the statistically significant results were all small (.10 to -.35).

A caveat to the above results is that PPC was the first casino in MA and the survey was conducted years before the other two casinos would open and prior to the contemplation of legalized sports betting. Thus, a supplementary analysis was conducted of the small subset of respondents in the 2021/2022 FGPS from the PPC H&SC ($n = 99$), with results shown in Table 13. As seen, the most notable change from 2016/2017 is that 64.2% of the more recent sample reported that gambling is ‘too widely available’, which is much more consistent with the state in 2021/2022.

Table 12. Attitudes toward Gambling in the PPC H&SC

		2014 Baseline N = 1093		2016/17 Follow-Up N = 1012		p
		%	95% CI	%	95% CI	
Perceived benefit or harm of gambling to society	Harm outweighs benefits	56.3	(52.1, 60.5)	54.5	(50.0, 58.9)	.039
	Benefits are about equal to the harm	31.9	(28.0, 36.0)	36.5	(32.2, 41.1)	
	Benefits outweigh harm	11.8	(9.5, 14.6)	8.9	(6.7, 11.8)	
Opinion about legalized gambling in MA	All types should be illegal	11.2	(8.7 - 14.4)	8.1	(6.2 - 10.6)	.415
	Some should be legal and some illegal	57.2	(53.0 - 61.4)	57.5	(53.0 - 61.8)	
	All types should be legal	31.5	(27.8 - 35.5)	34.4	(30.2 - 38.8)	
Beliefs about gambling availability in MA	Gambling is too widely available	14.9	(12.2 - 18.0)	14.8	(12.2 - 18.0)	<.001
	Current availability of gambling is fine	60.5	(56.2 - 64.6)	73.7	(69.6 - 77.4)	
	Gambling is not available enough	24.6	(21.0 - 28.7)	11.5	(8.7 - 14.9)	
Anticipated vs. actual impact of new casinos to MA	Harmful	33.8	(30.0, 37.7)	34.6	(30.8, 38.6)	<.001
	Neither beneficial nor harmful	22.2	(18.7, 26.1)	32.0	(27.9, 36.4)	
	Beneficial	44.1	(39.9, 48.3)	33.4	(29.3, 37.7)	
Anticipated vs. actual impact of PPC to your community	Harmful	37.7	(33.8, 41.8)	36.8	(32.9, 40.9)	.025
	Neither beneficial nor harmful	25.1	(21.6, 29.0)	35.4	(31.1, 40.0)	
	Beneficial	37.2	(33.2, 41.3)	27.8	(24.0, 31.9)	

Table 13. Attitudes toward Gambling in the PPC H&SC in 2021/2022

		2021/2022 n = 99	
		%	95% CI
Perceived benefit or harm of gambling to society	Harm outweighs benefits	61.1	(43.6, 76.2)
	Benefits are about equal to the harm	34.0	(19.5, 52.4)
	Benefits outweigh harm	4.9	(1.3, 16.0)
Opinion about legalized gambling in MA	All types should be illegal	6.3	(2.0, 18.1)
	Some should be legal and some illegal	67.4	(50.0, 81.0)
	All types should be legal	26.3	(13.9, 44.3)
Beliefs about gambling availability in MA	Gambling is too widely available	64.2	(45.9, 79.1)
	Current availability of gambling is fine	13.8	(4.1, 37.5)
	Gambling is not available enough	22.0	(11.5, 38.0)
Anticipated vs. actual impact of new casinos to MA	Harmful	23.9	(13.5, 38.7)
	Neither beneficial nor harmful	40.3	(25.8, 56.7)
	Beneficial	35.8	(21.1, 53.9)

Note: Italics indicates relative standard error >30%

Despite the mixed survey results, the three key informants from Plainville in 2018 all expressed the opinion that the local populace had positive attitudes toward the new casino:

“Overwhelmingly, the people in Plainville are happy the casino is here.”

- Jennifer Thompson, Town Administrator, Plainville, MA, January 25, 2018

“I would say that [attitudes] have actually improved. In 2013 we were debating whether we were going to allow ourselves to become a host community, and there was an awful lot of work involved in education, what it would mean... This has been a good thing for the Town of Plainville. There will always be naysayers, but we can refute them with stats and hard numbers.”

- Kathleen Parker, Treasurer, Plainville, MA, February 1, 2018

“I would have to say that everyone I have come across is pleased with the casino to this point. It has come through with all of the promises that were made.”

- Lou LeBlanc, Chairman, Board of Health, Plainville, MA, March 1, 2018

MGM Springfield Host & Surrounding Communities

Table 14 shows attitudes toward gambling in the MGM Springfield Host & Surrounding Communities (MGM H&SC) in February-July 2015, roughly one year before the casino opened, compared to 2019/2020, roughly a year after MGM Springfield opened. The data is from the Baseline Targeted Population Survey (BTPS-Springfield) and the Follow-Up Targeted Population Survey (FTPS-Springfield).

The pattern is quite similar to that found in the PPC Host & Surrounding Communities as well as the state, with (a) the large majority of people at both time periods believing that gambling was more harmful to society than beneficial; that (b) some types of gambling should be legal and some types not; and that (c) the current availability of gambling was ‘fine’. Similarly, opinions were divided about the future harmful versus beneficial impact of casinos to MA as well as MGM to the Springfield area, but moderated after MGM opened albeit with significant minorities continuing to believe that MGM was harmful (35.9%) or beneficial (32.1%). The effect sizes for the statistically significant results were all in the small to medium range (.16 to .42).

A supplementary analysis was conducted of the small subset of respondents in the 2021/2022 FGPS from the MGM H&SC ($n = 479$), with results shown in Table 15. The most notable change from 2019/2020 was that 62.2% of the sample reported that gambling is ‘too widely available’, again much more consistent with the state as a whole in 2021/2022.

Table 14. Attitudes toward Gambling in the MGM H&SC

		2015 Baseline N = 1131		2019/20 Follow-Up N = 1134		p
		%	95% CI	%	95% CI	
Perceived benefit or harm of gambling to society	Harm outweighs the benefits	51.5	(47.3, 55.7)	64.1	(59.9, 68.1)	.001
	Benefits are about equal to the harm	35.9	(31.9, 40.1)	25.7	(22.1, 29.6)	
	Benefits outweigh the harm	12.6	(9.8, 16.0)	10.2	(7.8, 13.3)	
Opinion about legalized gambling in MA	All types should be illegal	13.1	(10.4, 16.4)	12.5	(10.2, 15.3)	.513
	Some should be legal and some illegal	56.2	(52.0, 60.3)	52.3	(48.1, 56.5)	
	All types should be legal	30.8	(27.1, 34.7)	35.2	(31.2, 39.5)	
Belief about gambling availability in MA	Gambling is too widely available	20.3	(17.1, 23.9)	27.7	(24.2, 31.6)	.004
	Current availability of gambling is fine	57.3	(53.1, 61.5)	53.8	(49.6, 58.0)	
	Gambling is not available enough	22.4	(18.9, 26.2)	18.5	(15.3, 22.1)	
Anticipated vs. actual impact of new casinos to MA	Harmful	38.8	(34.9, 42.8)	21.9	(18.8, 25.3)	<.001
	Neither beneficial nor harmful	16.8	(13.7, 20.5)	35.0	(31.1, 39.1)	
	Beneficial	44.4	(40.3, 48.6)	43.1	(38.9, 47.4)	
Anticipated vs. actual impact of MGM to your community	Harmful	36.5	(32.7, 40.4)	35.9	(32.0, 40.0)	.939
	Neither beneficial nor harmful	22.8	(19.4, 26.6)	32.0	(28.2, 36.1)	
	Beneficial	40.7	(36.7, 44.9)	32.1	(28.3, 36.1)	

Table 15. Attitudes toward Gambling in the MGM H&SC in 2021/2022

		2021/2022 n = 479	
		%	95% CI
Perceived benefit or harm of gambling to society	Harm outweighs benefits	65.3	(57.9, 72.0)
	Benefits are about equal to the harm	23.8	(18.0, 30.7)
	Benefits outweigh harm	10.9	(7.0, 16.5)
Opinion about legalized gambling in MA	All types should be illegal	11.4	(7.5, 16.9)
	Some should be legal and some illegal	62.0	(54.4, 69.0)
	All types should be legal	26.6	(20.4, 34.0)
Beliefs about gambling availability in MA	Gambling is too widely available	62.2	(54.7, 69.2)
	Current availability of gambling is fine	28.1	(21.8, 35.4)
	Gambling is not available enough	9.7	(6.2, 14.8)
Anticipated vs. actual impact of new casinos to MA	Harmful	27.8	(21.5, 35.1)
	Neither beneficial nor harmful	36.5	(29.6, 44.1)
	Beneficial	35.7	(29.0, 42.9)

One key informant from Springfield in 2020 reiterated the sentiment concerning strongly divergent attitudes towards the casino prior to its opening which moderated after the opening:

“[Before the casino came to town, there were] ‘two sides’ to the issue... One was the mayor’s administration [which] wanted to revitalize the city and bring it back economically... Flip side of that, evangelicals in the city... were on the news a lot protesting that [they] did not want a casino in the city. After [the vote authorizing the casino] passed, it all died down.”

- Joesiah Gonzalez, Director of Youth Services, New North Citizens Council, March 12, 2020

Encore Boston Harbor Host and Surrounding Communities

The table below illustrates attitudes toward gambling in Encore Boston Harbor Host & Surrounding Communities (EBH H&SC) in 2013/2014, roughly one year before the casino opened (BTPS-Everett) compared to roughly two years after it opened in 2021/2022 (FTPS-Everett). The data is from the Baseline General Population Survey (BGPS) and the Follow-Up General Population Survey (FGPS) (i.e., the subsample from the EBH H&SC was extracted from both surveys).

The pattern is fairly similar to what was found in the PPC H&SC, the MGM H&SC, as well as the state, with (a) the large majority of people at both time periods believing that gambling was more harmful to society than beneficial; and that (b) some types of gambling should be legal and some types not. Similarly, opinions were divided about the future harmful versus beneficial impact of casinos to MA but moderated after Encore opened albeit with a minority continuing to believe that Encore was harmful (28.7%) or beneficial (25.1%). The main difference from the PPC H&SC and MGM H&SC was that after the three casinos had opened most people in the EBH H&SC reported that ‘gambling is too widely available’ (65.8%), similar to what was found for the state as a whole as well as PPC H&SC and MGM H&SC in 2021/22.¹⁰ The effect size for this particular question was very large, whereas the effect sizes for the other statistically significant results were all small to medium (.20 to .59).

¹⁰ This is partly because the Encore H&SC subsample represents 28.3% (1782/6293) of the FGPS sample.

Table 16. Attitudes toward Gambling in the Encore H&SC

		2013/14 Baseline N = 1155		2021/22 Follow-Up N = 1782		p
		%	95% CI	%	95% CI	
Perceived benefit or harm of gambling to society	Harm outweighs the benefits	59.3	(55.2, 63.3)	69.4	(65.4, 73.1)	<.001
	Benefits are about equal to the harm	27.4	(24.0, 31.1)	23.3	(19.9, 27.0)	
	Benefits outweigh the harm	13.3	(10.4, 16.8)	7.4	(5.5, 9.8)	
Opinion about legalized gambling in MA	All types should be illegal	15.4	(12.4, 18.8)	14.2	(11.4, 17.5)	<.001
	Some should be legal and some illegal	56.4	(52.3, 60.4)	66.0	(61.9, 69.8)	
	All types should be legal	28.2	(24.8, 31.9)	19.9	(16.8, 23.4)	
Belief about gambling availability in MA	Gambling is too widely available	15.5	(12.7, 18.7)	65.8	(61.7, 69.6)	<.001
	Current availability of gambling is fine	62.5	(58.4, 66.4)	11.9	(9.3, 15.1)	
	Gambling is not available enough	22.1	(18.7, 25.8)	22.4	(19.2, 25.9)	
Anticipated vs. actual impact of new casinos to MA	Harmful	40.9	(37.0, 45.0)	28.7	(25.1, 32.7)	.386
	Neither beneficial nor harmful	19.1	(16.4, 22.0)	46.1	(42.0, 50.2)	
	Beneficial	40.0	(36.1, 44.1)	25.1	(21.7, 28.9)	

Note: There was no question about the anticipated versus actual impact of Encore Boston Harbor to the EBH H&SC, as this data was taken from the BGPS and the FGPS.

Key informants and focus group participants in the EBH H&SC in 2022 echoed some of these survey findings:

“I feel that the opening of Encore has made the public view gambling as something that's more accepted... an activity that people engage in recreationally or for leisure.”

- Kira Landauer, Community Health Educator, Division on Addiction, Cambridge Health Alliance, April 22, 2022

Various interviewees mentioned that the casino gives people the option for glamorous, leisurely entertainment during the week, from which locals can particularly benefit. Some families benefit from the free public transportation.

- David Auerbach, Health Policy Researcher, Brandeis University, November 12, 2021; Liliana Patino, Director, (Eliot) Family Resource Center, March 29, 2022; Dinanyili Paulino, Chief Operating Officer, La Colaborativa, April 4, 2022; Kira Landauer, Community Health Educator, Division on Addiction, Cambridge Health Alliance, April 22, 2022

One focus group participant summarized the impact of the casino saying that overall, the casino has more negative effects (problem gambling and its consequences) than positive effects (recreation and entertainment).

- Jina Kim, Language Access Program Navigator (Korean), Asian Task force Against Domestic Violence, June 7, 2022

GAMBLING BEHAVIOR

The main **gambling behavior impacts** of introducing casinos to Massachusetts (MA) are as follows:

- Significant increases in the percentage of people **patronizing MA casinos** in the past year (which is to be expected).
- Significant decreases in the percentage of people patronizing **out-of-state casinos** in the past year at both a MA statewide level (21.5% in the 2013/2014 Baseline General Population Survey (BGPS) to 10.2% in the 2021/2022 Follow-Up General Population Survey (FGPS), as well as in the Encore Boston Harbor Host & Surrounding Communities (EBH H&SC). However, the 2021/2022 rates were artificially depressed to some extent by lingering COVID restrictions. That said (a) the decrease in out-of-state casino patronage in the FGPS is much more substantial compared to the decreases in other types of gambling. Additionally, the Massachusetts Gambling Impact Cohort (MAGIC) study, which was also statewide, shows clear statewide decreases from 33.4% in 2013/2014 to 15.7% in 2019 (after two of the three casinos had opened and prior to COVID).
- Patronage of **out-of-state casinos** shows a more mixed pattern for the Plainridge Park Casino Host & Surrounding Communities (PPC H&SC) and the MGM Springfield Host & Surrounding Communities (MGM H&SC). PPC H&SC past year out-of-state casino patronage was 23.2% in 2014 and 28.3% in 2016/2017, while MGM H&SC out-of-state patronage was 22.5% in 2015 and 23.4% in 2019/2020. In 2021/2022 out-of-state casino patronage had declined in both of these H&SCs to levels below levels that existed prior to any MA casino opening.
- Statewide decreases in **overall past year casino patronage (in or out-of-state)**. In the PPC and MGM H&SC's there was an increase in overall casino patronage in the year after the local casino opened. However, in 2021/2022 overall casino patronage in these regions had returned to levels that existed prior to any casino opening (or potentially even below that level).
- No negative impacts on **rates of participation for most other types of gambling**, although there is some evidence of a slight decline in lottery participation, as well as continued declines in charitable gambling and horse racing (that began prior to casino introduction) and a further increase in online gambling.

Statewide Impacts

Table 17 presents changes in Massachusetts adult past-year participation for the different types of gambling as assessed by the Baseline General Population Survey (BGPS) in September 2013 – May 2014, and the Follow-up General Population Survey (FGPS) in September 2021 – April 2022. The table shows that past-year participation significantly declined for the majority of gambling activities although all of the effect sizes are very small to small (.07 to -.30). The greatest declines are in out-of-state casino patronage (21.5% down to 10.2%¹¹); raffles (31.5% down to 18.6%); and any lottery product (61.7% down to 47.6%). Patronage of in-state casinos is the only activity that significantly increased. Daily lottery games and online gambling also increased, but these increases were not statistically significant. A similar pattern of decreases is seen in the percentage of people

¹¹ This 10.2% figure differs from the 27.6% in the table (4.3% + 5.6%) due to missing values (i.e., a few people reporting their in-state patronage but not their out-of-state patronage, or vice versa).

reporting monthly or more gambling participation, as seen in Table 18. Here again, effect sizes are very small to small (-.12 to -.27).

[Note that our protocol is to report p-values when comparing multiple response options between years (e.g., Table 12), but to use non-overlapping confidence intervals to identify statistical significance when comparing two proportions (e.g., Table 17)].

Table 17. Past Year Gambling Participation by Gambling Activity

	2013/2014 BGPS N = 9578		2021/2022 FGPS N = 6293	
	%	95% CI	%	95% CI
Any Past Year Gambling	73.1	(71.8, 74.4)	60.2*	(58.3, 62.2)
Any Lottery Product	61.7	(60.2, 63.1)	47.6*	(45.6, 49.6)
Traditional Lottery	58.1	(56.6, 59.5)	43.3*	(41.3, 45.3)
Daily Lottery Games	14.1	(13.1, 15.2)	14.5	(13.1, 16.0)
Instant Games	37.2	(35.8, 38.7)	26.6*	(24.8, 28.4)
Raffles	31.5	(30.2, 32.8)	18.6*	(17.2, 20.2)
Casinos either in or out of state	21.5	(20.3, 22.7)	15.7*	(14.3, 17.3)
Only Casinos out of state	21.5	(20.3, 22.7)	4.3*	(3.6, 5.3)
Only Casinos in MA	0	--	5.1*	(4.3, 6.1)
Casinos in and out of state	0	--	5.6*	(4.7, 6.7)
Sports Betting	12.6	(11.6, 13.7)	9.9*	(8.6, 11.2)
Private Wagering	11.1	(10.1, 12.2)	6.7*	(5.7, 7.8)
Horse Racing	3.4	(2.9, 4.0)	2.6	(2.0, 3.3)
Bingo	3.4	(2.9, 4.0)	2.1*	(1.5, 2.8)
Online Gambling	1.6	(1.2, 2.1)	2.7	(2.0, 3.5)
Average # of Types Engaged In	1.9	(1.9, 2.0)	1.4*	(1.3, 1.5)

Traditional lottery games are games with drawings once/day or a few times a week (e.g., MegaMillions, Powerball, Lucky for Life). Daily lottery games are games with multiple draws each day (e.g., Mass Cash, All or Nothing, Numbers Game, Keno). *Indicates significant change from Baseline

Table 18. Monthly or More Gambling Participation by Gambling Activity

	2013/2014 BGPS N = 9578		2021/2022 FGPS N = 6293	
	%	95% CI	%	95% CI
Any Past Year Monthly Gambling	38.5	(37.1, 40.0)	26.7*	(24.9, 28.6)
Any Lottery Product	33.5	(32.1, 35.0)	21.6*	(20.0, 23.4)
Traditional Lottery	29.7	(28.3, 31.1)	18.3*	(16.7, 20.0)
Daily Lottery Games	6.5	(5.8, 7.4)	5.5	(4.6, 6.5)
Instant Games	18.7	(17.5, 19.9)	11.3*	(10.1, 12.7)
Raffles	5.9	(5.2, 6.7)	2.7*	(2.2, 3.4)
Casinos either in or out of state	1.0	(0.8, 1.4)	1.0	(0.6, 1.5)
Sports Betting	4.1	(3.5, 4.8)	4.6	(3.7, 5.7)
Private Wagering	4.5	(3.8, 5.3)	2.3*	(1.7, 3.1)
Horse Racing	1.0	(0.7, 1.4)	Cell size < 5	
Bingo	1.2	(0.9, 1.6)	0.8	(0.5, 1.3)

*Indicates significant change from Baseline

Note that online gambling was asked as a yes/no question, and thus monthly participation cannot be established

Table 19 documents self-reported median gambling expenditure on each type of gambling in the past year. While self-reported past year expenditure on individual types in 2020/2021 has not declined as pervasively as past year participation, aggregate self-reported gambling expenditure has declined substantially (from \$120 to \$56.60).

Table 19. Median Self-Reported Past Year Gambling Expenditure

	2013/2014 BGPS N = 9578		2021/2022 FGPS N = 6293	
	\$	95% CI	\$	95% CI
Traditional Lottery	58.4	(56.4, 70.7)	51.6*	(45.8, 55.9)
Daily Lottery Games	63.7	(56.9, 100.6)	59.6	(54.4, 103.4)
Instant Games	56.1	(54.0, 58.2)	56.8	(53.5, 62.0)
Raffles	48.9	(34.8, 50.3)	52.2	(48.9, 55.4)
Casinos out of state	117	(98.2, 200.7)	96.2	(90.7, 181.2)
Casinos in MA	0	--	82.6*	(49.4, 99.6)
Sports Betting	58.8	(53.5, 110.4)	54.5	(14.1, 101.2)
Private Wagering	99.1	(57.4, 106.2)	11.7	(-4.1, 58.2)
Horse Racing	110	(52.8, 197.3)	84.5	(9.1, 158.2)
Bingo	178	(112.6, 231.7)	201	(55.6, 450.8)
Online Gambling	102	(-1.1, 225.8)	35.7	(-14.5, 194.8)
All Gambling Expenditure	120	(119.5, 145.0)	56.6*	(51.8, 76.0)

*Indicates significant change from Baseline

Note: Italics indicates relative standard error >30%; negative numbers represent net wins

COVID Impacts on Gambling Participation

The broad-based declines in gambling participation in the FGPS are in part due to the lingering effects of COVID restrictions. Massachusetts casinos were closed altogether from April 2020 to June 2020, and from July 2020 to March 2021 they were limited to 40% of their normal capacity.¹² While the FGPS was fielded between September 2021 and April 2022, survey participants were reporting on their past 12 months of behavior, meaning that people were ostensibly reporting on gambling behavior that occurred between October 2020 and May 2021. Further evidence of COVID impacts is a question in the FGPS which specifically asked all past year gamblers about the “impact COVID had on gambling in the past year”. Whereas 80.3% indicated ‘no impact’, 12.3% indicated that ‘overall, I have gambled less’, as well as 3.7% who indicated ‘overall, I have gambled more’.¹³

¹² Phase III restrictions from July 2020 to March 2021 more broadly involved: limiting indoor gatherings to 8 people per 1,000 square feet; no more than 25 people in a single enclosed indoor space; and limited outdoor gatherings in enclosed spaces to 25% of the facility’s maximum permitted occupancy, with a maximum of 100 people in a single enclosed outdoor space. There was also a major resurgence in COVID-19 in November 2020 that resulted in new statewide restrictions for capacity, mask compliance and distancing. It was not until May 2021 that all COVID-19 restrictions were removed for all gambling establishments, which is also the month that Massachusetts casino revenue returned to pre-COVID-19 levels.

¹³ To reiterate what was mentioned earlier, while an argument could be made that the FGPS was fielded prematurely, the problem with waiting longer than Sep 2021 was that it weakened the ability to make causal attributions about the impact of introducing three casinos in 2015, 2018, and 2019, especially in light of the impending legalization of sports betting.

Estimates of Gambling Participation Rates from the Online Panel Surveys and MAGIC

The Online Panel Survey results provide further evidence that gambling participation rates in the FGPS were partially suppressed and do not accurately reflect current rates. Table 20 shows gambling participation in the Follow-Up Online Panel Survey (FOPS) fielded in a similar time frame as the FGPS (i.e., March 2022 for FOPS versus September 2021 to April 2022 for the FGPS) compared to the Online Panel Survey 2023 (OPS23) that was fielded in March/April 2023. As seen, there were significant increases in most types of gambling in that one-year period although effect sizes were all very small (.08 to .22).

Table 20. Past Year Gambling Participation in March 2022 FOPS and March/April 2023 OPS23

	2022 FOPS N = 5046		2023 OPS23 N = 3038	
	%	95% CI	%	95% CI
Any Past Year Gambling	77.9	(76.1, 79.6)	81.4*	(79.8, 82.9)
Any Lottery Product	68.6	(66.7, 70.5)	72.4*	(70.6, 74.1)
Traditional Lottery	64.3	(62.3, 66.2)	68.0	(66.1, 69.9)
Daily Lottery Games	36.8	(34.8, 38.8)	42.6*	(40.6, 44.7)
Instant Games	46.6	(44.6, 48.7)	49.9	(47.8, 51.9)
Raffles	26.2	(24.4, 28.0)	34.8*	(32.9, 36.7)
Casinos either in or out of state or online	27.0	(25.2, 28.9)	33.0*	(31.2, 35.0)
Casinos out of state	NA	NA	3.7	(3.0, 4.6)
Casinos in MA	NA	NA	6.1	(5.2, 7.2)
Online Casinos	NA	NA	1.3	(0.9, 1.9)
Casinos in state, out of state, and online	NA	NA	14.2	(13.0, 15.6)
Sports Betting	23.2	(21.5, 25.0)	29.8*	(28.0, 31.7)
Private Wagering	18.0	(16.5, 19.7)	23.4*	(21.8, 25.0)
Horse Racing	10.1	(8.9, 11.5)	17.7*	(16.3, 19.2)
Bingo	18.5	(16.9, 20.2)	27.8*	(26.0, 29.6)
Online Gambling	14.8	(13.4, 16.3)	21.0*	(19.5, 22.7)

*Indicates significant change from 2022; NA refers to the fact that question wording was different in FOPS

The table below illustrates the past year gambling participation for each type of gambling from the MAGIC cohort that ran in the state of Massachusetts from 2013, before any casinos were opened, to 2019, when two of the three casinos had opened, among participants who completed all five waves. The largest changes in this six-year period were (a) the increase in MA-casino participation along with a corresponding decrease in out-of-state casino participation, and (b) an increase in online gambling. It is notable that there were no negative impacts on the rates of lottery participation or any other type of gambling, which was a potential concern of casino introduction. The decrease in horse race betting may have been accelerated by the introduction of casinos but had been on a downward trend even before casino introduction.

It is notable that past year participation in any casino (in or out-of-state) in MAGIC also decreased from 33.2% in 2013/2014 to 25.4% in 2019, despite two of the three MA casinos having been opened. This lends support to the possibility that the decreased casino participation (in or out-of-state) found in the FGPS in 2021/2022 is not simply due to the lingering effects of COVID. Decreased casino participation is actually consistent with a general decline in casino visitation in the United States over the past 10 years (AGA, 2023; Lambert, 2023). Further evidence of this decline is seen in the neighboring state of Connecticut where a recent study by the present authors found past year casino participation rates declining from 35.6% in 2008 to only 18.5% in 2023 (Gemini Research, 2024). More generally, other North American studies have found decreases in *overall gambling* participation in recent years compared to earlier years (e.g., Williams, Leonard et al., 2021).

Table 21. Past Year Gambling Participation in MAGIC among those who completed all Five Waves (n = 2,087)

	WAVE 1 Sep 2013 – Apr 2014	WAVE 2 Mar – Jun 2015	WAVE 3 Apr – Jul 2016	WAVE 4 Apr – Jun 2018	WAVE 5 Mar – Jun 2019	
	%	%	%	%	%	<i>p</i>
Any Past Year Gambling	85.5	84.7	87.3	87.5	86.3	<.001
Any Lottery Product	73.0	72.8	78.6	75.5	76.1	<.001
Traditional Lottery	70.4	70.2	75.0	72.0	73.1	<.001
Daily Lottery Games	18.1	20.0	35.2	33.5	31.8	<.001
Instant Games	47.4	47.1	50.9	48.2	48.1	.002
Raffles	45.8	43.9	46.8	48.0	46.2	.012
Casinos either in or out of state	33.2	33.0	25.7	23.5	25.4	<.001
Casinos out of state	33.4	33.0	22.6	19.7	15.7	<.001
Casinos in MA	0	0	6.8	7.1	16.3	<.001
Casinos in and out of state	0	0	3.3	2.9	5.1	<.001
Sports Betting	17.0	18.7	17.7	17.3	17.2	.296
Private Gambling	13.5	14.7	Not asked	Not asked	Not asked	.119
Horse Racing	6.3	6.8	5.6	6.4	5.2	.011
Bingo	4.4	5.1	7.0	7.7	7.3	<.001
Online Gambling	1.3	1.8	7.1	7.3	6.3	<.001

Regional Impacts

Plainridge Park Casino Host & Surrounding Communities

Table 22 illustrates gambling participation in the Plainridge Park Casino Host & Surrounding Communities (PPC H&SC) in 2014 (roughly one year before PPC opened), from the Baseline Targeted Population Survey (BTPS-Plainville) compared to 2016/2017, roughly a year after it opened, from the Follow-Up Targeted Population Survey (FTPS-Plainville). As seen, there was no significant change in any type of gambling pre-PPC to post-PPC except casino gambling, which increased both in Massachusetts (as expected), but also both in and out of Massachusetts. The percentage of people who gambled at out-of-state casinos increased from 23.2% in 2014 to 28.3% in 2016/2017.¹⁴ There was no significant change in horse race betting participation even though a greater number of people were exposed to horse racing in 2016/2017 with an increase in visitors to PPC. However, it is also the case that a 2016 PPC Patron Survey (Salame et al., 2017) found that only 7.7% of PPC patrons reported engaging in horse race betting at the facility in 2016. The effect sizes were small for the change in patronization of casinos (in or out-of-state) and casinos out-of-state (.32 and -.29 respectively) as was the change in private wagering (-.16).

The caveat to the above results is that PPC was the very first casino in MA and the survey was conducted years before the other two casinos would open. Thus, a supplementary analysis was conducted of the small subset of respondents in the 2021/2022 FGPS from the PPC H&SC (n = 99), with results shown in the last two columns. Although relative standard error is high for most of these figures, it is notable that there was a significant decline in MA-only casino patronage as well as horse race betting. The total percentage of people who reported gambling at out-of-state casinos in 2021/2022 was 15.9%.¹⁵

¹⁴ This 28.3% figure differs from the 27.6% in the table (12.1% + 15.5%) due to missing values (i.e., a few people reporting their in-state patronage but not their out-of-state patronage, or vice versa). It is also the case that this was not a statistically significant increase due to overlapping 95% confidence intervals (i.e., 20.0 - 26.9) versus (24.3 - 32.6).

¹⁵ This 15.9% figure differs from the 15.8% in the table (13.4% + 2.4%) due to missing values (i.e., a few people reporting their in-state patronage but not their out-of-state patronage, or vice versa).

Table 22. Past Year Gambling Participation in the PPC H&SC

	2014 Baseline N = 1093		2016/2017 Follow-Up N = 1012		2021/2022 Follow-Up n = 99	
	%	95% CI	%	95% CI	%	95% CI
Any Past Year Gambling	79.8	(76.2, 83.0)	79.6	(75.8, 83.0)	71.2	(55.5, 83.1)
Any Lottery Product	66.4	(62.3 - 70.2)	67.2	(62.8 - 71.3)	59.3	(43.0, 73.8)
Traditional Lottery	63.2	(59.1 - 67.2)	60.7	(56.3 - 65.0)	54.4	(38.4, 69.6)
Daily Lottery Games	12.1	(9.5 - 15.3)	13.5	(10.7 - 17.0)	7.1	(3.0, 15.6)
Instant Games	40.8	(36.6 - 45.0)	42.5	(38.1 - 46.9)	38.0	(23.0, 55.6)
Raffles	36.6	(32.7 - 40.8)	36.9	(32.8 - 41.3)	28.8	(14.9, 48.4)
Casinos either in or out of state	23.2	(20.0 – 26.9)	37.7*	(33.4, 42.2)	17.0	(5.8, 40.2)
Casinos out of state	23.2	(20.0 - 26.9)	12.1*	(9.2, 15.8)	13.4	(3.5, 39.5)
Casinos in MA	0	--	9.4*	(7.1, 12.4)	1.1**	(0.4, 3.4)
Casinos in and out of state	0	--	15.5*	(12.6, 19.0)	2.4	(0.4, 14.5)
Sports Betting	14.8	(12.0 - 18.1)	12.7	(10.1 - 15.8)	13.0	(3.4, 38.8)
Private Wagering	13.7	(10.7 - 17.4)	8.8*	(6.6 - 11.8)	5.6	(1.6, 17.6)
Horse Racing	5.3	(3.9 - 7.2)	5.6	(3.9 - 8.0)	0.4**	(0.1, 1.2)
Bingo	3.2	(2.1 - 4.9)	4.3	(2.8 - 6.4)	3.9	(0.7, 18.6)
Online Gambling	2.0	(1.0 - 3.7)	2.8	(1.7 - 4.7)	0.4	(0.1, 2.0)

*Indicates significant change from Baseline; ** Indicates significant change from 2016/2017 Follow-Up; Note: Italics indicates relative standard error >30%.

MGM Springfield Host & Surrounding Communities

The table below illustrates past year gambling participation in the MGM Springfield Host & Surrounding Communities in February – July 2015 (roughly one year before the casino opened) (BTPS-Springfield) compared to October 2019 – January 2020 (roughly a year after it opened) (FTPS-Springfield). Overall gambling participation and the pattern of gambling participation changed very little although, not unexpectedly, there was a statistically significant increase in past year participation in Massachusetts casinos as well as casinos either in or out of state. The percentage of people who gambled at out-of-state casinos was essentially unchanged from 2015 (22.5%) to 2019/2020 (23.4%).¹⁶ The effect sizes were small for the change in patronization of casinos (in or out-of-state) (.31) and medium for casinos out-of-state (-.60).

A supplementary analysis was conducted of the small subset of respondents in the 2021/2022 FGPS from the MGM H&SC (n = 479), with results shown in in the last two columns. As seen, there was a significant decline in raffles, as well as casino patronage, and out-of-state casinos. The percentage of people who gambled at out-of-state casinos decreased from 23.4% in 2019/2020 to 11.3% in 2021/2022.

¹⁶ This 23.4% figure differs from the 23.0% in the table (3.7% + 19.3%) due to missing values (i.e., a few people reporting their in-state patronage but not their out-of-state patronage, or vice versa). The same applies to the 11.3% figure in 2021/2022 versus the 11.1% from the table.

Table 23. Past Year Gambling Participation in the MGM H&SC

	2015 Baseline N = 1131		2019/2020 Follow-Up N = 1134		2021/2022 Follow-Up n = 479	
	%	95% CI	%	95% CI	%	95% CI
Any Past Year Gambling	70.9	(66.8, 74.6)	73.8	(70.0, 77.2)	68.2	(61.2, 74.5)
Any Lottery Product	62.0	(57.9, 66.0)	61.2	(57.1, 65.2)	53.0	(45.6, 60.3)
Traditional Lottery	57.6	(53.4, 61.6)	56.5	(52.4, 60.6)	46.9	(39.7, 54.3)
Daily Lottery Games	17.3	(14.0, 21.1)	24.1	(20.6, 28.0)	17.1	(12.6, 22.7)
Instant Games	41.2	(37.3, 45.3)	42.4	(38.3, 46.7)	34.4	(27.8, 41.7)
Raffles	31.6	(28.1, 35.3)	31.0	(27.2, 35.1)	20.2**	(14.7, 27.1)
Casinos either in or out of state	22.5	(19.4, 25.9)	36.5*	(32.6, 40.7)	23.6**	(17.4, 31.2)
Only Casinos out of state	22.5	(19.4, 25.9)	3.7*	(2.2, 6.3)	0.9**	(0.4, 1.7)
Only Casinos in MA	0	0	12.8*	(10.3, 15.9)	11.9	(7.5, 18.3)
Casinos in and out of state	0	0	19.3*	(16.4, 22.6)	10.2	(6.1, 16.6)
Sports Betting	9.7	(7.7, 12.2)	10.9	(8.2, 14.4)	6.5	(3.9, 10.8)
Private Wagering	9.6	(7.3, 12.4)	8.4	(6.3, 11.1)	4.3	(2.2, 8.1)
Horse Racing	3.2	(2.2, 4.8)	3.0	(2.0, 4.7)	1.3	(0.4, 3.9)
Bingo	4.1	(3.0, 5.6)	5.4	(3.7, 7.8)	4.6	(2.0, 10.5)
Online Gambling	1.0	(0.5, 2.0)	1.5	(0.9, 2.5)	0.7	(0.3, 2.0)

*Indicates significant change from Baseline; **Indicates significant change from 2019/2020

Key informants in 2020 tended to support the contention that casino patronage had increased:

“[The MGM casino] made [gambling] more accessible for folks. Before, folks had to get on the bus to go to Foxwoods or Mohegan, now, [they] can just go after or before work, play a couple machines if they want.”

- Joesiah Gonzalez, Director of Youth Services, New North Citizens Council, March 12, 2020

“A lot of them had never gambled in a casino environment before or had only visited the Connecticut casinos once or twice a year. They have become more regular, not necessarily problematic., Most of them note the proximity of [the casino], [and they have] definitely become more aware of the casino environment and maybe frequent it a little more because of that proximity.”

- Amy Gabrila, Senior GameSense Advisor at MGM Springfield, Massachusetts Council on Gaming and Health, May 14, 2020

“People have expressed they have family members and friends who love gambling, [and that] has increased since the casino has been here because [it is] so accessible.”

- Ronn Johnson, President and CEO, Martin Luther King, Jr. Family Services, April 2, 2020

Encore Boston Harbor Host and Surrounding Communities

The table below illustrates past year gambling participation in the Encore Boston Harbor Host & Surrounding Communities (EBH H&SC) in 2013/2014 (roughly six years before the casino opened) (BTPS-Everett) compared to 2021/2022 (roughly two years after it opened) (FTPS-Everett). This decreased pattern of participation parallels the decreased pattern seen in the state as a whole (remembering that the EBH H&SC constitutes 28.2% of the FGPS sample) and in a similar way is likely artificially suppressed due to lingering COVID restriction impacts. The percentage of people who gambled at out-of-state casinos decreased from 22.0% in 2013/2014 to 9.3% in 2021/2022. The effect sizes for the statistically significant results were all small (-.19 to -.38).

Table 24. Past Year Gambling Participation in the Encore H&SC

	2013/2014 Baseline N = 1155		2021/2022 Follow-Up N = 1782	
	%	95% CI	%	95% CI
Any Past Year Gambling	67.9	(64.1, 71.6)	51.4*	(47.3, 55.5)
Any Lottery Product	55.4	(51.4, 59.3)	37.5*	(33.6, 41.6)
Traditional Lottery	51.8	(47.8, 55.8)	34.0*	(30.3, 38.0)
Daily Lottery Games	14.2	(11.6, 17.4)	12.9	(10.4, 15.8)
Instant Games	31.4	(27.8, 35.3)	22.9*	(19.5, 26.7)
Raffles	25.0	(21.9, 28.4)	10.7*	(8.6, 13.3)
Casinos either in or out of state	22.0	(18.7, 25.6)	16.0	(13.1, 19.3)
Only Casinos out of state	22.0	(18.7, 25.6)	2.7*	(1.7, 4.4)
Only Casinos in MA	0	0	6.5*	(4.7, 8.9)
Casinos in and out of state	0	0	6.3*	(4.5, 8.9)
Sports Betting	13.6	(10.8, 17.0)	11.6	(9.1, 14.6)
Private Wagering	13.3	(10.6, 16.5)	8.5	(6.4, 11.2)
Horse Racing	5.1	(3.6, 7.1)	2.4	(1.4, 4.1)
Bingo	3.3	(1.9, 5.4)	Cell < 5	(1.0, 3.8)
Online Gambling	3.1	(1.9, 5.1)	1.9	(1.2, 3.1)

Note: Italics indicates relative standard error >30%; *Indicates significant change from Baseline

Certain key informants from the area had comments on gambling behavior:

One interviewee pointed out that people in the surrounding communities would previously wait until the weekend to gamble at casinos in neighboring states, but can now go during the week, because the casino is more accessible.

- Liliana Patino, Director, (Eliot) Family Resource Center, March 29, 2022

“The folks I see [at the casino] who are of Asian descent - for a lot of them, English is a second language. You get a lot of restaurant workers, you get a lot of folks who work in the grocery stores, or some business that caters to an Asian clientele... From the White audience you see blue collar type workers... Not necessarily managerial types... The folks who get on the buses.”

- Diana Jeong, Vice President, Greater Malden Asian American Community Coalition, February 25, 2022

“When the casino opened they had buses going to the Chinatown area. They had buses going to Malden, which has one of the biggest Asian communities in the state. So, we definitely have seen a huge impact, which has been very targeted to those communities where they know that they can definitely bring more people in.”

- Liliana Patino, Director, (Eliot) Family Resource Center, March 29, 2022

PROBLEM GAMBLING AND RELATED INDICES

The main impacts of introducing casinos to Massachusetts on **problem gambling and related indices** are as follows:

- No significant change in the **past year prevalence of problem gambling** at either the state or Host & Surrounding Community (H&SC) level from 2013 to 2021, although there is some evidence from the Massachusetts Gambling Impact Cohort (MAGIC) of a statewide increase in 2018 and 2019.
- No significant change in the **demographic profile of problem gamblers**, with the exception that problem gamblers in 2021/2022 were somewhat younger than in 2013/2014.
- Some evidence of a decline in the **level of treatment seeking** for problem gambling.
- A decrease in the number of **personal bankruptcy filings** at both a state and H&SC level.
- No evidence of an association with the level of **adverse family indices** (divorce, separation, retraining orders, domestic violence, child welfare/maltreatment) at either a state or H&SC level.
- No evidence of an association with the number of **suicides** at either a state or H&SC level.
- An increase in the **proportion of gambling revenue** (from all types of gambling combined) derived from at-risk and problem gamblers (68% to 88%).

PREVALENCE OF PROBLEM GAMBLING

Statewide Impacts

One of the most important considerations concerning casino introduction is whether such introductions increase the population prevalence of problem gambling. Problem gambling is assessed in Massachusetts using the Problem and Pathological Gambling Measure (PPGM) (Williams & Volberg, 2014), which classifies people into one of four categories based on the past 12 months:

- **Non-Gamblers**, who have not engaged in any gambling in the past year;
- **Recreational Gamblers**, who show no signs of excessive gambling or problem gambling symptomatology;
- **At-Risk Gamblers**, who report some signs of problem gambling symptomatology and/or are gambling at levels equivalent to that seen in problem gamblers; and
- **Problem Gamblers**, who have impaired control over their gambling that is also associated with significant negative consequences for themselves or others.

As seen in Table 25 FGPS found no evidence that the presence of casinos has increased problem gambling in the state, with no significant change from baseline. An important caveat concerns the fact that because COVID restrictions likely suppressed gambling participation to some degree (which is seen in the significant increase in the rate of non-gamblers and the corresponding decrease in recreational gamblers) it may also have suppressed problem gambling to some extent. The effect sizes for the statistically significant changes in Non-Gamblers and Recreational Gamblers were small (.26 and -.23 respectively).

Table 25. Gambling Categories in the BGPS and FGPS

	2013/2014 BGPS N = 9578		2021/2022 FGPS N = 6293	
	%	95% CI	%	95% CI
Non-Gambler	26.6	(25.3, 28.0)	38.7*	(36.7, 40.7)
Recreational Gambler	62.9	(61.4, 64.4)	51.3*	(49.3, 53.4)
At-Risk Gambler	8.4	(7.5, 9.4)	8.5	(7.4, 9.8)
Problem Gambler	2.0	(1.6, 2.6)	1.4	(1.0, 2.1)

*Indicates significant change from Baseline

However, as seen in Table 26, there was no significant increase in the past year prevalence of problem gambling in the 2023 OPS compared to the 2022 FOPS despite most types of gambling participation increasing in the OPS23. That said, within the MAGIC cohort (Table 27) there *was a significant increase* in problem gambling over time, with pairwise comparisons showing this to be an increase in 2018 and 2019 relative to 2013/2014. Most of this increase was found to be due to an increased rate of problem gambling relapse in remitted individuals. This, in turn, was potentially due to the increased publicity and media attention concerning casinos and gambling, as the increases occurred just prior to the actual opening of MGM Springfield in 2018 and Encore Boston Harbor in 2019.

Table 26. Gambling Categories in the FOPS and OPS23

	2022 FOPS N = 3038		2023 OPS23 N = 3038	
	%	95% CI	%	95% CI
Non-Gambler	21.7	(20.0, 23.5)	18.5	(17.0, 20.1)
Recreational Gambler	52.8	(50.7, 54.9)	55.5	(53.5, 57.5)
At-Risk Gambler	14.4	(13.0, 15.8)	13.3	(12.0, 14.7)
Problem Gambler	11.2	(9.8, 12.7)	12.7	(11.4, 14.0)

Table 27. Gambling Categories in MAGIC among those who completed all Five Waves (n = 2,087)

	WAVE 1 Sep 2013 – Apr 2014	WAVE 2 Mar – Jun 2015	WAVE 3 Apr – Jul 2016	WAVE 4 Apr – Jun 2018	WAVE 5 Mar – Jun 2019	p
	%	%	%	%	%	
Non-Gambler	14.5	15.2	12.7	12.5	13.7	<.001
Recreational Gambler	70.5	68.2	72.5	73.1	70.2	<.001
At-Risk Gambler	12.6	13.5	11.7	10.6	12.4	.012
Problem Gambler	2.5	3.1	3.1	3.8	3.7	.011

A final consideration concerns how the 1.4% problem gambling prevalence rate in Massachusetts in 2021 compares to other states. Table 28 shows key details of the 13 problem gambling surveys that have been conducted in other U.S. states since 2015. A study by Williams, Volberg, and Stevens (2012) identified the main methodological differences across the 202 prevalence surveys conducted internationally through 2011 and developed weights that could be applied to obtain ‘standardized’ prevalence rates for nearly all existing problem gambling prevalence studies. Using these standardized rates, it is possible to compare the problem

gambling prevalence rate obtained in Massachusetts in 2021 with rates from many other jurisdictions.¹⁷ As the table shows, the 1.4% Massachusetts rate is mid-range between the 2.8% New Jersey rate and the 0.7% New York rate (the New York rate is anomalously low because the survey was conducted in the midst of the COVID-19 pandemic: July 2020 – December 2020). (Note that the anomalously high unstandardized Oklahoma and Missouri prevalence rates are likely due to the inclusion of online panelists and people recruited via social media within the sample, as well as identifying the survey as a ‘gambling study.’)

¹⁷ Weights were developed to adjust for the higher prevalence rates obtained when describing the survey as a ‘gambling’ survey, the lower prevalence rates obtained when conducting a telephone interview rather than a self-administered survey, and the different prevalence rates obtained using different assessment instruments (i.e., PGSI, SOGS, DSM).

Table 28. Recent U.S. adult problem gambling prevalence studies

Year	State	Administration Modality	Response Rate	Sample Size	Past Year Gambling Prevalence	Problem Gambling (PG) Instrument	PG Rate	Survey Description	Standardized Problem Gambling Rate ¹
2015	New Jersey	Telephone interview (cell + landline)	5.3%	1,500	69.8%	PGSI 8+	0.6%	health and recreation	$0.6 * 2.17 * 2.18 * 1.0 = 2.8\%$
2017	Maryland	Telephone interview (cell + landline)	6.6%	3,761	87.0%	NODS 3+	1.9%	views on gambling	$1.9 * 1.19 * 2.18 * 0.51 = 2.5\%$
2017	Kansas	ABS: self-administered paper or online	Not reported	1,755	48.0% (monthly)	Mix of 8 PGSI & NODS items	2.7% high risk	Kansas gambling survey	Cannot be calculated
2018	Iowa	Telephone interview (cell + landline)	26.3%	1,761	73.8%	PGSI 8+	0.8%	public attitudes and behaviors toward gambling	$0.8 * 2.17 * 2.18 * 0.51 = 1.9\%$
2019	Minnesota	ABS: self-administered paper or online	25.0%	8,512	67.0%	PPGM	1.3%	recreation and well-being	$1.3 * 1.0 * 1.0 * 1.0 = 1.3\%$
2020	New York	ABS: self-administered paper or online	27.9%	3,845	29.4%	PPGM	0.7%	health and recreation	$0.7 * 1.0 * 1.0 * 1.0 = 0.7\%$
2021	Illinois	ABS: self-administered online (85.7%); phone interview (14.3%)	4.1%	2,029	68.4%	PPGM	3.8%	Illinois survey of gambling	$3.8 * 1.0 * 1.1 * 0.51 = 2.1\%$
2021	Washington State	ABS: self-administered paper or online	19.2%	9,413	43.5%	PGSI 5+	1.5%	health and recreation	$1.5 * 1.0 * 1.0 * 1.0 = 1.5\%$
2021/2022	Massachusetts	ABS: self-administered paper or online (98.3%); phone interview (1.7%)	27.5%	6,293	60.2%	PPGM	1.4%	health and recreation	$1.4 * 1.0 * 1.0 * 1.0 = 1.4\%$
2022	Indiana	ABS: self-administered paper or online	19.6%	855	89.3%	NODS 5+ PGSI 8+ DSM-5 4+ ²	1.6% 1.3% 2.3%	Unclear: "invitation letter provided a description of the study"	$1.6 * 2.60 * 1.0 * 0.51 = 2.1\%$ $1.3 * 2.17 * 1.0 * 0.51 = 1.4\%$
2022	Oklahoma	Unspecified mix of multimodal ABS + online panel + social media recruitment	NA because of inclusion of convenience samples	4,035	57.9%	DSM-5 4+ (derived from PPGM questions)	6.3%	"recreation and leisure activities, including betting and gambling"	Cannot be calculated
2022	Missouri			3,259	63.9%		4.1%		
2023	Connecticut	ABS: self-administered online	11.8%	5,259	69.2%	NODS 3+ PPGM	1.4% 1.8%	health and recreation	$1.4 * 1.19 * 1.0 * 1.0 = 1.7\%$ $1.8 * 1.0 * 1.0 * 0.51 = 1.8\%$

ABS=Address Based Sampling. PGSI = Problem Gambling Severity Index (Ferris & Wynne, 2001). NODS = National Opinion Research Center DSM Screen for Gambling Problems. PPGM = Problem and Pathological Gambling Measure. DSM = Diagnostic and Statistical Manual of Mental Disorders.

¹ Conversion factors have not been developed for DSM-5 criteria.

Demographics of Problem Gambling in Massachusetts

An additional consideration is whether the demographic profile of problem gambling has changed because of casino introduction. This is addressed in the table below. As seen, problem gamblers in Massachusetts are disproportionately male, non-white, and with lower educational attainment and household income. This has not changed with the introduction of casinos, with the exception that problem gamblers tend to be younger in 2021/2022 (albeit still older than the average MA adult (18+) population). The effect size for the change in average age was very small (-.11).

Table 29. Demographic Profile of Problem Gamblers in MA before and after Casino Introduction

	2013/2014 (n = 128)	2021/2022 (n = 84)	p	MA Census
% Male	72.3%	69.1%	.59	48.2%
Average Age	49.3	43.8	.003	48.0
% Non-White	36.6%	43.3%	.54	29.6%
Average Educational Attainment Level (1-11)	5.2	5.1	.35	6.4
Average Household Income Level (1-8)	3.6	3.1	.13	5.6

Note that prior to statistical analysis the dataset was weighted to the population profile of MA, but with the total weights equaling the sample size rather than the population size. Note: an educational level of 5 = 'Some college credit' and a household income level of 3 = \$30K-\$49.9K

Regional Impacts

Plainridge Park Casino Host & Surrounding Communities

Table 30 shows gambling categories in the PPC H&SC in 2014 (roughly one year before PPC opened), from the Baseline Targeted Population Survey (BTPS-Plainville) compared to 2016/2017, roughly a year after it opened, from the Follow-Up Targeted Population Survey (FTPS-Plainville). As seen, there was no significant change in the rate of problem gambling (or any of the gambling categories) between the two time periods.

Table 30. Gambling Categories in the PPC H&SC

	2014 Baseline N = 1093		2016/2017 Follow-Up N = 1012	
	%	95% CI	%	95% CI
Non-Gambler	19.8	(16.7 - 23.4)	19.3	(16.0 - 23.1)
Recreational Gambler	70.9	(66.8 - 74.7)	70.8	(66.4 - 74.7)
At-Risk Gambler	6.7	(4.6 - 9.7)	8.2	(5.8 - 11.4)
Problem Gambler	2.6	(1.4 - 4.6)	1.8	(0.8 - 3.8)

Note: Italics indicates relative standard error >30%

Three key informants from Plainville in 2018 also indicated no obvious impact of the casino on problem gambling:

"[As to] whether or not problem gambling exists in the town... no reports have come to us. Residents have not come to us with concerns that there has been an increase in problem gambling."

- Jennifer Thompson, Town Administrator, Plainville, MA, January 25, 2018

“What people [supporting the vote against the casino] were concerned about during those times... [included] problem gambling, increased crime... If we were to run that vote right now, my gut just tells me, just by the interactions that I have with people, that they would not be unfavorable today. Because they have seen that all the doom and gloom simply did not happen. At least in Plainville.”

- Kathleen Parker, Treasurer, Plainville, MA, February 1, 2018

“I don’t really see any impact on the health and well-being of the people of Plainville. Conditions now seem to be as they were prior to the opening of the casino. There was already gambling here... This isn’t something new, it is just vastly improved. So there was the potential to have an issue, but as of this date, we have not seen any indication of that.”

- Lou LeBlanc, Chairman, Board of Health, Plainville, MA, March 1, 2018

MGM Springfield Host & Surrounding Communities

The table below shows gambling categories in the MGM H&SC in 2015 (roughly one year before the casino opened) from the Baseline Targeted Population Survey (BTPS-Springfield) compared to 2019/2020 (roughly a year after it opened) from the Follow-Up Targeted Population Survey (FTPS-Springfield). Similar to what was found in the PPC H&SC, no significant change was observed in rates of problem gambling or rates of other categories of gamblers.

Table 31. Gambling Categories in the MGM H&SC

	2015 Baseline N = 1131		2019/2020 Follow-Up N = 1134	
	%	95% CI	%	95% CI
Non-Gambler	29.1	(25.4, 33.2)	25.6	(22.2, 29.4)
Recreational Gambler	58.8	(54.6, 63.0)	63.8	(59.6, 67.8)
At-Risk Gambler	8.7	(6.5, 11.6)	8.8	(6.4, 12.0)
Problem Gambler	3.3	<i>(1.8, 6.1)</i>	1.8	<i>(0.9, 3.6)</i>

Note: Italics indicates relative standard error >30%

Some key informants in 2020 commented on the question of whether the rate of problem gambling in Springfield had changed after the opening of the casino:

“I belong to tons of groups, am active in church, and [problem gambling] is just not part of the conversation... the only time conversations about this come up are at work and when coordinating efforts with others around accessing public health trust funds and when designing ‘upstream, broad interventions,’ because the problem gambling just doesn’t show up. [I] don’t hear people talk about it... If I look at my Keno crowd, [the casino] doesn’t seem to have had any impact at all.”

- Frank Robinson, Vice President, Public Health and Community Relations, Baystate Health Systems, January 30, 2020

“My understanding from colleagues that focus on problem gambling treatment - yes, [the casino] has significantly impacted [problem gambling]. [There has been an] increase in referrals for a lot of the community based mental health clinics around that. I know that Frank Robinson’s group have brought together a number of community stakeholders as well, and from our understanding there has been a significant increase in those clinics that are specializing in problem gambling.”

- Jessica Wozniak, Manager, Clinical Research & Development, Family Advocacy Center, Baystate Health Systems, April 2, 2020

Encore Boston Harbor Host and Surrounding Communities

The table below illustrates gambling categorizations in the EBH H&SC in 2013/2014 (roughly six years before the casino opened) from the EBH H&SC subsample from the BGPS compared to 2021/2022 (roughly two years after it opened) from the EBH H&SC subsample from the FGPS. As was found in the state as a whole, the percentage of non-gamblers increased and the percentage of recreational gamblers decreased, potentially because of lingering COVID impacts. Importantly, however, there was no significant change in the percentage of problem gamblers. The effect sizes for the statistically significant changes in Non-Gamblers and Recreational Gamblers were small (.31 and -.29 respectively).

Table 32. Gambling Categories in the Encore H&SC

	2013/2014 Baseline N = 1155		2021/2022 Follow-Up N = 1782	
	%	95% CI	%	95% CI
Non-Gambler	31.7	(28.1, 35.6)	47.4*	(43.2, 51.5)
Recreational Gambler	56.5	(52.4, 60.4)	42.8*	(38.8, 47.0)
At-Risk Gambler	9.3	(6.9, 12.5)	8.1	(6.1, 10.6)
Problem Gambler	2.5	(1.5, 4.2)	1.7	(0.9, 3.2)

*Indicates significant change from Baseline

Key informants in the EBH H&SC also did not see a significant impact on problem gambling:

One interviewee stated that the casino has had no discernible impact on problem gambling behaviors in the surrounding communities.

- David Auerbach, Health Policy Researcher, Brandeis University, November 12, 2021

“[None] of the providers that I am working with, which is, six or seven providers in the Boston region, have seen an increase in demand for problem gambling services, since the casinos have opened. Most are seeing one or two clients for problem gambling, at a time - overall, [for] the whole organization.”

- Public Health Worker, April 22, 2022

One public official noted that the city of Chelsea has a program for people in deep crises (the Hub), and that out of 812 cases, only in one case was gambling listed as a risk factor. “So, when you look at people in deep crises, gambling doesn’t seem to be a root cause of that.”

- Karl Allen, Economic Development Specialist, City of Chelsea, MA, February 15, 2022

One interviewee mentioned anecdotally that some people in the community have told stories about friends that have tried to harm themselves in the casino, and that it may be a factor in suicidal ideation. She added that gambling more broadly may be a coping mechanism for mental health issues.

- Liliana Patino, Director, (Eliot) Family Resource Center, April 7, 2022

However, these key informants did note some demographically specific impacts:

“Scratch tickets and older ways of gambling are so common in communities of color... we already had an issue that is culturally normalized and then we added an even bigger layer of going to [the casino].”

- Liliana Patino, Director, (Eliot) Family Resource Center, April 7, 2022

Various interviewees mentioned that the casino seems to be targeting lower income members of the Asian American community, particularly in Chinatown, where there is often a lack of awareness of the potential harms from the casino.

- Liliana Patino, Director, (Eliot) Family Resource Center, April 7, 2022; Diana Jeong, Vice President, Greater Malden Asian American Community Coalition (GMAACC), February 25, 2022; Kira Landauer, Community Health Educator, Division on Addiction, Cambridge Health Alliance, April 22, 2022

One focus group participant mentioned that since the opening of the casino there is an increased risk of developing gambling problems for vulnerable populations - especially “black and brown communities” and people with prior gambling problems. This concern stems from seeing a similar effect in Springfield when the casino opened there.

- Alexander Fidalgo, Training Associate, Training & Capacity Building, Health Resources in Action, Boston, June 7, 2022

TREATMENT SEEKING FOR PROBLEM GAMBLING

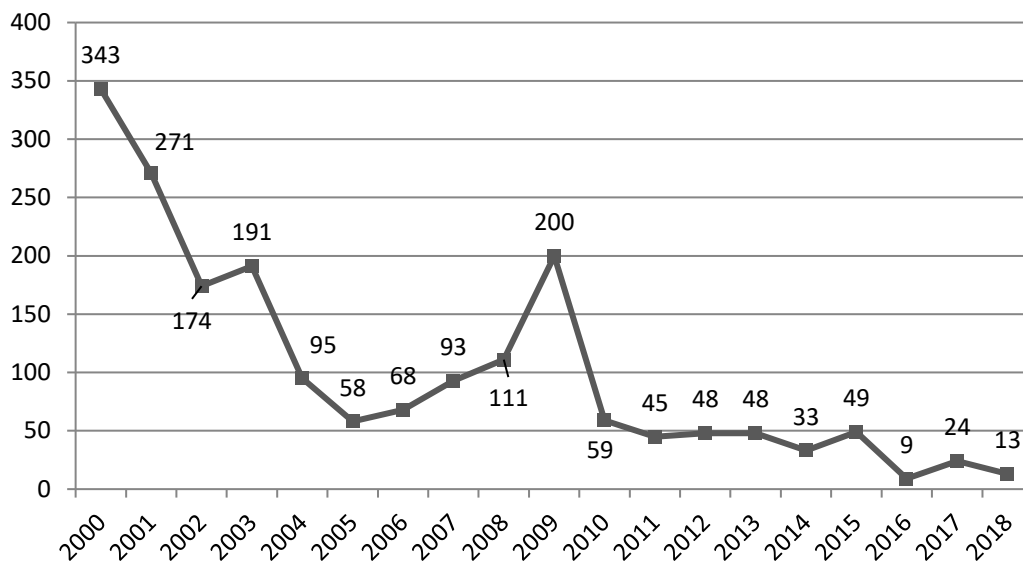
Statewide Impacts

Both the 2013/2014 BGPS and the 2021/2022 FGPS asked all problem gamblers whether they had actually sought help. The percentage of individuals endorsing either of these questions was too small to report in both surveys (cell sizes of five or less). However, this in itself provides some evidence of continued low treatment demand post-casino opening.

The number of **Gamblers Anonymous (GA) and Bettors Anonymous (BA) meetings** held in Massachusetts was also investigated. In February 2018 the GA website showed that there were 40 locations around the state where weekly meetings of Gamblers Anonymous took place whereas in February 2024 there were 31 locations listed in addition to an online meeting available five days a week. BA meetings are less common. In February 2018 the BA website showed that there were four locations where weekly meetings took place, whereas in February 2024 the BA website showed there were three locations plus an online meeting available three days a week. No data was available from either GA or BA websites concerning the number of meetings or their locations prior to 2015.

Another relevant statistic is the number of **intakes for problem gambling treatment** reported by the Massachusetts Department of Public Health (MDPH) which contracts gambling outpatient treatment services in the state. MDPH is the payer of last resort for problem gambling treatment. Thus, their intake numbers are for clients for whom treatment providers were unable to obtain insurance coverage for other diagnosed disorders. These data are reported in Figure 10 and taken from MDPH (2017a) as well as a personal communication from Victor Ortiz (Director of Problem Gambling Services) and Loc Tran on May 1, 2018. As can be seen, there is a decline in the number of intakes reported to MDPH from 2000 to 2018. The MDPH has now apparently stopped tracking the number of intakes for problem gambling treatment although a [November 2023 news story](#) reported that no one had billed the MDPH for problem gambling treatment services in the past two years. Also relevant is the number of outpatient sites contracted with the MDPH to provide problem gambling services. This was identified as 6 in 2007, 44 in 2016 (MDPH, 2017a) and 15 in [2023](#).

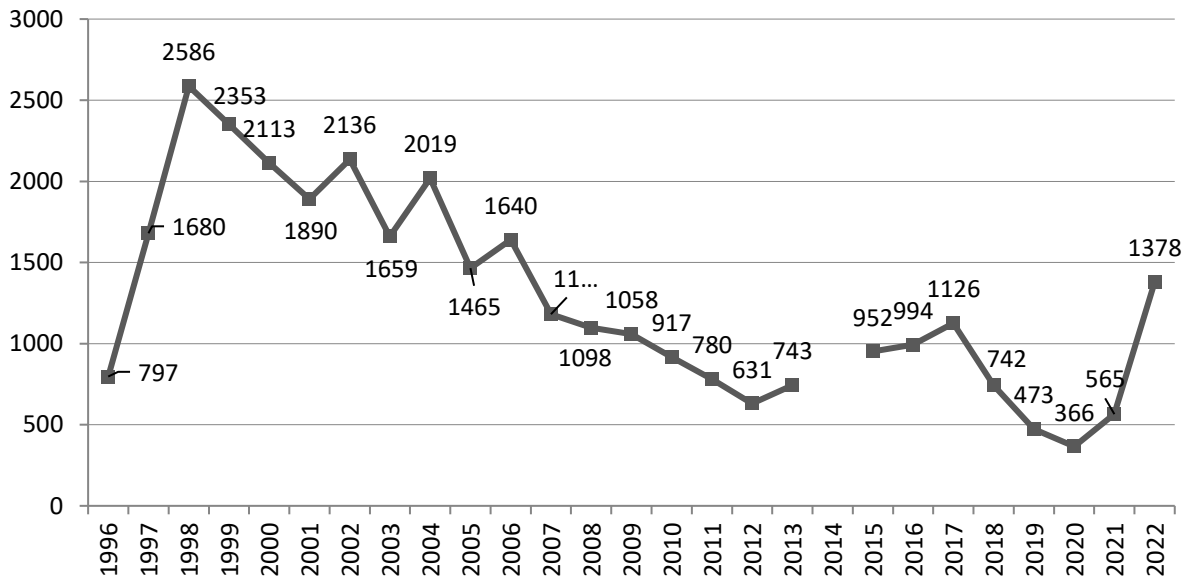
Figure 10. Problem Gambling Treatment Intakes reported to MA Department of Public Health, 2000-2018



Source: MDPH, 2017a; personal communication from Victor Ortiz

Another source of data concerns the number of **helpline calls** to the [Massachusetts Council on Gaming and Health](#) (formerly known as the MA Council on Compulsive Gambling [MCCG]) as seen in Figure 11. Data up to 2014 is reported in Houpt, Volberg, Williams et al. (2015) and MCCG (2014), and data subsequent to 2014 was supplied by Phil Kopel (Data Management and Evaluations Director) at MCCG, as well as MCCG Annual Reports. Because of different data tabulation approaches, the data from 1996-2013 is not directly comparable to the data from 2015-2020. In general, the data shows that the number of calls peaked in 1998 and has declined up to 2020. However, some of this decrease is due to greater online access of information. The number of annual visits to the help pages of the MCCG website has consistently been above 7,000 since 2009. It is unclear whether these visits have increased over time. In their FY19 Annual Report they indicate 17,000 unique visitors to the helpline portion of their website. In July 2020 the MDPH switched operation of the problem gambling helpline to [Health Resources in Action](#), which operates the MA Substance Use Helpline, so as to create a single helpline for assistance with multiple issues. As seen in Figure 12, there was an increase in calls in FY21 to 565 and in FY22 to 1,378 as well as unique visitors to their website (12,823 in FY21 and 56,455 in FY22). It is unclear whether this increase is because substance users are now being screened for problem gambling and/or because of better promotion of the helpline.

Figure 11. Number of Annual Calls to the MA Problem Gambling Help Line, 1996-2022



A final source of data pertaining to treatment seeking is the number of **enrollments in the MA Voluntary Self-Exclusion (VSE) Program** which launched in June 2015. At a June 29, 2023 Massachusetts Gaming Commission meeting it was reported that there were 1,481 people enrolled in May 2023. This compares to 1,150 in FY22, 1,100 in FY21, 700+ in FY20, 700+ in FY19, and 329 in FY18, as documented in the MGC Annual Reports. However, continued increases are to be expected considering that these numbers are cumulative, as the majority of VSEs are for multiple year exclusions, with 54% choosing 5 years; 14% choosing 3 years; and 3% choosing lifetime. It is also the case that a small portion of these recent exclusions are for sports betting.

Regional Impacts

Of the 40 Gamblers Anonymous (GA) meetings in Massachusetts in 2018 one meeting was held in the PPC H&SCs (Plainville), three in the MGM H&SCs (Holyoke, Longmeadow (2)), and two in the EBH H&SCs (Malden, Chelsea). Of the 31 Gamblers Anonymous meetings in 2024, one meeting was held in the PPC H&SC (Plainville), three in the MGM H&SCs (Holyoke, Longmeadow (2)), and one in the EBH H&SC (Malden, Lynn). The three Bettors Anonymous (BA) meetings in Massachusetts in 2018 were held in Methuen (26 miles from Everett) and Wilmington (15 miles from Everett). The four Bettors Anonymous meetings in Massachusetts in 2024 were held in Methuen, Wilmington, and Stoughton (26 miles from Everett).

Key informants in Plainville tended to echo the sentiment that attendance had not changed as a result of the Plainridge Park Casino:

“The Plainville meeting was established 30 years ago. It first started at Wrentham Hospital and then moved to the current location (Plainville United Methodist Church) about 15 years ago. There is also a West Bridgewater meeting that was established 14 years ago and a Taunton meeting that was established 19 years ago.”

- Email response from Secretary for the New England Intergroup of Gamblers Anonymous, March 7, 2018

“We have had GA meetings here for approximately 20 years. At present about 15 people attend these meetings each week. We have not seen any increase in attendance since Plainridge (Casino) opened.”

- Email response from one of the laities of Plainville United Methodist Church, March 8, 2018

A key informant in the Springfield area had a similar viewpoint when asked about the impact of the MGM casino on problem gambling:

“The GA meetings have been going on for some 30 years... No changes were seen after the opening of the casino... I did not notice more attendance at GA meetings, or new cases, or relapses, or exacerbations.”

- Jill Labonte, Administrator, First Church of Christ, Longmeadow Gamblers Anonymous, July 2020

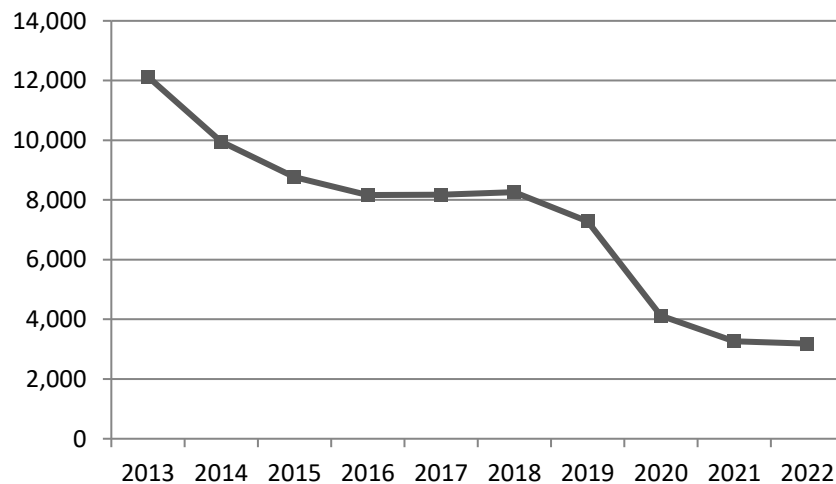
BANKRUPTCY

Bankruptcy is a financial impact that research has found to be reliably related to excessive gambling (Williams, Rehm, & Stevens, 2011). Thus, their temporal association with the introduction of casinos from 2015-2019 was examined.

Statewide Impacts

The figure below displays the number of personal bankruptcy filings per year in Massachusetts as recorded by [U.S. Courts](#) from 2013 to 2022. As can be seen, there has been a steady *decline* in personal bankruptcy filings since 2013.

Figure 12. Personal Bankruptcy Filings per Year in Massachusetts, 2013-2022

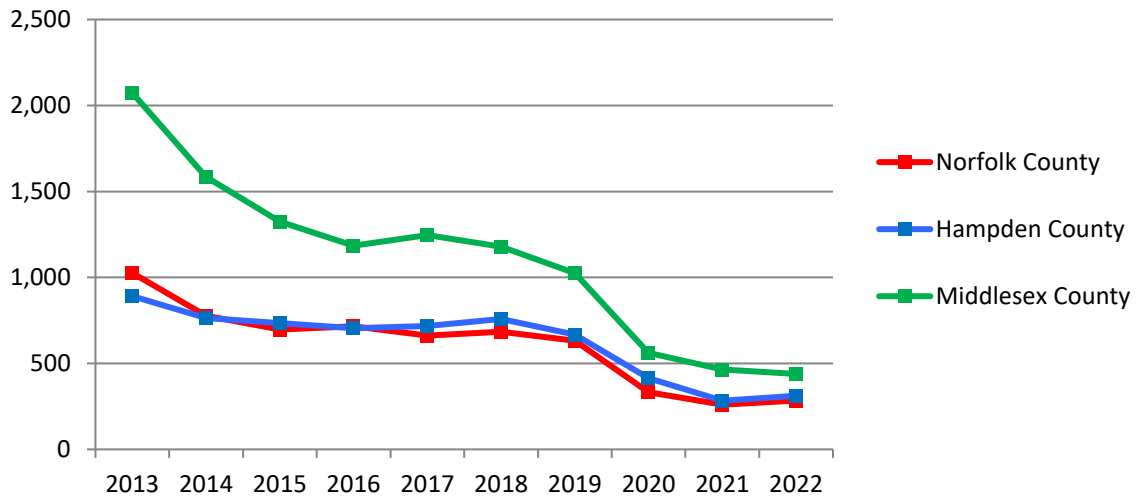


Source: U.S. Courts

Regional Impacts

The figure below displays the number of personal bankruptcy filings per year as recorded by [U.S. Courts](#) from 2013 to 2022 in Norfolk County (where PPC is located), Hampden County (where MGM Springfield is located), and Middlesex County (where EBH is located). Here again, there has been a decline in personal bankruptcies in all three counties since 2013.

Figure 13. Personal Bankruptcy Filings per Year in Counties with Casinos, 2013-2022



Source: U.S. Courts

FAMILY IMPACTS

This section pertains to the potential negative family impacts of gambling in terms of divorce, separation, restraining orders, child welfare involvement, child maltreatment.

Statewide Impacts

The figure below displays the annual number of ‘divorce and other domestic relation filings’,¹⁸ restraining orders, and adoption and child welfare cases in Massachusetts from 2010 to 2023 as documented by [MA Courts](#). As seen, with the exception of adoption and child welfare, the number of filings has decreased over this time period. Figure 15 displays the annual number of children receiving a child maltreatment investigation from 2010 to 2022 as reported by the U.S. Department of Health Human Services – [Children’s Bureau](#). As seen, the rates increased somewhat before the introduction of casinos and have now returned to previous levels.

¹⁸ ‘Other domestic relations’ is primarily filings for separation and child custody.

Figure 14. Massachusetts Family Indices, 2010-2023

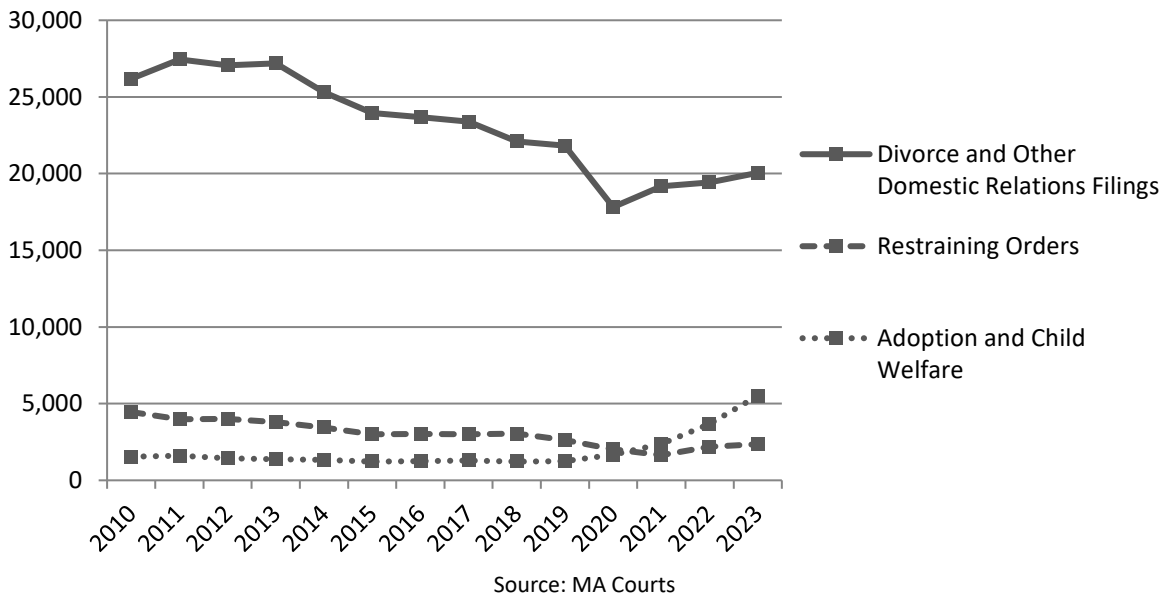
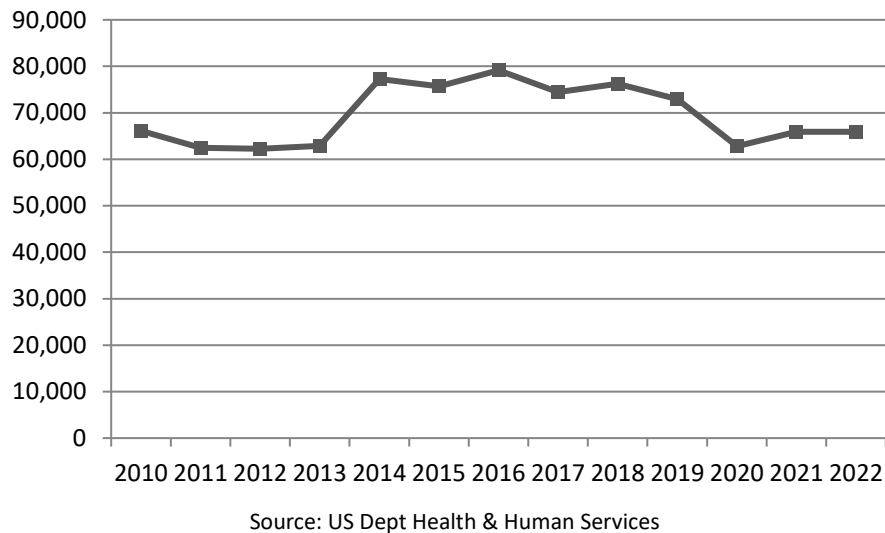


Figure 15. Children Receiving a Child Maltreatment Investigation in Massachusetts, 2010-2022



Regional Impacts

The following figures display the annual number of ‘divorce and other domestic relation filings’, restraining orders, and adoption and child welfare cases in Norfolk County where PPC is located (Figure 16), Hampden County where MGM Springfield is located (Figure 17), and Middlesex County where EBH is located (Figure 18) as documented by MA Courts. There does not appear to be any association with the introduction of PPC in 2015, MGM in 2018, or EBH in 2019, with the possible exception of adoption and child welfare rates in Middlesex County.

Figure 16. Norfolk County Family Impacts 2010 - 2023

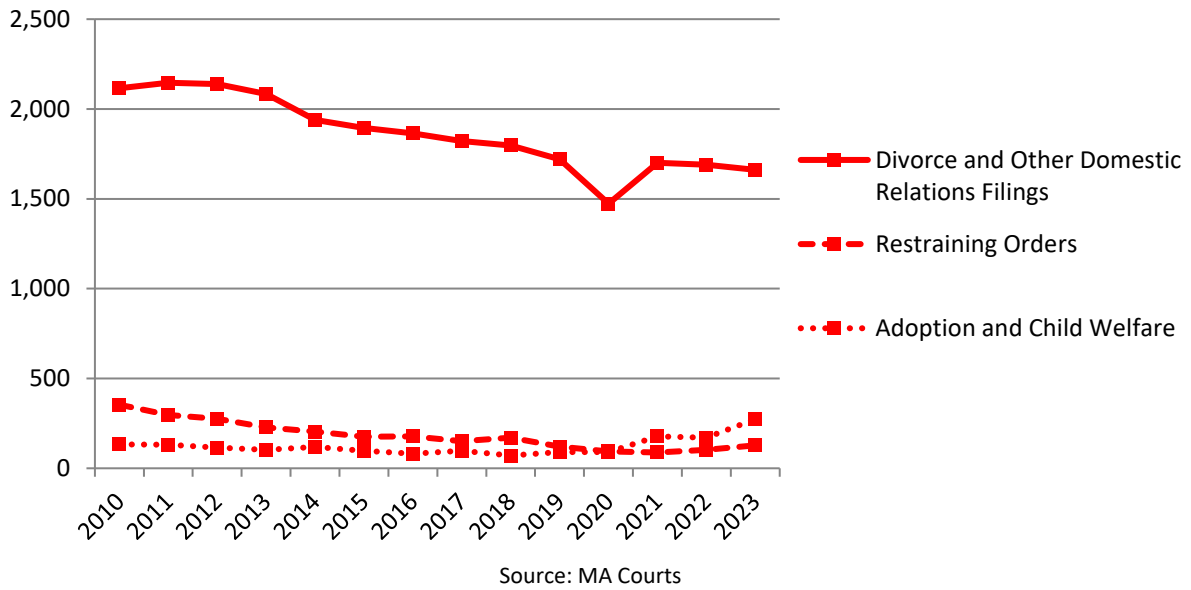


Figure 17. Hampden County Family Impacts, 2010-2023

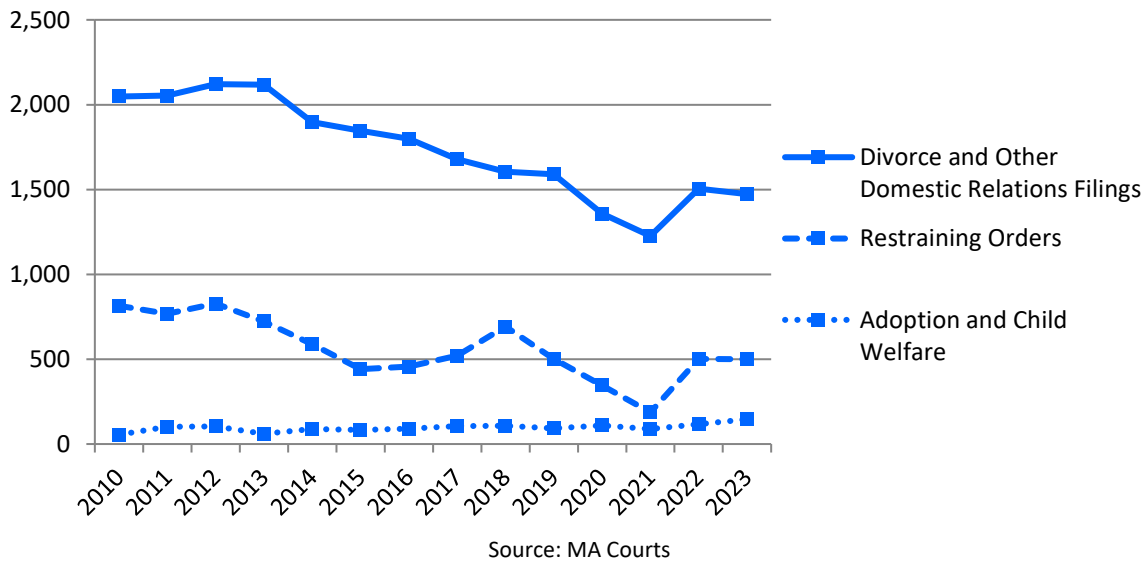
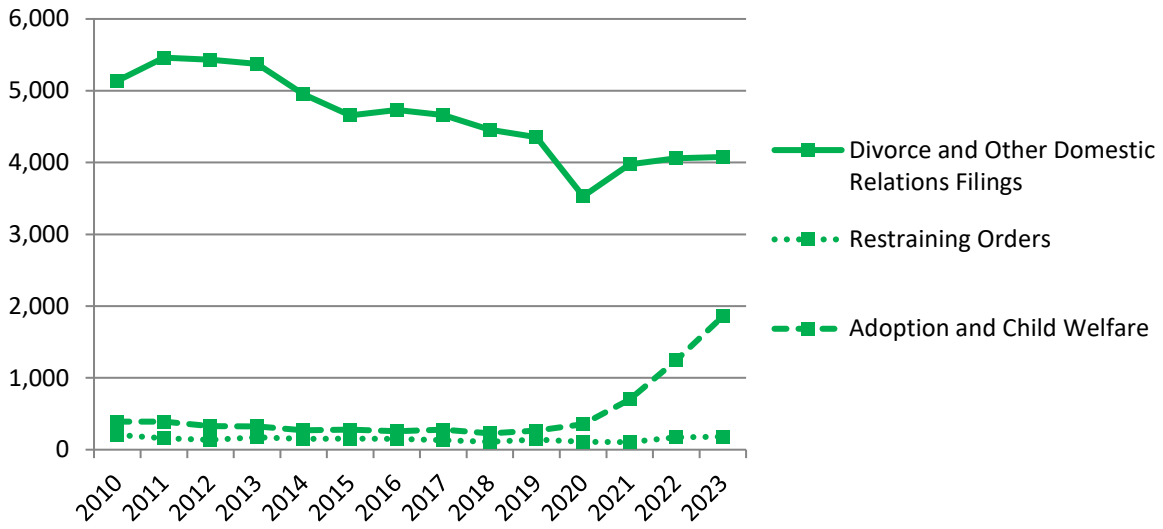


Figure 18. Middlesex County Family Impacts, 2010-2023



Source: MA Courts

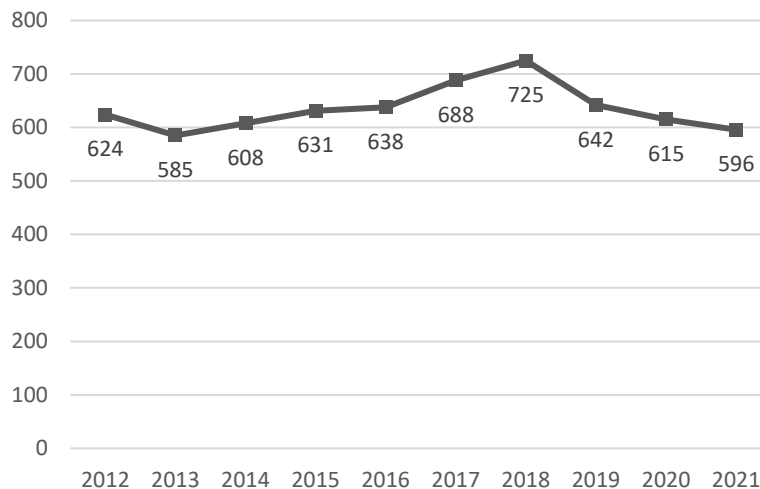
SUICIDE

Negative mental health impacts are also one of the most common negative impacts of excessive gambling and suicide has a known association with excessive gambling.

Statewide Impacts

The Massachusetts Violent Death Reporting System ([MAVDRS](#)) tabulates confirmed suicides in the state (excluding non-residents or unknown residence). This data is presented below. While there was an increase in suicides in 2017 and 2018, the number declined to previous levels after 2018.

Figure 19. Annual Suicides in Massachusetts, 2012-2021

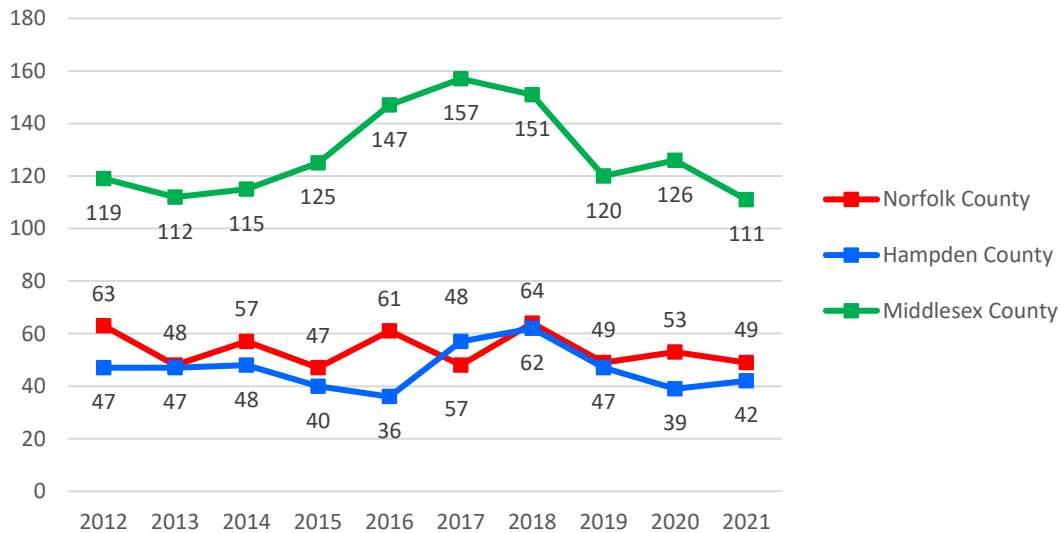


Regional Impacts

Here again, there is no obvious association with casino introduction.

Figure 20 displays the number of suicides per year as recorded by [Massachusetts Violent Death Reporting System \(MAVDRS\)](#) from 2012 to 2021 in Norfolk County (where PPC is located), Hampden County (where MGM Springfield is located), and Middlesex County (where EBH is located). Here again, there is no obvious association with casino introduction.

Figure 20. Annual Suicides in Selected Massachusetts Counties, 2012-2021



Source: MAVDRS

PROPORTION OF GAMBLING REVENUE

A final consideration is the proportion of gambling revenue accounted for by problem, at-risk, and recreational gamblers and whether this has changed as a result of casino introduction. As seen Figure 21 below, at-risk and problem gamblers accounted for 74% of self-reported casino expenditure in 2013/2014 (BGPS), which increased to 90% in 2021/2022 (FGPS). It should be noted that the disproportionate contribution of at-risk and problem gamblers to gambling revenue is not unique to Massachusetts (e.g., Orford et al., 2013; Volberg et al., 1998; Williams & Wood, 2004; 2007). It should also be noted that the significant increase in the proportion accounted for by at-risk + problem gamblers in 2021/2022 is plausibly due to the fact recreational gamblers were more deterred by COVID restrictions and casino capacity limitations compared to at-risk and problem gamblers.¹⁹

Table 33 provides more detail about self-reported gambling expenditure as a function of type of gambler, showing that MA at-risk and problem gamblers accounted for 68% of expenditure for all types of gambling in 2013/14, with this increasing to 88% in 2021/22.

¹⁹ Even though COVID capacity limits were only 40%, revenue was 70% of normal.

Figure 21. Proportion of Past Year Casino Expenditure by Type of Gambler in BGPS and FGPS

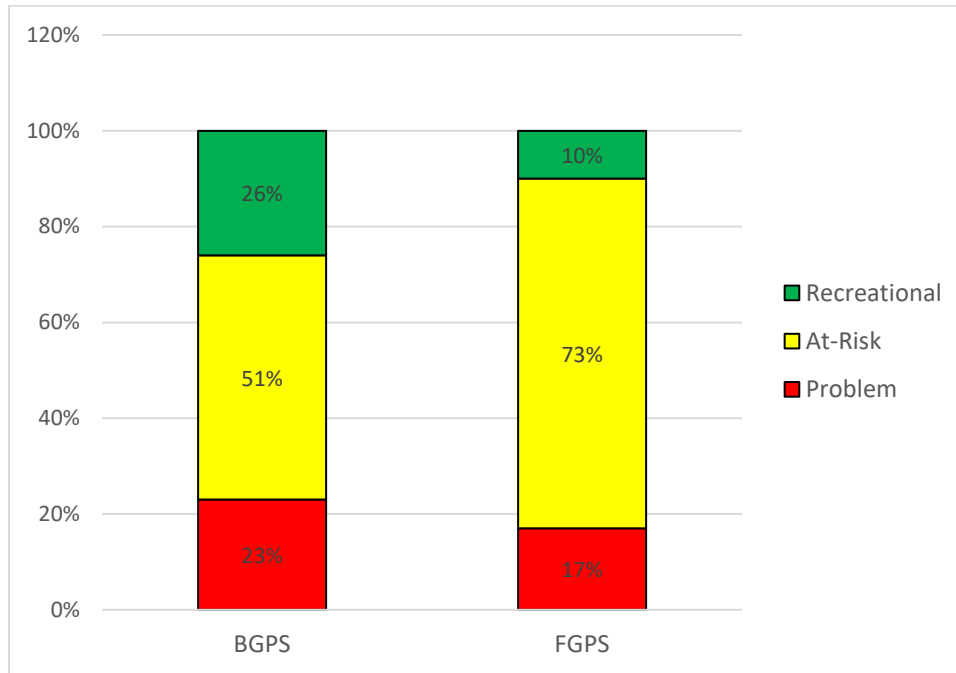


Table 33. Self-Reported Gambling Expenditure by Type of Gambler in 2013/2014 BGPS and 2021/2022 FGPS

		Problem Gambler	At Risk Gambler	Recreational Gambler
BGPS (2013/ 2014)	Population Prevalence	2.0%	8.4%	62.9%
	Average Yearly Gambling Expenditure	\$9,433	\$9,785	\$762
	Median Yearly Gambling Expenditure	\$2,589	\$1,200	\$120
	% of Total Gambling Expenditure	13%	55%	32%
	Average Yearly Casino Expenditure	\$6,301	\$3,797	\$448
	Median Yearly Casino Expenditure	\$1,000	\$600	\$100
	% of Total Casino Expenditure	23%	51%	26%
FGPS (2021/ 2022)	Population Prevalence	1.4%	8.5%	51.3%
	Average Yearly Gambling Expenditure	\$9,804	\$5,672	\$169
	Median Yearly Gambling Expenditure	\$1,000	\$1,100	\$50
	% of Total Gambling Expenditure	20%	68%	12%
	Average Yearly Casino Expenditure	\$2,304	\$1,383	\$109
	Median Yearly Casino Expenditure	\$1,200	\$300	\$80
	% of Total Casino Expenditure	17%	73%	10%

CRIME

The main impacts of introducing casinos to Massachusetts on **crime** are as follows:

- There is no evidence that casinos have increased **statewide rates of crime, although there has been a small but significant increase in illegal gambling offenses.**
- At a **casino-specific level**, upon opening, all three casinos became the highest or one of the highest sites for crime and calls for service in their community and one of the higher sites in their Host and Surrounding Communities (H&SC). Most of this is due to creating a commercial venue that attracts large numbers of people. However, it is also the case that these venues have some calls for service and crimes specific to being a casino and an alcohol-serving establishment (i.e., theft of gambling credits, gaming violations, intoxicated patrons, money laundering).
- At a **community-specific level**, the casinos only account for a small portion of total crime in their specific communities: Plainridge Park Casino (PPC) accounts for 11% of Plainville crime; MGM Springfield accounts for 1.5% of Springfield crime; Encore Boston Harbor (EBH) accounts for 6% of Everett crime. Indeed, overall levels of property crime largely decreased in Plainville, Springfield, and Everett compared to pre-opening averages and overall levels of violent crime were largely unchanged. However, there has been a small but significant increase in illegal gambling offenses in Springfield.
- At a **H&SC level**, there have been significant decreases in overall levels of property crime in all three H&SCs and significant decreases in overall levels of violent crime in all but the PPC H&SC. That said, there is evidence of increases in specific crimes that have a theoretical relationship with gambling: in the PPC H&SC there have been increases in fraud/con games, theft, and domestic violence; in the MGM H&SC there have been increases in purse-snatching, shoplifting, fraud, and extortion; and in the EBH H&SC there have been increases in burglary, theft from vehicles, and prostitution.

The introduction of legal casino gambling can theoretically impact crime rates in several different ways:

- By decreasing the rate of illegal gambling.
- By increasing the number of problem gamblers, a percentage of which will commit crimes to support their gambling (predominantly property crimes).
- By providing increased opportunities for illegal activity to occur (i.e., passing counterfeit money, money laundering, loansharking, cheating-at-play, theft).
- By creating venues that serve alcohol and thereby contributing to alcohol-related offences (i.e., assault, driving under the influence).
- By disproportionately attracting a clientele with criminal tendencies.
- By increasing the overall number of visitors to the area.

The present section assesses whether there is any evidence that crime rates have been impacted at either a state or regional level.

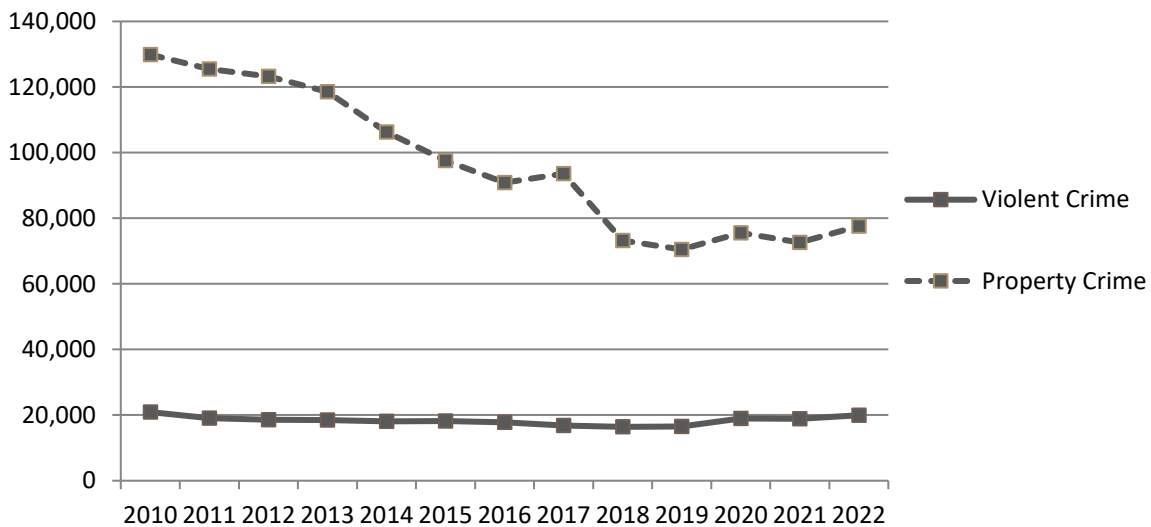
OVERALL CRIME RATES

Statewide Impacts

It is very unlikely there would be any statewide changes in crime as a result of the introduction of three casinos. Even if there was, the ability to attribute these changes to casino introduction is tenuous. The following data is presented in the interests of context and comprehensiveness. Furthermore, any changes subsequent to 2020 are more likely attributable to the COVID-19 shutdowns and social unrest associated with the death of George Floyd.

Figure 22 documents the number of criminal offenses recorded by law enforcement in Massachusetts from 2010 to 2022 as derived from the Federal Bureau of Investigation’s Crime Data Explorer ([FBI-CDE](#)). As seen, downward trends are evident for property crime with more stable rates for violent crime. Furthermore, any changes subsequent to 2020 are more likely attributable to the COVID-19 shutdowns and social unrest associated with the death of George Floyd.

Figure 22. Criminal Offenses Known to Law Enforcement in Massachusetts, 2010-2022



Source: FBI-CDE

Regional Impacts

The detailed series of 17 Crime Impact reports produced for the MGC between 2016 and 2023 constitute the best in-depth analysis of regional impacts (see [Crime Impact Reports](#) in Methodology).

Plainridge Park Casino Host & Surrounding Communities

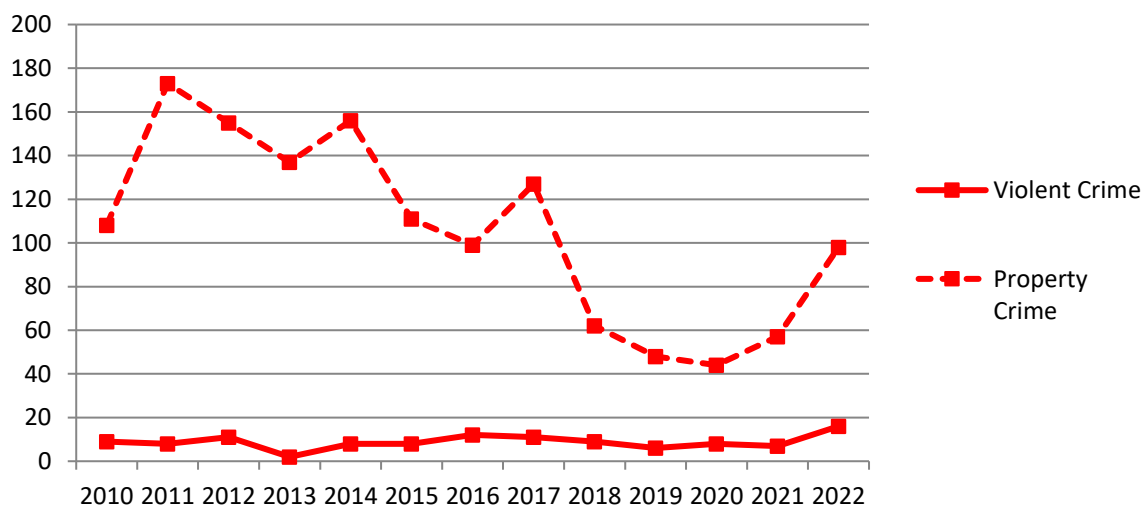
Bruce (2019) found that in the four years after PPC opening the Gaming Enforcement Unit reported 5,194 ‘incidents’, with a declining number each year. The large majority of these were calls for service rather than actual crimes, with the top categories being: assistance to PPC security ($n = 1,915$); assistance to ‘other’ agencies ($n = 943$); suspicious persons ($n = 632$); theft, fraud, and embezzlement (with theft of people’s gambling credit tickets and personal property being particularly common) ($n = 468$); intoxicated persons ($n = 451$); medical ($n = 373$); drug investigations (drug use and selling outside the casino) ($n = 255$); and forgery/counterfeiting ($n = 100$). There have also been several reports of money laundering with individuals

from out of state bringing large amounts of small bills into the casino and cashing them out for larger denomination bills.

Plainville police records provide better information concerning whether the opening of PPC resulted in more crime specifically at the Plainridge venue, as these records also document incidents prior to 2015 when the facility was a racetrack. Comparing 2011-2015 to 2015-2019, there was a 2% increase in violent crime, a 3% increase in calls for service, a 7% increase in property crime, and a 9% increase in total crime. For the Plainville Police Department PPC was Plainville’s top crime and call for service location from 2015-2019, and amongst the higher locations in the PPC H&SC. However, it should also be noted that (a) incidents at PPC represent a small portion of the total incidents in Plainville (2% of the violent crime incidents; 9% of the calls for service; 9% of the property crime; 11% of total crime); and (b) the number of crimes associated with a facility is strongly related to the number of visitors that it attracts (as well as whether the new facility serves alcohol). With Plainridge Park Casino attracting significantly more visitors than Plainridge Racecourse, this increase in crime and calls for service is not unexpected and not necessarily different from what would occur with a non-gambling facility (e.g., stadium, shopping mall).

Thus, the more important question is whether there was a net increase in total crime in the Town of Plainville and the surrounding communities (inclusive of the PPC incidents). Figure 23 documents the number of criminal offenses recorded by law enforcement in Plainville from 2010 to 2022 from the Federal Bureau of Investigation’s Crime Data Explorer (FBI-CDE). As seen, there are inconsequential changes in violent crime post-2015 PPC opening and a downward trend in property crime, albeit with a slight increase in 2017.

Figure 23. Criminal Offenses Known to Law Enforcement in Plainville, 2010-2022



Bruce (2019) aggregated the total number of crimes reported to all 6 host and surrounding communities pre- and post-opening is seen in the table below. As seen, property crime similarly decreased, with a small increase in violent crime.

Table 34. Average Annual Number of Crimes in PPC H&SC pre and post Casino Opening

	Pre-PPC Annual Average	2016 – 2019 Annual Average	% Change
Property Crime Offenses	3,903.4	3,214.5	17.6% decrease
Violent Crime Offenses	870.4	943.3	8.4% increase

Source: Bruce (2019)

It is possible these broad crime categories hide changes in individual crimes/incidents. Examination of the 45 individual categories of crime and calls for service detailed in Bruce (2019) shows that there were 8 categories with increases 2 standard deviations from the pre-PPC average. These were fraud/con games in 2016, 2017, 2018, 2019; family offenses in 2016, 2017, 2018; lost property in 2017, 2018, 2019; medical assistance calls in 2017, 2018, 2019; traffic collisions in 2017, 2018, 2019; theft from persons in 2016, 2017; psychological assistance calls in 2016, 2018; traffic complaints in 2018, 2019; theft of vehicle parts in 2018; credit card theft in 2016; sexual assault in 2018; simple assault in 2018; and prostitution in 2019.

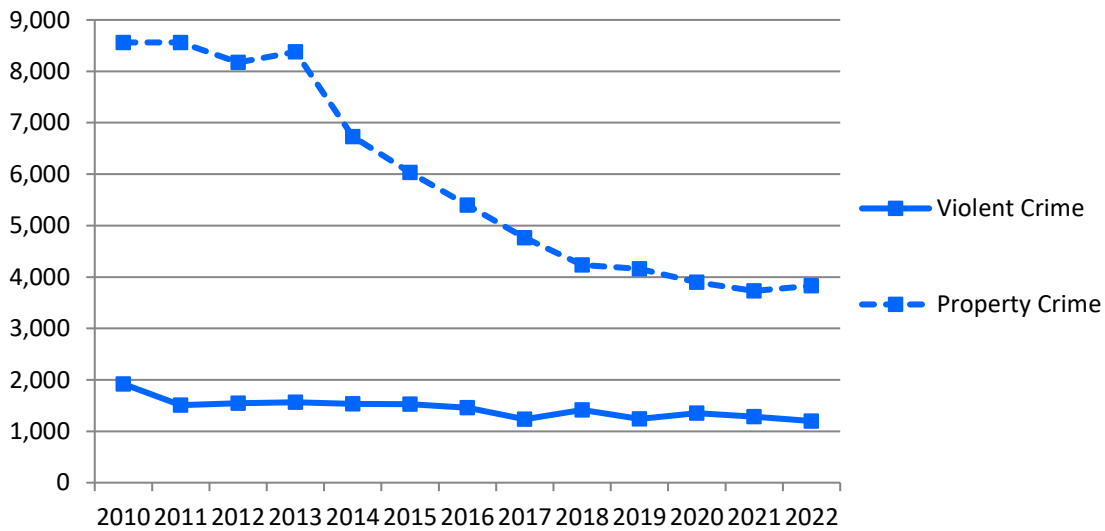
MGM Springfield Host & Surrounding Communities

Bruce (2020) found in the one year after the MGM opening the Gaming Enforcement Unit reported 2,920 ‘incidents.’ The large majority of these were calls for service rather than actual crimes, with the top categories being: assistance to MGM security ($n = 1928$); intoxicated persons ($n = 204$); medical ($n = 203$); assistance to ‘other’ agencies ($n = 155$); gaming violations ($n = 153$); theft, fraud, and embezzlement ($n = 137$); counterfeiting ($n = 102$); suspicious persons ($n = 89$); drug investigations (drug use and selling outside the casino) ($n = 82$).

Bruce (2020) also reported that from September 2018 – August 2019 MGM was the H&SC’s second highest site for total crimes (after the Holyoke Mall) and the second highest site for calls for services (after Springfield’s Union Station). However, incidents at MGM in that time period represent a small portion of the total incidents in Springfield (1% of the violent crime incidents; 1% of the calls for service; 1% of the property crime; 1.5% of total crime).

Here again, the most important question is whether there was a net increase in total crime in the Springfield and the surrounding communities as a result of MGM introduction. documents the number of criminal offenses recorded by law enforcement in Springfield from 2010 to 2022 from the Federal Bureau of Investigation’s Crime Data Explorer (FBI-CDE). As seen there have been decreases in both violent crime and property crime over time, with these trends continuing post-2018 opening of MGM. The following figure documents the number of criminal offenses recorded by law enforcement in Springfield from 2010 to 2022 from the Federal Bureau of Investigation’s Crime Data Explorer (FBI-CDE). As seen there have been decreases in both violent crime and property crime over time, with these trends continuing post-2018 opening of MGM.

Figure 24. Criminal Offenses Known to Law Enforcement in Springfield, 2010-2022



However, some focus group participants in Springfield did report an increase in prostitution:

“It’s always been a hotspot, but there has definitely been an uptick in activity in regard to sex workers and drug dealing.”

- Brenda Evans, Community Liaison, Center for Community Health Equity Research, UMass Amherst, April 22, 2021

One focus group participant mentioned that in local community meetings with the police during the construction of the casino, there were reports of increased solicitation of prostitutes.

- Malukah Jeffries, Staff Access Coalition Coordinator, Gandara Center, April 22, 2021

Another participant recalled that neighborhood residents reported there was an ‘open air market’ of prostitution in the areas around the casino, and an increase in the perception of crime. Nevertheless, Springfield Police denied seeing any of this in video footage or in their work.

- Jessica Collins, Executive Director, Public Health Institute of Western Massachusetts, April 22, 2021

Bruce (2020) aggregated the total number of crimes reported to all ten host and surrounding communities plus Northampton pre- and post-opening as seen in the table below. As seen, both property crime and violent crime decreased in the one year after MGM opening. Examining the individual categories of crime and calls for service, Bruce (2020) reports that the following categories were higher than expected: purse-snatching, shoplifting, fraud, extortion, pornography, and trespassing.

Table 35. Average Annual Number of Crimes in MGM H&SC pre and post Casino Opening

	2014-2018 Annual Average	Sep 1 2018 – Aug 31 2019	% Change
Property Crime Offenses	22,356	16,391	26.7% decrease
Violent Crime Offenses	11,647	10,565	9.3% decrease

Source: Bruce (2020)

Justice Research Associates (2023b)²⁰ also analyzed crime in the MGM H&SCs from 2013 to 2022 using a different methodology to Bruce (2021). The Justice Research Associates (2023b) report concluded that “...only a few crimes increased in surrounding agencies during this period and the decade long trend of crime reduction continues on the same trajectory. While some of these increases have possible links to MGM, there is no general consistency across the surrounding agencies and limited evidence of a casino connection to specific offenders.”

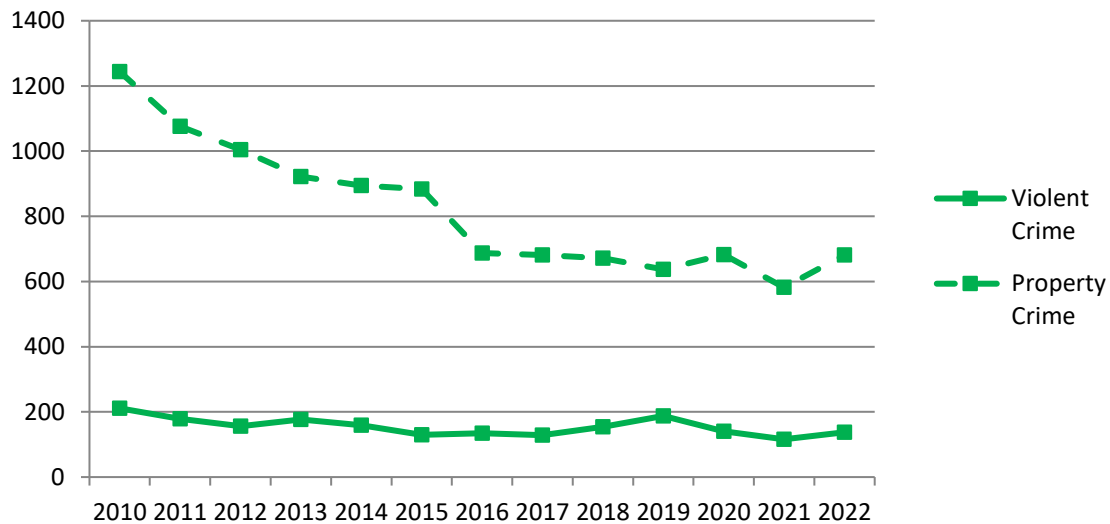
Encore Boston Harbor Host and Surrounding Communities

Bruce (2020) found in the six months after the June 23, 2019 EBH opening (i.e., July – December 2019) the Gaming Enforcement Unit reported 19,815 incidents at EBH. The large majority of these were calls for service rather than actual crimes, with the top categories being: assistance to EBH security ($n = 1205$); intoxicated persons ($n = 342$); medical ($n = 203$); assistance to ‘other’ agencies ($n = 163$); forgery/false identification ($n = 165$); theft, fraud, and embezzlement ($n = 122$); gaming violations ($n = 102$); suspicious persons ($n = 112$); counterfeiting ($n = 61$); assaults ($n = 57$); drug investigations (drug use and selling outside the casino) ($n = 53$).

However, incidents at EBH in that time period represent a small portion of the total incidents in Everett (4% of the calls for service; 5% of the property crime; 6% of total crime; and 10% of the violent crime incidents).

Here again, the most important question is whether there was a net increase in total crime in Everett and the surrounding communities as a result of EBH introduction. Figure 25 documents the number of criminal offenses recorded by law enforcement in Everett from 2010 to 2022 from the Federal Bureau of Investigation’s Crime Data Explorer (FBI-CDE). As seen, there have been decreases in both violent crime and property crime over time, with the violent crime trend continuing post-2019 EBH opening, but no real change in property crime post-2019.

Figure 25. Criminal Offenses Known to Law Enforcement in Everett, 2010-2022



Source: FBI-CDE

²⁰ COVID-19 impacts also severely limited the analysis of crime impacts in 2020 and beyond.

A few key informants commented on crime in the Everett area:

At least two interviewees pointed out that there may be a small increase in petty crime - maybe due to more people present in the area. But, in general, the casino had not had a big impact.

- David Auerbach, Health Policy Researcher, Brandeis University, November 12, 2021; Diana Jeong, Vice President, Greater Malden Asian American Community Coalition, February 25, 2022

Another interviewee said that there is increased alcohol consumption within the casino, and that since the casino opened, there have been increases in the reports about accidents, DUIs, fights, crime, and child trafficking in the area. Nonetheless, she noted that these problems may also be related to the pandemic.

- Dinanyili Paulino, Chief Operating Officer, La Colaborativa, April 4, 2022

Bruce (2020) aggregated the total number of crimes reported to all the host and surrounding communities pre- and post-opening is seen in the table below. Both property crime and violent crime decreased. Examining the individual categories of crime and calls for service, Bruce (2020) reports that the following categories were higher than expected: murder, burglary, theft from vehicle, rape, and prostitution.

Table 36. Average Annual Number of Crimes in EBH H&SC pre and post Casino Opening

	Pre-EBH Annual Average	Jul-Dec 2019	% Change
Property Crime Offenses	3,038	2,610	14.1% decrease
Violent Crime Offenses	163	133	18.4% decrease

Source: Bruce (2020)

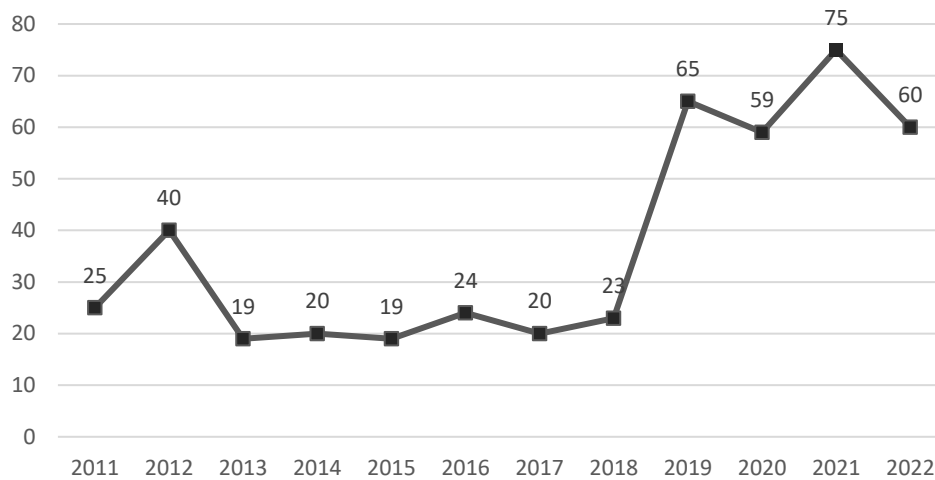
Justice Research Associates (2023) also analyzed crime in the EBH H&SCs up to 2022 using a different methodology to Bruce (2020). The Justice Research Associates (2023) report concludes that “...the facility reported various crimes, disorder, and arrests commensurate with a facility of that size hosting that many visitors. In the surrounding areas, various crimes increased and decreased.” The report also concluded that in 2020 COVID-19, social unrest because of the death of George Floyd, and the 2020 election created too many confounds to unambiguously establish the contribution of EBH.

ILLEGAL GAMBLING

Statewide

Decreases in illegal gambling often occur with the introduction of legal forms of gambling. There are four illegal gambling offenses in Massachusetts including ‘betting/wagering’, ‘operating/promoting/assisting gambling’, ‘gambling equipment violations’, and ‘sports tampering’. Figure 26 illustrates the total number of charges recorded by law enforcement in Massachusetts from 2011 to 2022 with data derived from the FBI’s Crime Data Explorer. As can be seen, the level of illegal gambling offenses was very low for several years prior to 2015 but increased beginning in 2019.

Figure 26. Illegal Gambling Offenses in Massachusetts, 2011-2022



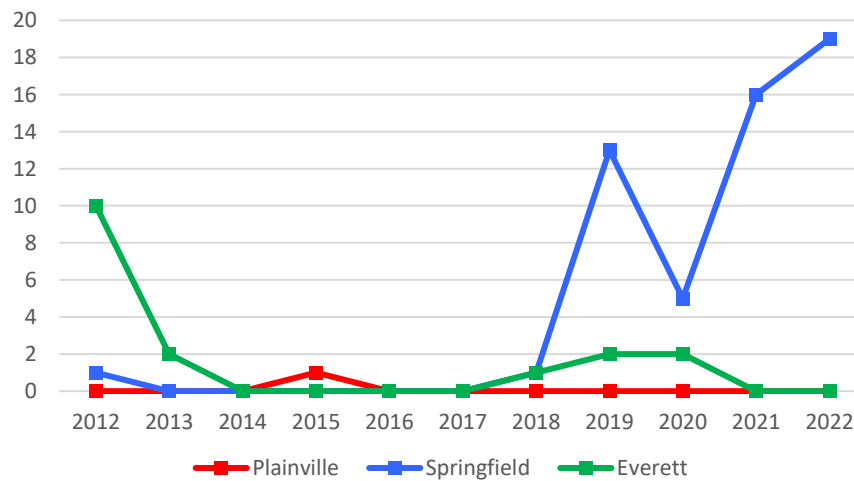
Source: Uniform Crime Reporting Statistics

In the MAGIC study, when restricting the analysis to members of the cohort who participated in all five waves ($n = 2,101$), the percentage of the sample reporting they had gambled at an ‘underground’ casino, slot parlor, or card room in Massachusetts in the past year was 0.29% in 2015; 0.05% in 2016; 0.11% in 2018; and 0.21% in 2019. A Cochran Q test found no significant change over time ($p = .52$).

Regional

Figure 27 illustrates the number of illegal gambling offenses in Plainville, Springfield, and Everett from 2012-2022. Here again, illegal gambling offenses were extremely uncommon with only two recorded offenses in any of these communities from 2014-2018, but with a notable increase in Springfield beginning in 2019.

Figure 27. Illegal Gambling Offenses in Plainville, Springfield, and Everett, 2012-2022



Source: FBI-CDE

Certain key informants and focus group participants in Springfield noted a culture of informal/illegal gambling prior to the casino opening:

“In our work, [we] talk about both legal and illegal types of gambling... [Some] forms of gambling, which have always been in our environment, but [people] just didn’t [see them as] gambling, are illegal forms of gambling that are not sanctioned. [These include] lots of social gambling that happens between people, and what we call underground [gambling] that people in [the] community know about, [but] that systems in government might not know about.” [Asked about whether there are machines in back rooms of social clubs and stores -] “Absolutely. Not necessarily in clubs, but in people’s basements and in some stores. [There have been] different kinds of cultural forms of gambling in place for a very long time. People from [the] Asian community talk to us about Chinese New Year, [when some] types of gambling happen. The Latino community talk about cock fights. Folks not in that community say ‘oh, that doesn’t happen.’”

- Rebecca Bishop, Director, Gambling Prevention Technical Assistance Center, Education Development Center, May 8, 2020

One focus group participant highlighted that there were many people who were already participating in sports betting before it was legalized in Massachusetts, as well as participating in fantasy sports betting, and watching daily shows on how players perform and where to place bets.

- Xavier Williams, Project Director, Men of Color Health Awareness, May 5, 2021

OTHER SOCIAL INDICES

The main impacts of introducing casinos to Massachusetts on **population levels, the educational system, traffic volume and accidents, and noise** are as follows:

- There is no significant impact on local **population levels** in Springfield, but there has been an increase in both Everett and Plainville potentially attributable to the casino.
- There is no significant impact on **educational systems** in Plainville, Springfield, or Everett.
- New commercial venues that attract thousands of customers always result in increased **traffic volume** in the local area. That is also what the data indicates, with a 9.9% increase in Plainville, a 12.2% increase in Springfield, and between a 6.2% to 16.7% increase in Everett, recognizing that to some extent these increases follow increased traffic volume that has occurred at a statewide level. All of these communities had a significant drop in traffic volume in 2020 related to COVID casino closures and capacity limitations, with traffic volume in 2022 still not yet at 2019 levels.
- With increased traffic volume there are usually **increased traffic accidents**, which appears to have occurred in Everett in 2016 and 2017 and Plainville in 2017 and 2018 (although Plainville experienced a decrease in 2015 and 2016). As large alcohol-serving establishments, the three casinos also contribute to increased rates of impaired driving, estimated to be tens of thousands of trips per year. In turn, this has been associated with a few dozen additional crashes in the host communities, as well as Hampden County in 2019.
- Casino construction and increased traffic volume are both associated with **increased noise**, although this was not a major issue reported by key informants.

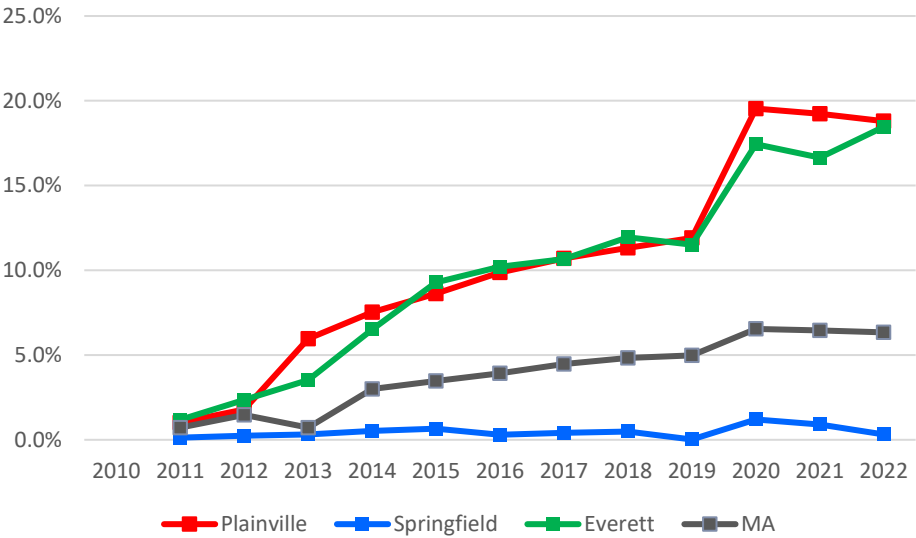
Large casinos can employ many workers. If these workers are brought in from other areas there is the potential to change the population and/or demographic make-up of the region. The focus in this section is on changes at a regional level, as it is implausible that statewide changes could occur.

POPULATION LEVELS

Regional Impacts

The figure below shows the percentage increase in population since 2010 in each of the three host communities relative to Massachusetts as a whole based on U.S. Census data. As seen, the increases in Plainville and Everett have exceeded the increases in Massachusetts while the population in Springfield has remained relatively stable. The increases in Plainville and Everett are unlikely due to an increased number of casino employees, as only 13 PPC employees reported moving to Plainville to take their job (UMDI, 2017). A similar pattern occurred at MGM Springfield (MGM) and Encore Boston Harbor (EBH), with only 106 moving to Springfield (Hall, Breest & Aron, 2020) and only 60 moving to Everett (Breest, Aron & Hall, 2022). That said, ancillary businesses serving casino patrons may be responsible for the increase. As will be seen later in this report, Everett has had an increase in the total number of businesses and employment levels that exceeds the increases in the state as a whole. Similarly, Plainville has also experienced an increase in overall employment above the MA average.

Figure 28. Percent Increase in Population from Previous Year in MA and Host Communities, 2011-2022



Source: U.S. Census

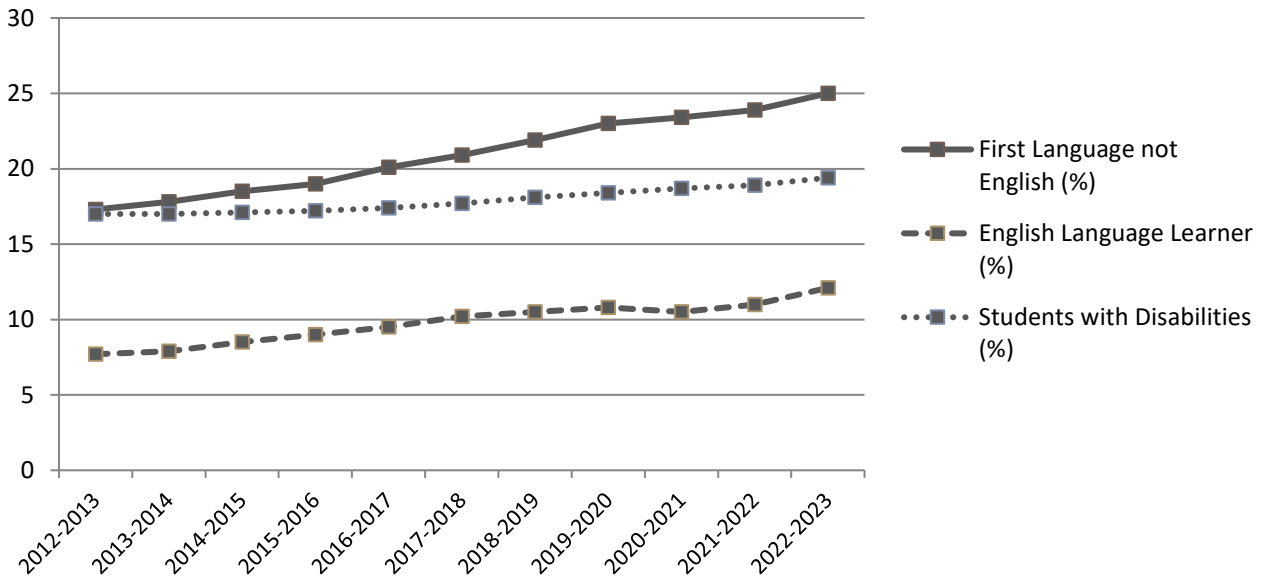
EDUCATIONAL SYSTEM

Regional Impacts

Educational impacts include changes in school enrollment, special needs/disability provision, and English language speakers/learners.

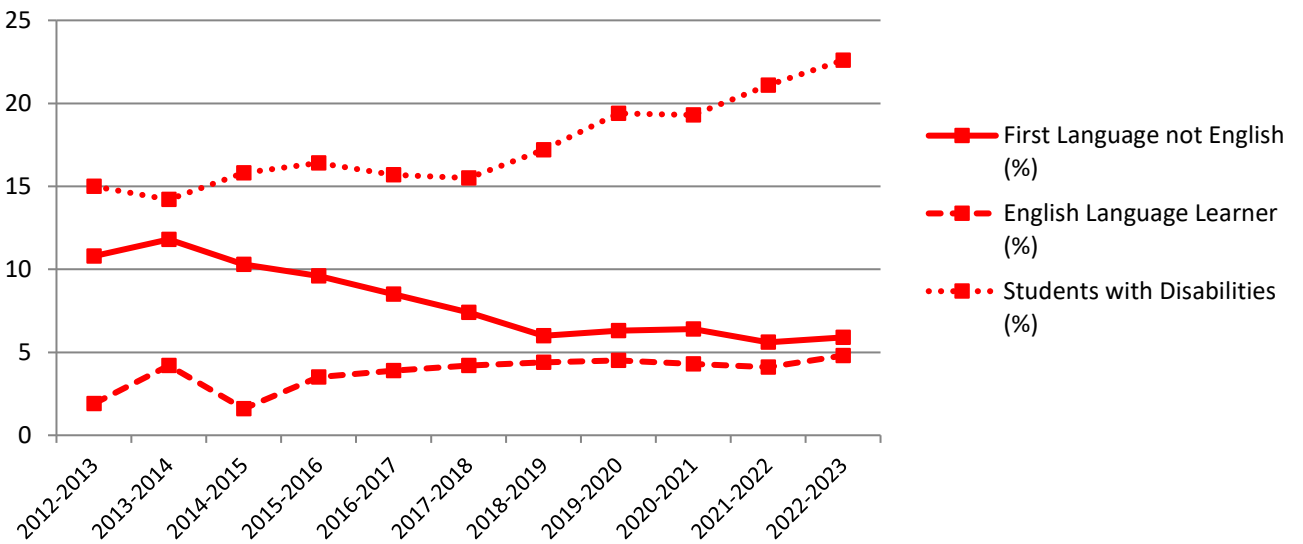
Figure 29 illustrates changes from 2012/2013 to 2022/2023 in the percentage of students in Massachusetts public schools who (a) do not have English as a first language, (b) are an English language learner, and (c) are students with disabilities. The subsequent three figures illustrate the same trends for the municipalities of Plainville, Springfield, and Everett. This data is taken from the [Massachusetts Department of Elementary and Secondary Education](#). There is no evidence of any increases in these attributes of school attenders, which is to be expected considering the relatively small number of new employees at PPC, MGM, and EBH who moved to the host community. It appears that Springfield and Everett simply follow national trends and trends that existed in the community prior to the casino.

Figure 29. % of Elementary & Secondary Students in Massachusetts with Certain Characteristics, 2012-2023



Source: MA Department of Elementary and Secondary Education

Figure 30. % of Elementary and Secondary Students in Plainville with Certain Characteristics, 2012-2023



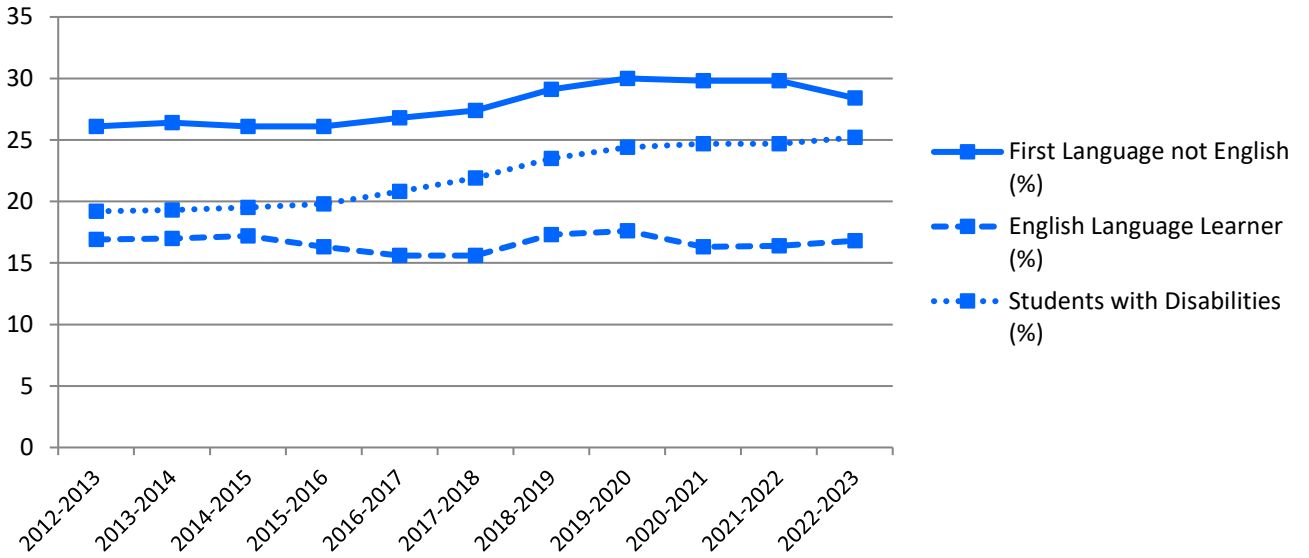
Source: MA Department of Elementary and Secondary Education

Consistent with a lack of impact, one of the key informants from Plainville indicated the following:

“We haven’t seen an influx [of new students] in the school system. [Schools] have not been impacted by the casino.”

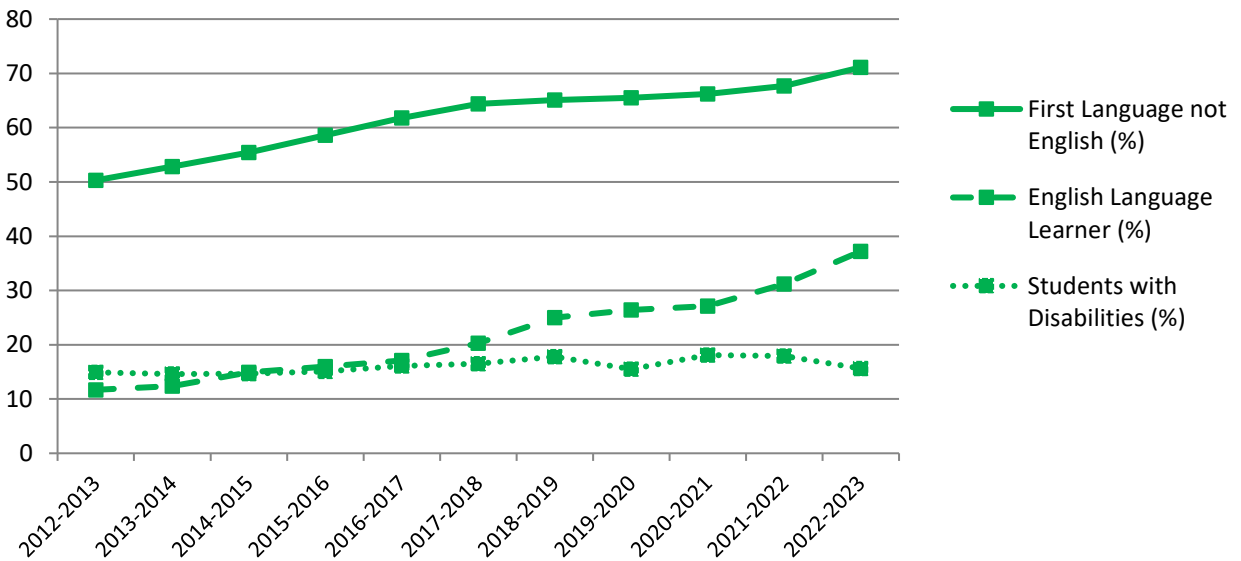
- Lou LeBlanc, Chairman, Board of Health, Plainville, MA, March 1, 2018

Figure 31. % of Elementary and Secondary Students in Springfield with Certain Characteristics, 2012-2023



Source: MA Department of Elementary and Secondary Education

Figure 32. % of Elementary and Secondary Students in Everett with Certain Characteristics, 2012-2023



Source: MA Department of Elementary and Secondary Education

TRAFFIC

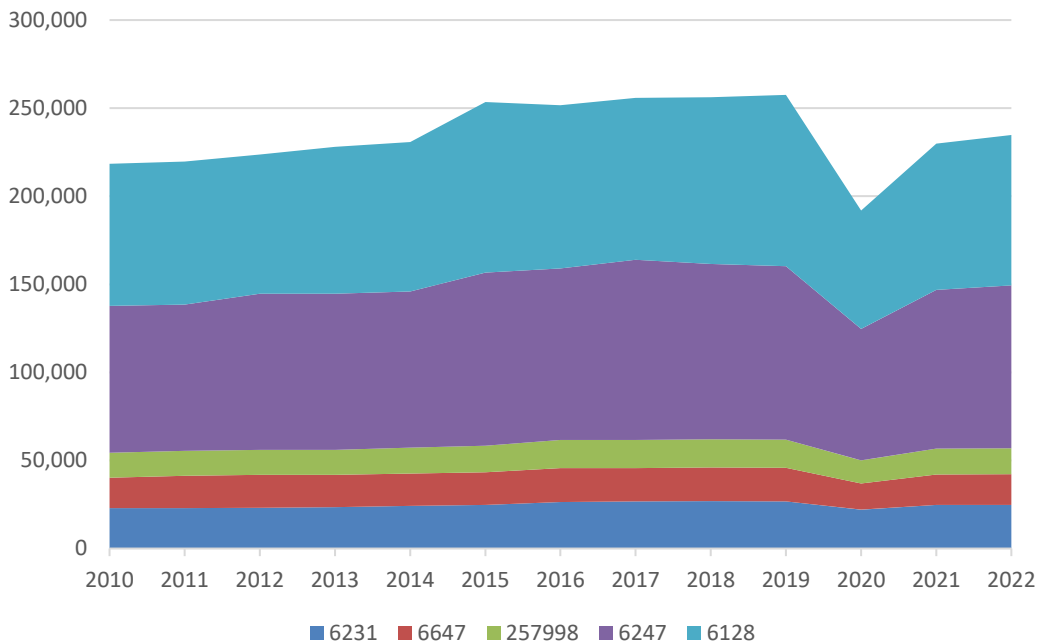
Traffic Volume

The following three figures illustrate the annual two-way traffic volume for the traffic stations closest to PPC in Plainville, MGM in Springfield, and EBH in Everett. Traffic stations were chosen based on complete data being available from 2010 to 2022. Each color (and corresponding number) refers to a specific traffic counting station. The data is from the [MA Department of Transportation \(MassDOT\)](#).

Plainridge Park Casino Host & Surrounding Communities

PPC’s construction period was from April 2014 to June 2015, with the casino opening in June 2015. As seen in Figure 33, Plainville experienced a 9.9% increase in traffic from 2014 to 2015 (vertical axis indicating the number of vehicles passing the traffic counter), with this increase largely continuing up to 2020, upon which it decreased due to casino capacity limitations/closures during the pandemic.

Figure 33. Traffic Volume in Plainville at the 5 Closest Traffic Stations, 2010-2022



However, key informants from Plainville did not report any noticeable increase in traffic volume:

“We have had virtually no issues in terms of traffic or congestion because of the casino. It actually runs better than it did before [laughs]. This was part of their application to the planning board... It is called their ‘site permit.’ So, it is separate from the host community agreement. It was part of their actual permit issued by the planning board to develop the property. Which is pretty standard for any large commercial business... If anything, traffic has improved as a result of improvements to the intersection.”

- Jennifer Thompson, Town Administrator, Plainville, MA, January 25, 2018

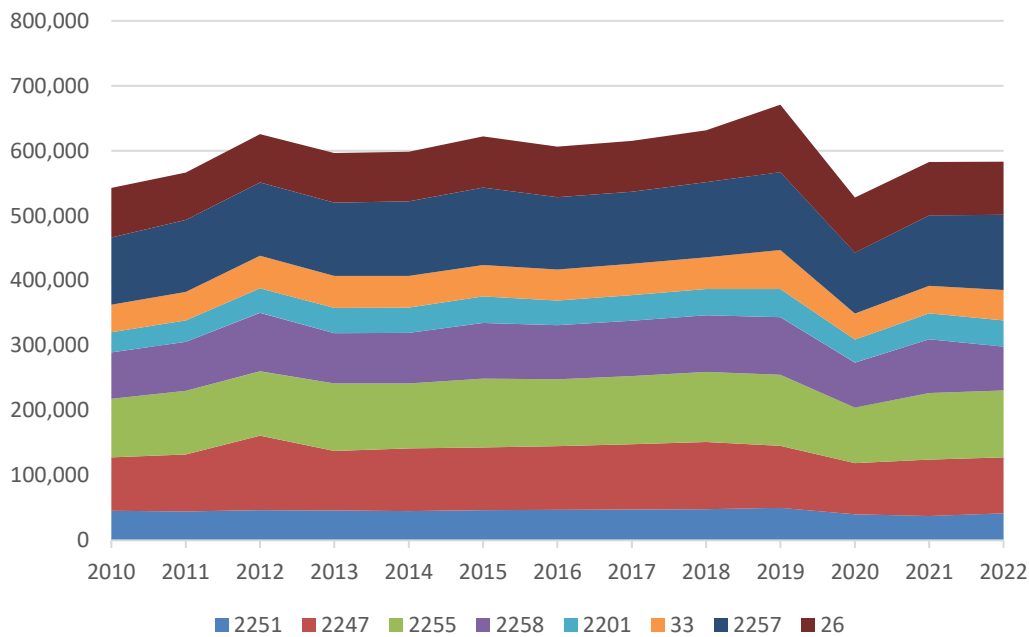
“Plainville is situated right at the corner of Route 1 and 495 which are two major highways. So as far as traffic going through town, it is undetectable. Everyone is using the main thoroughfares to get in and out of there.”

- Lou LeBlanc, Chairman, Board of Health, Plainville, MA, March 1, 2018

MGM Springfield Host & Surrounding Communities

MGM’s construction period was from March 2015 to August 2018, with the casino opening in August 2018. As seen in Figure 34, Springfield only experienced a 12.2% increase from 2014 to 2019. Similar to PPC, traffic volume declined with the pandemic in 2020.

Figure 34. Traffic Volume in Springfield at the 8 Closest Traffic Stations, 2010-2022

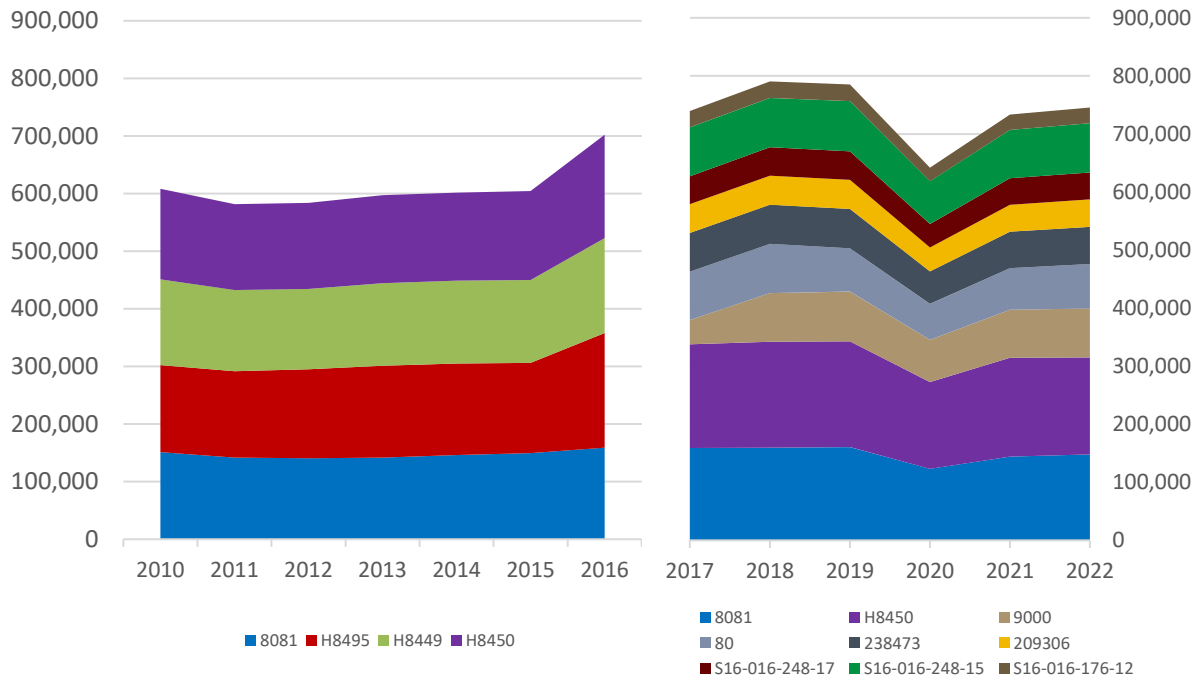


Traffic was not mentioned by any of the Springfield key informants or by any focus group participants.

Encore Boston Harbor Host and Surrounding Communities

EBH’s construction period was from the Fall of 2015 to May 2019, with the casino opening in June 2019. Unfortunately, there are very few traffic stations with continuous data from 2010 to 2022. Thus, data is presented from 2010 to 2016 with one set of stations and 2017 to 2022 with a somewhat different set of stations. As seen in Figure 35 Everett experienced a 16.7% increase in traffic from 2015 to 2016 and another 6.2% from 2017 to 2018.

Figure 35. Traffic Volume in Everett at the Closest Traffic Stations, 2010-2022



Several key informants from Everett reported increased traffic volume:

Various interviewees mentioned that there has been an increase in motor vehicle traffic and car accidents in Everett, Chelsea, and the surrounding communities. Although the perception of the magnitude of the effect varied, most respondents perceived an increase in traffic in the major roadways that lead to the casino as well as the secondary roadways, as drivers seek to avoid congestion.

- Liliana Patino, Director, (Eliot) Family Resource Center, March 29, 2022, and April 7, 2022; David Auerbach, Health Policy Researcher, Brandeis University, November 12, 2021; Karl Allen, Economic Development Specialist, City of Chelsea, MA, February 15, 2022; Diana Jeong, Vice President, Greater Malden Asian American Community Coalition, February 25, 2022, Dinanyili Paulino, Chief Operating Officer, La Colaborativa, April 4, 2022

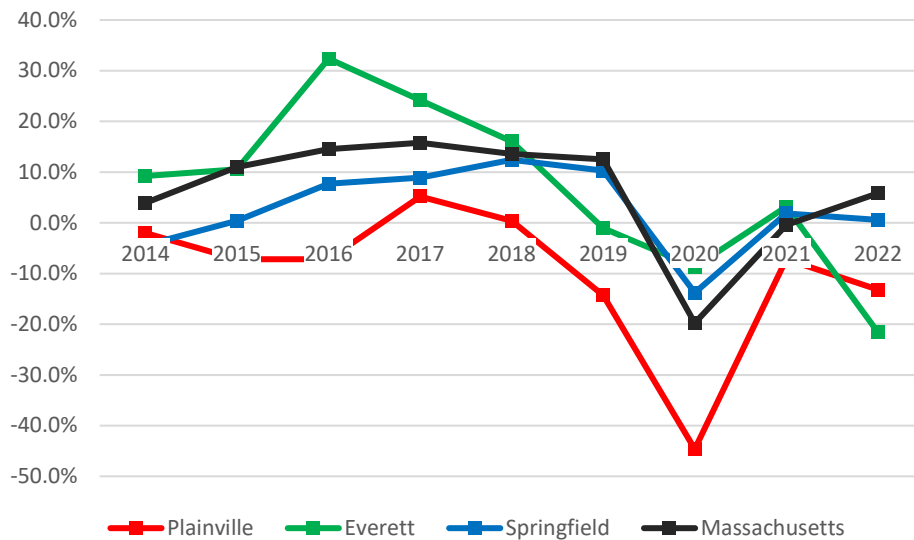
One interviewee pointed out that there has been an increase in vehicle pollution in the area because of increased cars and buses going to the casino.

- Liliana Patino, Director, (Eliot) Family Resource Center, March 29, 2022, and April 7, 2022

Traffic Accidents

Increased traffic volume is often associated with increased traffic accidents. Thus, Figure 36 displays the annual percentage change in the number of vehicle crashes and injuries in Massachusetts compared to 2013 as well as each of the casino host communities from 2014 to 2022 as reported by the [Massachusetts Department of Transportation](#). This data is derived from crash reports submitted by state and local police, other police departments, and operators. As seen, only Everett is above the state average. Plainville experienced a decrease from 2014 to 2016 followed by an increase in 2017 and 2018.

Figure 36. Percent Change in Vehicle Crashes from 2013 in MA and Host Communities, 2014-2022



The increase in Everett is consistent with comments made by the Everett key informants earlier (under Traffic Volume). The decrease in accidents in Plainville corresponds to a comment made by a Plainville key informant:

“Where the track and casino are located is the most dangerous intersection in town. But it was dangerous long before the casino got there... We actually lost a police officer in a road accident. He was killed by a driver while that intersection was being built. They have done a lot to make it safer.”

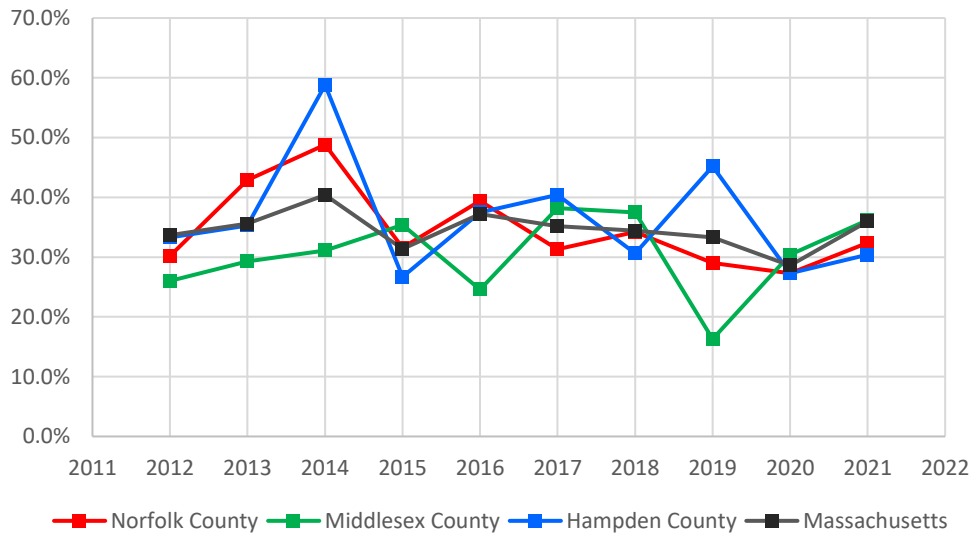
- Kathleen Parker, Treasurer, Plainville, MA, February 1, 2018

A final consideration is alcohol-related accidents. Casinos are large alcohol-serving establishments that contribute to rates of operating motor vehicles while under the influence of alcohol. Bruce (2022) was commissioned to conduct a specific analysis of Massachusetts casinos’ impacts on ‘operating-under-the-influence (OUI)’ and OUI-involved traffic collisions. His conclusions are as follows:

- “As destination locations that serve alcohol, the casinos produce a number of impaired driving trips every year.....the number of impaired driving trips is in the tens of thousands per year. This is supported with available ‘last drink’ reports from drunk drivers [who were arrested]”.
- “These drunk driving ‘trips’ likely translate into at least a few dozen additional crashes. Analysis of crashes with associated OUI charges shows increases on state roads within the three host communities as well as increases on some local roads in Plainville and Everett.”

Figure 37 depicts county-level data from the Fatality Analysis Reporting System (FARS) and the National Highway Traffic Safety Administration (NHTSA) on the percentage of fatal accidents involving a blood alcohol content (BAC) of 0.08% and higher for each year from 2021 to 2021. As a reminder, PPC is located in Norfolk County, MGM in Hampden County, and EBH in Middlesex County. As seen, only Hampden County showed an increase in 2019, whereas Middlesex County showed a decrease in that same year.

Figure 37. Percent of Fatal Accidents involving BAC .08+, 2012-2021



Source: Fatality Analysis Reporting System & National Highway Traffic Safety Administration

Noise

Casino construction is associated with increased noise as well as increased traffic. Only one key informant in Plainville commented on noise:

“During construction, the Board of Health received some complaints about the construction activity. There were dust complaints and there were noise complaints. We went out there with noise meters and took ambient noise levels and everything was found to be within tolerance and specs for a construction site. There were no violations issued... We have received no noise complaints since construction has been completed.”

- Lou LeBlanc, Chairman, Board of Health, Plainville, MA, March 1, 2018

ECONOMIC AND FISCAL IMPACTS

The Economic & Fiscal Impacts section is divided into Direct Economic Impacts, Total Economic Impacts, and Real Estate Impacts.

- **Direct Economic Impacts** are the known expenditures and revenues associated with building and operation of the casinos. Direct Economic Impacts are subdivided into *Construction Impacts* and *Operating Impacts*.
- **Total Economic Impacts** take into account the direct impacts as well as the additional ‘indirect economic’ ripple effects for the state and regions within the state that derive from these direct impacts. In the present study, total economic impacts were assessed by *Economic Modeling* using Regional Economic Models, Incorporated ([REMI](#)) as well as by examining changes over time in statewide and regional economic indices (e.g., employment levels, number of businesses, business bankruptcies, labor force participation, etc.) (*Secondary Data*).
- **Real Estate Impacts** are subdivided into *Residential* and *Commercial* Real Estate.

The preceding Social and Health section subdivided impacts into statewide and regional impacts, largely because the data sources were specific to statewide (e.g., General Population Surveys) or regional results (e.g., H&SC Targeted Population Surveys, Key Informant interviews, Focus Groups). In the present Economic and Fiscal section the data more typically often identifies impacts at *both* a regional and statewide level, and thus, while statewide versus regional impacts are often discussed, they are not presented in different sections.

DIRECT ECONOMIC IMPACTS

The main **direct economic impacts** of introducing casinos to Massachusetts (MA) are as follows:

Casino Construction

- **Casino construction** had significant direct economic benefits in MA, particularly for regions close to the casinos, and particularly for the building of Encore Boston Harbor. All three casino companies are based outside of MA and spent a considerable money within MA building these facilities. This amounted to:
 - \$115.4 million for PPC, with 85.3% spent in MA (~\$250 million when including design and planning, furniture, fixtures, operating supplies and equipment, and license/application fees).
 - \$573.3 million for MGM, with 65.2% spent in MA (~\$960 million when including everything). MGM H&SCs received 30.8% of spending and the host county of Hampden received 33.9%.
 - \$1.6 billion for EBH, with 71.7% spent in MA (~\$2.6 billion when including everything). EBH H&SCs received 27.8% of spending and the host county of Middlesex received 14.8%.
- **Casino construction** also created significant employment for MA residents, particularly for areas close to the casino, and particularly for Encore Boston Harbor. This amounted to:
 - Roughly 554 full-time employees building PPC during the 14-month construction with 81.4% being from MA. PPC H&SCs had 3.0% of total employment, and Bristol and Norfolk Counties had 33.0%.

- Roughly 1,251 full-time employees building MGM working for a year at some point during the 40-month construction with 69.7% being from MA. MGM H&SCs had 26.4% of total employment and Hampden County had 35.9%.
- Roughly 6,765 full-time employees building EBH working for a year at some point during the 42-month construction with 100% being from MA. EBH H&SCs had 30.4% of total employment and Middlesex and Suffolk Counties had 49.0%.

Casino Operation

- **Casino operation** has also had significant direct economic benefits for Massachusetts, particularly for regions proximate to the casino, and particularly for the operation of Encore Boston Harbor.
 - To date, the three casinos have taken in \$5.873 billion in gross gaming revenue (GGR), with EBH accounting for 53.4%, MGM 23.9%, and PPC 22.6%. Total GGR from all three casinos has been between \$1.1 and \$1.2 billion a year in the last three years. This does not include non-gaming revenue, which is estimated to be an additional ~\$321 million/year.
 - Much of this is recaptured money previously being spent at out-of-state casinos, and an additional smaller amount is new money from out-of-state residents. MA residents currently account for ~77.8% of MA casino revenue, CT residents for 6.8%, NH for 2.5%, RI for 2.4%, and 10.5% from everywhere else. PPC has the highest MA patronage at 91.8%, followed by EBH at 80.6%, and MGM at 62.0%. County-wise, Suffolk and Hampden Counties are the only counties with much higher MA casino patronage relative to their populations.
 - There is still a significant out-of-state casino patronage by MA residents, with MA residents accounting for ~51.5% of RI casino GGR, ~14.0% of CT casino GGR, and ~2.2% of NY casino GGR. Accounting for the MA GGR inflow from non-MA residents against the out-of-state GGR outflow from MA residents, MA has a net loss of ~\$360 million/year. While considerable, it is significantly lower than the \$664 million/year outflow in 2015 estimated by Pyramid Associates (2015).
- **Casino operating expenses** also provide significant direct economic benefits to MA, particularly for areas close to the casinos.
 - A main expense is the MA GGR tax (25% of GGR for EBH & MGM and 49% for PPC). MA state revenue from this tax was ~\$330 million in FY2023. This money is distributed to 12 different funds in MA, with the largest being Local Aid to MA's 351 cities and towns.
 - Other major expenses are purchases from vendors, cost of the annual lease, and taxes/payments made to the federal, state, and local governments. Total amounts are uncertain but estimated to be upwards of \$450 million/year. Roughly half of this spending occurs within MA.
 - Annual casino wages are ~\$270.5 million (\$18M PPC, \$85M MGM, \$167+M EBH). The vast majority of wages are paid to MA residents, most of whom live close to the casino.
- The casinos also provide **direct employment** to thousands of MA residents. Currently, between 4,400 and 5,000 people work at the casinos at any given time, with EBH employing between 3,100 and 3,400, MGM 1,100 to 1,300, and PPC between 250 and 300. Casino hiring goals in terms of minorities, veterans, females and local workers were also met.

- While most people left other full-time employment to take these positions, there was some net new employment, with 399 people previously being unemployed, 282 previously having multiple jobs, and 492 previously having part-time employment.
- While casino operation largely has positive economic impacts, there have been some **negative impacts**:
 - Other industries have lost workers, as 75% of casino employees left other full-time employment.
 - Other economic sectors have lost revenue, with between 46% - 80% of casino patrons reporting spending less on other things, particularly restaurants, bars and other types of gambling.
 - The annual MA casino profit leaves MA, as all three casino companies are owned by corporations with headquarters in other states and with no other properties in MA.
 - MA casino wages are not high, with only 39.1% of employees being paid a 'living wage' for the county they reside in (although this is higher than the average wage in the broader Accommodation and Food Services sector).

CASINO CONSTRUCTION

Construction impacts of the three casinos derive from the reports of Motamedi & Peake (2017), Motamedi et al. (2019), and Motamedi, Hall & Dinnie (2020).

Plainridge Park Casino

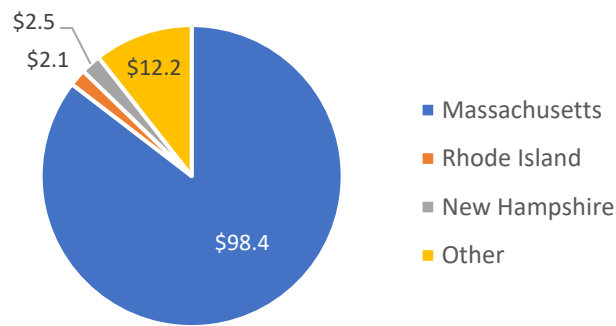
The construction and renovation of PPC occurred from April 2014 to June 2015, with the casino opening in June 2015. In total, an estimated \$115.4 million was spent building PPC, with 85.3% of this money being spent within Massachusetts. (Note: this does not include money spent on design and planning, furniture, fixtures, operating supplies and equipment, and license/application fees. The total cost is estimated to be \$250 million).

Roughly \$88.7 million (77%) of this money was spent on the casino itself whereas \$26.7 million (23%) was spent on the garage. Construction activities (e.g., earthwork, concrete, site preparation, hanging drywall, and installing electrical, HVAC, and plumbing) totaled \$91.9 million (79.6% of the total budget) with insurance and bonds being the next largest expense at \$15.1 million, followed by manufacturing goods at \$4.0 million.²¹

As seen in Figure 38, \$98.4 million (85.3%) of construction spending was spent within Massachusetts, followed by 2.2% in New Hampshire, 1.8% in Rhode Island, and 10.7% in other jurisdictions.

²¹ Some of the construction spending went to second level suppliers outside of MA. For example, although \$4.3 million of drywall was purchased from MA suppliers it is unknown where the drywall itself was manufactured.

Figure 38. Share of PPC Construction Spending by State (millions)



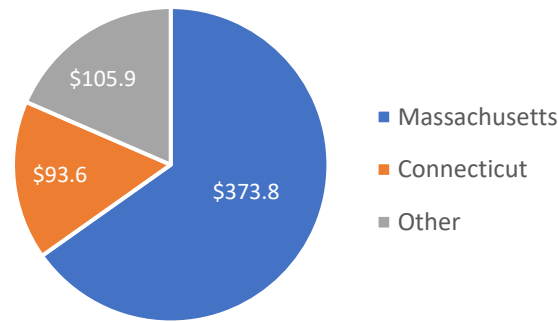
PPC employed many tradesmen throughout its 14-month construction period, although most workers were only onsite for a short period of time. Total employment is estimated using counts of workers paid each quarter. The cumulative total of employment of construction workers across all quarters was 2,213, however, this involves some multiple counting of the same individuals. The average employment count across all quarters (554) may be a better reflection of the total full-time employment during the building's construction. Roughly 81.4% ($n = 450$) of workers were from Massachusetts, followed by 14.2% ($n = 79$) from Rhode Island, 2.1% ($n = 12$) from New Hampshire, and 2.3% ($n = 13$) from other locations. Amongst the Massachusetts employees, only 3% were from the PPC H&SCs, with 33% residing in Bristol and Norfolk counties (excluding the PPC H&SCs), and 45% from the rest of the state. Unlike employment numbers, wages can be more appropriately summed over time to show cumulative dollars, which totaled \$21.5 million. The geographic distribution of wages is very similar to the geographic distribution of workers, with 84.6% going to Massachusetts residents.

MGM Springfield

The construction of MGM began in March 2015 and finished prior to the casino's opening in August 2018. MGM Resorts International spent a total of \$573.3 million to build the MGM Springfield casino, with 65.2% of this being spent in Massachusetts (Motamedi et al., 2019). (Note: this does not include money spent on design and planning, furniture, fixtures, operating supplies and equipment, and license/application fees. The total cost is estimated to be \$960 million).

Roughly 69.7% (\$399.8 million) of this money was spent on the physical complex itself, which comprised the casino, hotel, conference center, and retail outlets. The next largest portion (13.5%) was spent on the garage (\$77.3 million). As seen in Figure 39, \$373.8 million (65.2%) of construction spending was spent within Massachusetts, followed by \$93.6 million (16.3%) in Connecticut, and \$105.9 million (18.5%) in various other jurisdictions. Within Massachusetts, \$194.3 million (52.0%) was spent within Hampden County (where MGM is located), followed by \$63.9 million (17.1%) in Suffolk County, \$54.5 million (14.6%) in Worcester County, \$26.3 million (7.0%) in Middlesex County, \$17.4 million (4.7%) in Bristol County, \$11.0 million (2.9%) in Essex County, and 1.7% in other jurisdictions. Within Hampden County, \$176.4 million went to companies in the designated H&SCs.

Figure 39. Share of MGM Construction Spending by State (millions)



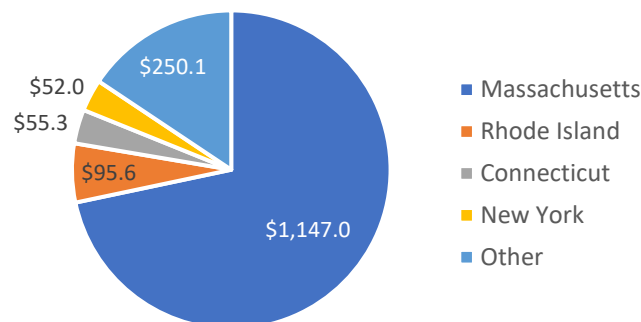
The cumulative total employment was estimated to be 4,249 individuals for 2.6 million hours. This translates into the equivalent of 1,251 full-time employees working for a year at some point during the building’s construction. In terms of residency, 69.7% of construction workers were from Massachusetts, with most of the remainder residing in Connecticut. Within Massachusetts, 51.4% were from Hampden County (35.9% of all workers), 10.8% from Worcester County, 9.9% from Hampshire County, 6.4% from Middlesex County, 4.6% from Essex County, and 16.9% from the rest of the state. Within Hampden County, 73.5% were from the MGM H&SCs (26.4% of all workers).

Encore Boston Harbor

EBH’s construction period was from the Fall of 2015 to May 2019, with the casino opening in June 2019. Wynn Resorts spent nearly \$1.6 billion to build the Encore Boston Harbor casino, with 71.7% of this being spent in Massachusetts (Motamedi, Hall, & Dinnie, 2020). (Note: this does not include money spent on design and planning, furniture, fixtures, operating supplies and equipment, and license/application fees. The total cost is estimated to be \$2.6 billion).

As seen in Figure 40, \$1.1 billion (71.7%) of construction spending was spent within Massachusetts, followed by \$95.6 million (6.0%) in Rhode Island, \$55.3 million (3.5%) in Connecticut, \$52 million (3.3%) in New York, and \$250.1 million (15.6%) in various other jurisdictions. Within Massachusetts, \$425.4 million (37.1%) was spent within Suffolk County, followed by \$236.8 million (20.6%) in Middlesex County (location of EBH), \$204.3 million (17.8%) in Norfolk County, \$142.8 million (12.4%) in Plymouth County, \$41.9 million (3.7%) in Essex County, and 8.4% in other jurisdictions. A total of \$444.7 million went to companies in the EBH H&SCs.

Figure 40. Share of EBH Construction Spending by State (millions)



Within MA it is estimated that 6,765 MA employees worked on EBH construction for a total of 5.153 million hours, with 100% being from MA. This is the equivalent of 2,478 full-time employees working for a year at some point during the building’s construction. In total, Massachusetts-based workers received nearly \$247 million in wages. Within Massachusetts, 27.6% of employees lived in Middlesex County, 21.3% in Suffolk County, 12.2% in Essex County, 11.4% in Bristol County, 11.2% in Plymouth County, and 16.3% in other MA counties. A total of 61.6% were from the EBH H&SCs (30.1% of all MA workers).

CASINO OPERATION

Revenue

The GGR from FY 2015 to FY 2023 for each individual casino is shown in the table below. Of note:

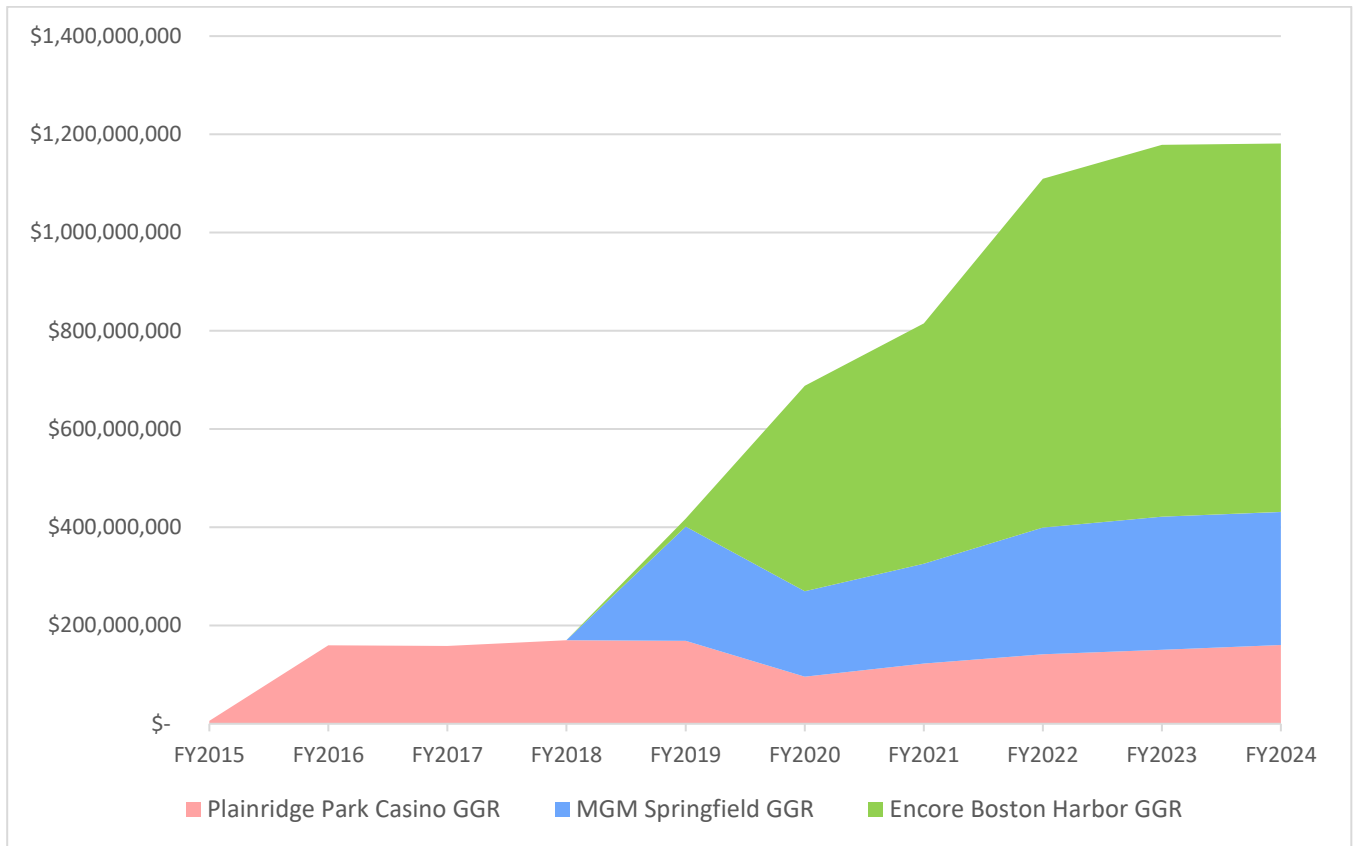
1. To date, the three casinos have taken in \$5.873 billion dollars in gross gaming revenue, with EBH accounting for 53.4%, MGM for 23.9%, and PPC for 22.6% of the total.
2. EBH has the highest GGR (averaging \$739 million in the last three years), followed by MGM (\$266 million average in the last three years), followed by PPC (\$151 million average in the last three years).
3. GGR declined significantly during the COVID pandemic years (FY 2020 and FY 2021).
4. PPC GGR declined after the opening of MGM and EBH.
5. Total GGR from all three casinos has been between \$1.1 and \$1.2 billion in the last three fiscal years.
6. Figure 41 displays the aggregate GGR from FY 2015 to FY 2024.
7. These figures do not include non-gaming revenue from hotel rooms, food, and beverages, which are estimated at the bottom of the table. Non-gaming revenue from EBH is from [10-K SEC filing for Calendar 2023 \(p.108\)](#) and figures provided by EBH (Juliana Catanzariti). Non-Gaming Revenue for MGM is estimated and based on the \$83,683,643 reported by MGM (Jose Delgado) for the period Oct 2018 – Sept 2019 (see Salame et al., 2020, p. 112). Non-Gaming Revenue for PPC is estimated based on the fact that it constitutes 10.5% of GGR for similar properties to PPC in the Penn Entertainment’s Northeast Region ([Penn Entertainment, 2023](#)).

Table 37. Gross Gaming Revenue (GGR) and Non-Gaming Revenue for each MA Casino

Fiscal Year	Plainridge Park Casino GGR	MGM Springfield GGR	Encore Boston Harbor GGR	Total
FY2015	\$6,137,976	--	--	\$6,137,976
FY2016	\$159,908,961	--	--	\$159,908,961
FY2017	\$158,267,980	--	--	\$158,267,980
FY2018	\$170,016,148	--	--	\$170,016,148
FY2019	\$168,675,538	\$232,424,182	\$16,789,944	\$417,889,664
FY2020	\$96,131,396	\$173,487,635	\$418,767,715	\$688,386,746
FY2021	\$122,615,451	\$203,027,255	\$489,748,020	\$815,390,726
FY2022	\$141,783,298	\$257,837,811	\$710,148,470	\$1,109,769,579
FY2023	\$150,336,813	\$270,969,971	\$757,122,017	\$1,178,428,801
FY2024	\$160,488,960	\$270,595,474	\$750,252,277	\$1,181,436,712
Total	\$1,334,362,520	\$1,408,342,329	\$3,142,828,443	\$5,885,533,292
Average FY22-24	\$150,869,690	\$266,467,752	\$739,174,255	\$1,156,511,697
Average Non-Gaming Revenue FY22-24	~\$16,000,000	~\$86,000,000	~\$219,000,000	~\$321,000,000
Total Revenue	\$166,869,690	\$352,467,752	\$958,174,255	\$1,477,511,697

Source: [Massachusetts Gaming Commission](#)

Figure 41. MA Casino Gross Gaming Revenue, FY 2015 – FY 2024



Source: [Massachusetts Gaming Commission](#)

Geographic Origin of Revenue

The geographic origin of patrons is an important determinant of the economic value of casino revenue. Revenue from local residents is often a reallocation of money from other local economic sectors (e.g. going to the casino instead of going to a Red Sox game, etc.). Revenue from more distant within-state residents may represent an influx of money to the local area, but potentially at the expense of other areas of the state. On the other hand, revenue from out-of-state patrons represents new money to the Massachusetts economy as does the situation where a Massachusetts patron has spent money at a Massachusetts casino that they would have otherwise spent at an out-of-state casino ('recaptured revenue').

One of the reasons for the creation of casinos in Massachusetts was to recapture money that was going to out-of-state casinos. In 2015, license plate surveys conducted by Pyramid Associates (2015) estimated that the percentage of Massachusetts patrons was 51.9% at Twin River Lincoln in Rhode Island (RI); 44.1% at Newport Grand Casino (RI) (closed in 2018); 32.2% at Foxwoods in Connecticut (CT); 18.3% at Mohegan Sun (CT); 2.0% at Oxford Casino in Maine (ME); and 2.0% at Hollywood Casino (ME). In total it was estimated that in calendar year 2014 Massachusetts residents spent \$475.6 million at Connecticut casinos; \$185.7 million at Rhode Island casinos; and \$2.7 million in Maine casinos. This totals \$664 million, and does not include losses to casinos in New York, Nevada, and other states.

One source of data pertaining to this issue has already been discussed, which are the population surveys. The results from these surveys are summarized below. All of these surveys found declines over time (albeit with temporary *increases* in the PPC H&SC in 2016/2017 and the MGM H&SC in 2019/2020). However, it must be

remembered that the 2021/2022 figures have been suppressed to some extent due to the lingering effects of COVID restrictions.

Table 38. Past Year Out-of-State Casino Patronage from the Population Surveys

Region	Survey	Change in Out-of-State Casino Patronage
Massachusetts	General Population Surveys	Decreased from 21.5% in 2013/2014 to 10.2% in 2021/2022
Massachusetts	MAGIC Cohort	Decreased from 33.4% in 2013/2014 to 15.7% in 2019 (only PPC and MGM open)
PPC H&SC	Targeted Survey	Increased from 23.2% in 2014 to 28.3% in 2016/2017 (only PPC open) but decreased to 15.9% in 2021/2022
MGM H&SC	Targeted Survey	Increased from 22.5% in 2015 to 23.4% in 2019/2020 (PPC, MGM, and EBH open), but decreased to 11.3% in 2021/2022
EBH H&SC	Targeted Survey	Decreased from 22.0% in 2013/2014 to 9.3% in 2021/2022

Another source of information are the Patron and License Plate Surveys. In support of the findings of the population surveys, most patrons indicated that they ‘would have gambled in another state if there was not a casino in Massachusetts’, with this percentage being 69.8% for PPC patrons in 2016, 52.7% for MGM patrons in 2019, and 54.5% for EBH patrons in 2022 (Table 39). However, in addition to speaking to ‘recaptured revenue’ from Massachusetts residents, the Patron and License Plate surveys also provide information on ‘new revenue’ from non-Massachusetts residents who now patronize Massachusetts casinos. The percentage of license plates and patrons from outside of Massachusetts is summarized below. As can be seen, (a) there is good correspondence between the licence plate survey results and the patron survey results, lending credence to the license plate survey findings from the Northeastern Casino Updates by Pyramid Associates (2015); (b) all three of these casinos draw customers from outside of the state, with this percentage being much higher for MGM (36.8% - 44.5%), compared to PPC (17.9-27.0%), and EBH (17.4%-27.0%).

Table 39. Patron and License Plate Survey Results Pertaining to Motivations and Geographic Origin

Survey	Results
2016 Plainridge Park Casino	<ul style="list-style-type: none"> • 69.8% would have gambled in another state if there was not a casino in MA (58.7% PPC H&SC; 69.4% other MA regions; 77.0% non-MA) • 64.5% indicated PPC prompted their visit to Plainville or MA (69.5% MA; 46.6% non-MA) • 17.1% of license plates were from outside of MA (10.6% from RI, 3.3% from NH, 1.0% from CT, 2.3% from other locations) • 19.2% of patrons reported residing in a state other than MA <ul style="list-style-type: none"> ○ 11.4% of patrons reported living in a Host or Surrounding Community ○ 66.5% of patrons reported living elsewhere in MA ○ 2.9% of patrons did not enter a zip code, and have unknown origins • 20.9% of all gambling and non-gambling revenue associated with visits to PPC is estimated to be derived from out-of-state residents • 79.7% indicated that if they had not spent their money at PPC they would have spent it on other things, particularly restaurants & bars (41.9%), other types of gambling (33.8%), and retail goods (21.7%)
2019 MGM Springfield Casino	<ul style="list-style-type: none"> • 52.7% would have gambled in another state if there was not a casino in MA (44.9% MGM H&SC; 56.4% other MA regions; 59.1% non-MA) • 58.5% indicated MGM prompted their visit to Springfield or MA (52.7% MA; 70.1% non-MA) • 36.4% of license plates were from outside of MA (24.4% from CT, 4.1% from New York (NY), 1.5% from New Hampshire (NH), 6.4% from other locations) • 39.0% of patrons reported residing in a state other than MA and an additional 0.7% of patrons were from outside of the United States <ul style="list-style-type: none"> ○ 41.5% of patrons reported living in a Host or Surrounding Community ○ 17.9% of patrons reported living elsewhere in MA ○ 0.9% of patrons did not enter a zip code, but reported living in the U.S. • 38.7% of all gambling and non-gambling revenue associated with visits to MGM is estimated to be derived from out-of-state residents • 46.1% reported spending less money on other things because of their MGM spending, particularly other forms of gambling (18.3%), restaurants/bars (16.0%), hotels & travel (10.2%), and live entertainment (8.9%)
2022 Encore Boston Harbor Casino	<ul style="list-style-type: none"> • 54.5% would have gambled in another state if there was not a casino in MA (54.1% EBH H&SC; 56.3% other MA regions; 51.9% non-MA) • 66.9% indicated EBH prompted their visit to Everett or MA (70.2% MA; 54.7% non-MA) • 19.7% of license plates were from outside of MA (7.9% NH, 2.0% from CT, 2.0% from ME, 1.7% from NY, 1.0% from RI, 7.1% from other locations) • 14.1% of patrons reported residing in a state other than MA and an additional <1.0% were from outside of the United States <ul style="list-style-type: none"> ○ 41.8% of patrons reported living in a Host or Surrounding Community ○ 36.5% of patrons reported living elsewhere in MA ○ 6.7% of patrons did not enter a zip code, but reported living in the U.S. • 20.0% of all gambling and non-gambling revenue associated with visits to EBH is estimated to be derived from out-of-state residents • 59.7% reported spending less money on other things because of EBH, particularly restaurants and bars (20.8%), other forms of gambling (20.2%), and hotels and travel (19.1%)

However, the patron/license plate surveys have some important limitations. For one, both 2016 PPC and 2019 MGM surveys were conducted prior to all the MA casinos being opened, and so patronage likely had not completely settled. In addition, the EBH survey was conducted in early April 2022, when there may have been

lingering impacts of COVID.²² Another issue concerns the fact that the sample sizes were relatively small (440 to 878) and there were very high refusal rates (77.6% to 84.6%).

Thus, a final source of data is the much larger and more recent AirSage Cell Phone Location data. As seen in Table 40, AirSage detected 249,492 visitors to the three Massachusetts casinos during the 28-day data collection period (January 16-29, 2023 and October 2-15, 2023). Proportionally, most visitors (78.1%) were from Massachusetts, followed by Connecticut (7.5%), Rhode Island (2.5%), and New Hampshire (2.3%). There was variability between the casinos in the percentage of visitors from Massachusetts, with PPC being the highest at 91.8%, followed by EBH at 80.6%, and MGM at 62.0%.

Visitation proportion does not directly translate into revenue proportion as expenditure per visitor differs between the three Massachusetts casinos. The following calculations shows how expenditure per visitor is determined. Total January and October 2023 gross gaming revenue (GGR; i.e., after prizes) for EBH was \$124,223,859, \$44,388,698 for MGM and \$24,935,289 for PPC. Dividing this 62-day GGR by 2.21 (to get average 28-day revenue, equivalent to the AirSage collection period), and then dividing this figure by the total number of visitors in that time period as detected by AirSage produces an average expenditure per visitor of \$416 for EBH, \$314 for MGM, and \$224 for PPC. Multiplying these expenditures by the number of visitors from each state produces the figures in the last columns of Table 40. Thus, in terms of MA casino revenue, MA residents are estimated to account for 77.8% of MA casino revenue, CT residents for 6.8%, NH residents for 2.5%, RI residents for 2.4%, Florida residents for 1.8%, Maine residents for 1.8%, New York residents for 1.7%, and 5.2% from residents from other states.²³

Table 40. Visitors to MA Casinos in January and October 2023 by State Origin (AirSage)

	EBH	MGM	PPC	Total Visitors	% of Visitors	Estimated Spending	% of MA Casino Revenue
Massachusetts	108,901	39,674	46,200	194,775	78.1%	\$68,109,252	77.8%
Connecticut	930	17,857	0	18,787	7.5%	\$5,993,978	6.8%
Rhode Island	3,780	194	2,146	6,120	2.5%	\$2,114,100	2.4%
New Hampshire	4,508	345	949	5,802	2.3%	\$2,196,234	2.5%
New York	2,082	1,754	175	4,011	1.6%	\$1,456,068	1.7%
Florida	3,812	48	39	3,899	1.6%	\$1,609,600	1.8%
Maine	3,808	0	43	3,851	1.5%	\$1,593,760	1.8%
Pennsylvania	90	1,863	0	1,953	0.8%	\$622,422	0.7%
Maryland	1,806	51	0	1,857	0.7%	\$767,310	0.9%
Vermont	0	1,563	0	1,563	0.6%	\$490,782	0.6%
Other	5,454	629	791	6,874	2.8%	\$2,643,554	3.0%
TOTAL	135,171	63,978	50,343	249,492	100.0%	\$87,597,060	100.0%

Table 41 shows the Massachusetts county-specific origin of MA casino visitors, with 21.5% of the visitors coming from Suffolk County, followed by 18.5% from Middlesex County (where EBH is located), 17.1% from Hampden County (where MGM is located), and 13.5% from Norfolk County (where PPC is located). As shown,

²² A total of 22.3% of patrons in the EBH patron survey reported they gambled less because of COVID-19 in the past year.

²³ This assumes equal expenditure regardless of visitor state origin, which is likely not a reliable assumption.

Suffolk and Hampden Counties have much higher patronage relative to their populations compared to other Massachusetts counties.²⁴

Table 41. MA visitors to MA Casinos as a function of County Origin (AirSage)

MA County	Visitors	% of Total	% of 2024 MA Population
Suffolk	41,960	21.5%	11.2%
Middlesex	36,093	18.5%	23.2%
Hampden	33,321	17.1%	6.7%
Norfolk	26,322	13.5%	10.3%
Bristol	16,147	8.3%	8.3%
Essex	15,538	8.0%	11.5%
Plymouth	13,908	7.1%	7.6%
Worcester	5,987	3.1%	12.3%
Hampshire	3,922	2.0%	2.2%
Berkshire	736	0.4%	1.8%
Barnstable	537	0.3%	3.3%
Franklin	253	0.1%	1.0%
Dukes	51	0.0%	0.3%
Nantucket	0	0.0%	0.2%
TOTAL	194,775	100.0%	100.0%

Population estimates are from the 2022 American Community Survey

A total of 161,282 Massachusetts gamblers (45.3% of all casino gamblers from MA) also visited out-of-state casinos in the three border states of Rhode Island, Connecticut, and New York during the 4-week data collection period. As seen in Table 42, Connecticut was the primary destination (56.2%), followed by Rhode Island (40.1%) and then New York (3.7%). Using the reported casino revenues at these specific venues in this time period and assuming equal expenditure per visitor, an estimated \$49,852,974 was spent at out-of-state casinos by Massachusetts residents in this four-week period. In total it is estimated that MA residents account for 51.5% of RI casino revenue, 14.0% of CT casino revenue, and 2.2% of NY casino revenue.

Table 42. Massachusetts Resident Patronage of Out-of-state Casinos in a 4-Week Period in 2023 (AirSage)

	CT casinos	RI casinos	NY casinos	TOTAL
MA Visitors	90,651	64,734	5,897	161,282
% of Total MA Visitors	56.2%	40.1%	3.7%	100.0%
Revenue from MA Visitors	\$22,001,451	\$24,975,584	\$2,875,938	\$49,852,974

Table 43 shows the percentage of patronage from Massachusetts residents for each of the out-of-state casinos included in the AirSage analysis. For comparison purposes, the percentage estimated in 2015 from the license plate surveys conducted by [Pyramid Associates \(2015\)](#) is listed in the second to last column. As seen, while the creation of casinos in Massachusetts appears to have lessened CT casino patronage to some extent, the patronage of RI casinos appears to be unchanged or possibly increased.

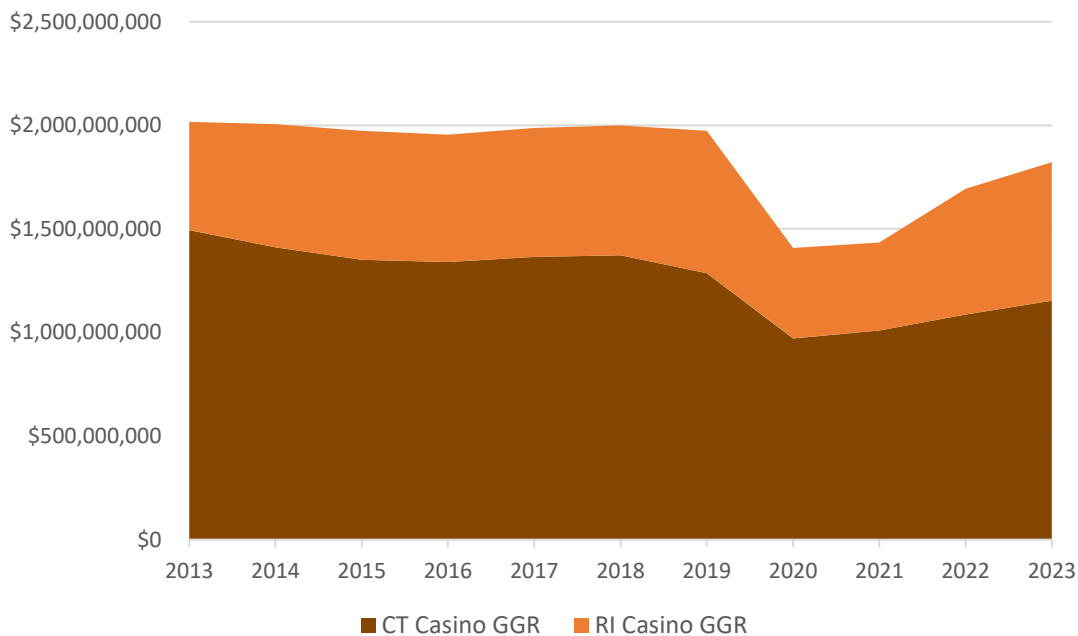
²⁴ As a reminder, these figures do not include visits by employees of the casinos.

Table 43. Out-of-State Casinos most often Patronized by MA Residents (AirSage)

	AirSage Estimate of Visitors from MA in 2023	AirSage Estimate of % of Patronage from MA in 2023	Pyramid License Plate Survey Estimate of Patronage in 2015	Driving Distance (miles) from MA State Line
Bally Tiverton Casino, RI (opened 2018)	34,304	85.3%	NA	1
Bally Twin River Lincoln, RI	56,347	54.1%	51.9%	5
Newport Grand Casino, RI (closed 2018)	NA	NA	44.1%	17
Foxwoods, CT	43,432	25.4%	32.2%	43
Mohegan Sun, CT	21,302	10.2%	18.3%	48
Rivers Casino & Resort Schenectady, NY	1,286	3.7%	NA	43
Saratoga Casino & Raceway, NY	4,284	8.9%	NA	53
Empire City Yonkers, NY	327	0.6%	NA	89
Resorts World New York City, NY	0	0.0%	NA	113

Consistent with the above analysis, Figure 42 depicts gross gaming revenue from the Connecticut and Rhode Island casinos from FY 2013 to FY 2023. As seen, there is very little change in CT or RI gross casino revenue subsequent to the 2015 PPC or 2018 MGM opening. It is difficult to judge the impact of the EBH 2019 opening due to the 2020/2021 COVID capacity restrictions, but CT FY 2023 (\$1,153 million) is 89.7% of their FY 2019 revenue (\$1,286 million) and RI revenue in FY 2023 (\$686 million) is 97.5% of their FY 2019 revenue (\$686 million).

Figure 42. Gross Casino Revenue in Connecticut and Rhode Island, FY 2013 - FY 2023



Sources: [Rhode Island Lottery Financial Reports](#); Gemini Research (2024); [Connecticut Department of Consumer Protection: Gaming Revenue](#)

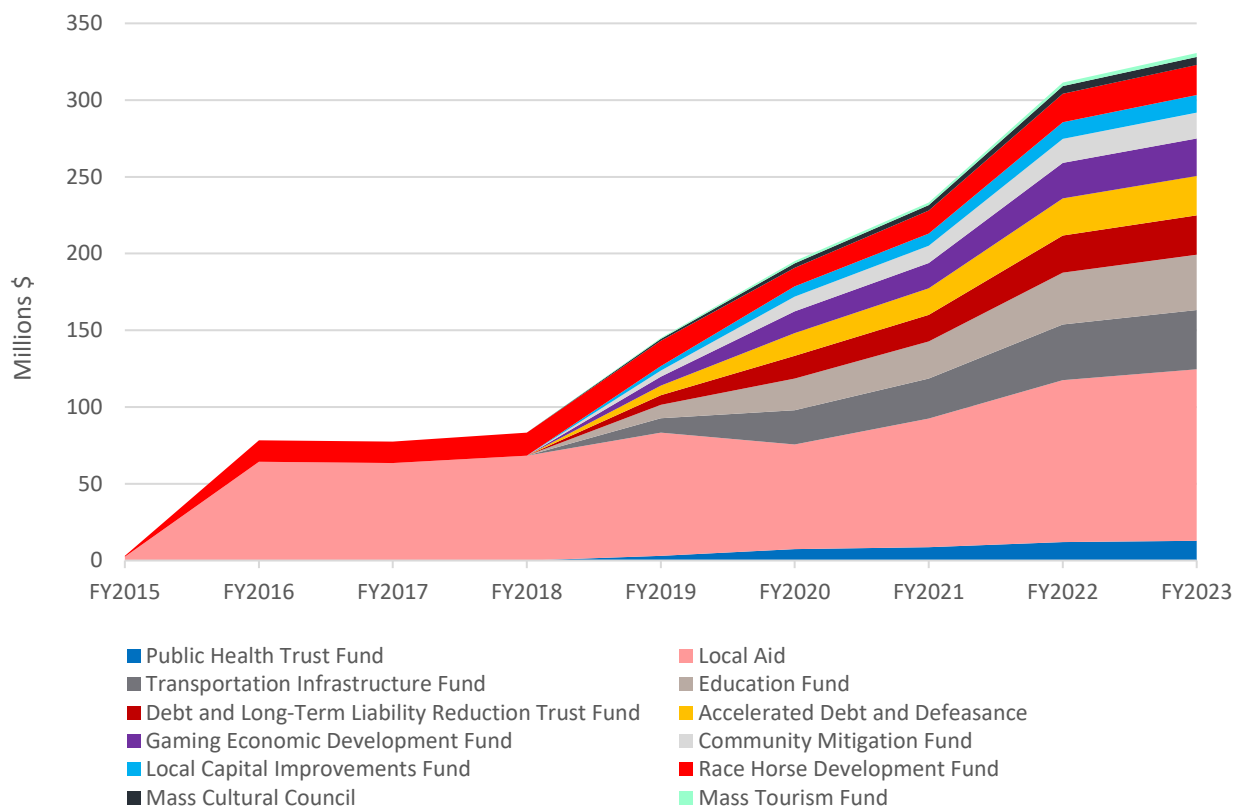
Subtracting the \$49,852,974 casino patronage outflow to other states from the \$21,545,041 inflow from out-of-state patrons to Massachusetts produces a net outflow to Massachusetts of \$28,307,933 during this 4-week

period. However, this does not take into account casino patronage outflow to casinos *beyond 100 miles of the Massachusetts border*, which were not included in the AirSage analysis. The Follow-Up General Population Survey provides some indication of the magnitude of these additional outflows. Among Massachusetts adults who reported patronizing a land-based casino in the past year, 6.7% also reported patronizing Nevada casinos. If we assume that visitation to Nevada casinos would be much less frequent, then a reasonable estimate of the total net outflow of revenue from Massachusetts would be ~\$30,000,000 every four weeks, which projects to a net outflow of \$360 million per year. While considerable, this is still significantly lower than the estimated \$664 million per year in 2015 estimated by [Pyramid Associates \(2015\)](#).

Casino Operating Expenditure: MA Gross Gaming Revenue (GGR) Taxes

One of the major expenses for the casinos are the state taxes on gross gaming revenue. Category 1 resort-casinos (Encore Boston Harbor, MGM Springfield) pay 25% of their gross gaming revenue to the state and the Category 2 slots parlor (Plainridge Park Casino) pays 49% of their gross gaming revenue. Total GGR tax revenue has increased from \$78 million in FY 2016, when just PPC was open, to over \$330 million in FY 2023, with all three casinos open and operational. This GGR tax is then allocated to 12 different state funds²⁵ as seen in Figure 43, with the largest being Local Aid to Massachusetts’ 351 cities and towns that is distributed based on population size and level of economic need. The next two major areas of funding are the Transportation Infrastructure fund and the Education Fund.

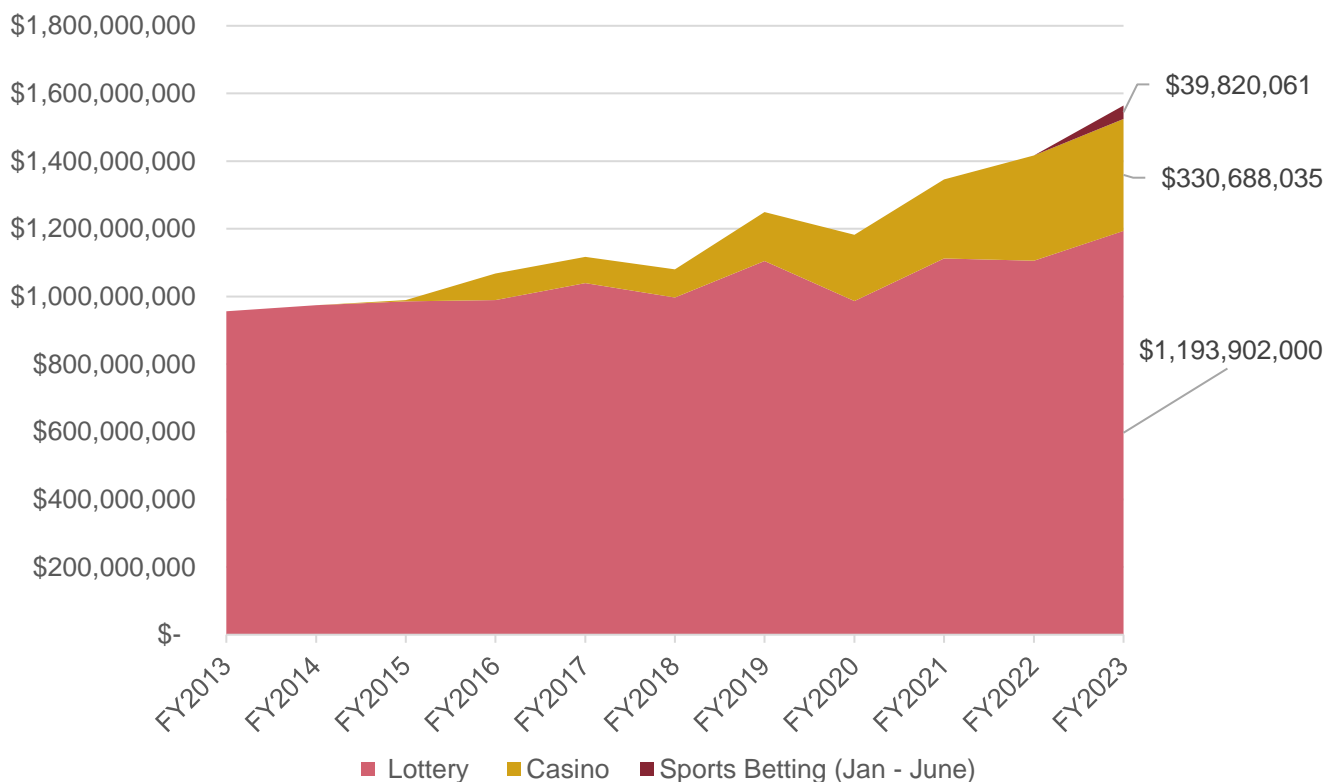
Figure 43. Annual Distribution of MA Casino GGR Tax Revenue



²⁵ For Category 2 licenses (i.e., PPC) the GGR tax is only allocated to Local Aid (82%) and the Race Horse Development Fund (18%), whereas for Category 1 licenses (i.e., MGM, EBH) the GGR tax is allocated to all the funds.

Figure 44 shows gambling revenue to the state of Massachusetts from the casino GGR tax compared to lottery and sports betting contributions. Although casino GGR in Massachusetts currently now approaches the GGR from the MA lottery (~\$1.2 billion for the casinos and ~\$1.6 billion for the lottery), casino contributions to state revenue are much smaller. Whereas PPC contributes 49% of GGR and EBH and MGM 25%, *all net profit* from the MA lottery (which averages 72%) goes to the state, which is then distributed exclusively for Local Aid. Sports betting GGR is growing rapidly, garnering over \$200 million in the three and a half months that online sports betting was legal in FY 2023.²⁶ However, sports betting is taxed at even lower percentages than the casinos (15% or 20% depending on Category 1 or Category 3 licenses, respectively), and thus has a much smaller impact on tax revenues.

Figure 44. MA State Revenue from Gambling by Source, FY 2013 – FY 2022



Casino Operating Expenditure: Vendors, Other Taxes/Payments, Other Expenses

Three other types of casino expenses are purchases from vendors, other taxes/payments, and other expenses. The primary expense category is the purchase of supplies from private sector vendors. This includes things such as food, alcohol, gaming equipment, utility payments, etc. Other taxes/payments include the various business taxes and other payments made to the federal, state, and local governments (e.g., payments to local communities as part of Host & Surrounding Community Agreements). The third category of expenditure is payments to individuals, charitable organizations, unions and other membership organizations.

Table 44 has extracted these payments from the casino operational reports of Peake & Breest (2020) for PPC, Peake, Breest, & Aron (2020) for MGM, and Breest et al., (2023) for EBH. The main point of this table is simply

²⁶ Sports betting became operational for in-person gambling in January 2023, but revenue from in person sports betting is negligible. Online sports betting was legalized on March 10th, 2023, and makes up 98% of sports betting revenue in MA.

to illustrate that vendor spending comprises the largest category of spending and that a significant portion of this overall spending is spent within MA. It should also be noted that vendor spending is often the highest in the first year of operation (i.e., MGM).

Table 44. Operational Spending by MA Casinos

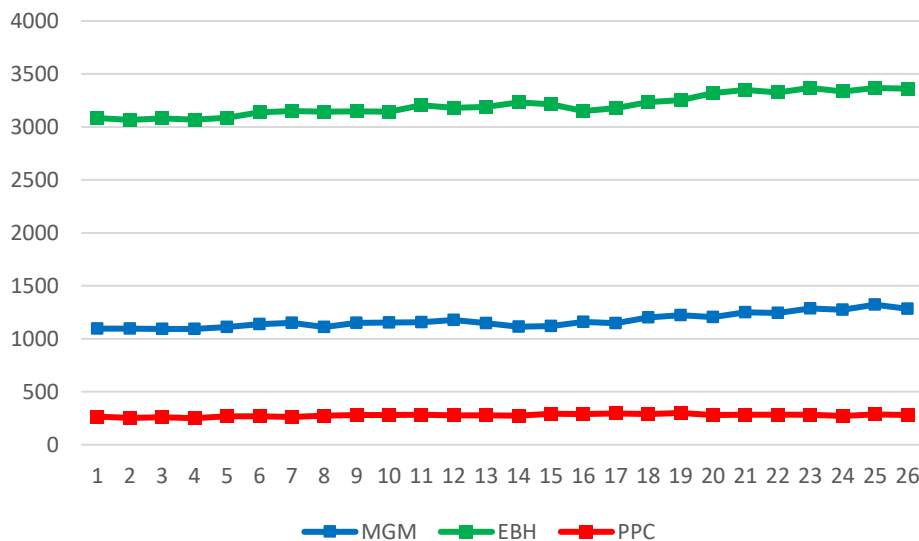
	PPC FY16 – FY19	MGM FY19	EBH FY19 – FY22
Average Yearly Spending	\$31,655,327	\$145,526,488	\$72,575,000 ¹
% to Vendors	54.9%	75.4%	NA
% to Government	42.4%	24.3%	NA
% to Other Entities	2.7%	0.2%	NA
% Spent in MA	67.0%	41.9%	52.8%

1. This is an underestimate as only vendor spending was available for EBH.

Casino Operating Expenditure: Employment and Wages

The casino industry in Massachusetts employed a total of 6,601 workers over the course of calendar year 2022. Between 4,400 and 5,000 people worked at casinos at any given time, with the number growing gradually throughout the year. The largest casino, EBH, employed between 3,100 and 3,400 people on average on any given day throughout the year, while MGM employed about 1,100 to 1,300 people on average. PPC, the smallest of the three, employed between 250 and 300 employees (Figure 45). These numbers reflect operations after all restrictions for COVID-19 were lifted from the casinos in May of 2021. Nonetheless, the employment numbers at all three venues are below the levels in 2019 (see Table 48, Table 49, and Table 50). On average, 67.6% of employees in 2022 were full-time and 32.4% were part-time.

Figure 45. Number of MA Casino Employees by Pay Period in 2022



Source: Encore Boston Harbor, MGM Springfield, Plainridge Park Casino

Table 45 provides a breakdown of the demographic profile and employment categories of workers at all three casinos. As seen, non-Whites (61.7%) and males (55.9%) constitute the majority of employees (of those who identified their race and gender). It is also the case that the racial diversity of employees at EBH and MGM exceeds the diversity found in the general Accommodation and Food Services sector in Middlesex County and Hampden County respectively, whereas the racial diversity of PPC employees is below what is found in the Accommodation and Food Services sector in Norfolk County. Of final note, most employees (60.9%) are paid below levels considered to be a 'living wage' for the county they reside in. (Note: 'living wage' is a pay rate that would allow a worker or household to afford its basic needs. The living wage usually exceeds the poverty wage/line, since it takes a more expansive view of household expenses').

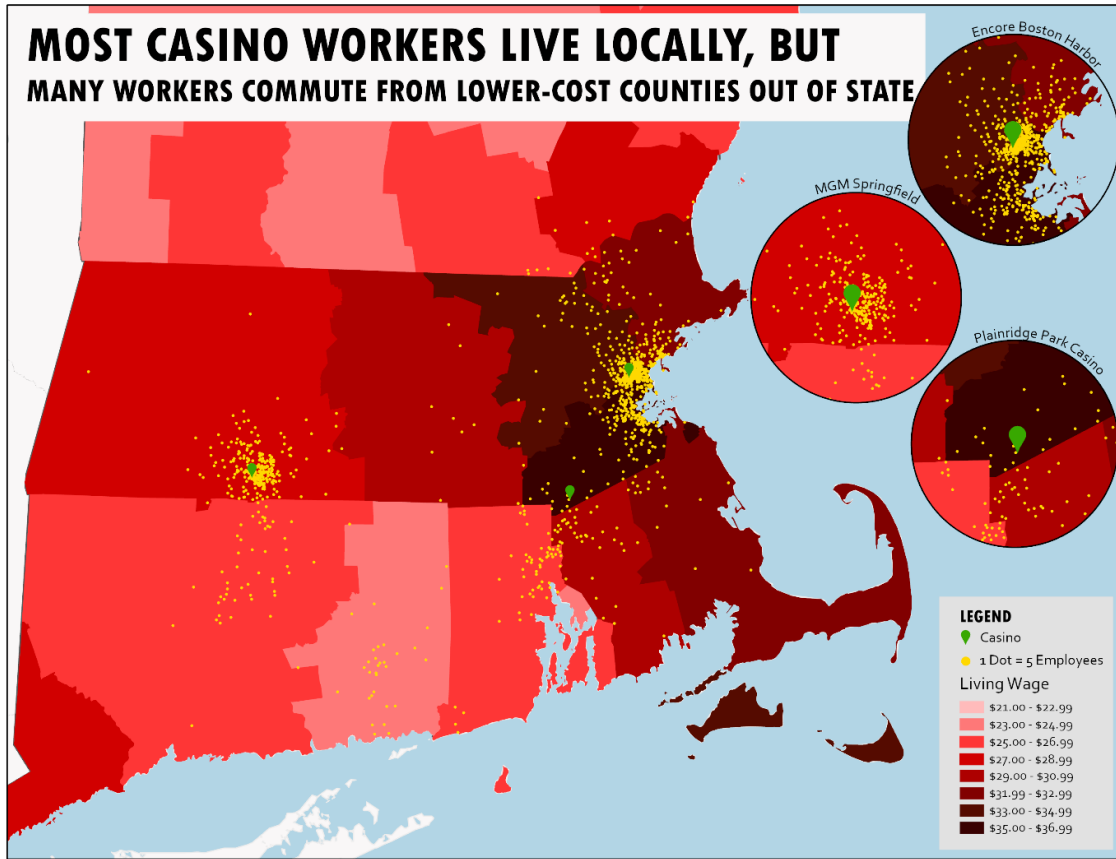
As shown in Figure 46, the vast majority of casino employees live close to the casino where they are employed. That said, there is a portion of workers who commute from lower-cost counties.

Table 45. MA Casino Employment Profile in 2022

	All			Encore Boston Harbor			MGM Springfield			Plainridge Park Casino		
	Massachusetts Living Wage		\$32.46	Middlesex Living Wage		\$33.36	Hampden Living Wage		\$27.91	Norfolk Living Wage		\$36.77
	Headcount	Median Hourly wage	Share above living wage	Headcount	Median Hourly wage	Share above living wage	Headcount	Median Hourly wage	Share above living wage	Headcount	Median Hourly wage	Share above living wage
Total	6601	\$28.31	39%	4256	\$30.89	44%	1912	\$21.51	34%	433	\$18.21	18%
Share	100%	-	-	64%	-	-	29%	-	-	7%	-	-
Race/Ethnicity												
Asian	1255	\$37.13	58%	1102	\$37.31	58%	138	\$36.56	66%	15	\$16.79	13%
Black or African American	812	\$25.77	23%	469	\$28.03	25%	298	\$19.28	21%	45	\$17.70	18%
Hispanic or Latino	1205	\$25.87	23%	655	\$28.05	26%	521	\$19.59	21%	29	\$17.24	7%
White	2149	\$28.64	46%	1001	\$36.53	57%	817	\$24.34	42%	331	\$18.53	20%
Two or more races	183	\$27.92	42%	104	\$34.74	52%	70	\$20.98	30%	9	\$19.61	11%
Other/Declined Response	997	\$27.83	32%	925	\$28.01	33%	68	\$21.86	29%	4	\$16.39	0%
Gender												
Female	2905	\$27.87	34%	1909	29.84	39%	814	\$20.75	28%	182	\$18.00	14%
Male	3679	\$28.86	43%	2347	32.26	47%	1081	\$22.22	38%	251	\$18.51	21%
Declined response	17	\$20.23	24%	n/a	n/a	n/a	17	\$20.23	24%	n/a	n/a	n/a
Division												
Entertainment	207	\$16.93	33%	-	-	-	207	\$16.93	33%	-	-	-
Food & Beverage	1825	\$25.28	19%	1083	27.93	22%	610	\$19.83	16%	132	\$16.07	10%
Gaming & Recreation	2504	\$37.63	66%	1713	38.15	73%	604	\$32.50	60%	187	\$17.77	19%
General & Administrative	1275	\$25.93	30%	851	26.69	30%	339	\$21.57	31%	85	\$21.27	31%
Hotel	703	\$27.74	15%	566	28.09	17%	137	\$16.33	8%	-	-	-
Retail	49	\$21.22	14%	43	21.86	16%	6	\$15.91	0%	-	-	-
Other	38	\$18.16	8%	-	-	-	9	\$15.17	0%	29	\$18.87	10%
Full/Part-time Status												
Full-time	4460	\$29.50	43%	2951	\$31.79	46%	1223	\$23.98	41%	286	\$20.15	25%
Part-time	2141	\$25.77	30%	1305	\$28.91	38%	689	\$18.17	20%	147	\$16.26	5%
Hourly/Salary Status												
Hourly	5751	\$27.41	34%	3735	\$29.35	40%	1676	\$20.36	28%	340	\$17.35	6%
Salary	850	\$36.06	72%	521	\$40.08	72%	236	\$31.98	75%	93	\$30.04	62%
Position												
Executives	40	\$110.81	95%	25	\$131.87	92%	11	\$69.41	100%	4	\$99.17	100%
Directors	106	\$55.03	97%	47	\$76.16	96%	51	\$42.58	98%	8	\$59.16	100%
Managers	345	\$38.08	68%	234	\$42.33	68%	91	\$30.06	63%	20	\$39.19	95%
Senior Staff	839	\$32.10	52%	559	\$35.85	58%	212	\$26.27	45%	68	\$21.83	22%
Junior Staff	3015	\$29.46	44%	2133	\$35.70	53%	682	\$21.43	26%	200	\$17.90	7%
Service Workers	2255	\$26.25	20%	1258	\$27.39	13%	864	\$17.98	30%	133	\$16.93	14%

Source: MGC, 2022 casino operator data; UMDI analysis

Figure 46. MA Casino Employee Residency as a Function of County Cost-of-Living



Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS. Basemap and Layout designed by Kazmiera Breest, 2023.

Note: living wage calculations are for a household of four with two incomes.

Source: MGC, 2022 casino operator data; MIT living wage calculator; UMDI analysis

It is also instructive to examine the stated hiring goals of each casino against the obtained employment profile. This is displayed in Table 46. As seen, most of those goals were met, or were close to being met.²⁷

Table 46. MA Casino Hiring Goals and Results

	EBH		MGM		PPC	
	Goal	Actual	Goal	Actual	Goal	Actual
Minority Workers	40%	76.4%	50%	57.3%	15%	23.5%
Veteran Workers	3%	2.4%	2%	4.9%	2%	4.8%
Female Workers	50%	44.8%	50%	42.6%	50%	42.0%
Local Workers	75%*	89.5%	35%**	39.6%	35%***	31.2%

*EBH is committed to hiring 75% of its workforce from a 30-mile radius around the facility. **MGM is committed to hiring 35% of its workforce from the Springfield workforce. ***PPC is committed to hiring 35% of its workforce from its Host and Surrounding Communities

The findings discussed in this section reflect survey data gathered from each new casino employee hired in the first year of each casino’s operation. The data show that casino employees enter the workforce with a variety of previous employment backgrounds. The casinos also provided work for previously unemployed people, representing 6%, 11%, and 15% of surveyed new hires at EBH, MGM, and PPC respectively.

²⁷ Note that the obtained goals in this table differ from what is reported in the [MGC Annual Report 2022](#) due to different time frames utilized. The above table utilized data from all unique employees in calendar year 2022.

Net Increases in Casino Employment

An important consideration is whether MA casino employment added new jobs to the local economy or simply took employment from other sectors. This was ascertained by means of comprehensive surveys of new employees conducted at each of the casinos and reported in UMDI (2017); Hall, Breest & Aron (2020); and Breest, Aron & Hall (2022). Table 47 illustrates that some net employment did occur, as 399 people were unemployed prior to being hired; 282 previously having multiple jobs and 492 people with prior part-time employment now had full-time employment. These net employment benefits were largely driven by the size of the casino workforce, with much greater employment benefits for EBH and MGM compared to PPC. That said, proportionally, the net benefits were somewhat higher in PPC and MGM compared to EBH.

Table 47. Previous versus Current Employment Status of New Casino Employees

		Employed Full-Time	Employed Part-Time	Other
Plainridge Park Casino (N = 1047)				
Previous Employment Status	Employed Full-Time (n = 522; 49.9%)	79.8% (n = 79)	19.2% (n = 19)	1.0% (n = 1)
	Employed Part-Time (n = 363; 34.7%)	42.4% (n = 25)	54.2% (n = 32)	3.4% (n = 2)
	Multiple Jobs (n = 3; 1.6%)	100.0% (n = 3)	0.0% (n = 0)	0.0% (n = 0)
	Unemployed (n = 162; 15.5%)	75.9% (n = 22)	24.1% (n = 7)	0.0% (n = 0)
MGM Springfield (N = 2,044)				
Previous Employment Status	Employed Full-Time (n = 1072; 52.4%)	78.1% (n = 837)	19.9% (n = 248)	2.1% (n = 22)
	Employed Part-Time (n = 500; 24.5%)	45.8% (n = 229)	49.6% (n = 248)	4.6% (n = 23)
	Multiple Jobs (n = 248; 12.1%)	48.8% (n = 121)	38.3% (n = 95)	12.9% (n = 32)
	Unemployed (n = 224; 11.0%)	54.0% (n = 121)	42.4% (n = 95)	3.6% (n = 8)
Encore Boston Harbor (N = 2,445)				
Previous Employment Status	Employed Full-Time (n = 1712; 70.0%)	75.0% (n = 1284)	~21.0% (n ~ 360)	~4.0% (n ~68)
	Employed Part-Time (n = 355; 15.0%)	67.0% (n = 238)	30.0% (n = 106)	3.0% (n = 11)
	Multiple Jobs (n = 232; 9.0%)	68.0% (n = 158)	12.0% (n = 28)	20.0% (n = 46)
	Unemployed (n = 146; 6.0%)	86.0% (n = 126)	13.0% (n = 19)	1.0% (n = 1)
TOTAL (N = 5,536)				
Previous Employment Status	Employed Full-Time (n = 3306; 59.7%)	75.4% (n = 2200)	21.5% (n = 627)	3.1% (n = 91)
	Employed Part-Time (n = 1218; 20.0%)	66.4% (n = 492)	28.7% (n = 213)	4.9% (n = 36)
	Multiple Jobs (n = 483; 10.6%)	58.4% (n = 282)	25.5% (n = 123)	16.1% (n = 78)
	Unemployed (n = 532; 9.6%)	67.4% (n = 269)	30.3% (n = 121)	2.3% (n = 9)

One key informant from the Everett area did note some negative impacts on other industries:

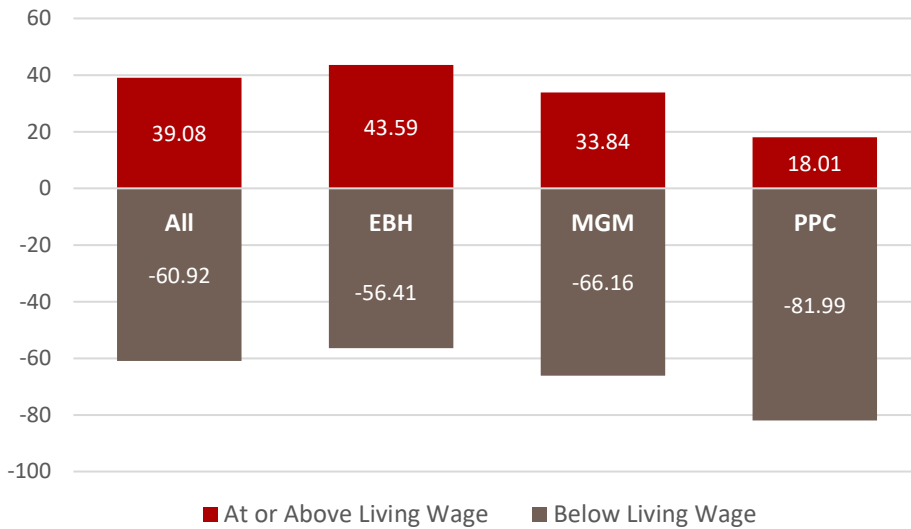
The interviewee noted that some local banks and credit unions were concerned because the casino was trying to poach their tellers, which added to the community's anxiety.

- Dinanyili Paulino, Chief Operating Officer, La Colaborativa, April 4, 2022

Job Quality

An approach for measuring job quality, regardless of industry, is to compare wages to living wage standards. [MIT's Living Wage Calculator](#) considers a range of expenses from food and housing to childcare and transportation to estimate the local wage rate that a full-time worker requires to cover the costs of their family's basic needs in the county where they live. Currently, the estimated hourly wage per individual required to cover the cost of living for two children and two adults (both working) is \$32.46 for Massachusetts as a whole. As documented in Table 45, only 39.1% of full-time casino employees are paid a 'living wage' for the county they reside in. However, this varies considerably as a function of casino, job type, job area, and race. Figure 47 illustrates this variation as a function of casino. While casino wages are low, it is also true that MA casino workers fare much better than in the broader Accommodation and Food Services sector where only an estimated 25.4% of workers earn a living wage.²⁸

Figure 47. Share of Full-time Workers making at/above vs below County Living Wage by Casino



Several sentiments about job quality were expressed by members of focus groups in Springfield:

Various participants reported that many people who worked at the casino complained about the working conditions there and that they were overworked and underpaid in many instances.

- Ariana Williams, Public Health Program Director, Martin Luther King, Jr. Family Services, April 22, 2021; Xavier Williams, Project Director, Men of Color Health Awareness, April 22, 2021

²⁸ This assumption is based on 2024 research using ACS Public Use Microdata (PUMS) on workers in the Accommodations and Food Services industry in neighboring New York state. See Cornell ILR Wage Atlas. *Living Wage by Industry*. July 31, 2024. <https://blogs.cornell.edu/livingwage/living-wage-by-industry>

“I was in contact with a lot of people who got hired at the casino - some chefs that wanted good experience, people in hospitality... and then those same people circled back and shared their horrible experience about how they never got their vacation time, or their wages were lowered, or they lost their job, or they were laid off. So, it was selling a false dream... people were being sold this dream that they were going to be able to make more money.”

- Ariana Williams, Public Health Program Director, Martin Luther King, Jr. Family Services, April 22, 2021

One key informant from the Everett area also had comments about job quality:

“For the people that actually got a job, during the first year [the casino] had a very high turnover because the managers were not very culturally competent... So, in valuing our residents, in valuing who we are as a community, I think that [Encore] missed the mark.”

- Dinanyili Paulino, Chief Operating Officer, La Colaborativa, April 4, 2022

“Even though [some Chelsea residents] got good jobs, [Encore] had really poor management, that [soon after hiring residents], fired the people that they had just employed, which stressed and demoralized community members that had gotten those jobs. I’m talking about the first year [that Encore was open].”

- Dinanyili Paulino, Chief Operating Officer, La Colaborativa, April 4, 2022

Total Wages

Total wages paid as well as average annual payroll employment numbers for each of the casinos is reported in Peake & Motamedi (2017), Peake & Breest (2020), Peake, Breest & Aron (2020), and Breest et al. (2023).

Table 48 summarizes the findings for PPC from FY16 to FY19 as a function of REMI regions (Figure 48 provides a map of these regions). As seen, PPC has averaged 468 employees per year on the payroll with average total wages of \$18.1 million. A total of 64.6% of employees and 66.0% of wages are paid in the Greater Boston and Southeast regions (where PPC is located). The three H&SC communities of Plainville, Attleboro, and North Attleboro account for between 25.8% to 27.9% of employees, depending on fiscal year. The median distance from PPC employees’ place of residence to the casino has varied from 18.0 to 20.0 miles.

Table 48. Employment and Total Wages at PPC, FY 2016 – FY 2019

PPC Average Annual Employment					
REMI Region	FY 2016	FY 2017	FY 2018	FY 2019	Average
Greater Boston	139	111	100	94	111.0
Southeast	221	192	177	175	191.3
Rest of MA	22	22	19	17	20.0
Rest of Nation/World	131	138	150	164	145.8
TOTAL	513	464	446	449	468.0
PPC Total Wages Paid					
REMI Region	FY 2016	FY 2017	FY 2018	FY 2019	Average
Greater Boston	\$5,161,841	\$5,218,272	\$7,605,766	\$5,342,007	\$5,831,971
Southeast	\$6,145,781	\$5,693,154	\$5,549,625	\$7,192,470	\$6,145,258
Rest of MA	\$707,876	\$856,661	\$738,155	\$1,012,181	\$828,718
Rest of Nation/World	\$4,430,625	\$4,612,420	\$5,270,626	\$7,023,549	\$5,334,305
TOTAL	\$16,446,124	\$16,380,507	\$19,164,171	\$20,570,207	\$18,140,252

Table 49 reports employment and total wages at MGM in fiscal year 2019 as a function of REMI region (Figure 48). As would be expected 72.3% of employees and 63.7% of wages are paid in the Pioneer Valley region, where MGM is located. In addition, MGM H&SC communities account for 59.8% of all MGM employees.

Table 49. Employment and Total Wages at MGM, Fiscal Year 2019

REMI Region	MGM Annual Employment FY 2019	MGM Total Wages Paid FY 2019
Greater Boston	48	\$2,067,283
Southeast	2	\$66,933
Central	37	\$1,464,036
Pioneer Valley	1,834	\$54,261,649
Berkshires	6	\$185,954
Cape and Islands	0	\$666
Rest of Nation/World	612	\$27,184,465
TOTAL	2,538	\$85,231,167

Table 50 reports annual employment and wages for EBH for FY19-FY22 as a function of REMI region. FY2022 wages are probably a better indication of current wages than earlier years during COVID. Here again, 85.0% of employees and 83.3% of wages are paid to people in the Greater Boston region, which is where EBH is located.

Table 50. Employment and Total Wages at EBH, FY 2019 – FY 2022

REMI Region	EBH Average Annual Employment				
	FY 2019	FY 2020	FY 2021	FY 2022	Average
Greater Boston	3,506	2,761	2,266	2,834	2,842
Southeast	111	99	86	104	100
Central	40	34	28	35	34
Pioneer Valley	19	12	4	7	11
Cape and Islands	5	4	2	3	4
Rest of Nation/World	438	393	289	301	355
TOTAL	4,118	3,303	2,675	3,282	3345
REMI Region	EBH Total Wages Paid				
	FY 2019	FY 2020	FY 2021	FY 2022	Average
Greater Boston	\$118,100,000	\$132,000,000	\$130,100,000	\$176,400,000	\$139,150,000
Southeast	\$3,640,000	\$4,600,000	\$4,710,000	\$6,270,000	\$4,805,000
Central	\$1,340,000	\$1,580,000	\$1,740,000	\$2,350,000	\$1,752,500
Pioneer Valley	\$510,000	\$560,000	\$240,000	\$400,000	\$427,500
Cape and Islands	\$180,000	\$410,000	\$50,000	\$180,000	\$205,000
Rest of Nation/World	\$18,900,000	\$23,150,000	\$20,380,000	\$20,640,000	\$20,767,500
TOTAL	\$142,700,000	\$162,330,000	\$157,240,000	\$206,200,000	\$167,117,500

Net Casino Profit and its Distribution

All three MA casinos are owned by national and international companies with headquarters in other states:

[Plainridge Park Casino](#) is owned and operated by [Penn Entertainment](#) (formerly Penn National), which is a public company with corporate headquarters in Pennsylvania that provides casino gambling, horse racing, and sports betting. As of March 2024, this company operates 43 properties in 20 states. PPC is their only property in Massachusetts. In 2018 Penn National sold the PPC building and land to [Gaming and Leisure Properties](#) for \$250 million, and leased it back for \$25 million per year. (This effectively recouped their construction cost of \$115 million and total start-up costs of \$250 million).

[MGM Springfield](#) is owned by [MGM Resorts International](#) (also known as MGM Resorts), which is a public company with corporate headquarters in Nevada. This is a hospitality and entertainment company with several destination casino resorts in Las Vegas (Bellagio, Aria, Park MGM, New York-New York, MGM Grand, Excalibur, Luxor, Mandalay Bay), as well as venues in Maryland, Michigan, Mississippi, New Jersey, Ohio and New York and. It also has part ownership in six Chinese-based resorts under the umbrella of MGM China and Diaoyutai MGM Hospitality – China. MGM Springfield is their only property in Massachusetts. MGM Resorts is the largest casino company in the world by revenue, making \$13.13 billion USD in revenue in 2022. In 2021 MGM Resorts sold the MGM Springfield building and land to [MGM Growth Properties](#) (a company that was split from MGM Resorts International) for \$400 million and leased it back for \$30 million per year. (This recouped some of the \$573 million building cost and \$960 million total start-up cost).

[Encore Boston Harbor](#) is owned and operated by [Wynn Resorts](#), a public company with corporate headquarters in Las Vegas, Nevada. Wynn Resorts owns two other destination casino resorts in Las Vegas (Wynn Las Vegas, Encore Las Vegas) and three destination casino resorts in Macau (Wynn Macau Resort, Encore at Wynn Macau, Wynn Palace). Encore Boston Harbor is their only property in Massachusetts. In 2022 Wynn Resorts sold the Encore Boston Harbor building and land to [Realty Income](#) for \$1.7 billion and have leased it back. (This recouped the \$1.6 billion building cost and part of the \$2.6 billion total start-up cost).

Because these companies are based outside of Massachusetts with no other properties in Massachusetts, most of the net profit from the operation of EBH, MGM, and PPC leaves the state. Unfortunately, it is difficult to determine the size of this annual net profit because of the way in which operational expenses are reported in Security Exchange Commission (SEC) filings, as these operational expenses include things such as corporate expenses, stock compensation, executive compensation, asset depreciation, etc. EBH reports that its EBITDAR (earnings before interest, taxes, depreciation, amortization, and restructuring or rent costs) for FY24 to be \$250,157,000 with an overall Operating Loss of \$69,854,000 (Juliana Catanzariti, personal communication).

TOTAL ECONOMIC IMPACTS

The direct economic impacts of casino operation have important additional economic ripple effects for the state and regions within the state that derive from these direct impacts. Prior analysis of the magnitude and distribution of these ripple effects for various industries has resulted in algorithmic software models that accurately predict the pattern of total direct and indirect impacts for any given jurisdiction ('multipliers'). One of the leading models is Regional Economic Models, Incorporated ([REMI](#)). Thus, the PI+ model from REMI was our primary method of estimating these total economic impacts supplemented by Key Informants and Focus Groups, as well as examining changes over time in statewide, county-wide, and community-specific economic indices (e.g., employment rates, etc.) that have been published by state and federal government agencies.

The main **total economic impacts** of introducing casinos to Massachusetts are as follows:

REMI Economic Modeling of Total Construction Impacts

PPC Total Economic Impacts of Construction

- 1,116 full-time jobs supported from April 2014 to June 2015.
- \$165.7 million of increased economic activity (output) from April 2014 to June 2015.
- \$105.1 million in net new economic activity (value added) from April 2014 to June 2015.
- \$91.5 million in personal income from April 2014 to June 2015.

MGM Total Economic Impacts of Construction

- 1,050 full-time jobs supported each year from 2015 to 2019.
- \$165.9 million of increased economic activity (output) each year from 2015 to 2019.
- \$102.1 million in net new economic activity (value added) each year from 2015 to 2019.
- \$79.4 million in personal income each year from 2015 to 2019.
- Every \$2 of construction spending created \$1 of additional economic activity and every \$1 of wages to construction workers created an additional \$1.29 of income to others (e.g., vendors and suppliers).

EBH Total Economic Impacts of Construction

- 2,505 full-time jobs supported each year from 2015 to 2019
- \$2.6 billion of increased economic activity (output) each year from 2015 to 2019.
- \$316.9 million in net new economic activity (value added) each year from 2015 to 2019.
- \$207.6 million in personal income each year from 2015 to 2019.
- Every \$1 of construction spending created ~\$0.65 of additional economic activity and every \$1 of compensation to construction workers created an additional \$3.21 of income to others.

REMI Economic Modeling of Total Operational Impacts

PPC Total Economic Impacts of Operation

- 2,417 full-time jobs supported each year, with 1,633 in the private sector. Roughly 2/3rd of employment occurs in the 4-county Greater Boston region, which includes Norfolk County (where PPC is located).
- \$505.5 million of increased economic activity (output) each year.

- \$362.4 million in net new economic activity (value added) each year.
- \$143.7 million in personal income each year.

MGM Total Economic Impacts of Operation

- 6,287 full-time jobs supported each year, with 4,929 in the private sector. Roughly 60% of employment occurs in the 3-county Pioneer Valley region, which includes Hampden County (where MGM is located).
- \$974.2 million of increased economic activity (output) each year.
- \$640.1 million in net new economic activity (value added) each year.
- \$356.9 million in personal income each year.

EBH Total Economic Impacts of Operation

- 9,867 full-time jobs supported each year, with 7,483 in the private sector. Roughly 75% of these jobs are in the 4-county Greater Boston region which includes Middlesex County (where EBH is located).
- \$1.7 billion of increased economic activity (output) each year.
- \$1.3 billion in net new economic activity (value added) each year.
- \$1.1 billion in personal income each year.

Secondary Data

- Consistent with the contention that the casinos have spurred increased economic activity:
 - The **total number of businesses** has increased by 15.1% to 35.8% in all host communities and counties from 2013/2014 to 2022, although Everett is the only place where the increase (35.8%) has been greater than the state (26.6%).
 - A 55.3% decrease in **business bankruptcies** in all three host counties from 2013/2014 to 2022.
 - The **number of businesses in different business sectors** has also increased for most sectors in both the host community and county (although not to the same extent in Springfield and Hampden County). However, there have been decreases in food services & drinking places in Plainville, Springfield, and Hampden County which are potentially due to consumer reallocation of spending from these sectors to the casino.
- In terms of casino **impacts on other types of gambling**:
 - There does not appear to be any significant impact on MA lottery revenue, although it is possible that revenue would have been even higher without casinos.
 - The number of live horse races continues to decline, although the amount wagered is largely unchanged, potentially attributable to support from the Race Horse Development Fund.
 - Charitable gambling continues to decline, and the decline has plausibly been accelerated by the availability of casino gambling.
- Largely consistent with the contention that the casinos have spurred increased **employment**:
 - Employment has increased in all host communities since 2013, with employment in Plainville and Everett increasing at a rate above the Massachusetts average.
 - Unemployment rates dropped significantly to a similar degree in all host communities and counties, largely paralleling decreased rates in the state.
 - No meaningful changes occurred in labor force participation in host communities or counties.

REMI ECONOMIC MODELING

Economic modeling with REMI is the best way of estimating the additive indirect economic benefits of casino introduction to MA. However, REMI economic modeling has a couple of important limitations to be aware of:

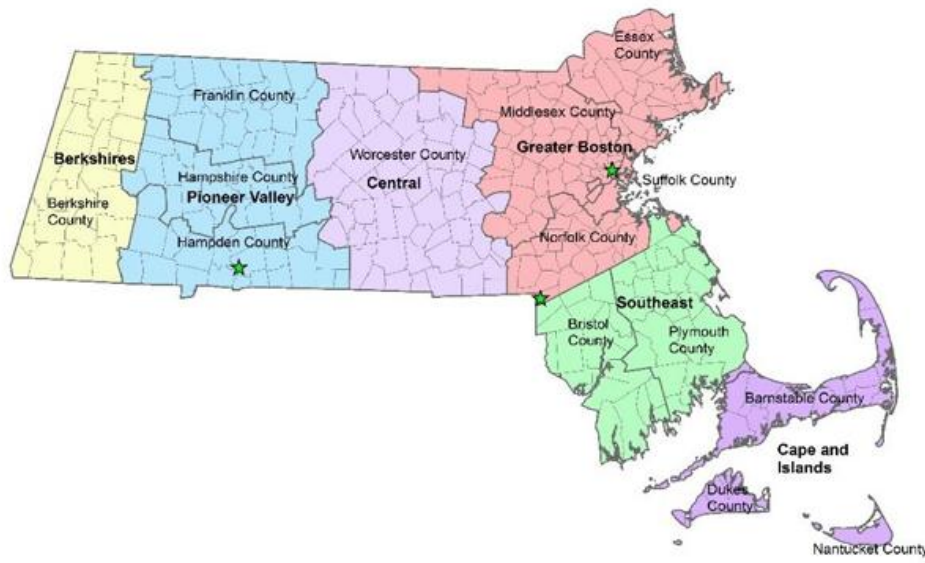
- REMI results are not always a ‘net’ calculation. When it comes to employment, REMI is projecting the total number of direct and indirect jobs *involved in or supported by* casino construction and operation. Some of these jobs are ‘net new’, and others are not. (See earlier section on **Net Increases in Casino Employment**). REMI does make this distinction for overall economic activity where ‘value-added’ represents net new economic activity. Nonetheless, ‘value-added’ does not take into account the economic losses of casino profits that leave the state (see Net Casino Profit and its Distribution).
- While most of the inputs to the model are actual data (i.e., casino revenue, government revenue, direct employment numbers, wages, vendor spending), the origin and nature of the casino revenue (i.e., consumer spending inputs) is derived from the MA casino patron surveys. The patron survey data is limited because the 2016 PPC and 2019 MGM surveys were conducted prior to all the casinos being opened, and so casino patron behavior was still in flux. In addition, the EBH patron survey was conducted in early April 2022, when there were still some lingering impacts of COVID restrictions. The casino patron sample sizes were also relatively small (440 to 878), there were very high refusal rates (78% to 84.6%), and behavior was inferred from self-report to the questions ‘would have gambled in another state if not for this casino’ and the ‘casino prompted visit to the area’ rather than actual behavior. It is because of these limitations that the AirSage cell phone location data was employed to get a more accurate current estimate of the geographic origin of MA casino revenue. It is also why **Secondary Data** is utilized to help triangulate the projections of the economic modeling.

The REMI model is a 70-sector, 6-region model. Each of the 70 REMI industry sectors roughly corresponds to the 3-digit codes of the North American Industry Classification System (NAICS). The six regions in the model are each comprised of Massachusetts counties as shown in Table 51 and Figure 48). (Note, however, that the REMI modeling for PPC Construction impacts utilized somewhat different regions with different counties).

Table 51. REMI Regions and Associated Counties

REMI Region	Counties
Greater Boston Region	Middlesex County • EBH is located in Everett. Everett is in Middlesex County, but also immediately adjacent to Suffolk County. Suffolk County Essex County Norfolk County • PPC is located in Plainville. Plainville is in Norfolk County, but also immediately adjacent to Bristol County.
Pioneer Valley Region	Hampden County • MGM is located in Springfield. Springfield is in Hampden County, but is also close to Hampshire County. Hampshire County Franklin County
Southeast Region	Bristol County Plymouth County
Central Region	Worcester County
Berkshires Region	Berkshire County
Cape and Islands Region	Barnstable County Dukes County Nantucket County

Figure 48. Regions of Massachusetts used for REMI Economic Modeling



Each of the three casinos is depicted as a green star.

For this study, PI+ inputs the information on the economic indices described in the Direct Impacts section along with the reported changes in consumer spending from the Patron Surveys (see [Appendix C](#)) to produce total economic impact estimates. The detail and specificity of the Direct Impacts data allowed us to replace some of the default assumptions of the REMI model. For example, PI+ utilizes average wages by industry and region and the typical flows of goods and services among regions. However, we have actual data on each of these areas that allow us to override the default assumptions.

Total Economic Impacts of Casino Construction

Each company hired to work on construction of the casino has its own suppliers and vendors who gain business by virtue of their customers being busier. Every worker that receives a paycheck returns back home to his or her neighborhood. These dollars are spent on housing, entertainment, education, and so on. These interactions, called indirect and induced effects, also create economic impacts attributable to the casino that, together with the direct effects, describe the total economic impacts.

There are four indices that summarize both the Direct and Indirect Impacts of an economic activity such as casino construction:

- **Total Employment:** This is a count of total job-years, with a job-year being one full-time job lasting for one year.
- **Output:** Also known as gross output. This is a measure of total economic activity in the production of goods and services. It totals the value of all intermediate steps/inputs/sales leading to final production. A simplified example would be if a logger sold logs to a sawmill for \$1,000; the sawmill cut these logs into lumber and sold them to a furniture manufacturer for \$2,000; and the furniture manufacturer turns this lumber into furniture which is then sold for \$3,000. The total output is \$6,000, which is the total value of all sales in the chain of activity, recognizing that the value of the logs is being triple counted as it is an intrinsic part of the price at each transaction.
- **Value-Added:** Value-Added is the value of all *final goods and services created*. In the above example, the value added is \$3,000 (i.e., output minus the intermediate inputs). ‘Value-Added’ is also known as net economic impact and gross product (or gross domestic product or gross state product). It is a useful

measure of the net new wealth created within an economy as it avoids the triple-counting that occurs with output.

- **Personal Income:** Personal income is income and benefits from all sources earned by all persons living in an area. It excludes the income earned by non-resident workers who commute into an area but includes the income of residents who commute out.

The following results are taken from Motamedi & Peake (2017), Motamedi et al. (2019), and Motamedi, Hall & Dinnie (2020).

Plainridge Park Casino

The indirect impacts of PPC construction were the first impacts modeled by the SEIGMA team (Motamedi & Peake, 2017). As such, the division of the six REMI regions was still somewhat uncertain and would ultimately be changed for all subsequent modeling. The following table lists the REMI regions utilized for estimating total PPC construction impacts.

Table 52. REMI Regions utilized for Estimating PPC Construction Impacts

REMI Region	Counties
Greater Boston Region	Middlesex County <ul style="list-style-type: none"> • EBH is located in Everett. Everett is in Middlesex County, but also immediately adjacent to Suffolk County. Suffolk County Essex County
Bristol and Norfolk Counties	Norfolk County <ul style="list-style-type: none"> • PPC is located in Plainville. Plainville is in Norfolk County, but also immediately adjacent to Bristol County. Bristol County
Rest of Southeast MA Region	Plymouth County Barnstable County Dukes County Nantucket County
Lower Pioneer Valley Region	Hampden County <ul style="list-style-type: none"> • MGM is located in Springfield. Springfield is in Hampden County, but also immediately adjacent to Hampshire County. Hampshire County
Rest of Western MA	Berkshire County Franklin County
Central Region	Worcester County

As seen in Table 53, whereas the construction of Plainridge Park Casino employed an estimated 554 full-time jobs over the 14-month construction period, overall direct and indirect employment is estimated to be 1,116. These are job-years, which are equivalent to one worker being hired for one year (e.g., two workers working half time for a year would be one job year). Furthermore, total statewide economic activity (also known as output) increased by \$165.7 million over the 14-month construction period. Net new economic activity (i.e., value added or gross state product) totaled \$105.1 million. A total of \$91.5 million was provided in personal income to these 1,116 jobs that were created. As seen, most of the economic activity occurred in the Bristol and Norfolk counties, where PPC is located.

Table 53. Total Economic Impacts of PPC Construction, Apr 2014 – Jun 2015

REMI Region	Total Employment 2014/2015	Output (millions) 2014/2015	Value Added (millions) 2014/2015	Personal Income (millions) 2014/2015
Bristol & Norfolk Counties	755	\$102.7	\$65.6	\$47.8
Rest of Southeastern MA	114	\$13.5	\$8.5	\$15.4
Greater Boston	203	\$43.9	\$27.6	\$22.1
Central	39	\$4.8	\$2.9	\$5.9
Lower Pioneer Valley	4	\$0.6	\$0.4	\$0.2
Rest of Western MA	1	\$0.1	\$0.1	\$0
Total Statewide Construction Impacts	1,116	\$165.6	\$105.1	\$91.5

MGM Springfield

As seen in Table 54, whereas the construction of MGM Springfield is estimated to have employed the equivalent of 1,251 direct employees during the construction period, overall, the total number of full-time jobs is estimated to be 1,050 *each year* from 2015 to 2019 (with peak employment in 2016). Furthermore, total statewide output increased by \$849 million over the five-year construction period (average of \$169.8 million per year). The value-added amount totaled \$512 million, or \$102.4 million per year. Finally, the jobs that were associated with this construction accrued \$397 million in personal income (\$79.4 million per year). In general, when the estimates of total economic impacts are compared to MGM Springfield’s expenditures, the results show that every \$2 of construction spending created about \$1 of additional economic activity in Massachusetts and every \$1 of compensation to construction workers created an additional \$1.29 of income to others in Massachusetts.

Table 54. Total Economic Impacts of MGM Springfield Construction, 2015-2019

REMI Region	Average Total Annual Employment 2015 - 2019	Average Annual Output (millions) 2015 - 2019	Average Value Added (millions) 2015 - 2019	Average Personal Income (millions) 2015 - 2019
Greater Boston	196	\$51.8	\$31.6	\$17.0
Southeast	68	\$9.4	\$5.6	\$5.0
Pioneer Valley	623	\$81.9	\$49.2	\$44.1
Central	130	\$23.0	\$13.7	\$10.4
Berkshires	25	\$2.5	\$1.5	\$2.1
Cape and Islands	8	\$1.2	\$0.8	\$0.8
Total Average Statewide Construction Impacts	1,050	\$169.8	\$102.4	\$79.4

Encore Boston Harbor

As seen in Table 55, whereas the construction of Encore Boston Harbor employed an estimated 2500 full-time job-years, overall, the total number of jobs is estimated to be 2505 job-years *each year* from 2015 to 2019. Furthermore, total statewide output increased by \$2.6 billion over the five-year construction period (average of \$524.2 million per year). The value-added amount totaled \$1.6 billion, or \$316.9 million per year). Finally, the jobs that associated with this construction accrued \$1.0 billion in total personal income (\$207.6 million per year). In general, when the estimates of total economic impacts are compared to Encore Boston Harbor's expenditures, the results show that \$1 of construction spending created about \$0.65 of additional economic activity in Massachusetts and every \$1 of compensation to construction workers created an additional \$3.21 of income to others in Massachusetts.

Table 55. Total Economic Impacts of Encore Boston Harbor Construction, 2015-2019

REMI Region	Average Total Annual Employment 2015 - 2019	Average Annual Output (millions) 2015 - 2019	Average Annual Value Added (millions) 2015 - 2019	Average Annual Personal Income (millions) 2015 - 2019
Greater Boston	1,729	\$406.9	\$246.5	\$143.1
Southeast	544	\$75.1	\$45.0	\$41.7
Pioneer Valley	26	\$4.9	\$2.9	\$2.2
Central	170	\$32.6	\$19.4	\$16.7
Berkshires	3	\$0.4	\$0.2	\$0.2
Cape and Islands	33	\$4.4	\$2.8	\$3.7
Total Average Statewide Construction Impacts	2,505	\$524.2	\$316.9	\$207.6

Total Economic Impacts of Casino Operation

The following results are taken from Peake & Motamedi (2017), Peake & Breest (2020), Peake, Breest & Aron (2020), and Breest et al., (2023).

Plainridge Park Casino

Whereas PPC directly employed roughly 513 full-time employees in its first year of operation, the indirect employment, wages, vendor spending, and fiscal activity associated with PPC is estimated to have involved a total of 2,758 jobs, with 1,964 of those jobs existing in the private sector (Table 56). Just over two-thirds of that employment impact occurred in the four-county Greater Boston region, which includes Middlesex County (where EBH is located) and Norfolk County (where PPC is located). This economic activity was partially paid for by a decline in spending on other goods and services in Massachusetts as casino patrons reallocated their spending away from other good and services towards spending money at PPC, leading to a loss of an estimated 340 jobs. After adjusting for this reallocation, PPC supported 2,417 jobs in MA, 1,633 of which were in the private sector. The remainder were government positions supported by the revenue generated by PPC. While the private sector activity at PPC had both positive and negative impacts on each region of MA, the majority of new employment impacts outside of the immediate host region were the result of new government tax revenue from PPC being spent across the state. The casino also supported \$143.7 million in new personal income and \$505.5 million in new output within the Massachusetts economy, of which \$362.4 million was value-added (i.e., net new economic activity).

Table 56. Total Economic Impacts of Plainridge Park Casino in First Year of Operation

REMI Region	Total Employment	Private Sector Employment	Output (millions)	Value Added (millions)	Personal Income (millions)
Greater Boston	1,896	1,466	\$447.0	\$326.3	\$98.7
Southeast	376	247	\$48.3	\$29.9	\$31.7
Pioneer Valley	189	80	\$23.1	\$14.5	\$10.3
Central	231	131	\$30.2	\$18.7	\$17.4
Berkshires	27	11	\$3.2	\$2.0	\$1.4
Cape and Islands	38	29	\$4.6	\$2.9	\$2.8
Total Statewide Operating Impacts	2,758	1,964	\$556.4	\$394.4	\$162.2
Statewide Impacts from Changes in Consumer Spending	-340	-331	-\$50.9	-\$31.9	-\$18.5
Net Statewide Impacts	2,417	1,633	\$505.5	\$362.4	\$143.7

The employment impacts from PPC were largest in the casino’s own industry—Amusement, Gambling, and Recreation.²⁹ This sector, however, did not see a substantial change beyond the direct employment at PPC. Other industries affected by the casino are a mixture of industries that are heavily represented in PPC’s vendor spending (see Table 57). These include Professional, Scientific, and Technical Services; Administrative and Support Services; and Wholesale Trade. Industries that are associated with an increase in general consumer spending, such as Construction, Retail Trade, Food Services and Drinking Places, and Real Estate, were also affected by PPC vendor spending.

Table 57. Top 10 Industries by Statewide PPC Employment Impact, First Year of Operation

Industry Sector	Employment
Amusement, Gambling, and Recreation	560
Construction	281
Retail Trade	104
Professional, Scientific and Technical Services	100
Administrative and Support Services	81
Food Services and Drinking Places	62
Ambulatory Health Care Services	43
Real Estate	40
Wholesale Trade	40
Personal and Laundry Services	28
All Other Industries	294
Total Private (non-farm) Employment	1,633

²⁹ Industries were defined using North American Industry Classification System (NAICS) codes (see <https://www.naics.com/naics-code-description/>)

Three key informants from Plainville had the following comments about economic development:

"We have had a lot of interest in the surrounding area along Route 1... The sections of Route 1 where you see the really large developments coming in, they were undeveloped, so there was nothing there. So, it's not like they are driving out the small businesses... This area is really becoming a destination... I think you will continue to see development, along Route 1 from the casino all the way to the stadium."

- Jennifer Thompson, Town Administrator, Plainville, MA, January 25, 2018

"One of the things that [the casino] promised to do was to reach out to Plainville folks, first in terms of employment, which they did. They kept their word... They are our largest employer in Plainville. It has certainly had an impact... I remember when the casino first opened, that was a challenge for them [backfill issues]. And part of it was, they had a lot of applicants, but some of them couldn't pass the scrutiny of the background checks and the things that the [Massachusetts] Gaming Commission requires... I know it was difficult for the restaurants in particular. When they opened, they didn't have as much of the staff as they wanted in the beginning... They were having difficulties getting people who were qualified, but who could also pass the more rigorous background check. Because even if you work in the restaurant, you still have to pass the same background check as if you were working in the casino itself."

- Jennifer Thompson, Town Administrator, Plainville, MA, January 25, 2018

"Wow, we have had an awful lot of influx of new businesses... Because we were ripe for new businesses and growth in town, because we were one of the least expensive communities in the area, and we had land to develop. So, it was natural that they were looking... We have had no problem keeping restaurants in town very, very healthy. That was one of the problems, people were saying, 'Oh it will knock the small restaurants out.' No that is not true. They are thriving."

- Kathleen Parker, Treasurer, Plainville, MA, February 1, 2018

"On the corner at the diagonal opposite of the casino, I have had plans come through my board for two hotels, a restaurant, a small wastewater treatment plant, and some housing, all in that opposite corner... The dual hotel-restaurant, shopping center-residence that is going directly across from the casino... I believe there was a need for a hotel because of the casino. That helped influence the building of the hotel. It would not be exclusive, but it would be a contributing factor."

- Lou LeBlanc, Chairman, Board of Health, Plainville, MA, March 1, 2018

MGM Springfield

Whereas MGM directly employed roughly 4,118 full-time employees in its first year of operation, the indirect employment, wages, vendor spending, and fiscal activity associated with MGM supported a total of 6,599 jobs, with 5,226 of those jobs existing in the private sector. The remainder were government positions supported by the tax revenue generated by MGM. Just over 60% of that employment impact occurred in the three-county Pioneer Valley region, which includes Hampden County and the City of Springfield (where MGM is located). This new economic activity was partially paid for by a decline in spending on other goods and services in Massachusetts as casino patrons shifted their spending away from activities in other areas and towards spending at MGM, leading to an estimated loss of 313 jobs elsewhere in the state. After adjusting for this reallocation, on the net, MGM supported 6,287 jobs in MA, 4,929 of which were in the private sector. The majority of new employment impacts outside of the immediate host region were the result of new government tax revenue from MGM being spent across the state. As seen in Table 58, MGM also supported \$356.9 million in new personal income and \$974.2 million in new output within the Massachusetts economy, of which \$640.1 million was value-added (i.e. net new economic activity).

Table 58. Total Economic Impacts of MGM Springfield in First Year of Operation

REMI Region	Total Employment	Private Sector Employment	Output (millions)	Value Added (millions)	Personal Income (millions)
Greater Boston	1,612	1,009	\$308.0	\$198.4	\$124.8
Southeast	375	259	\$50.5	\$32.3	\$29.6
Pioneer Valley	4,067	3,596	\$589.2	\$393.8	\$178.8
Central	380	239	\$52.8	\$33.6	\$30.9
Berkshires	71	51	\$12.0	\$7.3	\$5.2
Cape and Islands	95	72	\$12.6	\$8.0	\$7.2
Total Statewide Operating Impacts	6,599	5,226	\$1025.1	\$673.2	\$376.5
Statewide Impacts from Changes in Consumer Spending	-313	-296	-\$50.9	-\$33.1	-\$19.6
Net Statewide Impacts	6,287	4,929	\$974.2	\$640.1	\$356.9

Focus group participants in Springfield expressed largely positive feelings about the economic impact of the casino, but with some dissent:

One focus group participant remarked that the casino improved the ambiance of the neighborhood, because it brought a coffee shop, and new food trucks, which encouraged people to spend money in Springfield.

- Jessica Collins, Executive Director, Public Health Institute of Western Massachusetts, April 22, 2021

“My office represents the economic development of the entire city of Springfield, and the casino has had a direct impact on the entire city given the sheer size of the development. The revenues that it contributes annually to the city, both in terms of direct contribution and taxes, have given the city increased resources to bring out to the community.”

- Timothy Sheehan, Chief Development Officer, City of Springfield Office of Planning & Economic Development, April 22, 2021

Two focus group participants mentioned that the building and rolling out of the MGM casino brought economic life to Springfield, which has not seen much in previous decades.

- Brenda Evans, Community Liaison, Center for Community Health Equity Research, UMass Amherst; Ethel Griffin, Associate Director, Revitalize Community Development Corporation, April 14, 2021

Other focus group participants said that MGM Springfield did a good job bringing local companies into their supply chain - "everything from landscape work to mattresses to bakeries to cleaning supplies." MGM worked with the local chambers of commerce and with the Western Massachusetts Economic Development Council and continues to be engaged in working with local businesses.

- Rick Sullivan, President & CEO, Western Massachusetts Economic Development Council, April 22, 2021; Timothy Sheehan, Chief Development Officer, City of Springfield Office of Planning & Economic Development, April 22, 2021

“The supply chain issues have certainly been a plus for the region. One in particular - Park Cleaners in Springfield - has been able to add additional employees to their workforce, based on their contracting with the casino, in terms of their dry-cleaning needs. That has rippled into the local economy for many small businesses.”

- Timothy Sheehan, Chief Development Officer, City of Springfield Office of Planning & Economic Development, April 22, 2021

“The only businesses outside the casino in the South End are restaurants. Because of the casino, a lot of other businesses either closed or moved.”

- Brenda Evans, Community Liaison, Center for Community Health Equity Research, UMass Amherst, April 22, 2021

Some focus group participants noted that the casino had not increased foot traffic in the area and that there are many vacant storefronts, which suggests the casino has not had a major economic impact in developing the surrounding areas. Some of the buildings MGM has developed look empty and have had scaffolding for a long time. “It doesn’t look healthy.”

- Michael Di Pasquale, Founder, Make-It-Springfield, Cofounder, UMass Design Center in Springfield, and UMass Amherst Assistant Professor of Regional Planning, April 14, 2021; Denise Jordan, Executive Director, Springfield Housing Authority, April 14, 2021

Encore Boston Harbor

Whereas EBH directly employed roughly 2,538 full-time employees in its first year of operation, the indirect employment, wages, vendor spending, and fiscal activity associated with EBH in its first year of operation supported a total of 6,309 jobs, with 5,207 of those jobs existing in the private sector. The remainder were government positions supported by the revenue generated by EBH, along with additional taxes collected from new economic activity. These estimates, along with estimates of output, value-added, and personal income represent the economic impact of EBH’s operating impacts. Overall, the impacts are overwhelmingly positive, though there was some negative impact of consumers reallocating their spending from other goods and services to spending at EBH.

From 2020 to 2022, these economic impacts grew in magnitude. By 2022 we estimate EBH’s operating impacts supported 11,082 jobs in Massachusetts, with 67.1% of these jobs being in the four county Greater Boston region (Suffolk County, Middlesex County, Essex County, Norfolk County). However, shifts in consumer spending towards the casino are estimated to have cost the Commonwealth 1,164 jobs. Thus, we estimate the net number of jobs supported by the casino’s economic footprint to be 9,917 jobs in 2022, with 7,533 of those jobs in the private sector. The casino also contributed a net of \$1.7 billion in output in Massachusetts, with \$1.3 billion being net new, or value-added, and \$1.1 billion in net new personal income.

Table 59 documents the employment, output, value-added output, and personal income generated by EBH operations in each year (after factoring in losses from consumer reallocation of spending to casinos from other sectors of the economy).

Table 59. Total Economic Impacts of Encore Boston Harbor Operations, 2019 – 2022

2019	Total Employment	Private Sector Employment	Output (millions)	Value Added (millions)	Personal Income (millions)
Greater Boston	4,482	3,849	\$589.4	\$456.4	\$383.2
Southeast	520	401	\$78.5	\$46.5	\$52.7
Pioneer Valley	291	140	\$42.1	\$25.1	\$18.9
Central	412	266	\$63.5	\$37.7	\$39.4
Berkshires	31	15	\$4.6	\$2.7	\$2.0
Cape and Islands	86	65	\$13.3	\$8.0	\$8.3
Net Statewide Impacts	5,823	4,736	\$791.3	\$576.4	\$504.4
2020	Total Employment	Private Sector Employment	Output (millions)	Value Added (millions)	Personal Income (millions)
Greater Boston	6,632	5,905	\$1,319.8	\$882.4	\$569.5
Southeast	586	454	\$100.4	\$59.4	\$71.5
Pioneer Valley	290	136	\$47.4	\$28.2	\$21.4
Central	448	295	\$79.2	\$47.0	\$51.9
Berkshires	31	14	\$5.2	\$3.1	\$2.2
Cape and Islands	95	73	\$17.2	\$10.4	\$10.8
Net Statewide Impacts	8,081	6,877	\$1,569.3	\$1,030.5	\$727.3
2021	Total Employment	Private Sector Employment	Output (millions)	Value Added (millions)	Personal Income (millions)
Greater Boston	5,944	4,737	\$879.6	\$785.1	\$590.7
Southeast	735	508	\$134.6	\$79.6	\$86.3
Pioneer Valley	510	228	\$84.3	\$50.2	\$38.0
Central	655	380	\$118.7	\$70.6	\$68.2
Berkshires	54	23	\$9.2	\$5.4	\$3.9
Cape and Islands	130	91	\$23.9	\$14.4	\$14.8
Net Statewide Impacts	8,028	5,967	\$1,250.3	\$1,005.3	\$802.0
2022	Total Employment	Private Sector Employment	Output (millions)	Value Added (millions)	Personal Income (millions)
Greater Boston	7,434	6,039	\$1,222.2	\$1,052.5	\$796.8
Southeast	896	632	\$173.4	\$102.8	\$110.7
Pioneer Valley	592	266	\$106.3	\$63.3	\$46.8
Central	771	452	\$150.6	\$89.6	\$85.4
Berkshires	63	27	\$11.6	\$6.9	\$4.9
Cape and Islands	161	115	\$31.9	\$19.3	\$18.9
Net Statewide Impacts	9,917	7,533	\$1,696.0	\$1,334.4	\$1,063.5

Table 60 shows the employment impacts associated with various sources of employment. The largest among these sources of demand is the casino itself, which consistently employs around a third of the individuals within its economic footprint. Some jobs are supported by intermediate demand or employment demand created by business-to-business spending, either from the casino itself or from other firms that have benefitted from its economic activity. Additional demand for employment is generated through induced employment demand or the additional demand for goods and services created when individuals, including casino employees and vendors, spend additional money in their communities, as well as when new economic activity induces additional investment from government entities and private-sector firms. Lastly, some of the demand for new employees comes directly from state and local government entities, who can hire new workers with the additional revenue from taxes and other payments they receive from Encore Boston Harbor's operations.

Table 60. Total Employment Impacts of Encore Boston Harbor by Demand Source, 2019 – 2022

	2019	2020	2021	2022
Private Sector	4,736	6,877	5,967	7,533
Casino Employment	1,963	3,303	2,675	3,282
Business to Business	935	1,005	965	1,295
Induced	1,838	2,570	2,327	2,956
Consumption-Based	917	1,154	799	1,188
Other Induced	921	1,416	1,528	1,768
Government	1,087	1,204	2,061	2,384
TOTAL	5,823	8,081	8,028	9,917

Key informants from the Everett area expressed mixed opinions about the economic impacts of the casino:

One public official remarked that although Encore Boston Harbor has a large fiscal impact in Everett itself, the impact on other surrounding communities is positive, but very marginal.

- Karl Allen, Economic Development Specialist, City of Chelsea, February 15, 2022

“Encore’s business model is basically to do everything itself... It would be great if there were opportunities for local food trucks to sell to Encore’s guests, but they run their own food trucks.”

- Karl Allen, Economic Development Specialist, City of Chelsea, February 15, 2022

Two interviewees said that there were big hopes that small business owners would be able to operate in the casino, but most of it was outsourced.

- Dinanyili Paulino, Chief Operating Officer, La Colaborativa, April 4, 2022; Liliana Patino, Director, (Eliot) Family Resource Center, March 29, 2022

Many participants noted that the casino was sold to the public as a huge economic boost for the community, but that mostly expectations were not met.

- Diana Jeong, Vice President, Greater Malden Asian American Community Coalition, February 25, 2022; Liliana Patino, Director, (Eliot) Family Resource Center, March 29, 2022; Dinanyili Paulino, Chief Operating Officer, La Colaborativa, April 4, 2022

One key informant commented that the casino had partnered with some community colleges to train residents for jobs at the casino, but that many of the locals did not have the English level to enter the school. And those who were able to get in were not able to pass the courses. So, these programs benefited people from outside the community who were able to go through the training programs, even though it was meant to benefit locals... The industries and suppliers that have benefited since Encore

Boston Harbor opened are usually big and with deep pockets, and usually not owned by people from the surrounding communities.

- Dinanyili Paulino, Chief Operating Officer, La Colaborativa, April 4, 2022

SECONDARY DATA

An additional way of evaluating total economic impacts is by examining changes over time in certain statewide, county-wide, and community economic indices that have been tabulated by state and federal government agencies. This data is not directly comparable to the economic modeling results for at least two reasons. First, the unit of analysis is different as REMI utilized six custom-made economic regions comprised of one or more MA counties, whereas the secondary data is only available for the state, the host county (Norfolk, Hampden, Middlesex), and the host community (Plainville, Springfield, Everett). Second, some of the economic indices in the secondary data were not assessed in the economic modeling (i.e., number of business establishments, business bankruptcies, impacts on other types of gambling). That said, the secondary data still provides a semi-independent estimate of the changes in the economic landscape of MA before and after casino introduction.

Number of Business Establishments

Table 61 shows the number of business establishments in Plainville, Norfolk County, Springfield, Hampden County, Everett, Middlesex County, and Massachusetts from 2013 to 2022 as taken from the Massachusetts Office of Labor and Workforce Development (OLWD), Labor Market Information, [ES-202](#). The last column illustrates the percent change in the number of businesses from 2013/2014 to 2022. As seen, the number of businesses has increased over time in all jurisdictions, but Everett is the only area where the number of business establishments increased at a greater rate than the state as a whole.

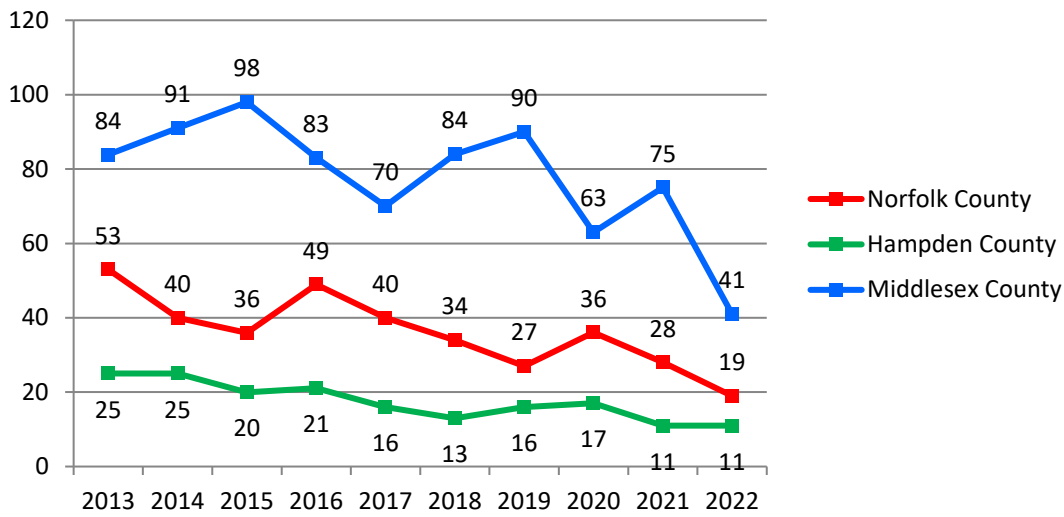
Table 61. Total Number of Businesses, 2013-2022

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	% change 2013/4 to 2022
Plainville	356	364	371	372	377	388	399	400	411	415	+15.3%
Norfolk County	23,410	24,134	24,700	25,237	25,228	25,508	25,568	25,787	26,884	27,365	+15.1%
Springfield	6,483	6,861	7,223	7,548	7,519	7,864	7,618	7,969	8,200	8,406	+26.0%
Hampden County	15,987	16,684	17,390	18,159	18,259	18,943	18,605	19,135	19,683	20,107	+23.1%
Everett	848	888	936	985	1,008	1,064	1,055	1,074	1,152	1,179	+35.8%
Middlesex County	49,574	51,852	53,281	54,465	55,138	56,303	56,544	57,878	60,262	61,434	+21.2%
Massachusetts	223,743	234,695	242,041	249,802	254,077	260,358	261,292	267,104	281,750	290,223	+26.6%

Source: OLWD, ES-202. Note that the totals do not always match the totals in the number of businesses in different business sectors as establishments can fall into the NAICS 999999 category if they have not yet been assigned a specific NAICS industry code.

A new casino has the potential for spawning new complementary businesses, but also for redirecting revenue from existing businesses and contributing to their demise. For example, the PPC Patron Survey estimated that 21.2% of PPC’s annual revenue was ‘reallocated’ from other economic sectors within the state. A potential marker of this is the number of business bankruptcy filings per year. Figure 49 shows these numbers for calendar years 2013 to 2022 for Norfolk County (where PPC is located), Hampden County (where MGM is located), and Middlesex County (where EBH is located) as recorded by [U.S. Courts](#). As seen, there is a downward trend in all three counties which makes it very unlikely that casinos have increased bankruptcy rates. There was an average of 159 bankruptcies in 2013 and 2014, which decreased to 71 in 2022, representing a 55.3% decrease.

Figure 49. Business Bankruptcy Filings per Year in Selected Massachusetts Counties, 2013-2022



Source: U.S. Courts

Impacts on Other Industry Sectors

The focus here is on regional changes as there is no theoretical reason to expect a change in industry mix at the state level attributable to the introduction of casino gambling.

The year-by-year changes in the number of businesses as a function of industry sector provides information on whether the casino has potentially augmented or negatively impacted certain types of businesses. The data is from the MA Department of Economic Research [Employment and Wages \(ES-202\)](#). Changes in the number of businesses by sector is shown for the Town of Plainville in Table 62 and the County of Norfolk in Table 63; Table 64 and Table 65 show the same data for Springfield and Hampden County; and Table 66 and Table 67 show the data for Everett and Middlesex County. A summary of these changes for all areas is contained in Table 68. In all cases what is displayed is the number of businesses in each of the main North American Industry Classification Sectors (NAICS) from 2013 to 2022, along with a special focus on subsectors in the entertainment, accommodations, and food services that are often impacted by the introduction of destination casinos (Williams, Rehm, & Stevens, 2011). The last column shows the percentage change from 2013/2014 to 2022. The bolded line in the tables demarcates the time period before the casino opened (June 2015 for PPC, August 2018 for MGM, June 2019 for EBH) versus the time period after the casino opened.

As seen in Table 68, the large majority of individual business sectors increased in both the host community and county, consistent with the contention that the casinos have spurred increased economic activity. However, many of these changes likely have more to do with the changes in population that have occurred in each community (i.e., significant increases in Everett and Plainville, and no significant changes in Springfield; Figure 28) and well as the general increase in economic activity and business starts that have occurred in Massachusetts over this time period. There are broad decreases in manufacturing and wholesale trade that are unlikely related to the casinos. However, the decreases in food services and drinking places (Plainville, Springfield, Hampden County) (and potentially retail trade) are potentially due to consumer reallocation of spending from these sectors to the casino (remembering that between 46.1% and 79.9% of casino patrons reported spending less on other things because of their casino gambling, particularly restaurants and bars and other types of gambling).

Table 62. Number of Businesses by Industry Sector in Plainville, 2013-2022

Industry Group	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	% change 2013/4 to 2022
Agriculture, Forestry, Fishing, Hunting (11)	NA	NA	NA	NA	NA	NA	NA	3	4	4	--
Mining, Quarrying, Oil and Gas Extraction (21)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Utilities (22)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Construction (23)	47	47	48	55	53	58	60	58	58	60	27.7%
Manufacturing (31-33)	19	19	21	19	17	18	17	19	16	16	-15.8%
Wholesale Trade (42)	18	18	18	18	19	20	22	21	22	22	22.2%
Retail Trade (44-45)	32	33	33	32	36	39	40	41	43	41	26.2%
Transportation and Warehousing (48-49)	5	NA	5	6	7	6	7	5	6	7	--
Information Services (51)	3	3	3	3	3	3	3	5	5	7	33.3%
Finance and Insurance (52)	26	27	25	23	24	23	23	25	27	28	5.7%
Real Estate and Rental and Leasing (53)	11	12	16	19	20	19	21	16	16	16	39.1%
Professional and Technical Services (54)	41	42	42	39	38	39	39	38	38	40	-3.6%
Administrative and Waste Services (56)	31	30	30	28	27	27	27	27	31	27	-11.5%
Education Services (61)	8	9	8	7	8	7	8	10	9	9	5.9%
Health Care and Social Assistance (62)	42	43	44	44	44	49	51	54	58	59	38.8%
Arts, Entertainment, and Recreation (71)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Performing Arts, Spectator Sports & Related (711)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Museums, Historical Sites & Related (712)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Amusement, Gambling & Recreation (713)	NA	6	NA	NA	NA	NA	NA	NA	NA	NA	--
Other Amusement & Recreation (7139)	NA	6	6	7	8	8	7	7	7	6	--
Accommodations and Food Services (72)	32	33	34	33	34	32	31	29	29	31	-4.6%
Accommodation (721)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Food Services & Drinking Places (722)	32	33	33	32	33	31	30	28	28	29	-10.8%
Other Services, excluding Public Administration (81)	25	25	24	26	26	26	28	29	29	30	20.0%
Public Administration (92)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--

Source: OLWD, ES-202. Note: NA indicates the data has been suppressed (often because the numbers are too low, which might identify a particular employer).

PPC opened in June 2015.

Table 63. Number of Businesses by Industry Sector in Norfolk County, 2013-2022

Industry Group	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	% change 2013/4 to 2022
Agriculture, Forestry, Fishing, Hunting (11)	35	39	38	43	38	37	40	41	46	45	21.6%
Mining, Quarrying, Oil and Gas Extraction (21)	8	9	9	10	7	8	7	7	8	8	-5.9%
Utilities (22)	23	28	24	27	30	30	31	35	37	37	45.1%
Construction (23)	2,035	1,215	2,188	2,259	2,313	2,362	2,360	2,318	2,405	2,423	49.1%
Manufacturing (31-33)	667	657	645	636	603	587	583	574	564	578	-12.7%
Wholesale Trade (42)	1,301	1,341	1,365	1,362	1,329	1,272	1,251	1,248	1,258	1,285	-2.7%
Retail Trade (44-45)	2,446	2,506	2,504	2,511	2,453	2,408	2,389	2,315	2,276	2,247	-9.2%
Transportation and Warehousing (48-49)	384	406	450	462	493	481	479	459	504	514	30.1%
Information Services (51)	428	466	473	478	499	522	540	592	641	707	58.2%
Finance and Insurance (52)	1,158	1,175	1,201	1,223	1,259	1,263	1,271	1,291	1,331	1,325	13.6%
Real Estate and Rental and Leasing (53)	754	773	819	850	867	898	903	915	958	971	27.2%
Professional and Technical Services (54)	3,031	3,170	3,265	3,344	3,353	3,363	3,358	3,382	3,630	3,671	18.4%
Administrative and Waste Services (56)	1,242	1,286	1,290	1,310	1,280	1,287	1,256	1,232	1,311	1,331	5.3%
Education Services (61)	431	469	493	497	476	477	484	502	528	535	18.9%
Health Care and Social Assistance (62)	4,585	4,651	4,784	5,025	5,080	5,281	5,321	5,574	5,905	6,120	32.5%
Arts, Entertainment, and Recreation (71)	357	376	386	383	398	400	407	410	435	440	20.1%
Performing Arts, Spectator Sports & Related (711)	77	89	91	84	85	85	89	95	121	121	45.8%
Museums, Historical Sites & Related (712)	12	14	15	15	16	16	16	17	16	17	30.8%
Amusement, Gambling & Recreation (713)	268	273	280	284	297	299	302	298	298	302	11.6%
Other Amusement & Recreation (7139)	265	271	278	281	295	297	298	294	293	297	10.8%
Accommodations and Food Services (72)	1,511	1,535	1,568	1,580	1,580	1,580	1,585	1,549	1,581	1,590	4.4%
Accommodation (721)	70	70	77	77	80	83	85	83	82	85	21.4%
Food Services & Drinking Places (722)	1,441	1,465	1,491	1,503	1,500	1,497	1,500	1,466	1,499	1,506	3.6%
Other Services, excluding Public Administration (81)	2,568	2,660	2,737	2,759	2,730	2,750	2,801	2,850	2,964	3,027	15.8%
Public Administration (92)	289	293	286	307	317	327	326	322	326	334	14.8%

Source: OLWD, ES-202. Note: NA indicates the data has been suppressed (often because the numbers are too low, which might identify a particular employer).

PPC opened in June 2015.

Table 64. Number of Businesses by Industry Sector in Springfield, 2013-2022

Industry Group	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	% change 2013/4 to 2022
Agriculture, Forestry, Fishing, Hunting (11)	NA	NA	NA	NA	NA	NA	NA	NA	4	4	--
Mining, Quarrying, Oil and Gas Extraction (21)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Utilities (22)	5	5	6	7	7	7	8	12	9	9	80.0%
Construction (23)	154	160	160	146	156	154	147	160	163	170	8.3%
Manufacturing (31-33)	93	93	91	92	85	83	87	89	87	85	-8.6%
Wholesale Trade (42)	118	120	122	122	114	111	108	99	104	109	-8.4%
Retail Trade (44-45)	455	463	454	452	439	425	421	413	408	412	-10.2%
Transportation and Warehousing (48-49)	75	75	80	89	87	86	89	95	109	111	48.0%
Information Services (51)	51	54	52	59	58	58	60	62	61	61	16.2%
Finance and Insurance (52)	132	133	132	129	129	127	123	120	123	126	-4.9%
Real Estate and Rental and Leasing (53)	122	127	127	132	113	120	132	127	130	129	3.6%
Professional and Technical Services (54)	312	317	317	294	280	259	262	261	269	269	-14.5%
Administrative and Waste Services (56)	143	148	142	140	140	140	121	114	118	118	-18.9%
Education Services (61)	57	62	59	64	65	69	65	69	67	71	19.3%
Health Care and Social Assistance (62)	4,011	4,351	4,734	5,070	5,134	5,527	5,311	5,708	5,892	6,073	45.3%
Arts, Entertainment, and Recreation (71)	35	34	36	38	39	37	38	34	33	33	-4.3%
Performing Arts, Spectator Sports & Related (711)	14	13	13	14	13	11	12	11	12	12	-11.1%
Museums, Historical Sites & Related (712)	10	10	10	10	10	10	10	10	5	6	-40.0%
Amusement, Gambling & Recreation (713)	11	11	13	14	16	16	16	13	16	15	36.4%
Other Amusement & Recreation (7139)	11	11	13	14	16	16	16	13	15	14	27.3%
Accommodations and Food Services (72)	269	276	279	268	255	247	246	232	239	244	-10.5%
Accommodation (721)	7	8	8	8	7	11	NA	10	10	10	33.3%
Food Services & Drinking Places (722)	262	268	271	260	248	236	236	222	229	234	-11.7%
Other Services, excluding Public Administration (81)	321	318	305	309	282	271	265	236	248	250	-21.8%
Public Administration (92)	102	96	100	107	110	116	105	107	107	107	8.1%

Source: OLWD, ES-202. Note: NA indicates the data has been suppressed (often because the numbers are too low, which might identify a particular employer).

MGM opened in August 2018.

Table 65. Number of Businesses by Industry Sector in Hampden County, 2013-2022

Industry Group	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	% change 2013/4 to 2022
Agriculture, Forestry, Fishing, Hunting (11)	38	39	39	39	29	30	33	35	40	40	3.9%
Mining, Quarrying, Oil and Gas Extraction (21)	7	7	7	7	7	7	7	4	5	5	-28.6%
Utilities (22)	34	35	34	36	35	34	36	41	37	37	7.2%
Construction (23)	969	999	1,004	1,013	1,018	1,018	991	983	1,007	1,008	2.4%
Manufacturing (31-33)	574	569	566	574	552	544	553	542	523	519	-9.2%
Wholesale Trade (42)	490	510	501	499	498	501	494	472	490	492	-1.6%
Retail Trade (44-45)	1,541	1,544	1,538	1,565	1,526	1,503	1,470	1,433	1,409	1,407	-8.8%
Transportation and Warehousing (48-49)	280	290	297	323	328	322	327	349	381	386	35.4%
Information Services (51)	135	140	141	155	161	171	173	167	179	185	34.5%
Finance and Insurance (52)	480	482	482	483	482	477	473	473	490	488	1.5%
Real Estate and Rental and Leasing (53)	369	385	381	389	362	379	405	401	423	436	15.6%
Professional and Technical Services (54)	868	906	934	896	886	861	854	864	923	940	6.0%
Administrative and Waste Services (56)	581	594	611	606	598	594	573	564	615	630	7.2%
Education Services (61)	220	231	227	241	250	252	245	251	255	253	12.2%
Health Care and Social Assistance (62)	7,001	7,523	8,216	8,884	9,134	9,911	9,630	10,320	10,614	10,974	51.1%
Arts, Entertainment, and Recreation (71)	148	155	152	156	163	158	165	155	160	160	5.6%
Performing Arts, Spectator Sports & Related (711)	30	29	25	30	29	27	27	25	29	29	-1.7%
Museums, Historical Sites & Related (712)	13	14	14	14	14	14	14	14	9	10	-25.9%
Amusement, Gambling & Recreation (713)	105	112	113	112	120	117	124	116	122	121	11.5%
Other Amusement & Recreation (7139)	100	107	107	106	113	112	120	114	118	116	12.1%
Accommodations and Food Services (72)	910	929	925	911	893	854	855	835	862	864	-6.0%
Accommodation (721)	62	62	65	61	61	64	59	60	55	55	-11.3%
Food Services & Drinking Places (722)	848	867	860	850	832	790	796	775	807	809	-5.7%
Other Services, excluding Public Administration (81)	1,011	1,026	1,011	1,039	996	981	984	907	927	937	-8.0%
Public Administration (92)	38	39	39	39	29	30	33	35	40	40	6.0%

Source: OLWD, ES-202. Note: NA indicates the data has been suppressed (often because the numbers are too low, which might identify a particular employer).

MGM opened in August 2018.

Table 66. Number of Businesses by Industry Sector in Everett, 2013-2022

Industry Group	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	% change 2013/4 to 2022
Agriculture, Forestry, Fishing, Hunting (11)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Mining, Quarrying, Oil and Gas Extraction (21)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Utilities (22)	3	NA	3	3	4	3	NA	NA	NA	NA	--
Construction (23)	95	110	116	128	140	155	158	146	157	168	63.9%
Manufacturing (31-33)	46	45	43	41	39	36	34	34	32	32	-29.7%
Wholesale Trade (42)	56	52	51	51	51	52	51	49	44	44	-18.5%
Retail Trade (44-45)	112	121	125	125	122	121	126	124	129	134	15.0%
Transportation and Warehousing (48-49)	33	36	42	43	39	43	41	39	43	43	24.6%
Information Services (51)	4	4	4	4	4	6	6	11	10	11	175.0%
Finance and Insurance (52)	34	33	32	32	33	35	37	34	37	34	1.5%
Real Estate and Rental and Leasing (53)	23	21	20	20	20	24	20	22	26	26	18.2%
Professional and Technical Services (54)	35	40	45	46	48	49	51	51	55	60	60.0%
Administrative and Waste Services (56)	44	48	51	56	64	63	63	63	67	64	39.1%
Education Services (61)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Health Care and Social Assistance (62)	148	151	173	204	214	250	243	276	308	308	106.0%
Arts, Entertainment, and Recreation (71)	8	9	11	10	10	8	10	10	10	10	17.6%
Performing Arts, Spectator Sports & Related (711)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Museums, Historical Sites & Related (712)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Amusement, Gambling & Recreation (713)	8	8	9	9	9	8	9	9	8	8	0.0%
Other Amusement & Recreation (7139)	7	7	8	8	8	7	8	8	8	8	14.3%
Accommodations and Food Services (72)	88	86	87	90	85	85	85	83	89	92	5.7%
Accommodation (721)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Food Services & Drinking Places (722)	85	86	85	89	83	83	82	80	86	89	4.1%
Other Services, excluding Public Administration (81)	69	76	81	81	86	84	80	85	99	106	46.2%
Public Administration (92)	NA	NA	NA	NA	NA	NA	NA	NA	34	35	--

Source: OLWD, ES-202. Note: NA indicates the data has been suppressed (often because the numbers are too low, which might identify a particular employer).

EBH opened in June 2019.

Table 67. Number of Businesses by Industry Sector in Middlesex County, 2013-2022

Industry Group	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	% change 2013/4 to 2022
Agriculture, Forestry, Fishing, Hunting (11)	93	98	106	106	97	95	97	97	108	112	17.3%
Mining, Quarrying, Oil and Gas Extraction (21)	14	15	13	15	15	13	16	13	15	13	-10.3%
Utilities (22)	78	84	83	92	94	93	87	88	92	97	19.8%
Construction (23)	4,159	4,398	4,582	4,716	4,888	4,901	4,876	4,834	5,092	5,143	20.2%
Manufacturing (31-33)	1,716	1,730	1,717	1,696	1,671	1,640	1,642	1,646	1,659	1,686	-2.1%
Wholesale Trade (42)	2,667	2,697	2,710	2,734	2,695	2,669	2,622	2,565	2,605	2,643	-1.5%
Retail Trade (44-45)	4,875	4,997	4,934	4,938	4,840	4,772	4,692	4,560	4,473	4,470	-9.4%
Transportation and Warehousing (48-49)	821	847	881	895	900	894	893	878	952	965	15.7%
Information Services (51)	1,339	1,441	1,487	1,510	1,575	1,629	1,694	1,789	1,997	2,168	56.0%
Finance and Insurance (52)	2,083	2,140	2,166	2,167	2,212	2,222	2,246	2,308	2,422	2,458	16.4%
Real Estate and Rental and Leasing (53)	1,514	1,545	1,584	1,619	1,646	1,740	1,778	1,812	1,917	1,738	13.6%
Professional and Technical Services (54)	8,496	9,019	9,218	9,307	9,346	9,516	9,603	9,774	10,523	10,827	23.6%
Administrative and Waste Services (56)	2,668	2,783	2,887	2,921	2,899	2,917	2,907	2,919	3,046	3,109	14.1%
Education Services (61)	967	1,039	1,109	1,158	1,197	1,224	1,237	1,291	1,356	1,397	39.3%
Health Care and Social Assistance (62)	7,247	7,835	8,392	9,009	9,412	10,214	10,290	11,158	11,820	12,124	60.8%
Arts, Entertainment, and Recreation (71)	786	834	854	866	913	921	948	913	960	968	19.5%
Performing Arts, Spectator Sports & Related (711)	223	238	235	229	243	249	262	249	282	288	24.9%
Museums, Historical Sites & Related (712)	41	44	45	47	49	52	50	50	50	47	10.6%
Amusement, Gambling & Recreation (713)	522	552	574	590	621	620	636	614	628	633	17.9%
Other Amusement & Recreation (7139)	517	547	566	582	611	610	623	600	616	619	16.4%
Accommodations and Food Services (72)	3,425	3,461	3,530	3,562	3,597	3,611	3,620	3,481	3,555	3,573	3.8%
Accommodation (721)	153	155	148	157	156	166	169	166	151	162	5.2%
Food Services & Drinking Places (722)	3,273	3,306	3,382	3,405	3,441	3,445	3,451	3,315	3,404	3,411	3.7%
Other Services, excluding Public Administration (81)	5,610	5,872	5,993	6,088	6,061	6,127	6,197	6,660	6,583	6,634	15.6%
Public Administration (92)	668	670	678	687	696	710	711	703	694	695	3.9%

Source: OLWD, ES-202. Note: NA indicates the data has been suppressed (often because the numbers are too low, which might identify a particular employer).

EBH opened in August 2019.

Table 68. Summary of Changes in the Number of Businesses by Industry Sector, 2013/2014 to 2022

Industry Group	Plainville	Norfolk County	Springfield	Hampden County	Everett	Middlesex County
Agriculture, Forestry, Fishing, Hunting (11)	--	21.6%	--	3.9%	--	17.3%
Mining, Quarrying, Oil and Gas Extraction (21)	--	-5.9%	--	-28.6%	--	-10.3%
Utilities (22)	--	45.1%	80.0%	7.2%	--	19.8%
Construction (23)	27.7%	49.1%	8.3%	2.4%	63.9%	20.2%
Manufacturing (31-33)	-15.8%	-12.7%	-8.6%	-9.2%	-29.7%	-2.1%
Wholesale Trade (42)	22.2%	-2.7%	-8.4%	-1.6%	-18.5%	-1.5%
Retail Trade (44-45)	26.2%	-9.2%	-10.2%	-8.8%	15.0%	-9.4%
Transportation and Warehousing (48-49)	--	30.1%	48.0%	35.4%	24.6%	15.7%
Information Services (51)	33.3%	58.2%	16.2%	34.5%	175.0%	56.0%
Finance and Insurance (52)	5.7%	13.6%	-4.9%	1.5%	1.5%	16.4%
Real Estate and Rental and Leasing (53)	39.1%	27.2%	3.6%	15.6%	18.2%	13.6%
Professional and Technical Services (54)	-3.6%	18.4%	-14.5%	6.0%	60.0%	23.6%
Administrative and Waste Services (56)	-11.5%	5.3%	-18.9%	7.2%	39.1%	14.1%
Education Services (61)	5.9%	18.9%	19.3%	12.2%	--	39.3%
Health Care and Social Assistance (62)	38.8%	32.5%	45.3%	51.1%	106.0%	60.8%
Arts, Entertainment, and Recreation (71)	--	20.1%	-4.3%	5.6%	17.6%	19.5%
Performing Arts, Spectator Sports & Related (711)	--	45.8%	-11.1%	-1.7%	--	24.9%
Museums, Historical Sites & Related (712)	--	30.8%	-40.0%	-25.9%	--	10.6%
Amusement, Gambling & Recreation (713)	--	11.6%	36.4%	11.5%	0.0%	17.9%
Other Amusement & Recreation (7139)	--	10.8%	27.3%	12.1%	14.3%	16.4%
Accommodations and Food Services (72)	-4.6%	4.4%	-10.5%	-6.0%	5.7%	3.8%
Accommodation (721)	--	21.4%	33.3%	-11.3%	--	5.2%
Food Services & Drinking Places (722)	-10.8%	3.6%	-11.7%	-5.7%	4.1%	3.7%
Other Services, excluding Public Administration (81)	20.0%	15.8%	-21.8%	-8.0%	46.2%	15.6%
Public Administration (92)	--	14.8%	8.1%	6.0%	--	3.9%

Bolded figures denote positive changes

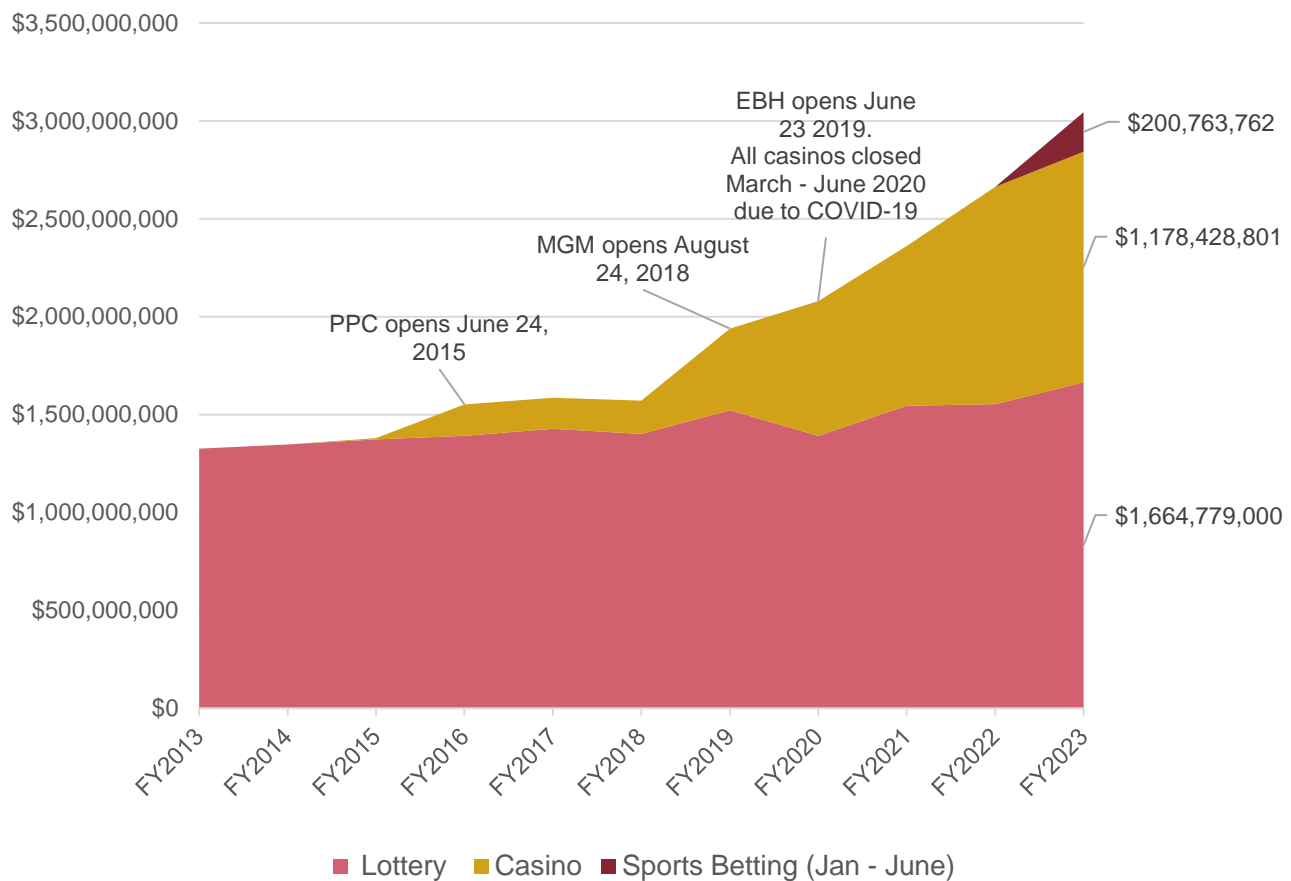
Impacts on Other Types of Gambling

Negative impacts on other types of gambling are often a consequence of introducing a new form of gambling (Williams, Rehm, & Stevens, 2011). This section focuses on whether there is any evidence of change in the patronage and revenue of other forms of gambling in Massachusetts.

Lottery

The Gambling Behavior section of this report established that there may have been a slight decline in overall past year gambling participation in MA since 2013. However, as seen in Figure 50, lottery revenue has continued to slowly increase over the past decade and continues to generate more revenue than casinos or any other type of gambling, potentially due to the increased overall population or increased spending per person. In general, there is no evidence that the legalization of casinos and sports betting has significantly changed the growth trajectory of the lottery, with FY 2023 being the lottery's highest-grossing year at over \$6.1 billion in total spending, nearly \$4.5 billion in prizes, and over \$1.6 billion in gross revenue.

Figure 50. MA Gross Gaming Revenue, FY 2013 - 2023



Source: Massachusetts Gaming Commission, Massachusetts State Lottery Commission

One key informant from Springfield also commented on the casino’s lack of impact on the lottery:

The interviewee noted that the places where local people purchase lottery products (e.g., keno, scratch tickets) are like ‘little gambling parlors’ and that those people frequent lottery outlets just as much after as they did before the casino was open... “This constituency of folks” continue to visit the bodegas where they can see their friends, visit with the same set of people, and it becomes a social gathering place. The casino has not filled that role.”

- Frank Robinson, Vice President, Public Health and Community Relations, Baystate Health Systems, January 30, 2020

Horse Racing

As mentioned in the **Horse and Dog Racing** section, horse racing revenue and attendance has been declining since the 1980s (Temple, 2009, 2010). It was because of this decline and concern about the potential further negative impact of casino gambling that (a) slot machines were introduced to Plainridge Racecourse in 2015 (to become PPC), and (b) the Expanded Gaming Act mandated 18% of gross profits on slots and electronic table games at PPC and 2.5% of the gross gambling revenue at MGM Springfield and Encore Boston Harbor to go to the [Race Horse Development Fund](#) to support the horse racing industry (primarily to increase prize/purse size).

The **Gambling Behavior** survey results provide evidence of a further decline in participation rates in the past 10 years. It is also the case that Suffolk Downs ended live racing in 2019, leaving PPC as the only live racetrack in MA. Table 69 documents the number of live races and total amount wagered (handle) from 2013 to 2022. As seen, the number of live races has declined, partly due to the end of live racing at Suffolk Downs. That said, the amount wagered has not declined, although there is some minor decline when inflation is taken into account. This lack of decline may be due, in part, to support from the Race Horse Development Fund (which comes from casino revenue). The proportion of wagers on simulcast racing rather than live races at PPC has also not changed. In 2013, 97.3% was wagered on simulcast racing with this percentage being 96.1% in 2022.

Table 69. Amount Wagered and Number of Live Races in MA, 2013-2022

Year	Total Live Races	Handle
2013	1,500	\$277,555,905
2014	1,296	\$248,289,429
2015	983	\$208,972,495
2016	1,155	\$229,353,353
2017	1,294	\$242,840,728
2018	1,262	\$245,365,485
2019	1,199	\$234,255,116
2020	708	\$283,465,100
2021	1,075	\$294,196,307
2022	1,086	\$270,882,698

Source: [MA Gaming Commission Division of Racing Annual Reports](#)

One key informant in 2018 from Plainville did report a positive impact on horse racing:

“[Before the casino was established] we had a racetrack here and it was struggling... it was almost economically unviable at that point. And now, it’s one of the prize places to race... So, that has helped out the local economy. And it has rejuvenated the horse racing industry here... As far as employment goes, it has definitely been a positive impact... I actually had one of the [horse] trainers live right down the road from me... He was the one who told me how much more exciting the horse racing is now, and how well he is doing as a result of this influx of money and direct attention to the horse racing.”

- Lou LeBlanc, Chairman, Board of Health, Plainville, MA, March 1, 2018

Charitable Gambling

Charitable gambling consists of bingo, raffles, instant lottery tickets ('break-open tickets', 'pull-tabs', 'charity tickets'), and short-term 'casino events' whereby traditional casino table games are provided.

Bingo revenue and participation have actually been in decline since the mid-1980s. At its peak in 1984, gross bingo revenue was \$180.3 million with 916 different organizations operating bingo games in the state (The Patriot Ledger, 2017). Our Gambling Behavior survey results show some evidence of a decline in raffle participation in the past 10 years, although not in bingo. Also, as mentioned earlier, in 2013, total gross charitable gambling revenue (before prizes and expenses) was \$66,505,193, with 49.6% of this on bingo, 29.8% on raffles, 20.0% on instant lottery tickets, and 0.6% on casino events. In 2013 there were 157 licensed bingo operators in the state (Massachusetts Lottery Commission, 2013). In 2022, total gross charitable gambling revenue (before prizes and expenses) had declined to \$37,992,816, with 33.5% of this on bingo, 42.4% on raffles, 24.1% on instant lottery tickets, and 0.03% on casino events (Massachusetts Lottery Commission, 2022). In 2022 there were only 75 licensed bingo operators in the state (Massachusetts Lottery Commission, 2022). While charitable gambling would likely have declined even in the absence of casino gambling, it is plausible that casino gambling further accelerated this decline.

Employment

Table 70 illustrates employment numbers for the host communities as well as Massachusetts from 2013 to 2022, as taken from the US Bureau of Labor Statistics (BLS) and the Quarterly Census of Employment and Wages (QCEW). The bolded line in the tables demarcates the time period before the casino opened (June 2015 for PPC, August 2018 for MGM, June 2019 for EBH) versus the time period after the casino opened. As seen, employment numbers have steadily increased since 2013. However, employment in Plainville and Everett increased at a rate above the Massachusetts average, whereas Springfield did not. The increases in Plainville and Everett are plausibly attributable to casino-related employment, as the casino-related increases would constitute a higher portion of the population in the smaller communities of Plainville and Everett compared to Springfield. That said, these increases in employment also parallel increases in population (Figure 28).

Table 70. Total Employment, 2013-2022

	Plainville	Springfield	Everett	MA
2013	4,036	77,086	12,519	3,296,827
2014	3,932	78,625	12,646	3,363,035
2015	4,347	79,547	12,777	3,428,259
2016	4,614	82,046	12,797	3,949,564
2017	4,603	81,462	12,251	3,544,095
2018	4,652	82,050	12,268	3,586,110
2019	4,773	84,685	15,067	3,633,365
2020	4,330	77,282	14,476	3,327,380
2021	4,412	79,545	14,116	3,458,465
2022	4,581	80,443	15,172	3,596,149
% change 2013/14 to 2022	15.0%	3.3%	20.6%	8.0%

Source: BLS, QCEW

Table 71 and Table 72 report labor force participation rate (total labor force in that community divided by total working-age population) and unemployment rate respectively. No meaningful changes were observed in labor force participation. However, unemployment rates significantly dropped to a similar degree in all jurisdictions, which is likely due to the strong Massachusetts economy.

Table 71. Labor Force Participation Rate, 2013-2022

	Plainville	Norfolk County	Springfield	Hampden County	Everett	Middlesex County	MA
2013	60.7%	52.7%	41.0%	47.1%	55.0%	53.9%	65.0%
2014	61.0%	53.1%	41.1%	47.4%	55.4%	54.3%	65.4%
2015	61.5%	53.2%	40.9%	47.5%	56.0%	54.5%	65.2%
2016	61.9%	53.5%	40.9%	47.5%	56.3%	54.8%	65.3%
2017	62.7%	54.7%	41.9%	48.7%	57.2%	56.2%	65.9%
2018	64.4%	56.0%	42.8%	49.6%	58.4%	57.6%	67.1%
2019	64.3%	56.6%	42.7%	49.6%	58.9%	58.0%	67.1%
2020	58.7%	54.0%	42.3%	48.8%	55.8%	55.5%	65.3%
2021	58.5%	53.8%	41.9%	48.9%	54.8%	56.0%	65.1%
2022	58.9%	54.1%	41.1%	48.4%	53.9%	56.2%	65.1%
% point change 2013/14 to 2022	-2.0%	1.2%	0.1%	1.2%	-1.3%	2.1%	-0.1%

Source: BLS, QCEW

Table 72. Unemployment Rate, 2013-2022

	Plainville	Norfolk County	Springfield	Hampden County	Everett	Middlesex County	MA
2013	6.1%	5.7%	11.1%	8.6%	6.3%	8.6%	6.6%
2014	5.2%	5.0%	9.9%	7.6%	5.4%	7.6%	5.7%
2015	4.1%	4.2%	8.5%	6.4%	4.3%	6.4%	4.8%
2016	3.5%	3.5%	7.1%	5.4%	3.6%	5.4%	4.0%
2017	3.4%	3.4%	6.9%	5.2%	3.3%	5.2%	3.8%
2018	3.1%	3.1%	6.4%	4.8%	2.9%	4.8%	3.5%
2019	2.8%	2.6%	5.8%	4.3%	2.6%	4.3%	3.0%
2020	9.1%	8.8%	14.5%	10.9%	11.5%	10.9%	9.4%
2021	4.7%	5.0%	10.0%	7.2%	5.8%	7.2%	5.5%
2022	3.3%	3.3%	6.6%	4.9%	3.4%	4.9%	3.8%
% point change 2013/14 to 2022	-2.4%	-2.1%	-3.9%	-3.2%	-2.5%	-3.2%	-2.4%

Source: BLS, QCEW

REAL ESTATE AND HOUSING

The main **real estate impacts** of introducing casinos to Massachusetts are as follows:

Residential Real Estate

- Plainridge Park Casino (PPC) has not had any obvious positive or negative impact on residential real estate in Plainville and Surrounding Communities
- MGM Springfield (MGM) has likely had no impact on single home or condominium sales or prices or rental costs in Springfield or Surrounding Communities. However, there is some evidence of an increase in multi-home sales and some reports of gentrification in Springfield.
- The real estate impacts of Encore Boston Harbor (EBH) have not been specifically analyzed. However, key informants indicate that the overall property market in the area is quite hot and there is some gentrification due to increased rents.

Commercial Real Estate

- PPC has not had any broad impact on commercial real estate in Plainville and Surrounding Communities although there has been an increase in Plainville commercial building inventory.
- MGM has not had any obvious positive or negative impact on commercial real estate in Springfield or Surrounding Communities.
- EBH introduction has been associated with an increase in commercial building inventory and lease rates in Everett.

The following findings are taken from Renski & Peake (2018), Renski et al., (2019), and Peake, Breest, Aron, & Dinnie (2021).

RESIDENTIAL

The real estate impact of casino development on residential housing in the host communities of Plainville and Springfield was evaluated by examining changes in the following indices before and after casino opening: number of property sales, median sales price, and average monthly rents.³⁰ Property sales are among the most direct indicators of changing real estate market conditions. A sustained rise in the number of and market values of properties following the construction of a new casino may signify successful neighborhood revitalizations. Conversely, a decline in property values may indicate the impacts resulting from possible fears of increase traffic, crime, noise, or other negative externalities. The present analysis used property sales reported by the Massachusetts Department of Revenue Division of Local Services.

Plainville and Surrounding Communities

Plainville's residential real estate market is relatively small and predominantly comprised of single-family homes with a scattering of condominiums. There has been an increase in single-family home and condominium sales in Plainville following the awarding of the casino license and opening of PPC. However, this parallels

³⁰ Residential real estate impacts in Everett have not yet been evaluated.

increases seen in the designated surrounding communities (Attleboro, Foxborough, North Attleborough, Mansfield, Wrentham), the wider region, and the state (Figure 51 and Figure 52), and therefore is unlikely to be attributable to PPC. (Note that the trend line for Plainville is somewhat erratic due to the small number of sales each year. In 2016 there was a total of 76 single family home sales and 41 condominium sales).

Figure 51. Percent Change in Single Family Home Sales in Plainville vs. the Region and State

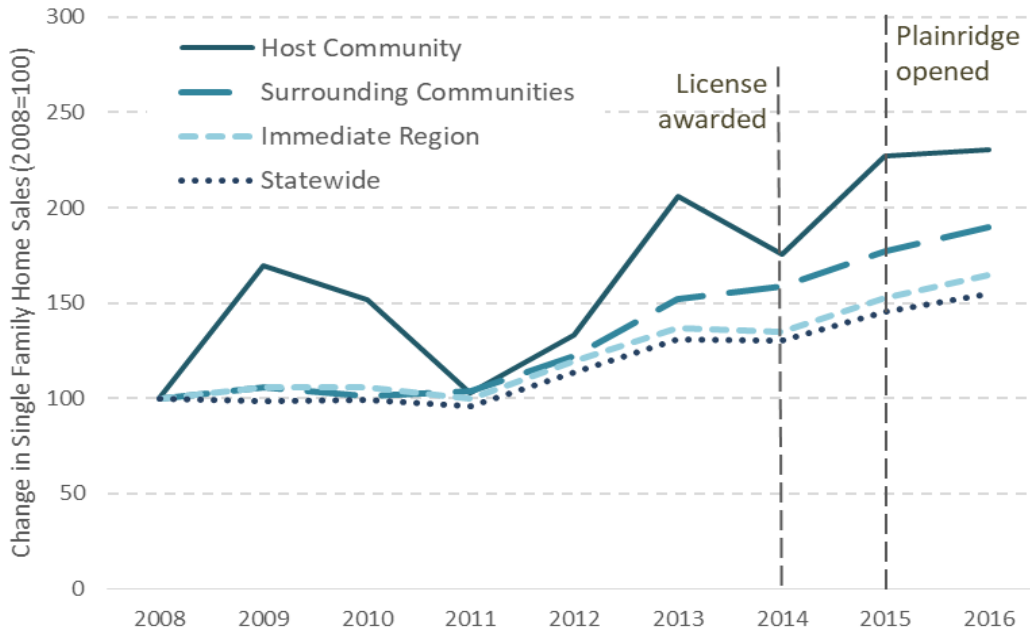


Figure 52. Percent Change in Condominium Sales in Plainville vs. the Region and State

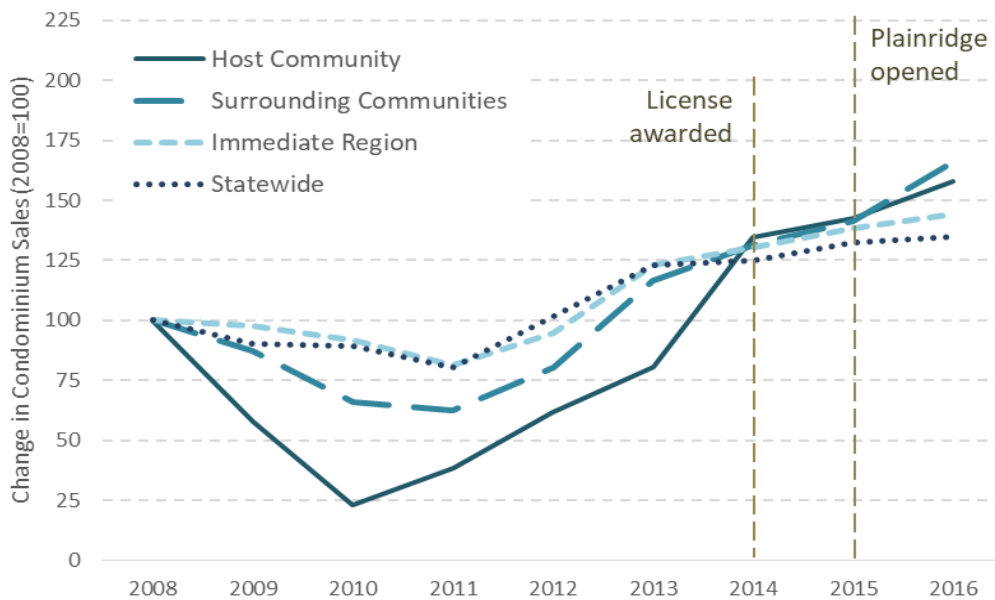


Figure 53 shows the median sale price of residential housing in Plainville over time compared to the surrounding communities, larger region, and state (in 2014 dollars).³¹ It appears that the opening of PPC had little influence on the selling price of single-family homes in Plainville—negative or positive. Figure 54 shows the same data for condominium sales. Here again we see Plainville followed wider trends in the region and state.

Figure 53. Median Price in Single Family Home Sales in Plainville vs. the Region and State

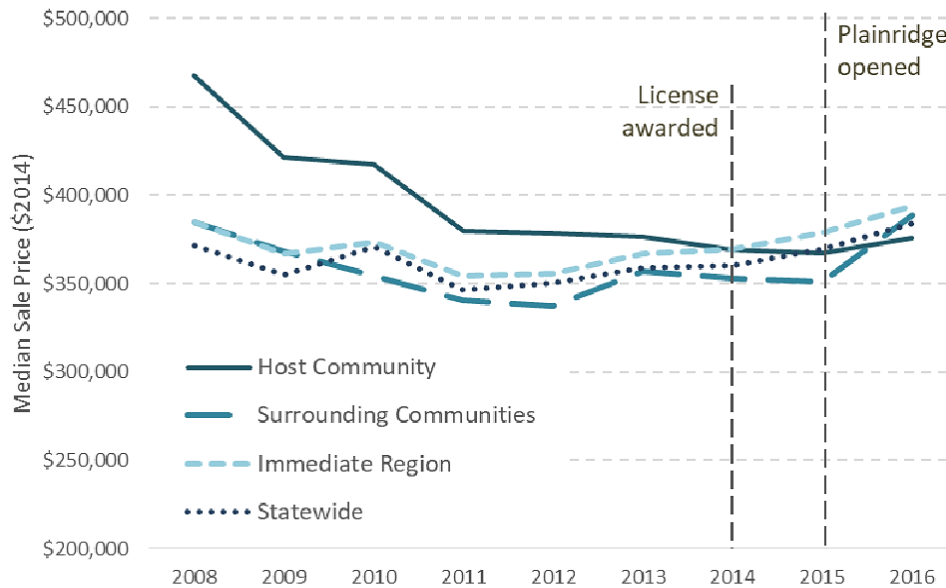
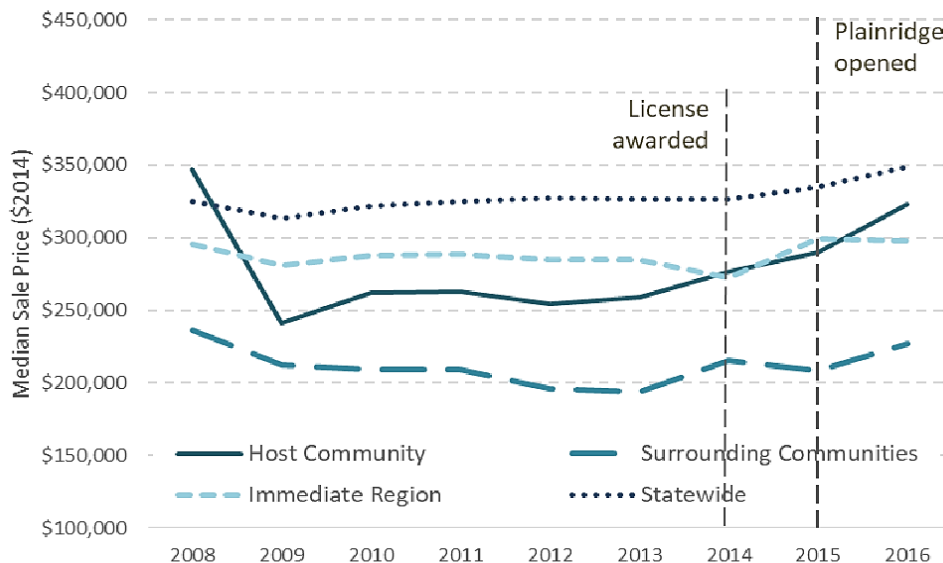


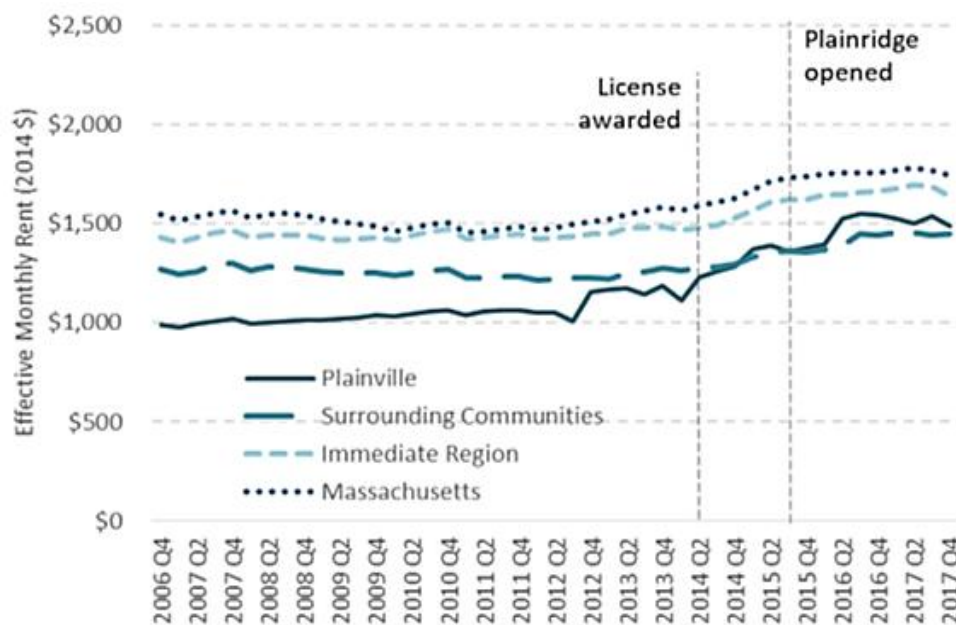
Figure 54. Median Price in Condominium Sales in Plainville vs. the Region and State



³¹ The present analysis excluded sales not considered “arms-length” transactions, eliminating sales between family members and other situations where the sales price is not a pure reflection of market value.

The [CoStar](#) database was utilized to track changes in the cost of rental housing. CoStar describes itself as the nation’s largest provider of data on commercial properties. It also owns and operates the online rental listing service Apartments.com, arguably the largest and most comprehensive real-time source of data on national and local rentals. What is shown in Figure 55 are ‘effective rents,’ which account for the fact that some contract rents include utilities while others do not. Effective monthly rents in Plainville and surrounding communities were lower than the State average and have been on a general upward trend since 2011. Rents were slightly higher in the months following the opening of PPC, otherwise they have plateaued since 2016.

Figure 55. Average Monthly Rents in Plainville vs. the Region and State



In sum, we conclude that there is no compelling evidence that the opening of PPC had either a positive or negative impact on residential real estate in Plainville.

One key informant from Plainville had the following comment about real estate:

“I don’t think the casino is big enough to have an impact on the real estate market. There wasn’t a large enough influx of employees to drive the prices up or make residences scarce. I think the whole market has been trending up, so it would be difficult to attribute that to Plainridge Park when it is happening all over the state.”

- Lou LeBlanc, Chairman, Board of Health, Plainville, MA March 1, 2018

Springfield and Surrounding Communities

Sales of single-family homes in Springfield, Massachusetts flattened in the wake of the recession of 2008 and 2009. However, home sales picked up in 2014, just before the license was awarded to MGM Springfield and continued through 2018 when the casino opened. Since there was a similar upward trend in the designated surrounding communities (Agawam, Chicopee, East Longmeadow, Longmeadow, Holyoke, Ludlow, Wilbraham, West Springfield), outlying areas of the region and the state—areas where it is unlikely that the casino had a noticeable impact—it is difficult to solely associate this observed increase with the casino (see Figure 56). There was no noticeable effect of the license award on condominium sales in Springfield, where sales remained flat despite a recovery in the housing market at the regional and state level. There was a steady climb in

condominium sales in Springfield’s surrounding communities, but this is more likely reflective of broader market trends (see Figure 57). There has been a steady increase in the number of multi-family home sales in Springfield following the announcement of the license award. This coincides with key informants’ observations suggesting that outside interests have been investing in apartment buildings in the area since the casino license was announced (see Figure 58).

Figure 56. Single Family Home Sales in Springfield vs. the Region and State

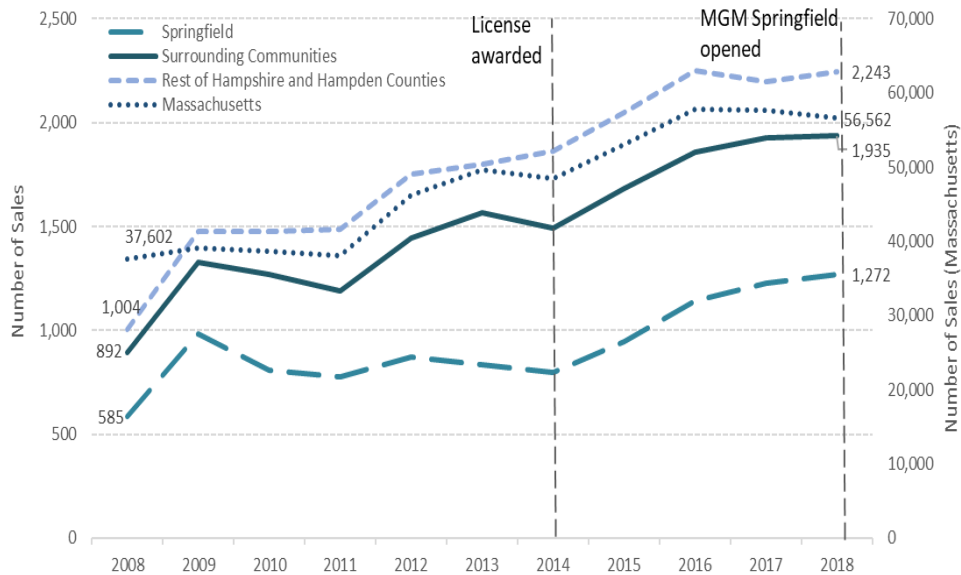


Figure 57. Condominium Sales in Springfield vs. the Region and State

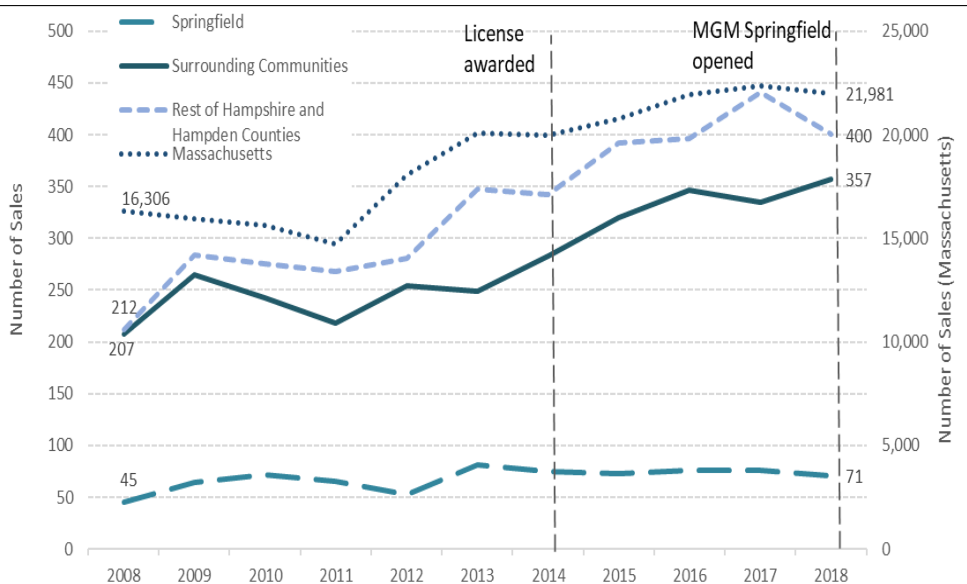
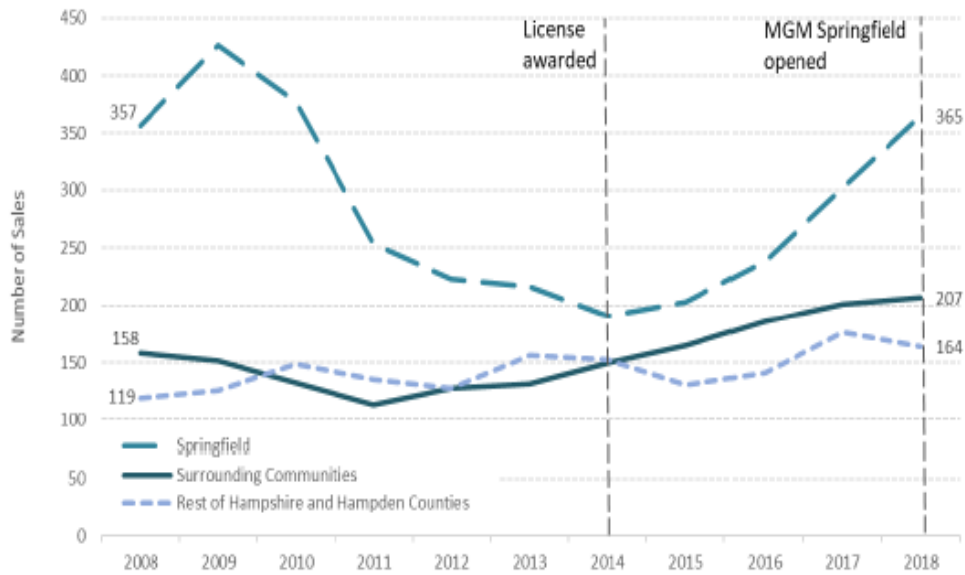


Figure 58. Multi-Family Sales in Springfield vs. the Region and State



The announcement of the award of the casino license to MGM Springfield seems to have had little impact on inflation-adjusted (2018 dollars) median sales prices of single-family homes and condominiums in Springfield. Median sales prices of both housing types increased slightly or remained relatively flat between the casino’s licensing and opening (Figure 59, Figure 60). In contrast, multi-family home prices increased significantly during that time (Figure 61). Key informant interviews suggest that this phenomenon could be due to investors buying up multi-family homes.

Figure 59. Median Price in Single Family Home Sales in Springfield vs. the Region and State

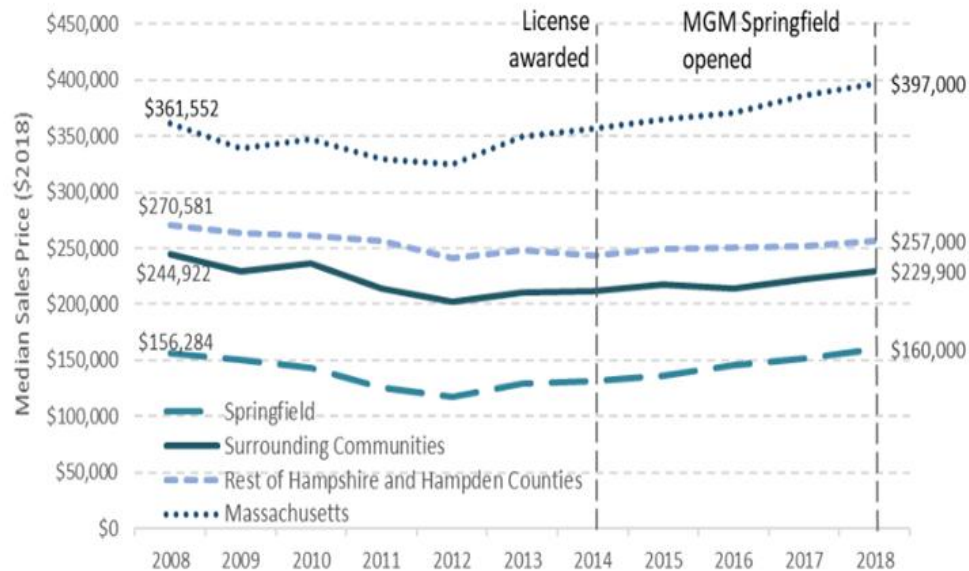


Figure 60. Median Price in Condominium Sales in Springfield vs. the Region and State

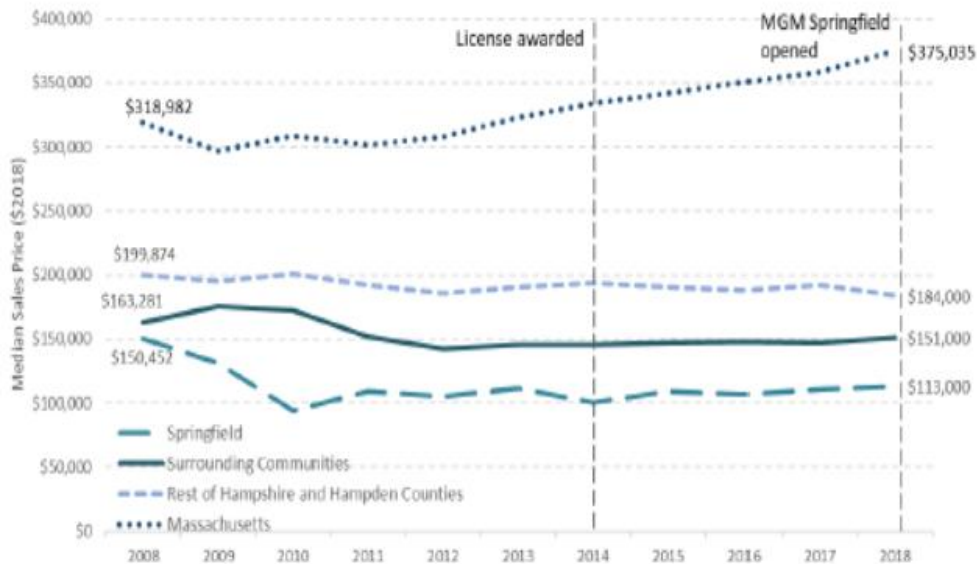
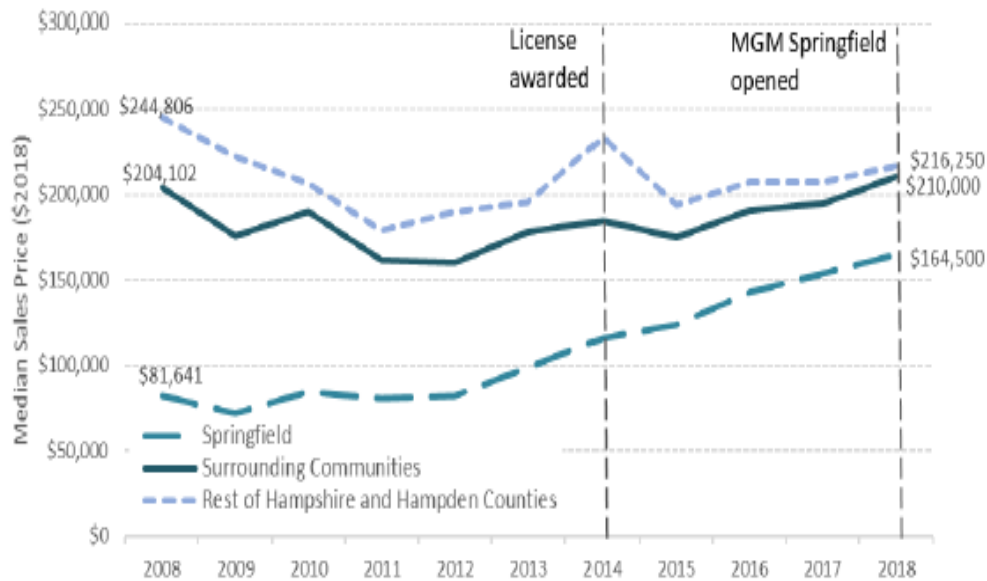
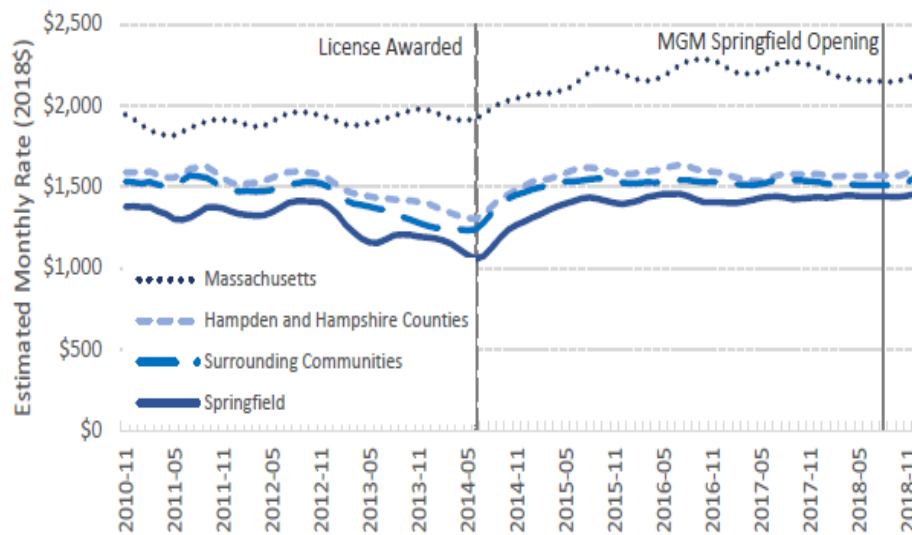


Figure 61. Median Price in Multi-Family Home Sales in Springfield vs. the Region and State



Median rents rose in Springfield following the license announcement (Figure 62). However, since rents increased in the surrounding communities, Hampden and Hampshire Counties, and the state as a whole in the same period, it is likely that increased median rents were following larger state trends.

Figure 62. Monthly Rents in Springfield vs. the Region and State



Source: Zillow Rent Index Time Series: Multifamily, SFR, Condo/Co-op by City, <https://www.zillow.com/research/data/>

In sum, we conclude that MGM Springfield likely had no impact on rental prices or single home or condominium sales or prices. However, there is some evidence of an increase in multi-home sales and prices associated with the award of the license to MGM in 2014.

Key informants in the Springfield area also did not report an impact, but did comment on gentrification:

“The casino doesn’t really have an impact that I am aware of, at Springfield Housing Authority.”

- Denise Jordan, Executive Director, Springfield Housing Authority, April 14, 2021

“Beyond Springfield, I’m not sure that the casino has had a significant impact on the real estate market.”

- Jeffrey Hayden, Vice President of Business & Community Services, Holyoke Community College, April 14, 2021.

A participant said that neither the casino, nor employed residents of Old Hill invested in the housing market in the neighborhood (e.g., vacant lots), and thus didn’t contribute to changing it and making it better.

- Ethel Griffin, Associate Director, Revitalize Community Development Corporation, April 14, 2021

Two focus group participants mentioned that the construction of the casino did contribute to gentrification, insofar as it pushed unhoused people, drug users, and people with mental health issues further from the casino.

- Xavier Williams, Project Director, Men of Color Health Awareness, May 5, 2021; Malikah Jeffries, Coalition Coordinator, Gandara Center, April 22, 2021

Everett and Surrounding Communities

Even though there has been no formal analysis of residential real estate impacts for Everett, there are some key informant and focus group sentiments:

A focus group participant mentioned that rent in the areas around the casino skyrocketed, which has gentrified communities, and caused housing access problems. He added that poor and marginalized people in the surrounding communities were pushed further to the margins by the casino, which may have resulted in increased drug use, crime, and prostitution.

- Alexander Fidalgo, Training Associate, Training & Capacity Building, Health Resources in Action, June 7, 2022

Two interviewees noted that the casino helped develop some of the surrounding areas from somewhat ugly, dilapidated industrial areas into something nicer.

- Liliana Patino, Director, (Eliot) Family Resource Center, April 7, 2022; David Auerbach, Health Policy Researcher, Brandeis University, November 12, 2021

Various key informants mentioned that the casino may have increased property values in the surrounding areas, but noted that it's hard to distinguish that increase from the overall increases in the city's hot property market.

- Karl Allen, Economic Development Specialist, City of Chelsea, February 15, 2022; Diana Jeong, Vice President, Greater Malden Asian American Community Coalition, February 25, 2022; Meera Krishnan; Founder and lead organizer, Malden Neighbors Helping Neighbors, April 14, 2022; Liliana Patino, Director, (Eliot) Family Resource Center, April 7, 2022; David Auerbach, Health Policy Researcher, Brandeis University, November 12, 2021

COMMERCIAL

Proprietary data from The CoStar Group was used to evaluate how commercial real estate conditions have changed in host and surrounding communities since the introduction of casinos in Massachusetts. The main indices we examined were commercial real estate inventory, vacancy rates, lease rates, and sale prices.

Plainville and Surrounding Communities

Plainville's commercial property inventory grew 8% since 2010, a rate that outpaced its Surrounding Communities and the state, with much of the increase occurring after receiving the casino license (broken line) and then after PPC opening (solid line). That said, the Surrounding Communities and the state had somewhat similar upward trajectories during that time (Figure 63).

Figure 63. Change in Commercial Building Inventory, Plainville and Surrounding Communities, 2010-2020

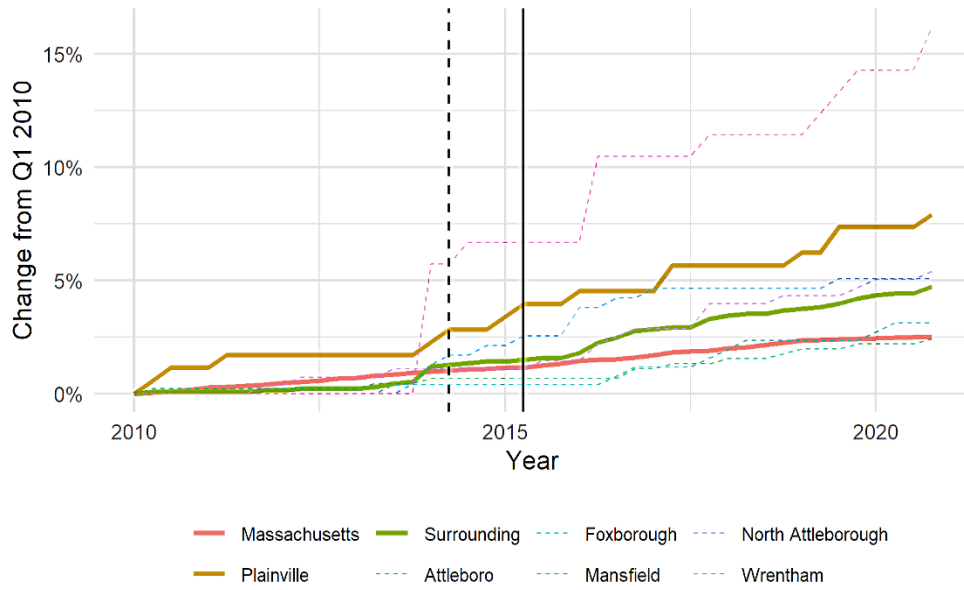
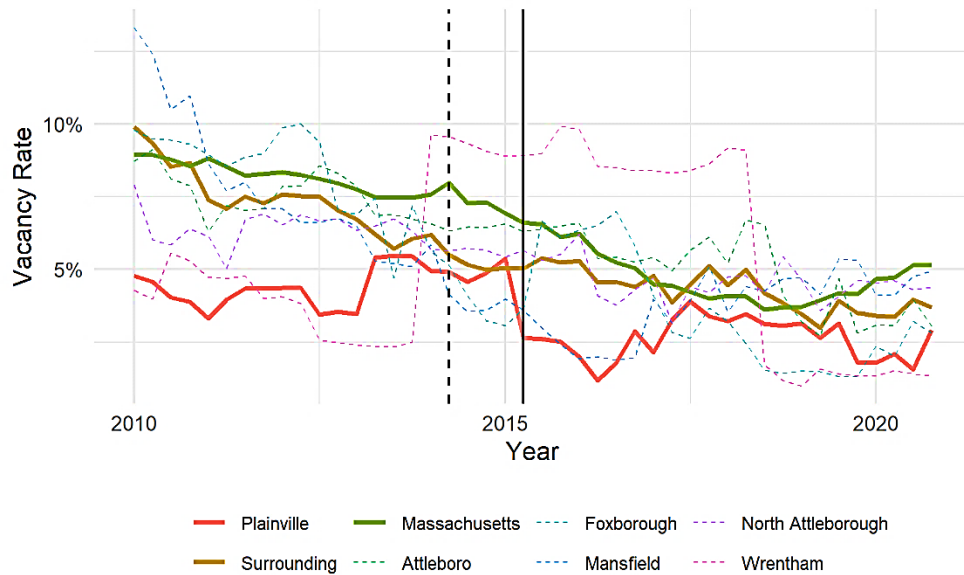


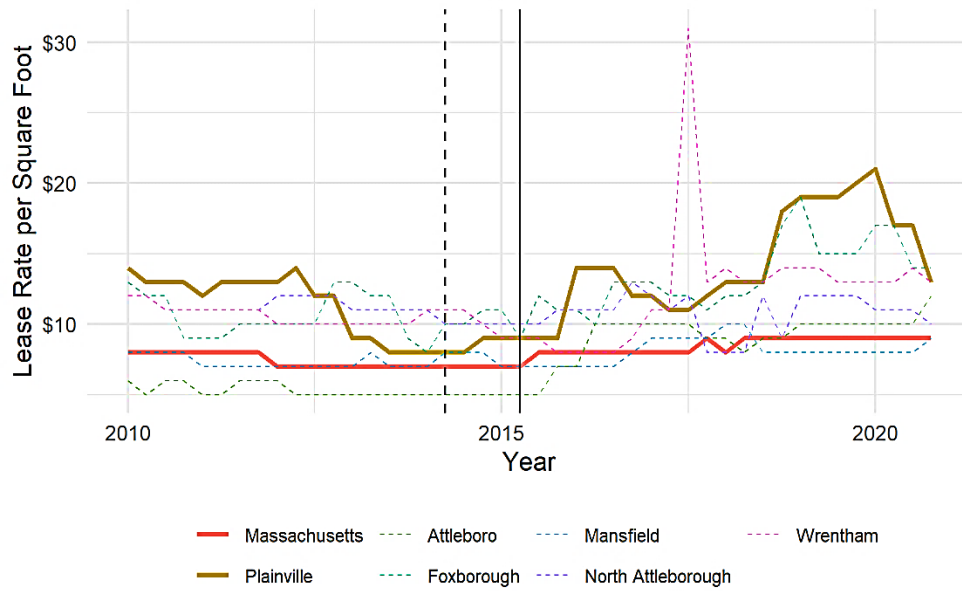
Figure 64 shows that Plainville’s commercial vacancy rate was quite volatile, likely due to its small inventory. Declining vacancy rates in Plainville generally correspond with a broader statewide and regional decline over the same time period.

Figure 64. Commercial Vacancy Rate, Plainville and Surrounding Communities, 2010-2020



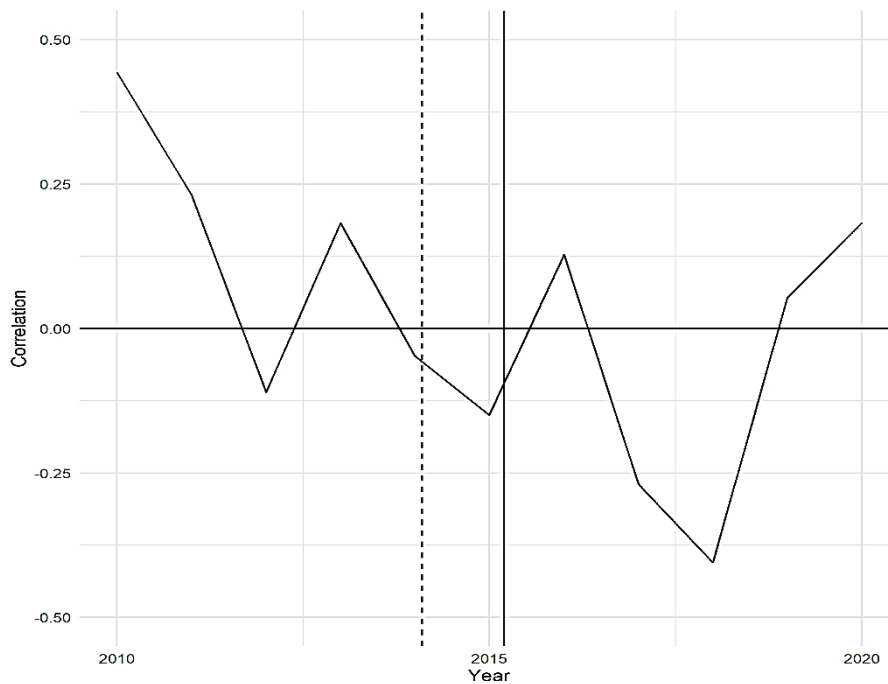
Plainville lease rates (Figure 65) in Plainville, the Surrounding Communities, and the state were fairly flat over the study period, albeit with more volatility in Plainville which is likely due to small sample sizes.

Figure 65. Lease Rates, Plainville and Surrounding Communities, 2010-2020



Due to the small sample size, the correlation between sales prices of commercial property and distance to PPC was also very volatile, with no clear trend.

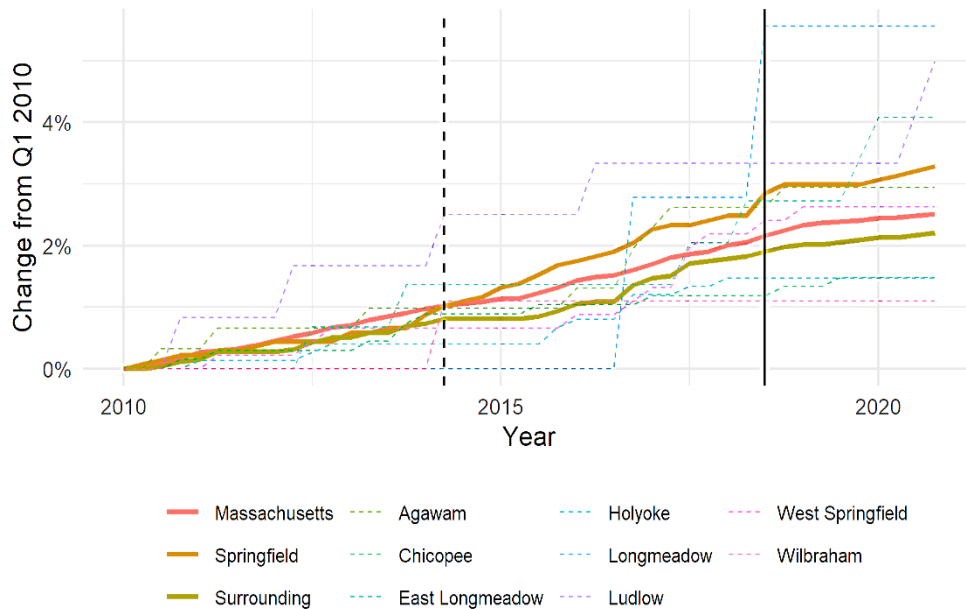
Figure 66. Correlation between Sale Price-Per-Square-Foot and Distance to PPC, 2010-2020



Springfield and Surrounding Communities

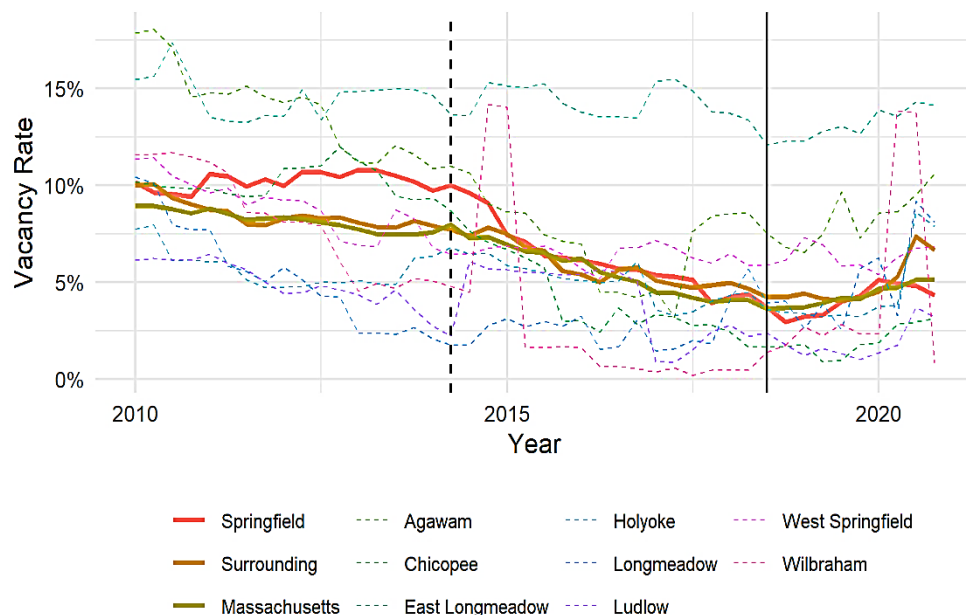
Commercial real estate inventory has grown steadily in Springfield since 2010, with inventory in nearby Surrounding Communities following a similar trend. However, this growth does not appear noticeably affected by either the granting of the casino license (broken line) or the opening of MGM (solid line) (Figure 67).

Figure 67. Change in Commercial Building Inventory, Springfield and Surrounding Communities, 2010-2020



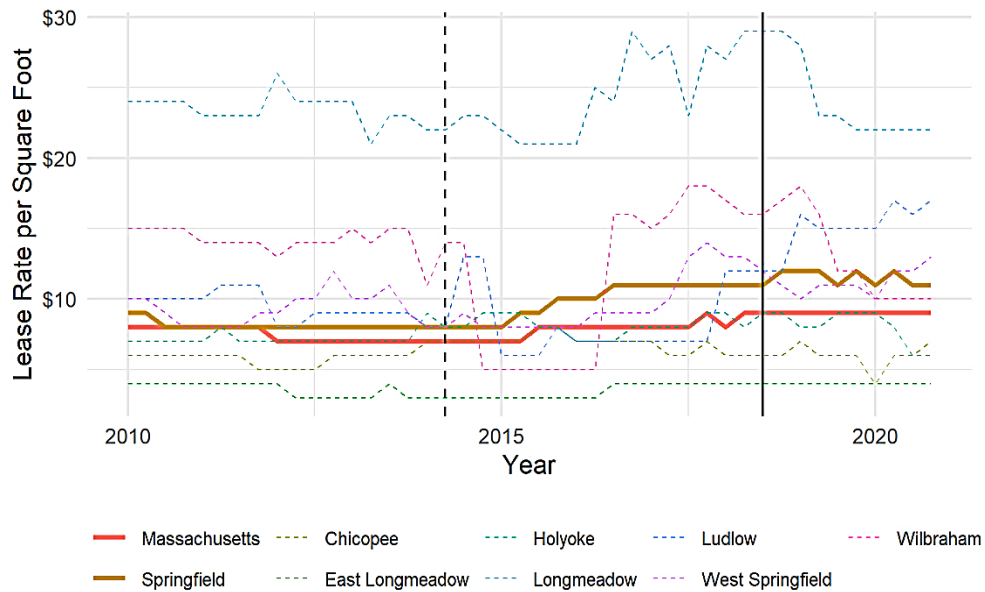
Vacancy rates in Figure 68 show a decline over time, with this decline being somewhat steeper after granting the MGM casino license (broken line). It is plausible that this drop is related to MGM, as organizations displaced by the casino’s substantial development footprint may have relocated to previously vacant space elsewhere. However, arguing against this is the fact that these decreased rates are statewide.

Figure 68. Commercial Vacancy Rate, Springfield and Surrounding Communities, 2010-2020



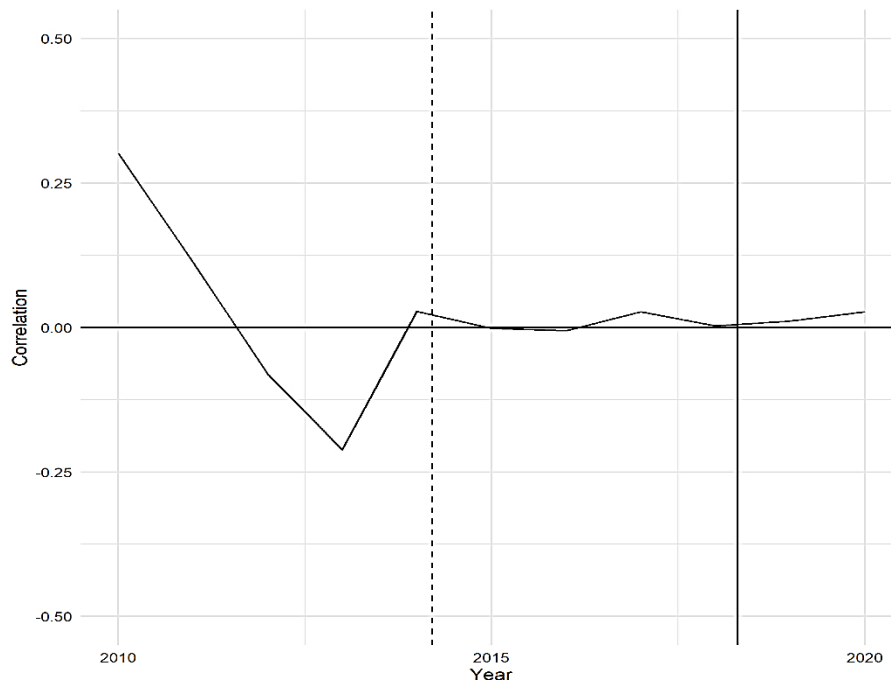
Lease rates, displayed in Figure 69, have remained relatively stable over time, after adjusting for inflation. It is also the case that lease rates in some of the surrounding communities were much higher than in Springfield.

Figure 69. Lease Rates, Springfield and Surrounding Communities, 2010-2020



For the most part, there is no association between sales prices of commercial property and distance to MGM Springfield.

Figure 70. Correlation between Sale Price-Per-Square Foot and Distance to MGM, 2010-2020



Everett and Surrounding Communities

Primarily due to its small primarily residential population, Everett has the lowest inventory of commercial real estate relative to the Surrounding Communities. As seen in Figure 71, inventory has increased across the state since 2010, although the rate of increase has been greater in the Surrounding Communities compared to Everett. This increase in Everett and the Surrounding Communities does not appear to be influenced by the granting of the casino license (dashed line) but is plausibly related to the opening of EBH (solid line).

Figure 71. Change in Commercial Building Inventory, Everett and Surrounding Communities, 2010-2020

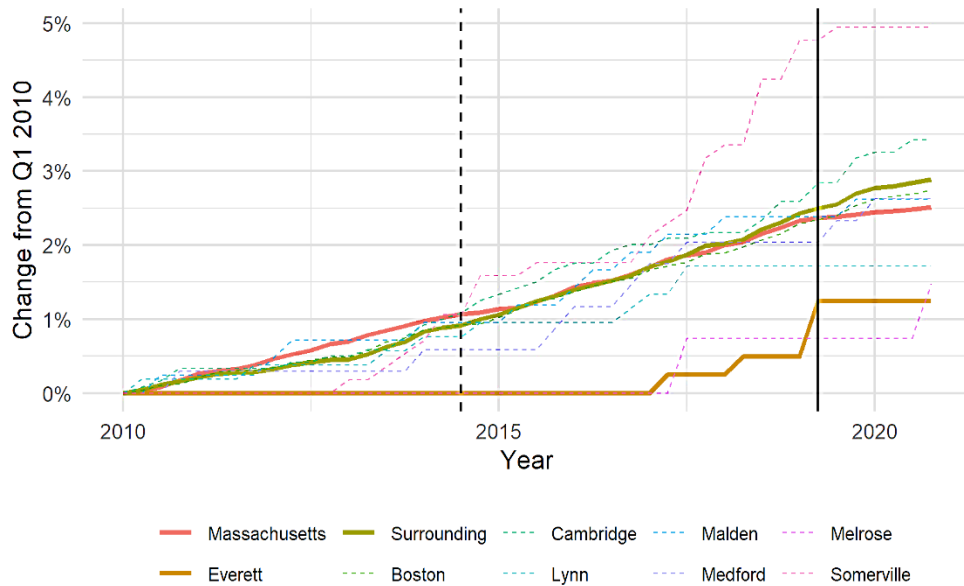
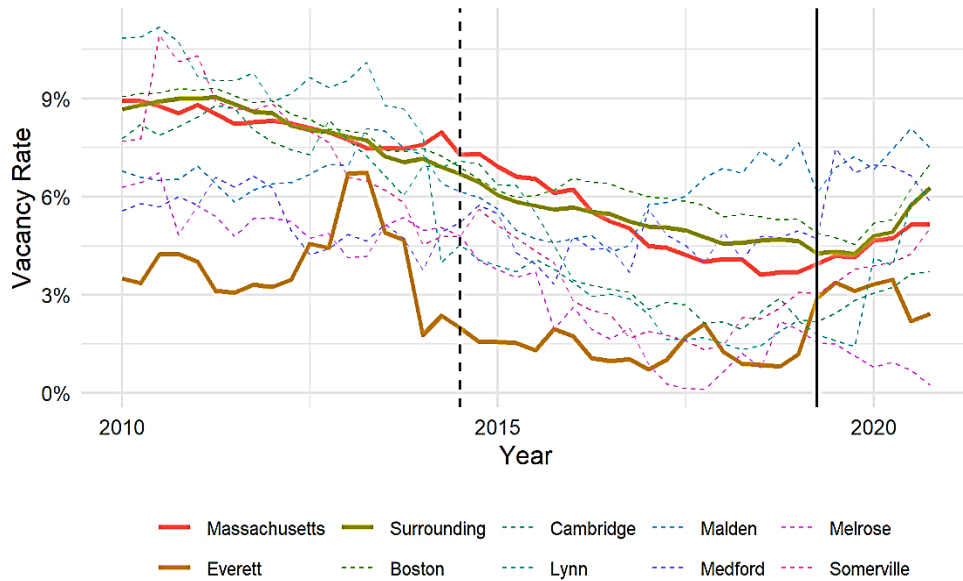


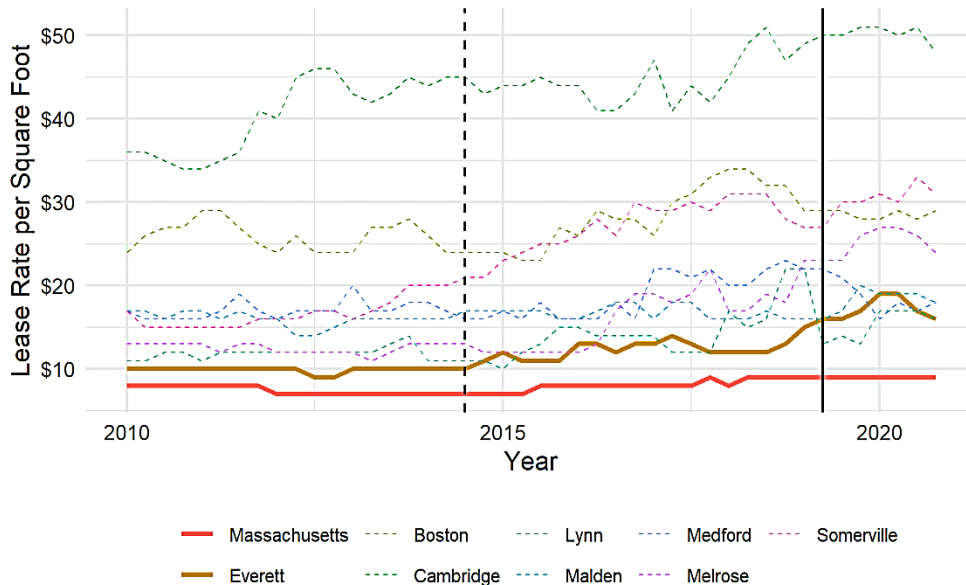
Figure 72 illustrates commercial vacancy rates. Everett's vacancy rate has risen and fallen more sharply since 2010 than in the Surrounding Communities or the state, likely due to its small inventory. Similarly, it has always had lower vacancy rates, likely due to the intense use of its relatively smaller inventory. This figure illustrates that vacancy rates in Everett and the Surrounding Communities largely track the overall state rates without much variation after granting of the casino license (dashed line) or opening of EBH (solid line), suggesting that statewide or national economic patterns are largely driving the changes.

Figure 72. Commercial Vacancy Rate, Everett and Surrounding Communities, 2010-2020



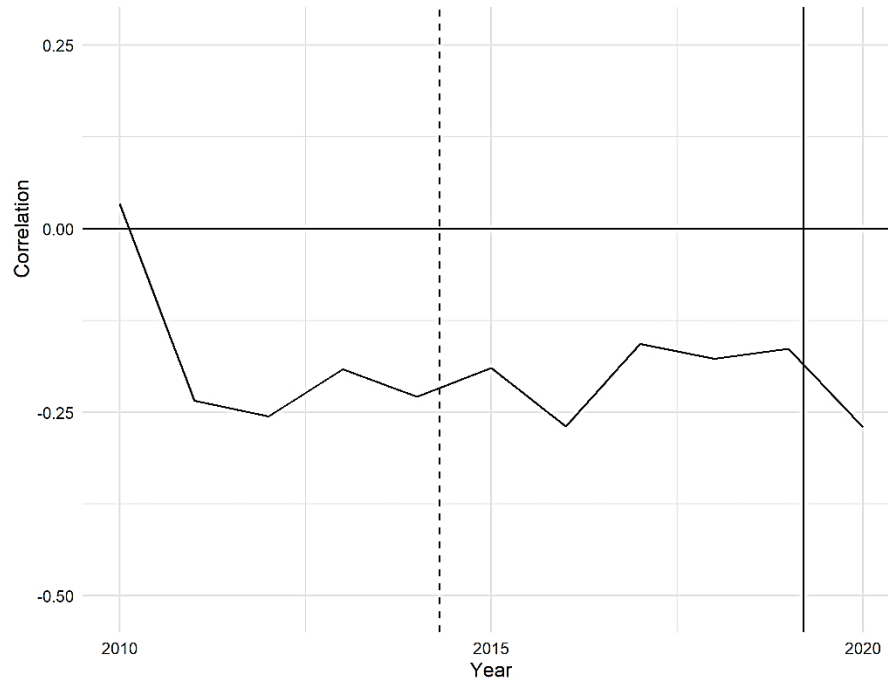
Most commercial real estate transactions are in the form of leases rather than outright purchase of space. Thus, inflation-adjusted lease rates are shown in Figure 73. Everett lease rates have risen since EBH’s license was awarded. That said, inflation-adjusted lease rates in Everett continue to be lower relative to most of its Surrounding Communities.

Figure 73. Lease Rates, Everett and Surrounding Communities, 2010-2020



The final analysis looked at the strength of the association between the sale price-per-square-foot of commercial properties and their distance to EBH, with the results shown in the figure below. These negative correlations throughout the time period indicate that higher sales prices are associated with shorter distances to EBH. That said, the awarding of the casino license and the opening of EBH appear to have had no influence on this association.

Figure 74. Correlation between Sale Price-Per-Square-Foot and Distance to EBH, 2010-2020



In conclusion, our findings indicate that as of 2020 the introduction of casinos to Massachusetts has not had any dramatic positive or negative impact on the local commercial real estate markets. While commercial real estate conditions in the host and surrounding communities have changed over time, most of these changes are in line with changes observed regionally or statewide. Our study period corresponds with a period of strong economic growth in the Commonwealth in general, and in the Greater Boston region in particular, so while there are many indicators of growth in the commercial real estate market, it is difficult to attribute many of those to the casinos. That said, there are a few indices that potentially suggest a positive impact on commercial real estate (i.e., Plainville building inventory; Everett building inventory and lease rates).

MATCHED COMMUNITIES COMPARISON

The **Matched Communities comparison** found the following results pertaining to the potential impacts of introducing casinos to Massachusetts:

- Changes in the host casino communities of Plainville, Springfield, and Everett from 2007/08 – 2011/12 to 2017 – 2021 (using five-year averages) were compared to changes in matched communities without a casino within 25 miles.
- There were no socioeconomic or demographic variables with consistent changes across all three host communities.
- Assuming impacts are somewhat casino and host community specific:
 - Everett, with the largest casino (and a fairly small population) had increased median household income; increased job growth; increased labor force participation rate; and increased population.
 - Plainville was found to have an increased population and an increased percentage of the population that is Hispanic.
 - Springfield was found to have an increased percentage of the population that is Hispanic.

One of the methodologies for more strongly attributing socioeconomic changes to the introduction of gambling is a matched control comparison where changes in the set of communities receiving the new form of gambling are compared against changes in an economically, socially, and demographically similar set of communities that did not receive this new form of gambling. Matching is a well-established and widely accepted method used to analyze the economic impact of major economic, policy, or program changes, such as the opening of a new factory, the introduction of educational programs or job search assistance programs, or, in our case, the opening of a casino (e.g., Rubin, 1974; Rosenbaum & Rubin, 1985; Heckman, Ichimura, & Todd, 1997; Imbens & Wooldridge, 2009). While matching communities is a generally accepted approach, there are many challenges to applying a matching community comparison method to help estimate the impacts of casino introduction in Massachusetts. A description of these challenges and how they affect our methods of analysis are described below.

Geographic Scope and Unit of Analysis

A Host Community is the community where one of the three Massachusetts casinos is located. However, the most appropriate geographic unit for analysis is somewhat uncertain. Should it be the city or town where the casino is located, the county where the casino is located, or based on some other criterion, such as all communities within a certain radius? Many academic studies investigating the impacts of casinos are conducted at the county level. However, the reason tends to be that data at more aggregate levels, such as the county or the state, is easier to obtain than data at the town/city level which tends to be more limited.

The availability and reliability of data are key practical determinants in selecting the geographic area to be analyzed. Obtaining economic and social data for geographic units other than well-defined city and county boundaries is not possible. However, analysis at the county level in Massachusetts is clearly too broad to examine the most immediate, local impacts. Therefore, we decided to conduct our analysis at the city/town

level.³² This does limit somewhat the social variables that can be measured (e.g., rate of problem gambling is not available at the city/town level).

Selecting Matched Control Communities

To develop a customized, academically sound matching method for Massachusetts host communities, we focused on selecting the most appropriate control communities to use for comparison with the host communities. The most appropriate control community is one that closely resembles the host community prior to the casino opening. Choosing control communities involved several decisions, including the matching method utilized, characteristics chosen to perform matching, and the number of control communities.

There are two basic methods used to select matched control communities: covariate matching and propensity score matching. Having only three host communities prohibited the use of propensity score matching.³³ As a result, we used covariate matching where control communities were selected based on their economic and demographic similarity to the casino communities.

Covariate matching is sometimes referred to as nearest neighbor matching and the analogy is useful. We wanted to select control communities that were most like their casino counterparts. This involved developing a score to measure community similarity using a method known as Mahalanobis matching.³⁴ A simple example is helpful to illustrate the basic idea of using Mahalanobis distance scores for nearest neighbor matching. Consider two measures, the unemployment rate and the percentage of the population with a college degree. To choose Springfield's 'nearest neighbors,' the values of these two measures in Springfield are compared with the values for every other community.³⁵ The community with the smallest difference across these two measures is Springfield's best match, the next smallest is the second-best match, etc. Every community is ranked in terms of its similarity to Springfield on these two measures.

The **impact measures to analyze** and the **characteristics to use for matching** casino and control communities are also important. These include a collection of demographic variables, social variables (e.g., poverty rate), and economic variables (e.g., job growth). These are listed and described below in Table 73. These baseline indicators, measured prior to the casino opening, are included in our matching characteristics and used in selecting our matched control jurisdictions. Intuitively, if we want to know how a casino changes local conditions related to employment (unemployment, job growth, labor force participation, and household income), selecting control communities that were similar to the casino communities prior to the casino introduction based on these characteristics was an obvious strategy. Zhao (2004) demonstrates that including outcome measures as selection characteristics improves matching. In addition, we matched communities based on several other economic, social and demographic characteristics to ensure that our matched

³² Applying matching methods to the analysis of sub-community or neighborhood impacts is also not possible due to a lack of sub-city data across all communities and a clear definition of neighborhood. Sub-community and neighborhood impacts can be inferred, in part, through primary data collection.

³³ Zhao (2004) demonstrates that in small samples ($n = 500$ in his study, 100 of which were "treatment" observations), propensity score matching does not perform well compared to other methods.

³⁴ Mahalanobis matching accounts for the Euclidian distance, sometimes referred to as straight-line distance, between values of the variables for the casino and potential control groups and the correlation between those variables. Mahalanobis matching has been shown by Zhao (2004) to be robust to various settings (sample size, number of matching characteristics, and correlation of matching characteristics) relative to other matching techniques.

³⁵ The absolute difference between Springfield and every other community is calculated for each measure and then summed across both measures.

communities were as similar to the casino communities as possible. These include: total population; education (percent with college degree); race (percent Black); ethnicity (percent Hispanic); poverty (percent of population below poverty); and industrial base (percent employed in manufacturing).

Table 73. Baseline Demographic, Social, and Economic Variables in the Matched Communities Comparison

Matching Variables	Description	Source
Total Population	Total average population over the period 2008-2012.	d
% of Population that is Black	Average percent of the population that is Black or African American over the period 2008-2012.	d
% of Population that is Hispanic	Average percent of the population that is Hispanic or Latino over the period 2008-2012.	d
% of Population with College Degree	Average percent of the population over age 25 with only a Bachelor’s degree over the period 2008-2012.	d
Household Income	Median household income over the period 2008-2012.	d
% of Population in Poverty	Average percent of population living in poverty over the period 2008-2012.	d
Unemployment Rate	Average unemployment rate (percent of the labor force that is unemployed), 2008-2012.	a
Labor Force Participation Rate	Average percent of population over 16 in the labor force, 2008-2012.	a,d
Job Growth	Average annual growth in the number of jobs, 2007-2011.	b,c
% of Workforce employed in Manufacturing	Average percent of the workforce employed in manufacturing, 2007-2011.	b,c

Sources:

- a. Local Area Unemployment Statistics (LAUS), Bureau of Labor Statistics (BLS)
- b. Employment and Wages Data (ES-202), BLS and State Employment Security Agencies
- c. Longitudinal Employer Household Dynamics Origin Destination Employment Statistics (LODES) U.S. Census Bureau
- d. American Community Survey (ACS), U.S. Census Bureau

The process of matching required gathering the data described in Table 73 prior to any casino construction or opening. We measured these variables over the five-year period from 2008-2012, with the exception of five-year job growth and the percent of the workforce in manufacturing, which were measured over 2007-2011 due to a lack of data from 2012. This time period was chosen for theoretical and practical reasons. From a theoretical perspective, this period includes years from the recession and recovery and captures variation in our matching characteristics over time. From a practical perspective, several of the measures (population, race, ethnicity, poverty, and education) were taken from the American Community Survey (ACS) which is estimated over five-year intervals, the most recent of which was 2008-2012.

Control communities were selected from the Northeastern United States, including Massachusetts, Connecticut, Rhode Island, Vermont, New Hampshire, Maine, New York, Pennsylvania, and New Jersey. These states are close to Massachusetts geographically, have a similar economic history and ensure a sufficient sample of potential matching communities.

The number of control communities to choose for each host community was another important decision. Matching to a single control community can be limited due to the availability of too little information while matching to many control communities results in relying on poorer, more distant matches. *We chose five control jurisdictions for each host community in order to balance the tradeoff between too little information*

*and poorer matches.*³⁶ Moreover, a single community may not be the best match across all measures. Choosing multiple communities to create a single ‘average’ control community better ensures similarity to the host community across all matching variables. Finally, it should be noted that while the ordinal ranking of jurisdictions (based on the Mahalanobis score) is useful for comparing the quality of matches for each casino community, they are not comparable across casino communities. The best control jurisdiction for the casino located in Springfield, may not be as close, measured by the Mahalanobis score, as the fifth best control jurisdiction for a casino located in Plainville.

Additional Matching Criteria

In addition to the ranking provided by the Mahalanobis score, three other factors were considered when selecting matched communities. In this section we describe some final aspects of the process undertaken to select host community matches, namely applying a geographic filter, a size or scale filter and an income filter.

First, to ensure that matched communities were not also influenced by a casino or racino (horse racetrack with slot machines), communities within 25 miles of an existing casino were considered ineligible as matches. The distance was based on economic and practical considerations. Economically, in the Northeast it is unlikely that a casino will have significant employment and economic impacts beyond a 25-mile radius. Practically, to expand beyond 25 miles greatly reduces the number of potential matching communities. A 25-mile radius ensures that our control communities are not influenced by a casino and allows for sufficient high-quality matches. The average distance of our control communities to the nearest casino was 38.6 miles.

Second, matched communities needed to be similar in size to their host community counterparts. Specifically, a matched community’s population needed to be between 75% and 150% of the casino host community.

Third, matched communities were filtered to have similar household income characteristics. In this case, we identified communities with median household income between 75% and 150% of the host community to be eligible as a match. After applying this criterion, most matched communities were closer than these bounds and the median household income levels of our five matches were very close to their host community counterparts.³⁷

Updating the Matched Communities

It has been ten years since the original 2014 community comparison matching exercise and over that time the landscape of the casino industry has changed. The following changes have occurred since 2014:

- All three Massachusetts casinos have opened.
- 16 casinos in neighboring states have opened: 2 in New Jersey, 8 in New York, 5 in Pennsylvania, 1 in Rhode Island (with 1 casino in New York and 5 in Pennsylvania having opened since 2020).
- 8 casinos in neighboring states have closed: 4 in New Jersey, 1 in New York, 1 in Rhode Island, 2 in Maine.

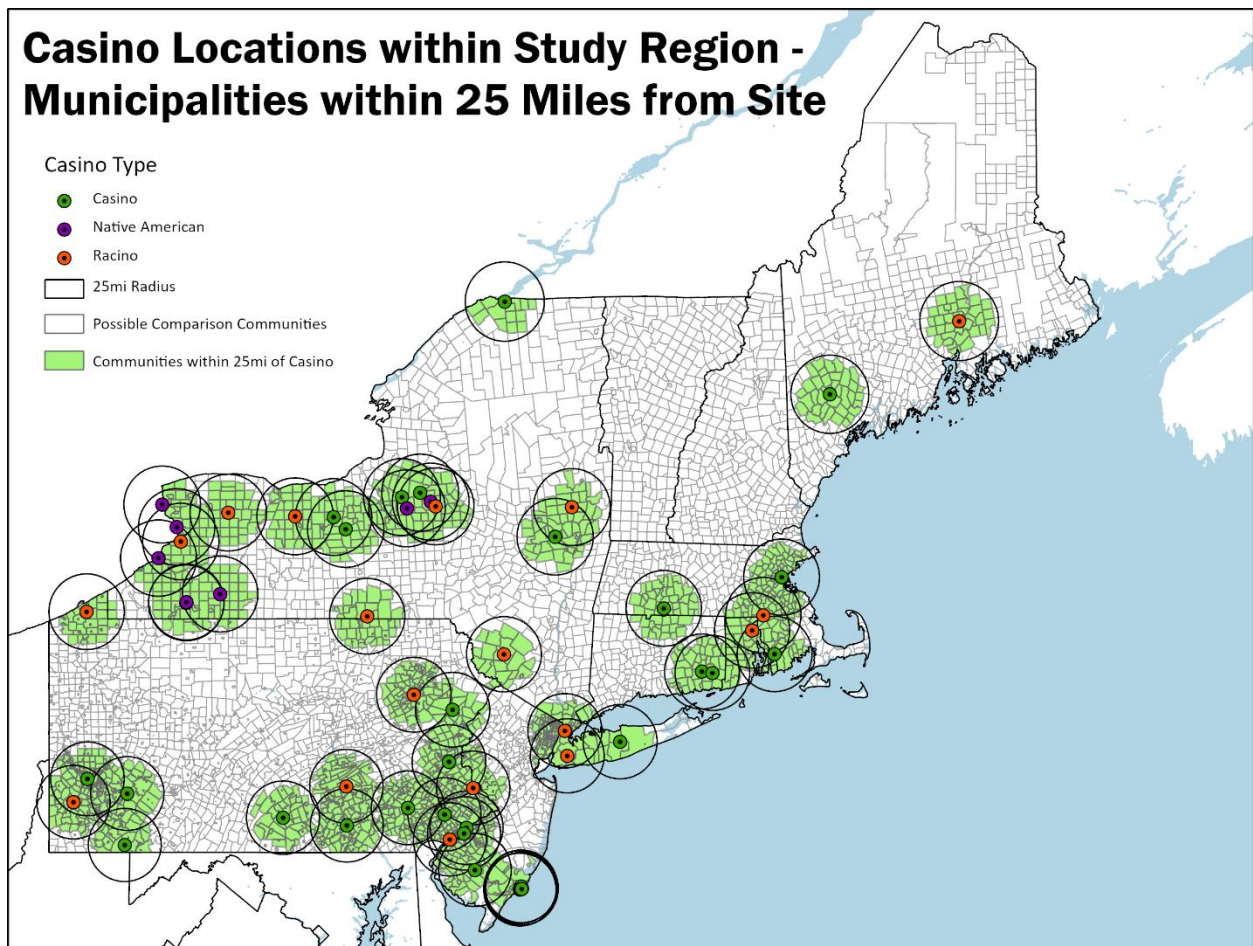
Thus, an updated mapping exercise was undertaken to determine if any of the original matched communities had become ineligible due to having a casino within 25 miles. The results are shown in Figure 75 below. The

³⁶ For example, Abadie et al. (2004) chose four control jurisdictions based on this tradeoff between too little information and using poorer, more distant matches.

³⁷ We also eliminated beach resort communities since these are likely to be different economically from our casino communities (e.g., Riverhead, NY on Long Island was eliminated as a match for Everett). Formally accounting for tourism, for example by including hotel occupancy rates as a selection variable, was not possible due to a lack of data.

communities completely within these radii are highlighted in green and are deemed ineligible to be match communities.

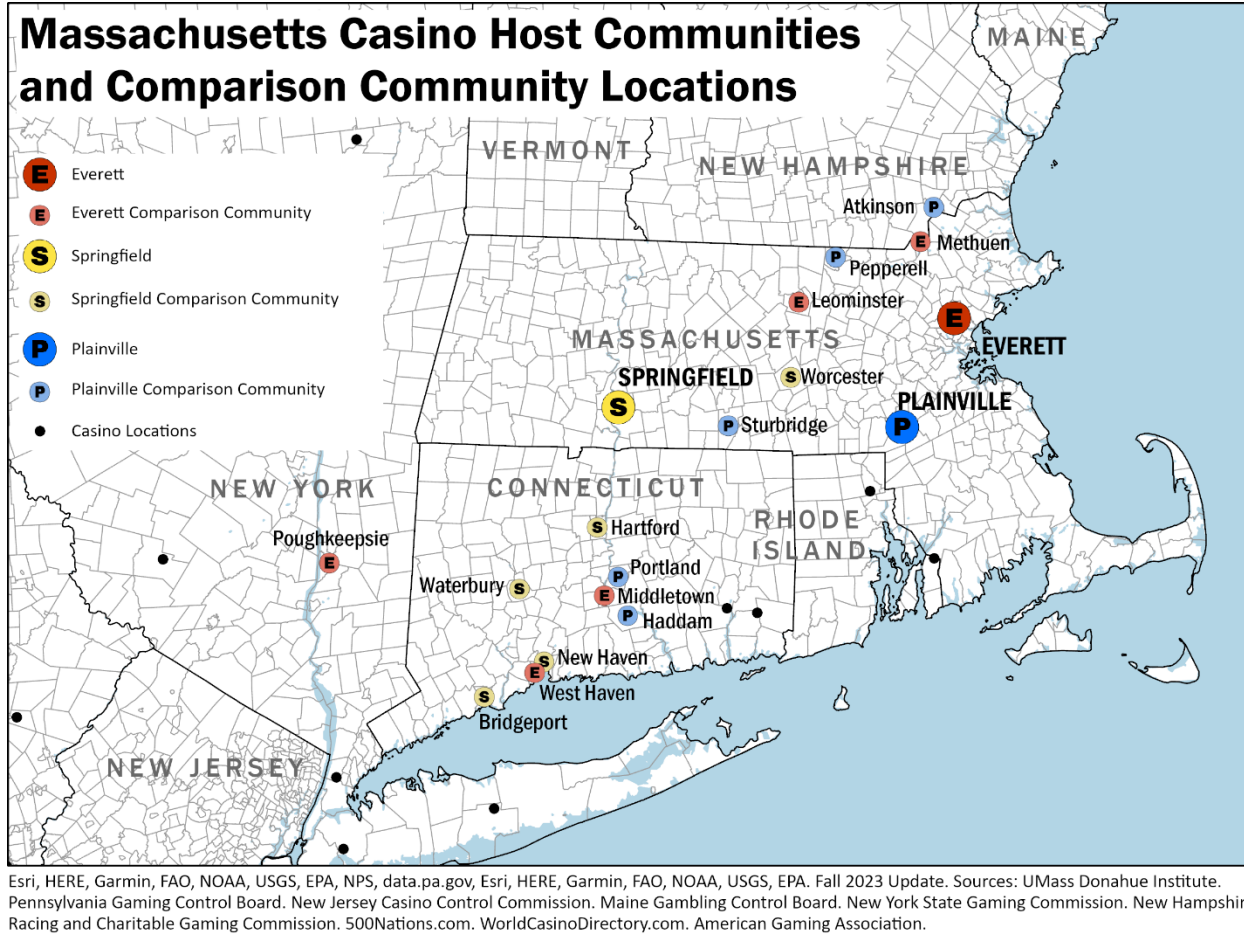
Figure 75. Casino Locations for Matched Communities Comparison, 2024



VCGI, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA. Fall 2023 Update. Sources: UMass Donahue Institute. Pennsylvania Gaming Control Board. New Jersey Casino Control Commission. Maine Gambling Control Board. New York State Gaming Commission. New Hampshire Racing and Charitable Gaming Commission. 500Nations.com. WorldCasinoDirectory.com. American Gaming Association.

Two comparison communities (Salina (NY) for Everett and Syracuse (NY) for Springfield) became ineligible due to being within 25 miles of a casino. We reviewed the original Mahalanobis matching scores and selected the two communities with the next closest scores to Everett and Springfield. For Everett the next best match was Methuen (MA). For Springfield, the next best matches for Springfield did not meet the original population criteria (75% to 150% of host community) and so the population criteria was expanded to 70% - 150% of the host community population, allowing Waterbury (CT) to be chosen (71.8% of Springfield's population). The final set of matched communities is seen in Figure 76.

Figure 76. Final Set of Matched Communities, 2024



RESULTS

The final step involved gathering updated data for the 10 demographic and socioeconomic variables. Thus we documented the average value of these variables over the five-year follow-up period (2017-2021), which corresponds to the most recent 5-year estimates from the American Community Survey and is a period that provides a ten-year difference from our baseline pre-casino analysis that examined these same variables in the period 2007/08-2011/12.

Results are presented in Table 74 for the social and economic variables and Table 75 for the demographic variables. These tables show the updated 2017-2021 averages as well as the changes from the 2007/08 – 2011/12 baseline. For two variables (median household income and population) the ‘change column’ is the percentage change from 2017-2021. For all other variables the ‘change column’ is the percentage point change from 2007/08. For example, for poverty rate the percentage of people in poverty in Plainville in 2008-2012 was 4.7%, so the 8.1% rate in 2017-2021 represents a 3.4% increase.

Table 74. Matched Communities Comparison – Social and Economic Variables

City/town	Median Household Income 2017-2021	% Change in Median Household Income from 2008-2012	Poverty Rate % 2017-2021	% Point Change in Poverty Rate from 2008-2012	Unemploy. Rate % 2017-2021	% Point Change in Unemploy. Rate from 2008-2012	Ave Annual Job Growth % 2017-2021	% Point Change in Ave Annual Job Growth from 2007-2011	Labor Force Participation % Rate 2017-2021	% Point Change in Labor Force Participation Rate from 2008-2012	% Employed in Manufac. 2017-2021	% Point Change in Manufac. Employ. From 2007-2011
Plainville, MA	\$96,932	15.7%	8.1%	3.4%	4.6%	-3.8%	-0.6%	-0.1%	71.5%	-5.4%	10.5%	-1.4%
Haddam, CT	\$120,247	34.8%	1.8%	-2.0%	3.8%	-2.0%	-2.7%	-3.0%	74.4%	-4.5%	1.7%	-2.0%
Atkinson, NH	\$123,257	48.7%	2.0%	-2.0%	4.3%	-1.9%	1.3%	2.4%	64.8%	-6.2%	13.3%	4.4%
Pepperell, MA	\$112,043	31.6%	6.1%	1.9%	4.1%	-2.1%	-0.3%	0.5%	74.9%	4.2%	8.7%	2.3%
Portland, CT	\$107,034	15.9%	5.2%	0.1%	4.4%	-2.6%	3.7%	5.8%	72.3%	2.3%	11.4%	-1.7%
Sturbridge, MA	\$95,917	15.0%	4.1%	-4.9%	4.9%	-1.9%	-0.9%	-1.0%	68.2%	-2.4%	10.9%	0.5%
Average Matched Community	\$111,700	29.2%	3.8%	-1.4%	4.3%	-2.1%	0.2%	0.9%	70.9%	-1.3%	9.2%	0.7%
Springfield, MA	\$43,308	23.2%	25.4%	-3.3%	8.7%	-2.2%	-0.2%	0.3%	53.9%	-3.1%	5.3%	0.2%
Bridgeport, CT	\$50,597	27.1%	22.6%	-1.0%	7.8%	-4.2%	-2.2%	-0.7%	58.5%	-1.0%	8.0%	-2.5%
Worcester, MA	\$56,746	24.2%	18.0%	-2.1%	5.9%	-2.6%	-0.6%	-0.1%	55.8%	-2.3%	6.0%	-1.3%
Hartford, CT	\$37,477	29.5%	26.8%	-7.1%	9.0%	-5.7%	-2.7%	-1.3%	55.6%	3.0%	1.0%	-0.2%
New Haven, CT	\$48,973	27.3%	23.0%	-3.9%	6.2%	-5.3%	1.9%	1.3%	61.3%	5.5%	2.4%	-1.1%
Waterbury, CT	\$48,787	19.4%	21.3%	-0.6%	8.1%	-4.7%	-1.6%	0.8%	56.9%	-2.9%	8.7%	0.2%
Average Matched Community	\$48,516	25.5%	22.3%	-2.9%	7.4%	-4.5%	-1.0%	0.0%	57.6%	0.5%	5.2%	-1.0%
Everett, MA	\$71,510	43.9%	12.7%	-0.1%	5.2%	-2.2%	4.6%	6.1%	70.1%	10.1%	6.5%	-0.8%
West Haven, CT	\$66,868	28.8%	11.1%	-0.6%	5.8%	-3.4%	-1.7%	0.0%	67.9%	-0.6%	7.1%	-0.5%
Poughkeepsie, NY	\$85,322	23.9%	7.4%	-2.6%	4.5%	-2.8%	-1.9%	-0.4%	56.7%	-2.1%	15.3%	-2.9%
Leominster, MA	\$69,525	16.6%	7.9%	-2.0%	5.7%	-3.5%	-1.0%	0.6%	64.4%	3.0%	18.0%	2.0%
Middletown, CT	\$67,485	11.5%	10.3%	-0.6%	5.0%	-2.7%	-0.6%	2.6%	64.3%	-4.1%	16.2%	1.6%
Methuen, MA	\$87,137	32.3%	9.6%	0.5%	5.9%	-2.9%	-0.5%	-0.7%	64.65	-0.4%	7.5%	-2.1%
Average Matched Community	\$75,267	22.6%	9.2%	-1.1%	5.4%	-3.0%	-1.2%	0.4%	63.6%	-0.8%	12.8%	-0.4%

Table 75. Matched Communities Comparison – Demographic Variables

City/town	Population 2017-2021	% Change in Population from 2008-2012	% Black 2017-2021	% Point Change in Black from 2008-2012	% Hispanic 2017-2021	% Point Change in Hispanic from 2008-2012	% College Degree 2017-2021	% Point Change in College Degree from 2008-2012
Plainville, MA	9,760	17.9%	2.6%	1.7%	6.4%	4.7%	32.2%	5.6%
Haddam, CT	8,494	2.2%	1.2%	1.2%	3.2%	0.9%	29.4%	2.0%
Atkinson, NH	7,086	4.9%	0.0%	0.0%	1.5%	-0.3%	26.1%	-0.4%
Pepperell, MA	11,671	1.2%	1.1%	0.9%	3.1%	1.5%	24.6%	-1.4%
Portland, CT	9,459	-0.4%	0.9%	-0.3%	4.1%	0.3%	31.4%	6.3%
Sturbridge, MA	9,806	6.2%	0.9%	0.7%	2.8%	-1.2%	19.8%	-4.5%
Average Matched Community	9,303	2.8%	0.8%	0.5%	2.9%	0.2%	26.3%	0.4%
Springfield, MA	155,770	1.6%	20.8%	-0.8%	47.5%	8.0%	13.5%	3.0%
Bridgeport, CT	148,529	2.8%	34.7%	-0.9%	41.7%	4.3%	14.5%	4.4%
Worcester, MA	203,867	12.3%	12.7%	1.4%	23.9%	3.9%	21.9%	3.5%
Hartford, CT	121,562	-2.7%	36.4%	-1.3%	45.5%	2.5%	10.9%	2.3%
New Haven, CT	133,874	3.1%	33.9%	-1.1%	30.3%	3.8%	19.8%	5.0%
Waterbury, CT	113,783	3.4%	20.8%	1.3%	36.8%	4.5%	11.3%	1.0%
Average Matched Community	144,323	3.8%	27.7%	-0.1%	35.6%	3.8%	15.7%	3.2%
Everett, MA	48,368	16.2%	13.4%	-0.7%	30.6%	10.8%	18.7%	7.1%
West Haven, CT	55,518	0.2%	19.5%	-0.2%	25.3%	9.1%	16.9%	4.2%
Poughkeepsie, NY	45,658	2.9%	11.8%	2.7%	12.2%	3.2%	22.3%	3.1%
Leominster, MA	43,478	6.4%	6.6%	0.9%	15.6%	2.2%	22.7%	5.1%
Middletown, CT	47,164	-0.8%	15.7%	2.9%	10.9%	2.2%	25.6%	5.9%
Methuen, MA	52,536	11.2%	6.5%	4.1%	29.0%	11.1%	21.3%	3.4%
Average Matched Community	48,871	4.0%	12.0%	2.1%	18.6%	5.6%	21.8%	4.3%

Comparison of the host community to the matched communities involved examining the magnitude of change occurring in the host community relative to the matched communities. We did this by subtracting the average change occurring in the matched communities from the change in the host community.³⁸ If the changes are similar in magnitude the difference will be close to zero. Non-zero differences are deemed consistent with a casino impact if: (a) the magnitude of the difference with the average matched community is greater than 3%; and (b) if the change in the host community is higher or lower than *all five of the matched communities*.

Results are in Table 76 with highlighting denoting consistent increases of at least 3% for comparison to each of the matched communities and the average matched community.

Table 76. Change in Host Community Relative to Average Change in Matched Communities

Variable	Plainville	Springfield	Everett
Median Household Income	-13.5%	-2.3%	21.3%
Poverty Rate	4.8%	-0.4%	1.0%
Unemployment Rate	-1.7%	2.3%	0.8%
Average Annual Job Growth	-1.0%	0.3%	5.7%
Labor Force Participation Rate	-4.1%	-3.6%	10.9%
Percent Employed in Manufacturing	-2.1%	1.2%	-0.4%
Population	15.1%	-2.2%	12.2%
Percent Black	1.2%	-0.7%	-2.8%
Percent Hispanic	4.5%	4.2%	5.2%
Percent with College Degree	5.2%	-0.2%	2.8%

As seen, none of the 10 variables were in the same direction for all three host communities relative to the matched communities, indicating **either that casino introduction does not have consistent impacts on host communities (at least for these 10 variables) are or that casino impacts are community and casino specific**. The latter possibility is certainly plausible considering the different sizes of the communities (population of 9,760 in Plainville versus 48,368 in Everett versus 155,770 in Springfield) and the different sizes of the casinos (925 EGMs at PPC versus 1500+ at MGM versus 2700+ at EBH; see also Figure 41 that shows the much greater revenue of EBH relative to MGM and PPC).

³⁸ An alternative approach would be to compare the ratio of change, with change in the host community being the numerator and change in the matched and MA communities being the denominator. The problem with this approach is that (a) it would produce a confusing mix of positive and negative ratios, and (b) some of the ratios would be very large because of a very small denominator, even though the difference between the host and matched communities is very small (e.g., change in job growth in Springfield vs. Matched Communities).

Assuming that impacts are potentially community and casino specific, these are the observed impacts for each of the host communities:

Plainville

Plainville had two variables associated with casino introduction: **increased population** and **increased percentage of the community that is Hispanic**. Increased population is consistent with the overall increased employment that has occurred in Plainville that has outpaced the state (Table 70) that is plausibly due to the broader projected employment impacts of PPC (Table 56). However, it seems unlikely that PPC introduction would be responsible for the increase in the Hispanic population as (a) the percentage of PPC casino employees who identified as Hispanic in 2022 is quite low (29/433; 6.7%, see Table 45); (b) only 13 PPC employees reported moving to Plainville for employment (see [Population Levels](#)); and (c) the number of Hispanic casino employees is fairly small relative to the population (29/9760). That said, the [average Hispanic family in the U.S. consists of 3.8 people](#) (not including extended family) and PPC may have spurred ancillary employment in the Plainville that was attractive to Hispanic workers.

Springfield

Springfield had only one variable associated with casino introduction: **increased percentage of the community that is Hispanic**. It is somewhat more plausible that MGM introduction would be responsible for this as (a) the percentage of MGM casino employees who identified as Hispanic in 2022 was 27.2% (521/1912; see Table 45); and (b) 106 MGM employees reported moving to Springfield for employment (see [Population Levels](#)). However, it is also true that the number of Hispanic casino employees is quite small relative to the Springfield population (521/115770).

Everett

Everett had four variables associated with casino introduction: **increased median household income; increased job growth; increased labor force participation rate; and increased population**. All of this is very consistent with the strong economic stimulus provided by EBH (Table 59) and the secondary data showing an increase in the total number of businesses and employment in Everett that have exceeded increases in the state (Table 61, Table 70). While this greater impact in Everett is plausibly due to the much larger size of EBH relative to a fairly small Everett population, EBH's much higher commitment to hiring local workers (75% versus 35% for MGM and PPC; Table 46) may have also been a factor.

While it is not possible to unambiguously attribute the above changes to the introduction of casinos, the fact that these findings are consistent with other findings in this report lends support to this possibility. Further limitations include the fact that: (a) the geographic area for the impacts is almost certainly larger than just the host community; (b) 25 miles to the nearest casino may be an insufficient distance for a control community; and (c) there are many other socioeconomic variables that also have potential for being impacted but were not assessed.

CONCLUSIONS & RECOMMENDATIONS

In general, the following conclusions are warranted based on the present results:

1. The introduction of casinos to Massachusetts has **significantly increased overall economic activity and employment in Massachusetts, particularly in regions proximate to the casinos, and particularly for the construction and operation of Encore Boston Harbor**. This is due to (a) the billions of dollars spent by the out-of-state casino companies constructing the venues; (b) the billions in ongoing gaming and non-gaming revenue, the bulk of which is from Massachusetts residents who were previously spending this money out-of-state as well as a portion coming from new out-of-state patrons; (c) the large downstream ripple effects in the Massachusetts economy from this monetary investment and recapture.
2. Furthermore, **casino tax on gross gaming revenue (GGR) has provided hundreds of millions of dollars to the state government**, which has been used to benefit towns and cities as well as the citizenry of Massachusetts more generally.
3. While the economic gains clearly outweigh the losses:
 - Casino introduction has been associated with **some cannibalization and/or negative impacts on other industries**, as evidenced by an accelerated decrease in charitable gambling revenue; a decrease in food services and drinking establishments in Plainville, Springfield, and Hampden County; the fact that most casino patrons reported spending less on things because of their casino gambling, particularly restaurants, bars, and other types of gambling; and by the fact that ~75% of casino employees reported leaving other full-time employment to take jobs at the casinos.
 - There is **still a fairly high level of out-of-state casino patronage**, with Massachusetts residents estimated to account for 51.5% of Rhode Island casino GGR and 14.0% of Connecticut casino GGR.³⁹
 - Losses still occur in the form of the **annual casino profits that leave the state**.
 - Casino **wages are low**, as only 39.1% of MA casino employees are paid a **'living wage'** considering the living expenses for the county they reside in. That said, (a) this is higher than the average wage in the broader Accommodation and Food Services sector; and (b) the host community of Everett experienced an *increased* median household income.
4. The introduction of casinos to Massachusetts has occurred **without increasing the prevalence of problem gambling** in either the local Host & Surrounding Communities or the state as a whole. This is likely attributable to the ready availability of casino gambling in neighboring states since the early 1990s, as the negative social impacts of a new form of gambling tend to occur immediately after exposure, with population adaptation over time (LaPlante & Shaffer, 2007; Shaffer, LaBrie & LaPlante, 2004).
5. In general, there has been **fairly minimal negative social impact** associated with casino introduction, with the exception of:
 - There is some evidence of a **small increase in certain types of crime** at the casino and Host & Surrounding Community (H&SC) level as well as a small but significant statewide **increase in illegal gambling offenses**.
 - There is **some increase in traffic volume near the casinos**, as well as **traffic accidents and impaired driving**.

³⁹ In 2015, license plate surveys conducted by Pyramid Associates (2015) estimated that the percentage of Massachusetts patrons was 51.9% at Twin River Lincoln in Rhode Island (RI); 44.1% at Newport Grand Casino (RI) (closed in 2018); 32.2% at Foxwoods in Connecticut (CT); 18.3% at Mohegan Sun (CT).

- Most Massachusetts residents (68%) now believe **that gambling ‘is too widely available’**, which compares to only 16% prior to casino introduction.
6. However, an important concern is that **much of the additional economic activity derives from the expenditures of at-risk and problem gamblers**, who are estimated to account for 90% of casino revenue in 2021/2022.

The following recommendations derive from our conclusions:

1. **Further casino expansion (i.e., a fourth casino in Region C in southeastern MA) has both advantages and disadvantages.** The main advantage is that such a casino would likely produce additional out-of-state casino recapture without a significant negative social impact. In particular, the AirSage data established that the ~51.5% of Rhode Island casino GGR from MA residents primarily comes from Bristol County (and Plymouth County to a lesser extent), which are both located in Region C. The main disadvantage of a fourth casino is the fact that (a) overall casino patronage (both in MA and the U.S. more generally) appears to be declining; and (b) MA residents already believe that gambling is too widely available.
2. **There needs to be a reduction of the casino industry’s financial reliance on at-risk and problem gamblers** as the 90% of revenue from this 9.9% of the population is much too high, as it serves to increase the chronicity of problem gambling and the likelihood of ‘at-risk’ gamblers transitioning to problem gamblers. The most effective way of preventing future problem gambling is to mitigate risks within the at-risk group. In this regard, the following policy changes would be most effective:
 - a. Sending automated alerts to people with Reward Cards and/or playing online when their gambling behavior escalates (Ghaharian et al., 2023; Newall & Swanton, 2024). Analysis of casino patron data (as required by [Section 97 of the Expanded Gaming Act](#)) could be used to identify optimal algorithms for such alerts.
 - b. Changing the parameters of Reward Cards so they reward responsible gambling (e.g., no points after a certain amount spent; extra points for taking a problem gambling screen, etc.), rather than rewarding people for total amount spent (Williams, West & Simpson, 2012; Wohl, 2018).
 - c. Restricting ATM access and/or withdrawal amounts, recognizing that ATMs in gambling venues are disproportionately utilized by people with gambling-related problems and people at-risk for gambling problems (Rodda, 2021; Williams, West & Simpson, 2012).
 - d. Implementing mandatory pre-commitment of gambling limits, which is much more effective than voluntary limits (Delfabbro & King, 2021). Alternatively, incentivizing the voluntary use of pre-commitment (Hollingshead & Wohl, 2024).
 - e. Better promotion of the third-party initiation of self-exclusion as specified in Section 45 (i) 2 of the Massachusetts Expanded Gaming Act. Although this would not be as broadly effective as the above measures it would still have some utility (Kotter et al., 2018). Expanding it so the application could also be made to the gambling provider (in addition to the court) would be useful, as the initiator is identified in court applications, whereas this is not necessarily the case in jurisdictions where the gambling provider independently initiates self-exclusion based on requests from significant others.⁴⁰
3. **Periodic reassessment of these findings would be valuable**, as casino gambling is continually in flux due to changing consumer interests and increased competition. With regard to competition, there will be a new casino in Nashua, New Hampshire (on the Massachusetts border) opening in [Winter 2025](#) as well as [three large scale casinos](#) in New York City at some point in the future. Competition will also occur from legalized

⁴⁰ Third-party applications for self-exclusion currently exist in Germany, New Zealand, Singapore, Macau, and some Australian states/territories.

sports betting and the expansion of online casino gambling that is occurring throughout the United States (as well as potentially [in Massachusetts](#)).

4. The **above findings do not apply to legalized sports betting or online gambling** as the economic benefits of these gambling industries appear to be much smaller and the risk of social harm is likely much greater due to lack of prior exposure. **A comparable study on the socioeconomic impacts of sports betting and/or online gambling is warranted.**

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APPENDIX A: SEIGMA Methodology

THEORETICAL FRAMEWORK

The theoretical approach used to study the effects of gambling is a fundamentally important determinant of the results obtained, as well as the validity of these results. This issue has been the focus of conferences (Wynne & Shaffer, 2003); special issues of the *Journal of Gambling Studies* (June 2003) and *Managerial and Decision Economics* (June 2004); books (Grinols, 2004; Hsu, 2014; Walker, 2007, 2013); comprehensive reviews (Williams, Rehm, & Stevens, 2011; Walker & Sobel, 2016); and many individual articles and reports.

Despite all this work there remain several contentious issues, with one of the main ones being how to capture and quantify the social impacts (Collins & Lapsley, 2003; Eadington, 2003; Walker, 2003, 2008a, 2008b; Williams, Rehm & Stevens, 2011). Some studies have ignored social impacts, choosing to only measure the economic benefits that are more easily quantifiable (e.g., gambling revenue, tax revenue, employment numbers). Examples include the American Gaming Association's (2023) study of U.S. gambling and the Canadian Gaming Association's analysis of the impacts of gambling in Canada (HLT Advisory, 2017). However, this creates an unbalanced analysis in that the positive economic impacts are not evaluated in the context of the negative social impacts. More comprehensive socioeconomic impact studies have cast a wider net and have included economic impacts as well as important social impacts such as problem gambling and crime (e.g., SEIGMA Research Team, 2018, 2019; Summit Economics & Williams, 2019; Williams, Belanger & Arthur, 2011).

An additional problematic issue concerns how to compare the social impacts with the financial/economic ones so that an overall determination of the positive or negative nature of gambling can be made. Some studies have done this by estimating the monetary value of the social impacts so that they can be combined with the monetary/economic impacts in other areas. This is the cost-benefit analysis (CBA) approach to gambling best illustrated by the work of the economist Earl Grinols (2004).

However, while determining the financial costs and benefits of some social impacts is reasonably straightforward (e.g., costs of treating people with gambling problems, the costs of prosecuting and incarcerating gambling-related crime), estimating costs and benefits for many other social impacts is not. This includes things such as the costs of suicides, divorces, loss of social capital, the psychological trauma of being having gambling problems, as well as the leisure benefits of recreational gambling. Some studies have tried to establish an approximate financial estimate for these less tangible impacts by including indirect costs (e.g., in addition to funeral costs of a gambling-related suicide, the estimated costs of lost future productivity). Other studies have tried to establish the financial value of social impacts by asking people "how much would you pay not to be a problem gambler"; and/or quantifying the leisure benefit of gambling by calculating 'consumer surplus' (i.e., the difference between what people say they would be willing to pay for gambling versus what they actually pay). Unfortunately, the figures obtained from all of these approaches depend on a large and somewhat arbitrary set of assumptions, and thus are fairly unreliable, producing widely different estimates. It also remains unclear how to create a monetary value for some variables (e.g., loss of social capital). Aside from these practical issues, an argument can be made from a theoretical standpoint that it is inappropriate to apply an arbitrary monetary amount to something that is clearly nonmonetary in its value or consequences to the participant. Furthermore, doing so simply reinforces the erroneous notion that money is the most appropriate and important metric upon which to judge the impact and/or the overall value of gambling.

This latter issue is not restricted to gambling. Widespread dissatisfaction with reliance on financial measures such as [gross domestic product](#) (GDP)⁴¹ or cost-benefit analysis to measure societal progress or impacts on overall societal well-being has existed for many years (e.g., Atkinson, 2000; Daly & Cobb, 1989; Dasgupta & Mäler, 2000; Fioramonti, Coscieme & Mortensen, 2019; Tinbergen & Hueting, 1992). This situation has led directly to the development of several alternative measures to assess progress/impacts in a more comprehensive fashion. These measures include the United Nations [Human Development Index](#), the [Index of Sustainable Economic Welfare](#), the [Green National Product](#) and the [Genuine Progress Indicator](#) (GPI). Most of these measures recognize economic productivity (e.g., GDP) as an important aspect to be considered, but they do not make it the central basis upon which a judgement about progress or societal well-being is made.

Unfortunately, while these approaches are more theoretically satisfying, they have practical problems of their own. First, although they all have similar goals, their specifics are markedly different. This illustrates the fact that determining which indicators contribute to societal well-being is a highly value-laden task for which there is not widespread agreement. Second, most of these approaches have the same problem as cost-benefit analysis in that they aspire to combine impacts into a single index, usually just by adding up the number of beneficial indicators against the detrimental ones. This is problematic because it makes all impacts equivalent in value and/or requires a subjective judgement about the relative value/weight of one impact against the others.

The reality is that there is no reliable way of combining social impacts with monetary impacts to produce a single valid summative measure. Instead, assessing the overall positive or negative nature of an enterprise that has wide ranging social and economic impacts (such as gambling) will always be a subjective judgement about the relative importance of the observed social impacts compared to the observed economic impacts.

However, this reality does not preclude conducting meaningful socioeconomic analyses of gambling. Rather, there are many basic **principles for conducting socioeconomic impact studies** that can *ensure that the obtained results are comprehensive, balanced, and scientifically rigorous*. The purpose of the next section of this report is to outline these principles. These principles ensure there is a meaningful accounting of the social impacts of gambling as well as: (a) enshrine basic principles of economic gain/value in the evaluation (Walker 2003, 2008a, 2008b; Walker & Barnett, 1999), and (b) outline scientifically rigorous strategies to ensure that things such as attributable fractions⁴² and the causal direction of impacts can be better established.

⁴¹ GDP is the monetary value of all goods and services produced in a jurisdiction over a one-year time period (primarily measured by the aggregate volume of monetary transactions/sales that occur). This measure has been critiqued because although it provides a rough measure of the magnitude of economic activity, it does not measure whether this economic activity is sustainable, efficient, or conducive to societal well-being.

⁴² In the present context 'attributable fraction' concerns how to appropriately proportion costs attributable to gambling, when many people with gambling problems have comorbid disorders (e.g., substance use problems, mental health problems) that contribute to the negative consequences they experience such as suicide, divorce, and crime (Australia Productivity Commission, 1999; Walker, 2008b).

PRINCIPLES FOR CONDUCTING SOCIOECONOMIC IMPACT ANALYSES OF GAMBLING

Much of the following is adapted from Williams, Rehm & Stevens (2011).

Measure 'Impacts' rather than 'Costs and Benefits'

While many gambling impacts are clearly negative (e.g., increased problem gambling) or positive (e.g., employment gains), the positive or negative nature of several other changes is less clear and somewhat subjective (e.g., changed societal pattern of leisure pursuits, cannibalization of competing industries, increase in tax revenue). 'Impact' is a better term than 'costs and benefits' as it conveys the fact that a change has occurred without having to necessarily characterize it as positive or negative. Use of this term also avoids confusion with the cost-benefit analysis (CBA) approach's use of the terms 'cost' and 'benefit'.

Avoid Applying Arbitrary Monetary Values to Impacts that are clearly Non-Monetary in Nature.

As mentioned, it is a mistake not to capture social impacts that do not have significant monetary consequences. However, it is also a mistake to try to capture them within a cost-benefit economic framework by applying an arbitrary monetary value to them. CBA fails to recognize that the true nature of the impact is largely non-monetary/economic in nature. Thus, in most cases, social impacts *are best quantified and reported simply by means of percentage change in the variable and/or the actual number of people impacted (e.g., % change in rate of problem gambling, % change in crime, change in pattern of leisure behavior, etc.)*.

Create a Profile of the Economic and Social Impacts Rather than Trying to Combine them into a Singular Aggregate Value.

The advantage of a common metric (e.g., money) is that it potentially allows for the combination of all impacts into an overall aggregate value. However, this approach is problematic because of: (a) difficulties applying monetary values to many social impacts, (b) the need to construe everything as either a cost or benefit, and (c) the inappropriateness of using money as a way of characterizing the nature and magnitude of some social impacts (e.g., suicide). In most cases the best way of treating these impacts is to simply list them and to create a profile of impacts. For most social impacts, reporting the percentage change in the variable and/or the percentage of people impacted is most descriptive. This can also be done for the economic impacts. However, for many of the economic impacts a monetary value can be used to quantify the magnitude of the effect within each impact area. There can also be value in aggregating the monetary amounts within and/or across economic impact areas.

Apply Basic Economic Principles to Evaluate the Positive or Negative Nature of the Economic Impacts

One of the critiques of some socioeconomic approaches to gambling is that they fail to adequately consider important economic principles in judging the overall impacts (Walker 2003, 2008a, 2008b; Walker & Barnett, 1999). For example, several 'costs' of gambling in the Anieski & Braatan (2008) SEIG framework (e.g., theft, unemployment, costs of treating people with gambling problems) are unlikely to result in any real reduction in the economic wealth within a society/jurisdiction (i.e., these are simply transfers of wealth within society) (Eadington, 2003; Walker, 2003, 2008a; Walker & Barnett, 1999). There is no doubt that theft and treatment

for people with gambling problems are important negative impacts that need to be identified and documented. However, the point is that these types of impacts have relatively little influence on the overall economic vitality/wealth of a jurisdiction.

Rather, for something to have a meaningful economic/monetary impact one of the following needs to occur:

- *The economic activity causes either an influx of money/assets from outside the jurisdiction or a loss of money/assets to an outside jurisdiction.* For gambling, an influx occurs when the primary patronage base is from outside the jurisdiction, or capital investments are made in the community by outside agencies (e.g., casino developer, private businesses, government).
- *The economic activity increases or decreases the value of existing assets (related to the economic concept of value-added).* This impact generally does not apply to gambling, or to entertainment industries more generally, as gambling primarily involves a transfer of wealth rather than a creation of wealth.⁴³ However, it can occur when the introduction of a new gambling venue either increases or decreases the real estate value of neighboring property. It can also occur in the manufacturing of gambling equipment (e.g., slot machines) or casinos that can be sold for more than the value of the parts or construction material.
- *The economic activity produces increased or decreased utilization of existing money (related to the economic concept of gross output).* Money that sits dormant has very little economic utility to the broader economy. It has much greater utility if it is spent on gambling, this gambling revenue is then spent on employee wages, and these wages are then used to buy local goods and services. In general, money has increased economic value as a function of the number of people that use the money and the speed of the cash flow from one person to the next (Walker, 1999, 2007). Increased utilization of existing money is more likely to occur if gambling patronage comes from individuals who are not financing their gambling by reducing their spending on other activities or going into debt to finance their gambling (i.e., the income class of the patronage potentially speaks to this). Evidence of increased utilization of existing money is seen if the increased revenues and employment in the gambling industry (and supporting/complementary industries) occurs without there being offsetting declines in the revenues and employment in other industries. There is good evidence that adding a new and interesting service/good to the economy (e.g., gambling) can at least temporarily create increased monetary flow without negative impacts on other businesses (Walker & Jackson, 1998; 2007).
- *The transfer of wealth and shifts in monetary flow related to the new economic activity strengthen or weaken sectors of the economy capable of producing an influx/outflow of wealth, increased/decreased value of existing assets, or increased/decreased utilization of money.* One of the potential concerns with gambling is that it may redirect money from wealth-producing sectors (i.e., private business) to sectors not known for wealth creation (i.e., government, charity).
- *Failure to implement the economic activity would have resulted in an influx/outflow of wealth, increased/decreased value of existing assets, or increased/decreased utilization of money.* Even if there is not a clear economic gain, an economic benefit still exists if the gambling activity prevented assets or money from leaving the jurisdiction, prevented a decrease in the value of existing assets, or prevented decreased utilization of existing money.

⁴³ Wealth creation is more typical of manufacturing industries. For example, a car manufacturing industry creates wealth by making things that are worth more than the sum of their constituent parts. Most entertainment industries, in contrast, simply redirect monetary flow from one sector of the economy to another.

Identify How Much Money is Involved, Where it is Coming From, and Where it is Going

The principles listed up to this point have been focused primarily on resolving the central methodological issue of how to handle the social impacts of gambling. The following principles are focused on some of the practical issues involved in conducting socioeconomic analyses of gambling and ensuring optimal scientific rigor.

As mentioned, gambling is an economic activity characterized by a transfer of wealth. There are groups and sectors that are winners and there are groups and sectors that are losers, and *most of the impacts are seen in these groups/sectors*. Thus, the first step in a socioeconomic analysis of gambling is to document: (a) how much money is being transferred (a rough gauge of the magnitude of the potential impacts), (b) where the money is coming from, and (c) where the money is going. The demographic characteristics of the gamblers are particularly important, with the most important socioeconomic variables being age, gender, race/ethnicity, income, and problem gambling status. The geographic origin of the gamblers is also very important because it speaks to: (a) whether the revenue is an infusion of new wealth or just local money that has been redirected, and (b) the geographic range in which to expect (and therefore, measure) impacts.

Next, it is important to clearly document which groups/sectors are the primary recipients of gambling revenue (i.e., private operator, different levels of government, charity, local community) as well as the geographic location of each group. It is also essential to document how these groups then disburse or spend the money to identify all the downstream beneficiaries. The geographic origin of the operating expenses to run the new type of gambling, as well as the origin of any equipment purchased are also relevant to a socioeconomic accounting.⁴⁴

Establish both the Micro and Macro Geographic Impacts

Most socioeconomic impact studies have only focused on the changes in the community that received the new form of gambling. However, for a full understanding of the impacts it is necessary to go beyond these boundaries, as financial inflow/benefits in one region usually come at the expense of financial outflow or loss of benefits in adjoining regions. Thus, one should aspire to assess both the micro (community specific) impacts and the macro (greater regional) impacts. As mentioned, the geographic origin of the patronage is a good indication of the regional scope of the impacts. Once the boundary of this larger region/jurisdiction is established, it is important to clearly identify the impacts within the community of interest as well as regionally.

Assess Impacts for Years before and for Years after the Introduction of New Gambling Venues/Opportunities

The length of time it takes for all the economic and social impacts of gambling to manifest themselves is quite variable. Some of the economic impacts (e.g., revenues, employment, etc.) tend to be immediate. On the other hand, it can take a few years for competing industries to fail or for increased utilization of infrastructure (e.g., roads, sewers, etc.) to result in the need for repairs. Some economic impacts will also reverse themselves in a resilient economy as industry repositions itself. Social impacts may take longer to appear than economic impacts. While some individuals experience rapid onset of gambling problems, others gamble safely for several

⁴⁴ If gambling revenues are primarily collected at the state or federal level, rather than at the municipal level, and are redistributed statewide or federally, then there is a good chance that there will be a net outflow of money from the local municipality hosting the gambling venue. Some jurisdictions compensate for this by providing municipalities with a guaranteed fixed percentage of the profits, but this often does not fully compensate for the outflow.

years before problems develop (Committee on the Social and Economic Impact of Pathological Gambling, 1999). There is also good evidence that rates of gambling and problem gambling decline with extended exposure (LaPlante & Shaffer, 2007; Shaffer, LaBrie & LaPlante, 2004; Williams, Leonard et al., 2021). It is also very important to realize that new gambling opportunities are always added to existing gambling opportunities (even if they are illegal). Thus, lag effects of these pre-existing opportunities can easily be mistaken for immediate impacts of the new forms. To isolate such effects, it is important to document prior gambling opportunities and socioeconomic effects for several years before as well as for several years after the introduction of a new form of gambling.

Comprehensively Assess all Potential Economic and Social Impacts

It is self-evident that all impacts of gambling must be included in an impact analysis. There are a multitude of different and equally legitimate ways of organizing and categorizing these impact areas. It is also difficult to clearly separate social from economic impacts, as virtually all ‘social’ impacts also have some economic consequences and most ‘economic’ impacts have some social consequences. Thus, the important thing is not the overall organization but ensuring that: (a) all of the potential impact areas are covered, and (b) economic/monetary impacts are given equal prominence to the social/nonmonetary impacts. **The following table is the organization of the impact areas employed in the present study, with the focus being on changes in these impact areas pre-casino to post-casino.**

Table 77. Social and Economic Impact Areas in the Present Study

SOCIAL and HEALTH IMPACTS (i.e., impacts that are primarily non-monetary)	
ATTITUDES	Perceptions concerning: benefit vs harm of gambling, legal availability, anticipated vs actual casino impacts, most positive and negative impacts
GAMBLING BEHAVIOR	Past year participation, past year monthly participation, past year median expenditure for each type of gambling; online gambling
PROBLEM GAMBLING & RELATED INDICES	Population Prevalence of Problem Gambling
	Demographics of Problem Gambling
	Treatment Seeking for Problem Gambling
	Bankruptcy
	Family Impacts (divorce, separation, restraining orders, child welfare involvement, child maltreatment)
	Suicide
CRIME	Crime Rates; Illegal Gambling
OTHER SOCIAL INDICES	Impacts on the overall population, demographic make-up of the student body, traffic volume, traffic accidents
ECONOMIC and FISCAL IMPACTS (i.e., impacts that are primarily monetary)	
DIRECT ECONOMIC IMPACTS	Construction Expenditure
	Operating Revenue (geographic origin of revenue)
	Operating Expenditure (GGR tax; operating expenses; employment and wages)
	Net Casino Profit
TOTAL ECONOMIC IMPACTS	Total Impacts of Casino Construction Expenditure
	Total Impacts of Casino Operation
	Secondary Data
REAL ESTATE	Residential sales, prices, rents; Commercial inventory, vacancy rates, lease rates, price per square foot

Employ Methodologies that Facilitate Causal Attribution

It is often difficult to unambiguously attribute observed socioeconomic changes to the introduction of gambling as there are many other socioeconomic forces at work in society and in the economy that may be partially or fully responsible. The absence of change in a certain social or economic variable provides reasonable evidence there has been no impact on that variable at the specific geographic level measured. However, when there is a change in a variable in the expected direction that is temporally associated with the introduction of a new type of gambling often all that can be said is that the change is *consistent* with a potential impact.⁴⁵

Socioeconomic impact studies need to use methodologies that strengthen this causal attribution. The likelihood that an observed change is actually attributable to gambling becomes stronger when: (a) many variables are assessed such that there is an ability to point to analogous changes in several variables theoretically related to gambling and the absence of change in variables not theoretically related to gambling, and (b) other sources of information pertaining to the same variable are collected and make more direct attributions (e.g., gamblers in population surveys directly attributing their separation or bankruptcy to the new type of gambling; key informants in the local community also making these direct attributions).

Speculate on What the Situation Would have been Without the Introduction of Gambling

Most studies compare economic and social indicators after the introduction of gambling to what these indicators were before the introduction of gambling. However, the justification for the introduction of a new form of gambling is often the desire to stem the outflow of gambling dollars to neighboring jurisdictions that already offer this new form of gambling. Thus, an even more relevant comparison than 'baseline' is what the likely economic and social situation would have been if gambling had not been introduced (i.e., the 'counterfactual situation'). The extent to which the introduction of local gambling opportunities has prevented losses to neighboring jurisdictions is very difficult to judge and highly speculative, but nonetheless merits consideration.

Recognize that Assessing the Overall Positive or Negative Nature of the Observed Impacts is a Qualitative Assessment that Often Involves Some Subjectivity

The assessment of whether the overall impacts of gambling are positive or negative (and the degree to which they are positive or negative) requires a joint qualitative assessment of the: (a) positive or negative profile of the social impacts, against the (b) positive or negative profile and economic value of the economic impacts. When these things are aligned, then this assessment is straightforward (i.e., mostly positive social impacts and positive economic value; mostly negative social impacts and negative economic value).

However, the assessment is inherently subjective when these things are not in alignment (e.g., net economic gains but mostly negative social impacts). In this situation, the overall assessment will depend on the importance one assigns to the economic versus social impacts. In particular, for gambling the overall

⁴⁵ In a similar way, many of the adverse effects of problem gambling cannot be uniquely attributed to the introduction of a new gambling venue or type of gambling, as most people with gambling problems engage in a wide variety of gambling activities and also have comorbid conditions that contribute to their problems (e.g., substance use problems, mental health problems) (Australia Productivity Commission, 1999; Lorains, Cowlishaw & Thomas, 2011; Walker, 2008b).

assessment often depends on whether one believes that the net economic value of the activity adequately offsets the negative social impacts.⁴⁶

Report the Limitations and Parameters of these Results

The final principle is to recognize and report that the results obtained are very much a function of the context in which the study was conducted. More specifically:

- *Impacts are Dependent on the Magnitude of the Change in Gambling that has Occurred for the Population.* Adding a large casino to a small community without prior gambling opportunities will usually have a much larger impact than adding a new casino to a large city that already has existing casinos and/or other gambling opportunities.
- *Impacts are Somewhat Specific to the Type of Gambling Studied.* Different types of gambling have different profiles of impacts in terms of their potential for contributing to problem gambling (e.g., online gambling vs. lotteries), the number of jobs they produce (horse racing vs. slot machines), and their likelihood of cannibalization of other industries, etc. Hence, it is necessary to qualify results as being specific to the type of gambling studied.
- *Impacts are Somewhat Specific to the Jurisdiction Studied.* Jurisdictions differ widely in how gambling revenue is distributed, pre-existing availability of gambling, the strength of policy and educational initiatives to prevent problem gambling, baseline levels of poverty and unemployment, and the vulnerability of the population to addiction. Hence, it is important to recognize that the results will be somewhat dependent on the conditions that exist in the jurisdiction being studied.
- *Impacts are Somewhat Specific to the Time Period Studied.* The period during which impacts are studied is critical, as gambling availability and gambling policy can change rapidly within a jurisdiction. Furthermore, evidence shows that populations with extended exposure to gambling have lower rates of problems (due to adaptation) compared to places with more recent introduction of gambling (LaPlante & Shaffer, 2007; Shaffer et al. 2004; Williams, Leonard et al., 2021).

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⁴⁶ Other areas of subjectivity also exist; for example, how some of the ambiguous impact categories are construed (e.g., is increased government revenue a positive or negative thing). Another example concerns whether the micro (community-level) impacts are considered more or less important than the macro (regional-level) impacts.

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APPENDIX B: AirSage Home Casino County Adjustment

- AirSage excludes all cell phones that were present 18 or more days during either January 2023 or October 2023 in an attempt to eliminate casino employees from the counts.
- 18 days is a reasonable exclusionary criterion that should exclude most employees, but not inadvertently exclude most heavy gamblers, as:
 - The large majority of full-time employees will likely have worked 20 days or more.
 - < 1% of MA and CT casino gamblers report gambling at a casino 4 or more times a week (Gemini Research, 2024; Volberg et al., 2023).
- Unfortunately, however, **this exclusionary criterion does not effectively exclude part-time casino employees**. In MA, 32.4% of casino employees are part-time, which is a similar percentage to that found in other jurisdictions.
- Massachusetts has a combined casino workforce of 6,600 whereas Connecticut has a combined workforce of 15,500 (Gemini Research, 2024).
- If we assume that 32.4% of these 22,100 employees are part-time (i.e., 7,160) and might have been present an average of 12 days during the 28-day period (vs 20 days for the full-time people), then this would result in 85,920 additional counts that should have been excluded, which represents 11.7% of the 732,201 total counts for these two states.
- Prior research has established that the vast majority of Connecticut casino employees live in the same county at the Foxwood and Mohegan Sun casinos (Gemini Research, 2024). The same pattern has been established in Massachusetts.
 - Thus, it is clear that these additional AirSage counts should be subtracted primarily from the host casino county.
 - It is also much more likely for local residents to visit the many restaurants and non-casino amenities that are typically available at these casinos.
 - **Thus, in an effort to correct these local overcounts, a 50% reduction has been made in the host casino(s) county AirSage count. In the case where there are two counties in close proximity to the casino(s), a 25% reduction has been made in each.**

APPENDIX C: Changes in Consumer Spending Patterns used for Economic Modeling

Data from the Patron Surveys of each of the three casinos was utilized to estimate the changes in consumer spending that occurred because of the presence of the new casinos. These estimates were then utilized as additional inputs into the modeling of the Indirect Economic Impacts.

There are six types of patrons as determined by their geographic origin and their reasons for visiting the casino and the region itself. A **captured** or **recaptured** patron is someone who indicated that, had Massachusetts never expanded in-state gaming, they would have spent the money that they spent at the casino at an out-of-state casino. A **reallocated** patron is someone who indicated that, had the casino never opened, they would have spent the money they spent at the casino on other goods and services within Massachusetts. A **new** patron is an out-of-state patron who would not have visited Massachusetts were it not for the casino. An **incidental** patron is someone whose visit to the casino area (if from Massachusetts) or to Massachusetts (if from out-of-state), was not prompted by the casino.

Recaptured in-state patrons are people who live in Massachusetts but who would have gambled out-of-state if not for the in-state option. For modeling purposes, UMDI treats all spending reported by recaptured in-state patrons as new to the state. This includes their off-site spending, as UMDI assumes that, if the casino did not exist, recaptured in-state patrons would be spending money on similar off-site expenditures in another state. Technically speaking, the on-site spending of recaptured in-state patrons is not used as an input in the model because the casino's revenues, which go to hire and pay employees, purchase intermediate goods and services, and pay state and local governments, are already captured in greater detail elsewhere in the modeling process.

Reallocated in-state patrons are people from Massachusetts who would not have visited the casino area were it not for the casino, but who also would not have gambled out-of-state. In other words, these are patrons who, were it not for the casino, would have likely spent their money on goods and services other than gambling. Therefore, the decision to visit the casino implies a movement (or reallocation) of spending from an activity in one region to a different activity in another. For simplicity, this is represented in the model as a decrease in consumption of a general basket of goods and services in the region where the patron lives, equal to the on-site and off-site expenditures of the patron. It is offset by an increase in off-site spending in the region that hosts the casino. On-site spending is already captured in the modeling of casino revenues.

Reallocated in-state incidental patrons are like reallocated in-state casino visitors, except that they indicated that the casino did not prompt their visit to the casino area. For example, they may live in the casino area itself, or they may have been running errands or visiting family in the casino area. In any case, they would have been in the area regardless of the presence of a casino. The primary way that this affects the economic modeling is that UMDI cannot assume that their spending outside of the casino would not have occurred if not for the existence of the casino. Therefore, it is neither added to the model as new spending nor reallocated from another region.

New out-of-state patrons are visitors from other states who would not have visited Massachusetts were it not for the casino. While these residents live outside of Massachusetts, for modeling purposes, they are exactly the same as recaptured in-state patrons, as their expenditures during that visit would not have occurred within the Commonwealth if not for the casino.

Captured out-of-state incidental patrons are people who would have visited Massachusetts regardless of whether the casino existed, but who chose to gamble here rather than in their home state now that it does exist. These are patrons who live out of state, who reported that the casino did not prompt their visit to Massachusetts, but also reported they would have spent the money that they spent at the casino on gambling at an out-of-state casino if the casino did not exist. Similar to reallocated in-state incidental patrons, these patrons are drawn to the casino area by a purpose unrelated to the existence of the casino, but their stay would probably have been shorter and less expensive were it not for the casino. These survey responses of these patrons do not have any effect on the economic model because their spending at the casino is already captured through employment, payroll, vendor spending, and fiscal data. Any spending these patrons do off-site is also assumed to be part of the regular course of their visit to Massachusetts, which would have occurred without the casino.

Reallocated out-of-state incidental patrons are patrons whose visit to Massachusetts was not prompted by the casino, and who would not have otherwise spent the money they spent at the casino on gambling out-of-state. In other words, they are out-of-state visitors who would have come to Massachusetts without the casino and instead chose to spend their time and money at the casino rather than elsewhere in Massachusetts. Our economic model treats these patrons in a similar way to the reallocated in-state casino visitors. The one exception is that instead of having their spending reallocated from a regional consumption basket to casino revenues, it is reallocated from a basket of goods and services frequently consumed by tourists in Massachusetts.

PATRON TYPE	Patron Origin	Would have gambled in another state if not for this casino	This casino prompted visit to the area (MA residents)	This casino prompted visit to the area (non-MA residents)	On Site Spending	Off Site Spending
Recaptured In-State	MA	Yes	NA	NA	Not Modeled	Modeled New
Reallocated In-State	MA	No	Yes	NA	Modeled Reallocated	Modeled Reallocated
Reallocated In-State Incidental	MA	No	No	NA	Modeled Reallocated	Not Modeled
New Out-of-State	Out-of-State	NA	NA	Yes	Modeled Reallocated	Not Modeled
Captured Out-of-State Incidental	Out-of-State	Yes	NA	No	Not Modeled	Not Modeled
Reallocated Out-of-State Incidental	Out-of-State	No	NA	No	Modeled Reallocated	Modeled Reallocated