



GAMING INDUSTRY ANALYSIS:

Potential Impacts of an Atlantic City Casino Smoking Ban on Gross Gaming Revenue

Prepared for Casino Association of New Jersey
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Executive Summary

The Casino Association of New Jersey (“Client”), which represents the seven casino operators (and all nine casinos) in Atlantic City, engaged Spectrum Gaming Group (“Spectrum,” “we” or “our”) to independently analyze the potential effect a possible smoking ban would have, collectively, on the Atlantic City casino industry’s gross gaming revenue (“GGR”) and the resulting State of New Jersey (“State”) gaming taxes.

It is beyond the scope of this study to consider other impacts or issues that may be associated with smoking or a smoking ban. Further, Spectrum offers no opinion or recommendation whether smoking should be allowed on casino floors.

New Jersey has earned an A from the American Lung Association for its clean-air practices, which include prohibiting smoking in all workplaces, as well as in restaurants, schools, child-care facilities, retail stores and bars (with the exception of cigar bars and lounges), and notably the state has penalty and enforcement provisions in place. One glaring exception to the state’s widespread anti-smoking policy is the Atlantic City casino industry, whose members are allowed under a local ordinance to allow smoking in up to 25% of the casino floor space, and the American Lung Association duly notes that exception and has urged that it be eliminated.

Spectrum’s analysis recognizes that this exception allows for a scenario in which Atlantic City casinos become a more attractive recreational outlet for smokers. Smoking restrictions cover nearly every public entertainment option, a reality that in turn makes Atlantic City casinos a more prominent oasis for smokers.

The calculus through which adults select their entertainment options is broad and complex, ranging from convenience to cost to various other preferences. The ability to smoke in an indoor public setting may be a factor for adults who cannot indulge in smoking at movies, bars, restaurants or shopping outlets.

While the level of that preference cannot be definitively determined, its existence can reasonably be presumed as a factor that accounts for the demographic differences among casino visitors. To put that another way, if smoking were banned at casinos in New Jersey, Pennsylvania and Connecticut, the demographics among casino visitors would likely adhere more closely to the demographic mean. The appeal of casinos to smokers would likely diminish under such a scenario.

The presence of that appeal would clearly account for the longstanding differential between the level of smokers in the general population (13% in New Jersey, 14% nationally) and their significantly greater representation amongst casino visitors, a differential that has been identified in demographic studies.

With that in mind, Spectrum first estimated the prevalence and value of casino smokers, based on an earlier visitor profile study and on current data provided by casino operators. We found that smokers account for a higher percentage of casino patrons than they do in the general adult population, and smokers spend significantly more than non-smokers while gambling on a per-capita basis. As such,

- Spectrum estimates that 21% of Atlantic City casino players are smokers
- Spectrum applied a 25% premium to smokers' gambling expenditure value to the casinos in our low case and a 50% premium in our high case

Starting with those assumptions, Spectrum developed a range of projected GGR impact based on our research and analysis, which included the following:

- Analysis of GGR impacts when casino smoking bans were instituted in Delaware, Illinois and New Orleans.
- Other related empirical data.
- Assessment of previous studies regarding casinos and smoking, all of which are of limited value for this report for various reasons, not the least of which is because of the passage of time. Smoking prevalence rates have declined significantly since those studies were conducted.
- Interviews with casino employees, casino management, advocacy groups, and others who participate in, or who closely follow, the Atlantic City casino industry.
 - We spoke with the property or finance heads of seven of the nine casinos. They provided us with proprietary performance data regarding smoking areas vs. non-smoking areas, on the condition that neither they nor their properties be disclosed.

A critical assumption in our analysis is that Pennsylvania casinos would continue to allow smoking, per the commonwealth's pre-Covid-19 policy.¹

Spectrum developed a range of GGR impacts that is necessarily broad, recognizing that certain factors are unknowable at this time but would be significant were a smoking ban to be enacted in Atlantic City casinos. Such factors include:

- The intensity of the marketing and promotional response by Pennsylvania casino operators, who could target dissatisfied Atlantic City casino smokers with direct marketing programs and broader advertising programs.
- The facility response by Atlantic City casino operators. Outdoor gaming areas are common at casinos in other jurisdictions in which smoking is prohibited. Some smoking areas are rather lavish and comfortable while others appear to be less accommodating. The quality and convenience of such outdoor gaming areas at Atlantic City casinos would clearly vary by property, and would involve capital investment and additional operating costs due to the inefficiencies of having separate gaming areas.
- The quality of the marketing response by Atlantic City casino operators.
 - Reaching patrons who smoke to inform them about the new policy and any new facilities that would be developed to accommodate smoking.

¹ During the Covid-19 pandemic, some Pennsylvania casinos have at least temporarily prohibited smoking, either by choice or by local health ordinance.

- Reaching adults who currently do not visit Atlantic City casinos – or those who visit less frequently or for less time – because they find the smoky casino floors to be unappealing to inform them about their entirely smoke-free casino floors.
- The amount of time between the enactment and implementation of the casino smoking ban. The longer the gap, the more time casino operators would have to:
 - Develop quality outdoor gaming areas
 - Communicate their plans to patrons who currently smoke
 - Develop marketing programs to attract more non-smokers.

Spectrum projects that a smoking ban in Atlantic City casinos would have the following effects on revenue in Year 1:²

- A smoking ban would result in a GGR decline of between 5.0% and 11.9% among patrons who smoke.
- Non-smokers attracted to the smokefree air may increase their play by 1.0% to 1.5% (in GGR)
- On a *net* basis, a smoking ban would cause a GGR decline of between 4.2% and 10.9%
- A smoking ban would cause a decline in the casinos' non-gaming revenue of 3.0% in the low case and 6.5% in the high case
- Using 2019 (pre-Covid-19) data as a basis, we estimate a smoking ban would lead to declines in State of New Jersey gaming-tax receipts of between \$10.7 million and \$25.7 million to the Casino Revenue Fund and between \$1.7 million and \$4.0 million to the Casino Reinvestment Development Authority
 - Declines in total taxes of between \$17.2 million and \$44 million
- Reductions in revenue as described above could result in a net loss of between 1,021 and 2,512 jobs at the casino properties, based on comparisons to 2019 (pre-pandemic) levels. It is critical to note that such reductions in employment assume that the casinos would be at full employment as they were in 2019; at this time, most casinos are short-staffed, consistent with businesses across the country during the pandemic, and/or have purposely reduced their staffing levels; it to be determined whether those modified staffing levels will be permanent.

² Estimating GGR changes beyond Year 1 is dependent on a host of factors – including the casino operators' reactions to the smoking ban – that cannot be reasonably quantified at this time.

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Introduction

The Casino Association of New Jersey (“Client”), which represents the seven casino operators (and all nine casinos) in Atlantic City, engaged Spectrum Gaming Group (“Spectrum,” “we” or “our”) to undertake an independent analysis of the effect a possible smoking ban would have, collectively, on the casinos’ gross gaming revenue (“GGR”) and the resulting State of New Jersey (“State”) gaming taxes.

It is beyond the scope of this study to consider other impacts that may be associated with a casino smoking ban. Further, Spectrum offers no opinion or recommendation whether smoking should be allowed on casino floors.

GGR is the amount that the casinos retain after all winning wagers have been paid. The casinos pay the State a combined gaming tax of 9.25% on their GGR, which is divided as follows:

- 8.00% deposited into the Casino Revenue Fund, which benefits programs for senior and disabled New Jerseyans; and
- 1.25% deposited into the Casino Reinvestment Development Authority, which funds economic and community development programs in Atlantic City.

A. Smoking in Atlantic Casinos

Patrons have been allowed to smoke on the gaming floors of Atlantic City casinos since the commencement of gaming there in 1978, with notable exceptions and events that include:

- The New Jersey Smoke-Free Air Act of 2006 prohibited smoking in workplaces and indoor public places throughout the State – except for certain specifically exempted establishments, including casinos.
- In February 2007, the City of Atlantic City passed an ordinance restricting smoking on a casino floor to 25% of the gaming area, with required separate, designated smoking and non-smoking areas.
- Effective October 15, 2008, the City passed another ordinance that required casinos to be entirely smokefree. However, less than two weeks later the City passed a new ordinance in which casinos could revert to the previous 25% smoking, effective November 16, 2008. This meant the casinos were smokefree for one month.³
- In April 2012, Revel opened as the first Atlantic City casino property to be entirely smokefree. The property closed in September 2014.⁴
- On July 2, 2020, casinos were allowed to reopen after being shuttered for 15 months due to the Covid-19 pandemic – but smoking was prohibited. Three months later, as NJ.com

³ “Atlantic City, NJ,” Global Advisors on Smokefree Policy. <http://www.njgasp.org/smokefree-gaming/atlantic-city-nj/> (accessed August 31, 2021)

⁴ The property reopened under new ownership, and a new name – Ocean Casino Resort – in June 2018 and has the same smoking policy as other Atlantic City casinos.

reported, “[Governor Phil] Murphy was originally set to allow smoking to return there when statewide indoor dining resumed in September. But he reversed course after backlash from health experts who said it was too much of a risk because smoke may help Covid-19 spread.”⁵

- The State lifted the temporary, Covid-19-related ban on July 4, 2021. Governor Murphy said at the time he would be receptive to making the smoking ban permanent.⁶

The competition for casino patrons in the Northeast/Mid-Atlantic region is fierce, with 32 casinos operating within a 150-mile radius of Philadelphia. Those casinos generated total GGR of \$11.8 billion for the 12-month period ending August 2021, including \$8.5 billion from live slots and table games.⁷

Figure 1 provides the casino smoking policies in Northeast states with casinos. Among the primary competitors to Atlantic City, Pennsylvania permits smoking on 50% of its casino floors, although the highest-grossing casino in that state, Parx, has opted to remain smokefree⁸ since the state allowed a resumption of smoking on casino floors in June 2021. The two Philadelphia casinos, Rivers and Live, are smokefree due to the city’s indoor mask mandate. The state-regulated casinos in Delaware, Maryland and New York are smokefree; the tribal casinos in Connecticut and New York permit smoking. Many casinos where smoking is prohibited indoors do have covered outdoor gaming areas where smoking is permitted.

Figure 1: Northeast states’ indoor casino-floor smoking policies

State	Casino Smoking Policy*
Connecticut	Smoking permitted in the casinos, which are operated by sovereign, Native American entities
Delaware	Smoking prohibited as of November 2002
Maine	Smoking prohibited since opening of first casino in 2005
Maryland	Smoking prohibited since commencement of casino gaming in 2010
Massachusetts	Smoking prohibited since commencement of casino gaming in 2015
New Jersey	Smoking permitted on 25% of casino floor
New York	Smoking prohibited at state-regulated casinos, allowed in Native American casinos
Pennsylvania	Smoking permitted on 50% of casino floor
Rhode Island	Smoking permitted in designated areas; both casinos are currently smokefree by choice
West Virginia	Smoking restrictions vary by county; two of the five casinos are smokefree

Source: Spectrum Gaming Group research. *Casino smoking policies may have temporarily changed in certain jurisdictions due to health requirements related to Covid-19.

It is against this background that the Atlantic City casino operators seek to understand the impacts that a permanent smoking ban would have on their gaming revenues.

⁵ Brent Johnson, “Smoking ban in Atlantic City casinos due to Covid ends Sunday. Murphy wants permanent ban.” NJ.com, July 2, 2021. <https://www.nj.com/coronavirus/2021/06/smoking-ban-in-atlantic-city-casinos-due-to-covid-ends-sunday-murphy-wants-permanent-ban.html>

⁶ Ibid.

⁷ Spectrumetrix Mid-Atlantic Gaming Analysis.

⁸ As of the cover date of this report.

B. Smoking Trends Nationally

According to the most recent data provided by the Centers for Disease Control and Prevention,⁹ 14% of US adults in 2019 smoked cigarettes every day or on some days. The cigarette smoking prevalence varies by demographic group, as shown in Figure 2.

Figure 2: US adult cigarette-smoking prevalence rates, selected demographic groups, 2019

Male	15.3%
Female	12.7%
Ages 18-24	8.0%
Ages 25-44	16.7%
Ages 45-64	17.0%
Ages 65+	8.2%
White, non-Hispanic	15.5%
Black, non-Hispanic	14.9%
Asian, non-Hispanic	7.2%
Hispanic	8.8%
Northeast Region	12.8%
New Jersey	13.1%
Pennsylvania	17.0%
New York	12.8%
Delaware	16.5%
No diploma	21.6%
General Education Development	35.3%
High School diploma	19.6%
Some college	17.7%
Associate degree	14.0%
Undergraduate degree	6.9%
Graduate degree	4.0%
Less than \$35,000 income	21.4%
\$35,000 – \$74,999	15.7%
\$75,000 - \$99,999	11.4%
\$100,000+	7.1%

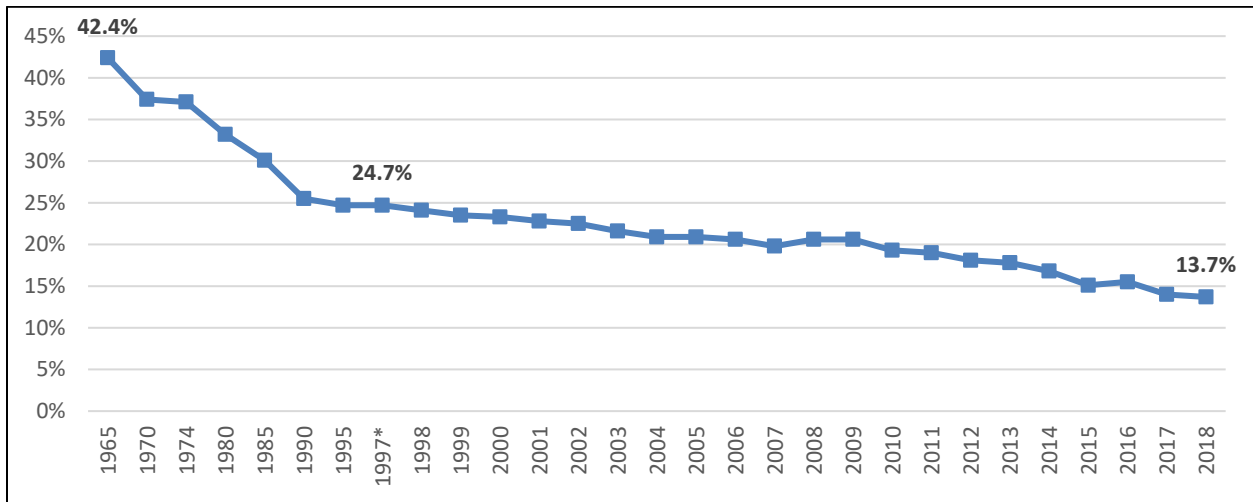
Source: Centers for Disease Control and Prevention

The prevalence of adult cigarette smoking has steadily declined through the years, according to the American Lung Association, and it declined by 44.5% during the 20-year period ending in 2018, as shown in Figure 3.¹⁰

⁹ Monica E. Cornelius, PhD; Teresa W. Wang, PhD; Ahmed Jamal, MBBS; Caitlin G. Loretan, MPH; Linda J. Neff, PhD, “Tobacco Product Use Among Adults — United States, 2019,” *Morbidity and Mortality Weekly Report*, Centers for Disease and Prevention, November 20, 2020; based on National Health Interview Survey, United States, 2019. https://www.cdc.gov/mmwr/volumes/69/wr/mm6946a4.htm?s_cid=mm6946a4_w#F1_down

¹⁰ “Trends in Cigarette Smoking Rates,” American Lung Association. <https://www.lung.org/research/trends-in-lung-disease/tobacco-trends-brief/overall-tobacco-trends> (accessed August 31, 2021)

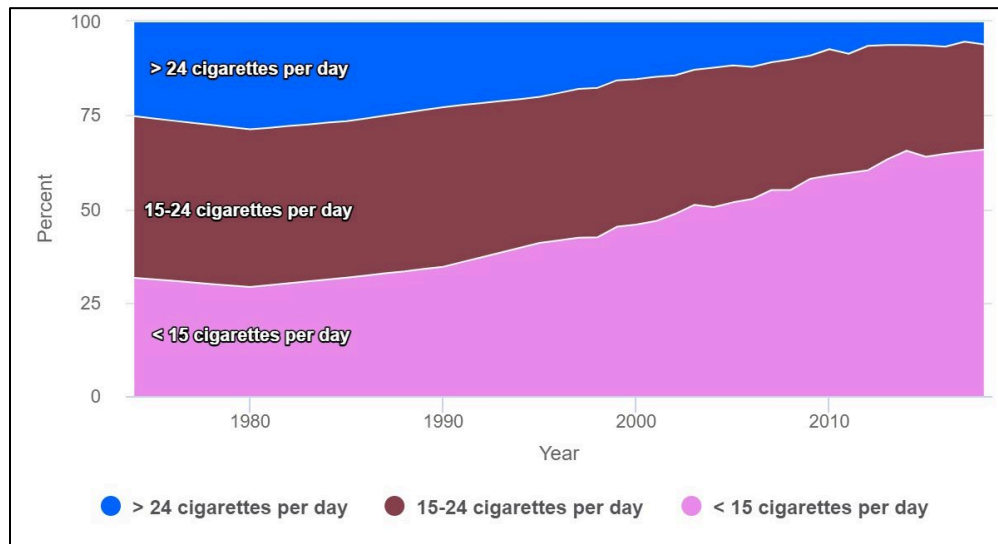
Figure 3: US adult cigarette-smoking prevalence rates, 1965-2018



Source: American Lung Association, via the Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey 1965-2018. Analysis for years 1997-2018 by the American Lung Association Research Team using SPSS software. *Due to the redesign of the NHIS survey in 1997, comparisons with data from prior years must be conducted with caution.

Among smokers, the number of cigarettes they smoke per day has been decreasing, as shown in Figure 4.

Figure 4: Average number of cigarettes smoked per day, among smokers, 1974-2018



Source: American Lung Association of analysis of Centers for Disease Control data, 1974-2018

C. Methodology

Spectrum recognizes that the topic of indoor cigarette smoking is controversial, especially as it pertains to the casino industry. In New Jersey and Pennsylvania, casinos were specifically exempted from statewide indoor workplace smoking bans. The issue typically pits the health and comfort of patrons and employees – and the advocacy groups that support them – against the casinos’ desire to maximize revenues and the state governments’ desire to maximize the concomitant gaming-tax receipts.

As noted above, this study is limited to the impacts that a permanent smoking ban on Atlantic City floors would have on gross gaming revenue. As detailed in Chapter IV of this report, Spectrum projected a range of potential GGR impact based our research and analysis, which included the following:

- Analysis of GGR impacts when casino smoking bans were instituted in Delaware, Illinois and New Orleans.
- Other related empirical data.
- Assessment of previous studies regarding casinos and smoking, all of which are of limited value for this report for various reasons, not the least of which is because of the passage of time. As seen above, smoking prevalence rates have declined significantly since those studies were conducted.
- Interviews with casino employees, casino management, advocacy groups, and others who participate in, or who closely follow, the Atlantic City casino industry.
 - We spoke with the property or finance heads seven of the nine casinos. They provided us with proprietary performance data regarding smoking areas vs. non-smoking areas, on the condition that neither they nor their properties be disclosed.

D. About Spectrum Gaming Group

This report was prepared by Spectrum Gaming Group, an independent research and professional services firm founded in 1993 that serves private- and public-sector clients worldwide. Our principals have backgrounds in operations, economic analysis, law enforcement, regulation and journalism.

Spectrum holds no beneficial interest in any casino operating companies or gaming equipment manufacturers or suppliers. We employ only senior-level executives and associates who have earned reputations for honesty, integrity and the highest standards of professional conduct. Our work is never influenced by the interests of past or potential clients.

Each Spectrum project is customized to our client's specific requirements and developed from the ground up. Our findings, conclusions and recommendations are based solely on our research, analysis and experience. Our mandate is not to tell clients what they want to hear; we tell them what they need to know. We will not accept, and have never accepted, engagements that seek a preferred result.

Our clients in 48 countries on six continents have included government entities of all types and gaming companies (national and international) of all sizes, both public and private. In addition, our principals have testified or presented before the following governmental bodies:

- Brazil Chamber of Deputies
- British Columbia Lottery Corporation
- California Assembly Governmental Organization Committee
- Connecticut Public Safety and Security Committee
- Florida House Select Committee on Gaming
- Florida Senate Gaming Committee
- Georgia House Study Committee on the Preservation of the HOPE Scholarship Program
- Georgia Joint Committee on Economic Development and Tourism
- Illinois Gaming Board
- Illinois House Executive Committee

- Indiana Gaming Study Commission
- Indiana Horse Racing Commission
- International Tribunal, The Hague
- Iowa Racing and Gaming Commission
- Louisiana House and Senate Joint Criminal Justice Committee
- Massachusetts Gaming Commission
- Massachusetts Joint Committee on Bonding, Capital Expenditures, and State Assets
- Michigan Senate Regulatory Reform Committee
- National Gambling Impact Study Commission
- New Hampshire Gaming Study Commission
- New Jersey Assembly Regulatory Oversight and Gaming Committee
- New Jersey Assembly Tourism and Gaming Committee
- New Jersey Senate Legislative Oversight Committee
- New Jersey Senate Wagering, Tourism & Historic Preservation Committee
- New York Senate Racing, Gaming and Wagering Committee
- New York State Economic Development Council
- North Dakota Taxation Committee
- Ohio House Economic Development Committee
- Ohio Senate Oversight Committee
- Pennsylvania Gaming Control Board
- Pennsylvania House Gaming Oversight Committee
- Puerto Rico Racing Board
- US House Congressional Gaming Caucus
- US Senate Indian Affairs Committee
- US Senate Permanent Subcommittee on Investigations
- US Senate Select Committee on Indian Gaming
- US Senate Subcommittee on Organized Crime
- Washington State Gambling Commission
- West Virginia Joint Standing Committee on Finance
- World Bank, Washington, DC

Disclaimer

Spectrum has made every reasonable effort to ensure that the data and information contained in this study reflect the most accurate and timely information possible. The data are believed to be generally reliable. This study is based on estimates, assumptions, and other information developed by Spectrum from its independent research effort, general knowledge of the gaming industry, and consultations with the Client and its representatives. Spectrum shall not be responsible for any inaccuracies in reporting by the Client or its agents and representatives, or any other data source used in preparing or presenting this study. The data presented in this study were collected through the cover date of this report. Spectrum has not undertaken any effort to update this information since this time.

Some significant factors that are unquantifiable and unpredictable – including, but not limited to, economic, governmental, managerial and regulatory changes; and acts of nature – are qualitative by nature and cannot be readily used in any quantitative projections. No warranty or representation is made by Spectrum that any of the projected values or results contained in this study will actually be achieved. We shall not be responsible for any deviations in the project’s actual performance from any predictions, estimates, or conclusions contained in this study.

Possession of this study does not carry with it the right of publication thereof, or the right to use the name of Spectrum in any manner without first obtaining the prior written consent of Spectrum. This study may not be used in conjunction with any public or private offering of securities or other similar purpose where it may be relied upon to any degree by any person other than the Client, without first obtaining the prior written consent of Spectrum. This study may not be used for any purpose other than that for which it is prepared or for which prior written consent has first been obtained from Spectrum. This study is qualified in its entirety by, and should be considered in light of, these limitations, conditions and considerations.

I. Impacts of Casino Smoking Bans in Other Jurisdictions

Several jurisdictions over the last 20 years have implemented permanent casino smoking bans well after their gaming industries had been established. Although the results appear to show a decline in gross gaming revenue post-implementation, there were other factors that contributed to declines, as discussed below.

A. Delaware

On November 27, 2002, the Delaware Clean Indoor Air Act took effect, prohibiting smoking at the state's three racetrack casinos (Dover Downs, Harrington Raceway and Delaware Park), which at the time were limited to video lottery terminals ("VLTs"). The impact on VLT revenue was significant in the first year of the smoking ban, as shown in Figure 5 below.

Figure 5: Delaware VLT GGR, 2000-2006

	2000	2001	2002	2003	2004	2005	2006
VLTs at Year End	5,151	5,277	5,430	5,683	6,435	6,581	7,360
Revenue (M)	\$485.1	\$526.6	\$565.9	\$502.0	\$553.3	\$579.4	\$651.7
Avg. Daily Win/Unit	\$257	\$273	\$286	\$242	\$235	\$241	\$243

Source: Delaware Lottery, UNLV Gaming Research Center

The smoking ban impact became noticeable in 2003. In addition, Hurricane Isabel in September 2003 caused minor disruptions in the state. VLT revenues fell by nearly \$64 million, or 11.3% for the year. At the time, the casinos in Atlantic City presented the only other Mid-Atlantic casino competition. After the first year of the smoking ban, revenues rebounded to nearly the same level as 2002, the year prior to the ban. By 2005, two years later, VLT revenues exceeded the 2002 level by \$13 million.

Throughout this period the operators continued to expand and add gaming positions, as the legislature approved extending casino operating hours and allowed additional machines at each track. Other legislative changes included permitting the casinos to extend credit to players, and removing the \$100 betting limit. Dover Downs began construction of an 11,000-square-foot addition to accommodate the new games.

While the smoking ban reduced VLT revenue in Delaware for a short period, legislative initiatives, capital investment by the casinos, and the lack of other competition meant that the dip in GGR was short-lived.

B. Illinois

The Smoke Free Illinois Act banned smoking in public places, including casinos. The act took effect January 1, 2008. In 2008, casino revenue at Illinois casinos declined dramatically, but why? The Illinois Gaming Board ("IGB") Annual Report discussed the results:

There are two factors underlying the reductions in this year's gaming revenues. The first is the smoking ban implemented by the Smoke Free Illinois Act (Public Act 95-0017), effective January 1, 2008. According to the casino industry, implementation of this Act has caused the AGR [adjusted gross receipts] per admission

to fall. This is because habitual smokers take smoking breaks, during which time they do not engage in gaming activity. The second factor is the downturn in the Illinois and national economies. As a discretionary form of spending, gaming expenditures are especially prone to reductions during hard economic times. The relative importance of the above two factors has not yet been quantified with certainty.¹¹

Illinois casino gamblers also may have left Illinois casinos for casinos in neighboring states that permit smoking. Notably, Quad Cities, Saint Louis, and Chicago gaming markets straddle state lines. The Peoria market, however, is not near a state line and thus can serve as a benchmark for the gaming markets that include another state. As can be seen in Figure 6 below, Illinois as a whole experienced a 20.9% year-over-year decline in GGR in 2008. Revenues at the Peoria casino declined by 12.1%, which seems to indicate that proximity of smoking casinos increases the likelihood of switching.

Figure 6: Annual percentage change in selected Illinois casino markets

Market Portion	2007 vs 06	2008 vs 07	2009 vs 08	2010 vs 09	2011 vs 10	2012 vs 11	Total % Ch
IL Properties Chicago Market	2.6%	-21.7%	-14.1%	-4.0%	13.9%	16.1%	-12.5%
IL Properties St. Louis Market	6.3%	-19.2%	-9.3%	-9.8%	-2.5%	-0.3%	-31.7%
IL Property Quad City Market	-8.6%	-4.1%	105.6%	12.6%	8.1%	2.3%	145.7%
Peoria Market	1.4%	-12.1%	-1.5%	0.2%	0.2%	0.7%	-11.2%
ALL Illinois Markets	3.1%	-20.9%	-8.9%	-3.9%	7.6%	10.9%	-14.8%
Non IL Portion of Markets	-2.5%	1.7%	0.6%	2.5%	-1.9%	-1.1%	-0.7%

Source: Deutsche Bank

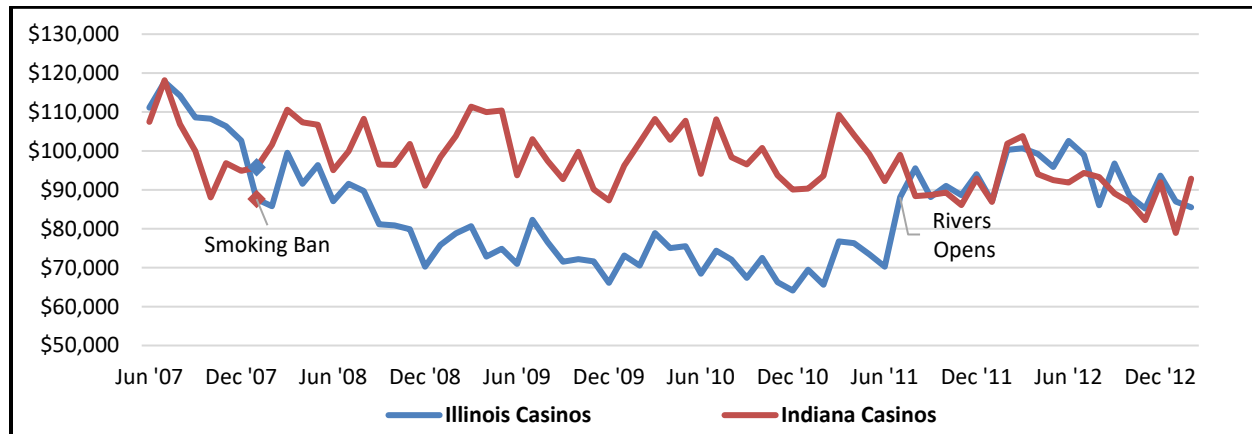
The performance was not uniform across the state or the markets. Several factors contribute to the varied results. Below we discuss these factors and review each sub-market.

1. Chicagoland

At the time of the implementation of the Illinois smoking ban in 2008, the Chicagoland casino market included nine riverboat casinos: four in Illinois (two in Joliet, one in Elgin, and one in Aurora) and five in Indiana (one in Hammond, one in East Chicago, two in Gary, and one in Michigan City). In 2008, the Illinois casinos experienced a significant decline in GGR while the casinos in Indiana saw increased revenue.

¹¹ Illinois Gaming Board Annual Report 2008. <https://www.igb.illinois.gov/AnnualReport.aspx>

Figure 7: Chicagoland casino market monthly GGR by state, June 2007-December 2012



Source: Deutsche Bank, Spectrum Gaming Group

The imbalance of GGR and the GGR trend are evident in Figure 7: The Illinois GGR share declined while the Indiana share increased.

In 2011, a tenth casino, Rivers Casino Des Plaines, opened in the Chicagoland market. Rivers is the only casino in Illinois’ Cook County. It is located five miles from Chicago O’Hare International Airport and easily accessible from the city of Chicago and its suburbs via interstate. Once the Rivers casino opened, the revenue balance shifted back to Illinois favor, despite the fact that Rivers, like all the other Illinois casinos, was a non-smoking property.

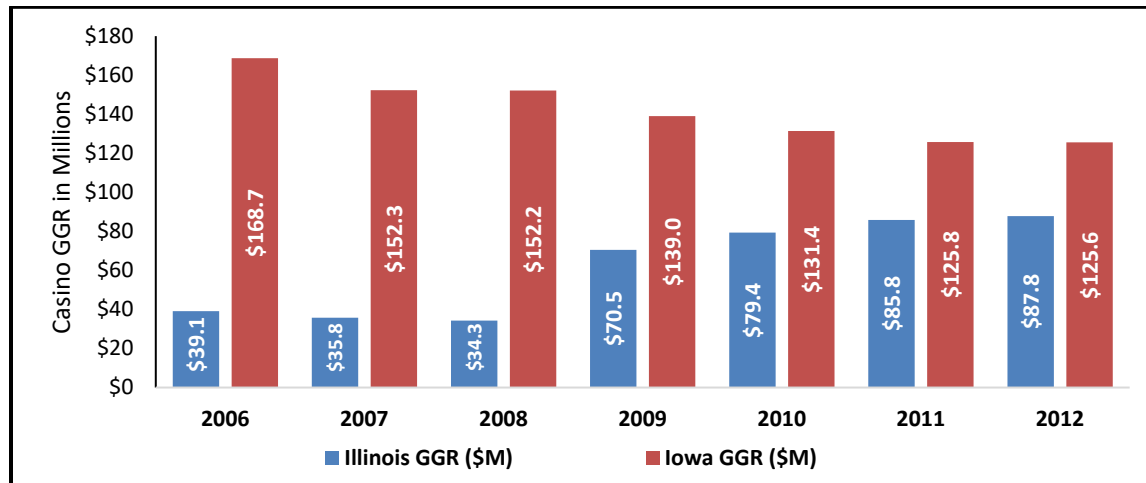
While it appears the smoking ban had a negative impact on GGR at the Chicagoland casinos in Illinois, the opening of a new, modern casino expanded the market and, from a market-wide perspective, limited the impact of the smoking ban.

2. Quad Cities

The Quad Cities gaming market includes Bettendorf and Davenport in Iowa and Moline and Rock Island in Illinois. For many years, the market was stable. Early on, there were three casinos in the market: two in Iowa and one in Illinois. The market is ideal for studying the impact of differing state regulations.

In December 2008, Jumer’s Rock Island casino in Illinois opened a new casino and hotel complex. This investment coincided with a surge in revenue at the property. Figure 8 below depicts the Quad Cities GGR by state from 2006 to 2012.

Figure 8: Quad Cities casino GGR by state, 2006-2012



Source: H2 Gaming Capital

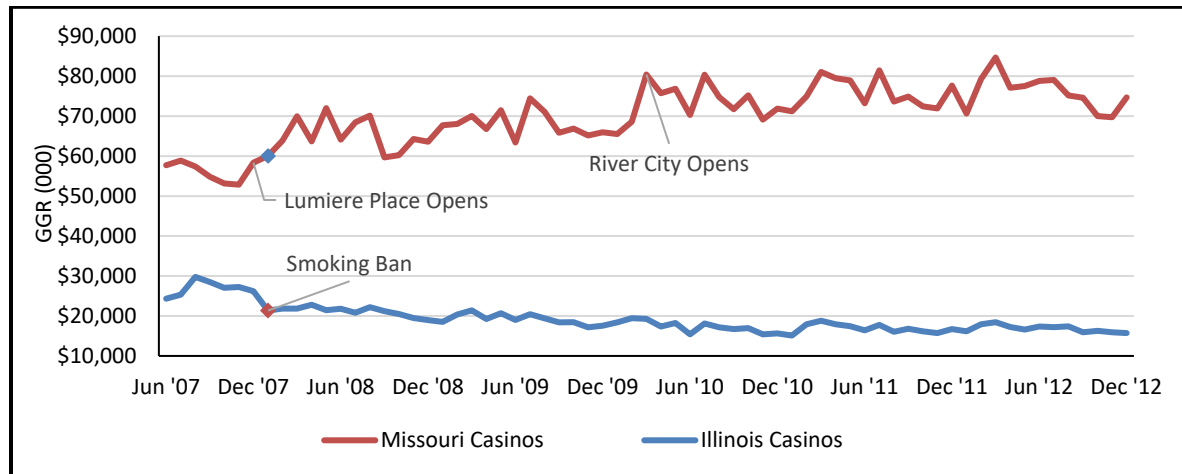
From the data presented above, it appears that the smoking ban had minimal impact on gaming revenues at the Jumer’s Rock Island casino in Illinois. Of more interest is that when the property was enhanced and updated after the smoking ban was implemented, casino revenues increased. The share of gaming revenue in Illinois grew despite – or perhaps because of – the smoking ban. Non-smoking patrons may have chosen the new, modern smokefree casino as a preferred alternative to less-appealing, first-generation casino boats in Iowa. We cannot know the motivations of the patrons, just the impact on GGR. It is notable that some players chose the new casino over casinos where smoking is permitted.

3. St. Louis

In 2006, there were four casinos in the St. Louis gaming market: two in Illinois (one in Alton, one in East St. Louis) and two in Missouri (one in St. Charles, one in Maryland Heights). In December 2007 – two weeks before the Illinois smoking ban took effect – the \$507 million Lumiere Place casino hotel opened in downtown St. Louis, giving the market a fifth casino. Later, in March 2010, River City casino opened south of downtown St. Louis, adding a sixth casino to the market.

Figure 9 shows the GGR performance of the St. Louis market, with key events indicated.

Figure 9: St. Louis area casino GGR by state, June 2007-December 2012



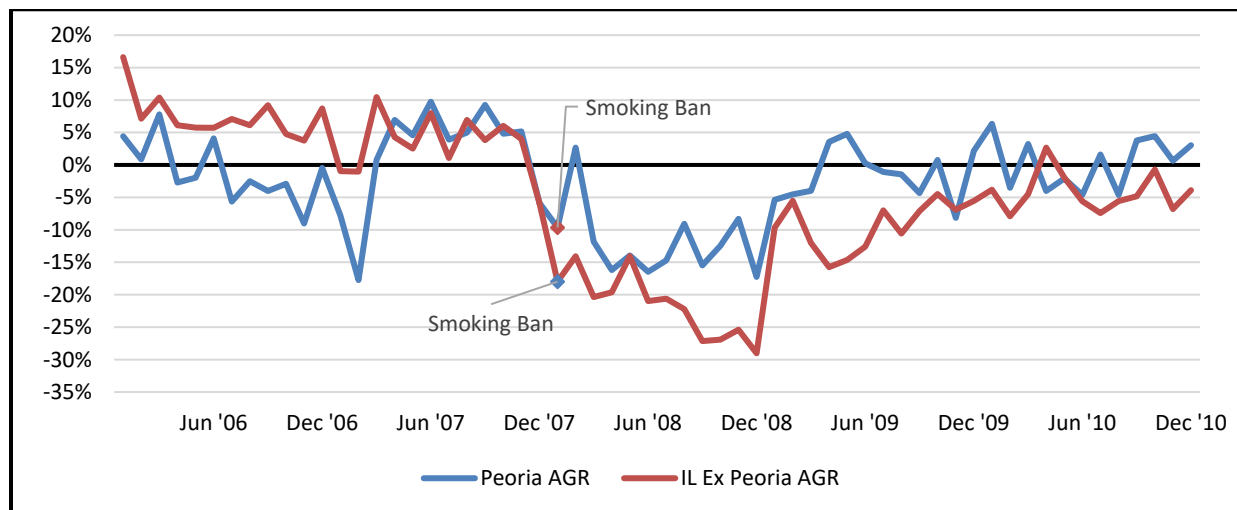
Source: Deutsche Bank

There is no real means to separate the impact of the smoking ban on Illinois casino revenue in the St. Louis market from the impact a new casino would have on offering a better product. There is clearly a jump in revenue on the Missouri side of the river, and a 10% decline in GGR at the Illinois casinos in the market. Spectrum cannot determine how much of the shift in revenues and growth of the market is due to a new casino and how much is due to the Illinois smoking ban.

4. Peoria

The Peoria gaming market is entirely within Illinois. The Par-A-Dice casino has been operating there since 1992, with no new casino entrants in the area. The closest casino competition is in the Quad Cities market, approximately 75 miles northwest of Peoria, and a casino in Burlington, IA. Because of its relative isolation, Spectrum believes the Peoria market provides a good benchmark to evaluate the impact of a smoking ban in a market without being affected by competing casinos where smoking is allowed.

Figure 10: Year-over-year AGR percentage change in Peoria and all Illinois excluding Peoria, 2006-2010

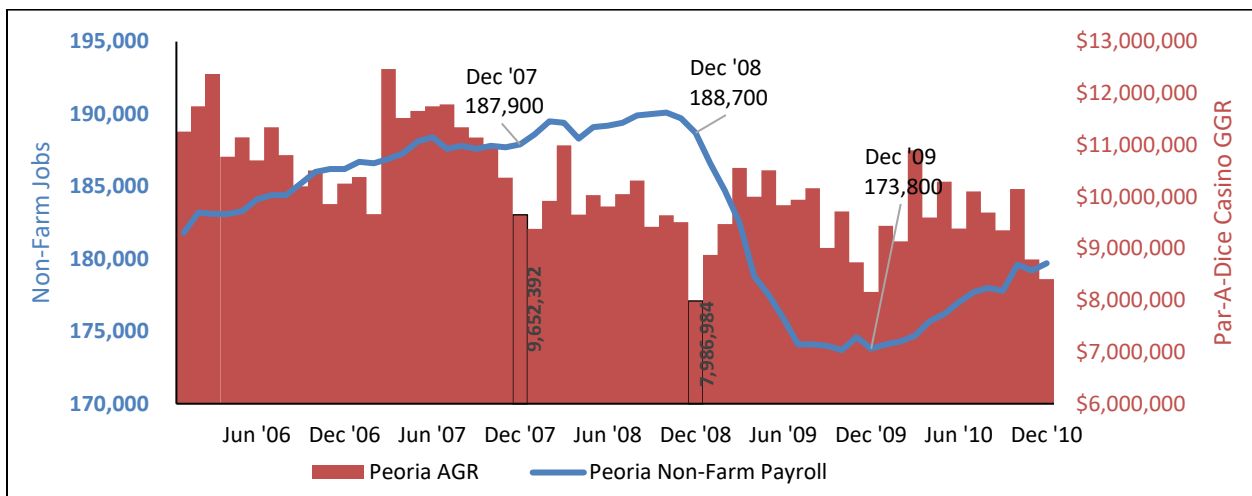


Source: Illinois Gaming Board. **Note:** AGR = adjusted gross receipts, essentially the same as gross gaming revenue.

Protected by distance from casinos where smoking was permitted, adjusted gross receipts, (“AGR”) at the Peoria casino declined but by less than the rest of the state. Figure 10 above presents the monthly year-over-year percentage change in AGR for five years. It can be argued that without smoking casinos for competition, local casino patrons had no choice but to visit the Peoria property. As a result, there was less of a swing to other states as was seen in other markets.

Another factor mentioned by the IGB in its annual report for 2008 was the recession that began that year. Figure 11 below presents total non-farm employees in the Peoria metropolitan statistical area (“MSA”) by month. It is clear that while employment fell dramatically in the MSA in 2009, there was a slight rise in payroll employment in calendar year 2008. This gives an indication that perhaps the smoking ban in Peoria Illinois was more of a cause of the revenue decline than the recession.

Figure 11: Peoria casino GGR and non-farm employment in Peoria 2006-2010



Source: St. Louis Federal Reserve

C. New Orleans

The New Orleans casino market includes four casinos in Louisiana and the casinos in the nearby Mississippi Gulf Coast cities of Bay St. Louis, Biloxi and Gulfport. Two of the Louisiana casinos, Harrah’s New Orleans and Fair Grounds Race Course & Slots, are located in Orleans parish. Two other casinos, Boomtown and Treasure Chest, are located in Jefferson Parish. Fair Grounds Race Course offers only slots whereas the other properties offer tables and slots. Because we are trying to measure the impact of smoking on play, we have focused on slot revenue for the Louisiana casinos for comparison purposes. The Mississippi Gulf Coast casinos are a longer drive from the New Orleans metro area but they permit smoking. In April 2015, Orleans Parish imposed a smoking ban on casinos.

The smoking ban appears to have benefitted nearby Treasure Chest in Kenner and Boomtown in Harvey at the expense of the Orleans Parish properties. In the following 24 months, the slot win at Harrah’s declined more than \$45 million and the slot win declined \$3.9 million at Fair Grounds; slot win increased at Boomtown and Treasure Chest in Jefferson Parish by a nearly \$11 million combined in this same timeframe. Revenue grew at the Mississippi Gulf Coast casinos. The Mississippi Gaming Commission

releases GGR data in total without breaking out slot and table revenue. We used the total GGR for the Mississippi casinos.

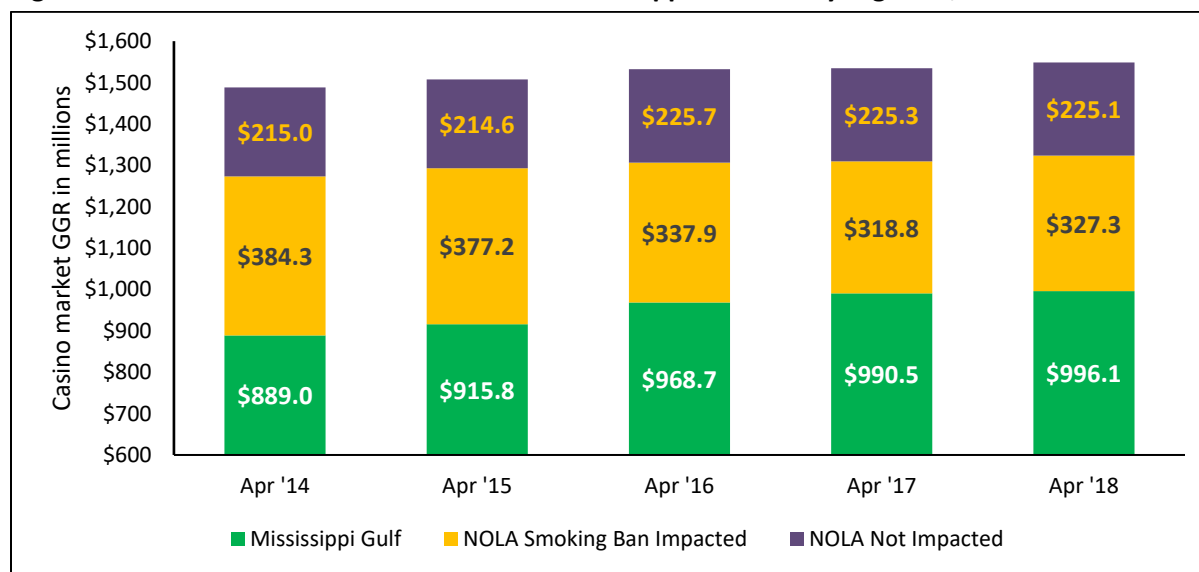
Figure 12: New Orleans market slot revenue LTM, April 2014-April 2018

LTM Slot Revenue (M)	April 2014	April 2015	April 2016	April 2017	April 2018	% Change, 2014-2018
Boomtown Harvey Slots	\$116.3	\$114.1	\$119.7	\$118.3	\$116.9	0.5%
Treasure Chest Slots	\$98.7	\$100.5	\$106.0	\$107.0	\$108.2	9.7%
Fair Grounds Slots	\$46.0	\$45.9	\$42.0	\$41.9	\$41.9	-8.9%
Harrah's New Orleans Slots	\$338.3	\$331.3	\$295.9	\$277.0	\$285.4	-15.6%
Coastal MS- All GGR	\$889.0	\$915.8	\$968.7	\$990.5	\$996.1	12.0%
Total	\$1,488.3	\$1,507.6	\$1,532.3	\$1,534.7	\$1,548.6	4.0%

Source: Spectrumetrix

Another factor is the continued investment and improvement of the Mississippi Gulf Coast casinos. As the coast casinos rebuilt after Hurricane Katrina, some moved to the landside of US Route 90, affording them with modern facilities that patrons may find more appealing than the older Louisiana riverboats. We have grouped the casinos into three segments: NOLA smoking-ban-impacted (Harrah's and Fair Grounds), NOLA not-smoking-ban-impacted (Boomtown and Treasure Chest), and Mississippi Gulf Coast. The chart below presents the slot win from each segment of the market in the years immediately before and after the smoking ban.

Figure 13: New Orleans market LTM slot and Mississippi GGR win by segment, 2014-2018



Source: Spectrumetrix

The Louisiana Gaming Control Board (“LGCB”) annual report includes estimates of the percentage of visitation from over 150 miles away by casino, total casino visits and revenue for each casino.¹² We have used these estimates to develop estimates of local visitation and revenue, as a means to assess the

¹² Louisiana Gaming Control Board Annual reports, 2014-2019. http://lgcb.dps.louisiana.gov/annual_reports.html

impact of a smoking ban on casino visitation patterns from local patrons where the cost of switching from a non-smoking to a smoking casino is minimal. The data in Figure 14 show that local casino visitation and revenue decreased in both the smoking and non-smoking properties, which may mean that Louisiana lost casino players and their gaming revenues to Mississippi.

Figure 14: Estimated local annual visits and slot win in New Orleans market Louisiana casinos

Estimated Local Visits	2014	2015	2016	2017	2018	2019	% Change from 2014
Smoking Casinos	2,023,000	1,929,000	1,989,000	1,873,000	1,699,000	1,680,000	-17.0%
Non-smoking Casinos	3,744,000	3,617,000	3,534,000	3,250,000	3,125,000	3,150,000	-15.9%
Total Est. Local Visits	5,767,000	5,546,000	5,523,000	5,123,000	4,824,000	4,830,000	-16.2%
Estimated Local Revenue (000)							
Smoking Casinos	\$190,210	\$179,060	\$185,360	\$183,770	\$180,810	\$179,830	-5.5%
Non-smoking Casinos	\$249,990	\$235,990	\$218,270	\$210,560	\$215,590	\$218,590	-12.6%
Total Est. Local Rev	\$440,200	\$415,050	\$403,630	\$394,330	\$396,400	\$398,420	-9.5%

Sources: Spectrumetrix, Louisiana Gaming Control Board

II. Summaries of Casino-Smoking Studies

Different organizations over the last three decades have studied various aspects related to cigarette smoking in casinos. The studies have been conducted by academic institutions, consulting firms, advocacy groups, and others. Following are Spectrum’s synopses of studies that are most relevant to this report; i.e., those that relate to gaming revenues and smoking prevalence. Many other studies focus on the health aspects of smoking in casinos, but they are not included here because of the narrow scope of this report. We believe the synopses help to provide context for the discussion and analysis throughout this report. The synopses are presented in chronological order of the reports’ publication dates.

2005: *Smoking Ban Economic Effect Analysis*¹³

Prepared by: PricewaterhouseCoopers

Scope of Study: In light of a proposed smoking ban in Delaware, PricewaterhouseCoopers LLP (“PwC”) was hired to perform a preliminary analysis of the effect of the smoking ban on Delaware’s three gaming facilities and, among other things, estimate the effect of a smoking ban on the Atlantic City casino market’s gaming revenues.

Key Findings: PwC estimated the two-year cumulative effect on Delaware’s adjusted gaming revenues would be -19.12%. It estimated the two-year cumulative effect on the adjusted gaming revenues for Delaware’s Dover Downs would be -20.40%. It further estimated that if a smoking ban were to be effected in Atlantic City, the two-year cumulative effect on the adjusted gaming revenues for Atlantic City would be -20.40%.

Limitations: The study was done 16 years ago, and the numbers are projections rather than actual results. The study made certain assumptions, including that approximately 50% of the Delaware gaming market’s customers are smokers and that the relative gaming spend of smokers is approximately 10% higher than non-smokers.

2005: *Smoke-free law did not affect revenue from gaming in Delaware*¹⁴

Prepared by: L.L. Mandel, B.C. Alamar, and S.A. Glantz (published in *Tobacco Control*)

Scope of Study: The study attempted to determine the effect of the Delaware smoke-free law on gaming revenue. The Delaware Clean Indoor Air Act took effect on November 27, 2002. It made virtually all of Delaware’s public places and workplaces smoke-free, including the state’s three racinos.

¹³ “Smoking Ban Economic Effect Analysis,” PricewaterhouseCoopers, November 17, 2005. http://www.njgasp.org/wp-content/uploads/2014/05/i_economics_PWC-full-report.pdf

¹⁴ L.L. Mandel, B.C. Alamar, and S.A. Glantz, “Smoke-free law did not affect revenue from gaming in Delaware,” *Tobacco Control*, 2005. <https://tobaccocontrol.bmj.com/content/tobaccocontrol/14/1/10.full.pdf>

The publication says that while previous studies had examined the effects of smoke-free laws and ordinances on the hospitality industry and charitable bingo, this was the first study to examine the effects of a state-wide smoke-free law on gaming revenue.

Key Findings: “The linear regression showed that the smoke-free law was associated with no effect on total revenue or average revenue per machine.”

Note: *Tobacco Control* later published a correction to this study. It said the article contained inaccurate results because of a data entry error. The correction stated that “(t)he analysis based on the corrected data confirms the results of the published paper, that the smoke-free law had no affect [*sic*] on revenue from gaming in Delaware.”

Limitations: The study was published in 2005. Unlike most studies synopsized in this chapter, this paper did not note any limitations of the study.

2006: Smoke-free law did affect revenue from gaming in Delaware¹⁵

Prepared by: M.R. Pakko (published in *Tobacco Control*)

Scope of Study: Pakko examines the data and methodologies used in the study by Mandel, Alamar, and Glantz (see above) and concludes that their finding is questionable. “Using more general approaches to controlling for heteroskedasticity and seasonality in the data, I find that both total gaming revenues and revenues per VLT declined significantly after the implementation of the Delaware smoke-free law.” According to the Corporate Finance Institute, “Heteroskedasticity refers to situations where the variance of the residuals is unequal over a range of measured values. When running a regression analysis, heteroskedasticity results in an unequal scatter of the residuals (also known as the error term). When observing a plot of the residuals, a fan or cone shape indicates the presence of heteroskedasticity. In statistics, heteroskedasticity is seen as a problem because regressions involving ordinary least squares (OLS) assume that the residuals are drawn from a population with constant variance. If there is an unequal scatter of residuals, the population used in the regression contains unequal variance, and therefore the analysis results may be invalid.”¹⁶

Key Findings: The author finds that the smoke-free law in Delaware did affect revenue from gaming. “This finding is statistically significant and quite robust. The public health benefits of smoke-free laws should be weighed against these (and other, similar) economic costs.” The author also disagrees with the original study’s contention that only the seasonal effects of winter are relevant. The author finds that the results reveal significant seasonal variation.

¹⁵ M.R. Pakko, “Smoke-free law did affect revenue from gaming in Delaware,” as published in PubMed Central, US National Library of Medicine, National Institutes of Health, 2006.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2563623/>

¹⁶ “What is Heteroskedasticity,” Corporate Finance Institute.
<https://corporatefinanceinstitute.com/resources/knowledge/other/heteroskedasticity/> (accessed September 29, 2021)

In a separate summary, the author wrote: “After correcting for evident errors in that analysis, I find that the smoke-free law did affect revenues from gaming in Delaware. Total gaming revenues are estimated to have declined by at least \$6 million per month after the implementation of Delaware’s Clean Indoor Air Law. This represents a loss of over 12% relative to average monthly revenues in the year preceding the smoking ban.”¹⁷

Limitations: The disagreement between the two Delaware impact studies cited comes down to interpretation of statistics.

2006: *The Percentage of Gamblers Who Smoke: A Study of Nevada Casinos and other Gaming Venues*¹⁸

Prepared by: Dr. Chris A. Pritsos, University of Nevada Reno

Scope of Study: Authors attempted to determine actual percentage of gamblers in Nevada who smoke. Gaming industry officials and lobbyists say the percentage is upward of 70%, based on anecdotal information obtained in a survey of casino executives. Health organizations suggest the number is more in line with the national average of smokers, which at the time was 20.9%.

Key Findings: Authors say they observed 17,723 gamblers, of whom 1,335 were smoking. Because smokers don’t smoke constantly, the study used a methodology published in 1980 by Repace and Lowry to determine the number of smokers in a room. The results from the three tourist centers of Nevada they surveyed (Las Vegas, Reno/Sparks and Lake Tahoe) gave similar results for the percentage of smokers (21.5, 22.6 and 17.0 respectively). Observations of smaller casinos in rural communities showed higher smoker rates amongst gamblers of 36.5%, which, the authors wrote, most likely reflects the higher percentage of smokers in these communities and the fact that much of the gaming patronage is from locals. The percentage of gamblers who smoke at local grocery, drug and convenience stores that have slot machines in Nevada is also higher, with a rate of 42%.

Overall, the results of this study suggest that the percentage of smokers at tourist destination gaming establishments is reflective of the overall percentage of smokers in the population. The percentage of smokers at small rural or non-tourist dependent gaming establishments may better reflect the percentage of smokers in that local area/community than that of the overall US population.

Limitations: The study was published 15 years ago. Authors acknowledge that the methodology used to count smokers might overestimate the number of smokers (because it assumes all smokers are habitual smokers, when 19.2% of smokers do not smoke every day, according to a 2005 report in *Morbidity and Mortality Weekly*). The study was limited to gamblers on the casino floor. Players in the smoke-free poker rooms and people seated at bars in the casino were not included in the study. Authors

¹⁷ M.R. Pakko, “Smoke-free law did affect revenue from gaming in Delaware,” Semantic Scholar, 2006. <https://www.semanticscholar.org/paper/Smoke-free-law-did-affect-revenue-from-gaming-in-Pakko/d21c6fd10dfa735b89789da130a7f6a382aef5c9>

¹⁸ Dr. Chris A. Pritsos, “The Percentage of Gamblers Who Smoke: A Study of Nevada Casinos and other Gaming Venues,” University of Nevada Reno, 2014. <https://core.ac.uk/display/100466600>

acknowledge that the small number of gamblers observed at grocery stores, convenience stores and high-minimum table games (except in the Las Vegas Strip casinos) made the sample sizes in those subcategories too small to be meaningful.

2010: *The Revenue Performance of Casinos after a Smoking Ban: The Case of Illinois*¹⁹

Prepared by: Federal Reserve Bank of St. Louis

Scope of Study: This study explored the effects that the Illinois state smoking ban, which took effect at the beginning of 2008, had on Illinois casino revenue, casino attendance, and casino tax revenue. The study compared the performance of Illinois casinos with out-of-state casinos (where there was no smoking ban) that share a market with Illinois casinos.

Key Findings: The results indicated that Illinois casinos suffered losses of more than 20% – well over \$400 million – in total during the first year of the Smoke Free Illinois Act.

“Some of this loss appears to be associated with casino patrons gambling less when they do attend the casinos, and part of the loss is also evident in declining attendance. We find that the impact of the smoking ban on total admissions amounts to around 10%, with our point estimates indicating a downturn in the range of 9 to 13%. These estimates imply total casino tax revenue was lower by roughly \$200 million. The economic effects of the Smoke Free Illinois Act — specifically with regard to casino revenue and government tax receipts — represent only part of the Act’s overall impact. In a full analysis, these effects need to be considered alongside costs and benefits, including the public health benefits of the legislation.” The authors wrote that their findings “are consistent with the survey results of Petry and Oncken (2002), which suggests that smoking patrons visit casinos more often and wager more money. The results ... suggest that smoking patrons continued to visit the casinos, but perhaps did not visit as often, stay as long, or wager as much as they did before the ban.”

The study found that the one casino that seemed least affected by the smoking ban was the one that faces the least competition – the Par-A-Dice casino in Peoria. Its location in the center of the state sets it approximately 90 miles from the nearest competition.

Limitations: The study was limited to casinos in Illinois and certain surrounding states. Also, the authors acknowledge that the timing of the Illinois smoking ban coincided with a general economic downturn in Illinois and the nation as a whole. That makes it hard to assess how much a decline in casino revenue was caused by the economic downturn and how much was caused by the smoking ban, although the authors “attempted to statistically disentangle the factors underlying the decline in Illinois casino revenue.”

¹⁹ Thomas A. Garrett, and Michael R. Pakko, “The Revenue Performance of Casinos after a Smoking Ban: The Case of Illinois,” Federal Reserve Bank of St. Louis, March 2010. <https://doi.org/10.20955/wp.2009.027>

2011: Consumer Attitudes and Visit Intentions Relative to a Voluntary Smoking Ban in a Single Casino Resort with a Dense Competitive Set²⁰

Prepared by: Gregory T. Bradley and Cherylynn Becker, University of Southern Mississippi (published in Academy of Health Care Management Journal)

Scope of Study: The study was conducted to assess the feasibility of implementing a voluntary smoking ban at a major casino resort in an established regional gaming market in the southeastern United States. While, according to the most recent statistics, the smoking incidence rate across the country is 18.4%, the population under study has one of the highest regional smoking rates in the country at 22.4% (Centers for Disease Control, 2010). As such, the primary objectives of this research were to assess smoking rates among gamblers within the prescribed population, and, subsequently, to determine how the hypothetical implementation of a voluntary smoking ban at a single property in this competitively dense market would affect the attitudes and behaviors of gamblers with regard to modifying their casino choice and visitation frequency.

Key Findings: Based on data collected for a large-scale research study, it was found that there was a substantial difference between smokers and non-smokers in attitudes, perceptions, and behavioral intent regarding the elimination of smoking at their favorite casino or another casino in the market.

- Gamblers reported a smoking rate that was actually lower (18.4%) than the smoking rate in the defined population (22.4%). However, it should be noted that the authors did not distinguish between frequent and infrequent visitors to casinos. The only requirement for participation in the study was to have gambled in that market.
- Smokers expressed a strong likelihood of migrating to a smoking casino if their favorite casino were to institute a voluntary smoking ban. This finding, of course, was not at all surprising based on the aforementioned literature. However, the relative strength of the response should send a message to casino operators that a careful evaluation of the smoking habits of their core customer base is critical prior to instituting a voluntary smoking ban.
- Non-smoking gamblers expressed a strong likelihood of migrating to a non-smoking casino if a competitive casino were to institute a voluntary smoking ban. The strength of this likelihood was as robust as the likelihood of smoker migration in a smoke-free environment.
- Non-smoking gamblers expressed a strong likelihood to visit a non-smoking casino more often than their current favorite casino.
- It was found that air quality in casinos was significantly more important to non-smokers than to smokers.

²⁰ Gregory T. Bradley and Cherylynn Becker, "Consumer Attitudes and Visit Intentions Relative to a Voluntary Smoking Ban in a Single Casino Resort with a Dense Competitive Set," Academy of Health Care Management Journal, Volume 7, Number 2, 2011.

https://www.bradleyresearchgroup.com/uploads/1/3/4/0/134099823/bradley_and_becker_-_ahcmj_smoking_research.pdf

- Non-smokers with a non-smoking spouse or significant other were more likely than non-smokers with a smoking spouse or significant other to indicate the intent to migrate to a non-smoking casino.

Limitations: The authors acknowledge that a potential limitation in this study surrounds the issue of unqualified generalizability. The sampling area was purposive, while the data extraction method within the selected areas was stratified and random. Moreover, participants were selected based on whether they had gambled in the subject casino market. In this inquiry, frequency of visitation or estimated gaming budget was not weighted based on volume. Hence, customers with a low lifetime gaming worth were equally as influential in the study as visitors with a high lifetime gaming worth.

2012: Tribal casinos in California: the last vestige of indoor smoking²¹

Prepared by: BMC Public Health

Scope of Study: Native American casinos were exempt from California’s ban on smoking in public places. The authors analyzed results from the 2008 California Tobacco Survey to research the smoking status of casino patrons, their avoidance of secondhand smoke while visiting, and their views on a hypothetical smoking ban in the Native American casinos.

Key Findings: The data indicate that a ban on smoking in tribal casinos would increase casino visitation, possibly resulting in greater revenue and greater customer satisfaction. If casinos became smokefree, then it is anticipated that they would be visited by a significantly larger number of Californians, including both past casino patrons and those who otherwise would not have visited a casino.

According to the study, “The prevalence of cigarette smoking was considerably higher in casino patrons (17.6%) compared to non-patrons (10.4%), but, not nearly as high as the 50% estimate reported by gaming lobbyists.” Adjusting for demographic variables, current smokers were approximately twice as likely to have visited an Indian casino compared to “never smokers.”

A majority of casino patrons, 60.8%, attempted to avoid secondhand smoke by moving around the casino. This varied considerably by smoking status as reported by 71.8% of the never smokers, 64.5% of the former smokers, and 20.4% of current smokers.

A total of 42.7% of casino patrons indicated that they would extend their stay if smoking were prohibited; another 48.8% reported that their stay would not be affected by such a ban; and the remaining 8.5%, predominately smokers, reported a shortened stay if there were such a ban.

In a separate question asked among all participants (not just casino patrons), 24.3% expressed a greater interest in visiting a casino if smoking were prohibited, 6.3% expressed a diminished interest, and 69.4% expressed indifference.

The authors conclude that, “Similar to the smoking bans in restaurants and bars in California, a smoking ban in tribal casinos is unlikely to affect casino businesses negatively.”

²¹ Timberlake et al.: Tribal casinos in California: the last vestige of indoor smoking. BMC Public Health, February 25, 2012. <https://bmcpublihealth.biomedcentral.com/articles/10.1186/1471-2458-12-144>

Limitations: The study was published in 2012, based on results of a 2008 survey. It was based on a survey of people in California, where smoking prevalence is lower than the overall smoking prevalence in the United States (e.g., 15.2% vs. 20.9%, respectively, in 2005, according to the Centers for Disease Control). Part of the study was based on a hypothetical smoking ban in Native American casinos, the details of which could be perceived differently by various respondents. According to the study itself, “[t]he primary weakness of this study was the lack of information on the last visited casino and residential addresses of participants; thus, a crude estimation was based on number of slot machines and proximity of a casino to a participant’s geocoded centroid. Further, most study participants were sampled in regions in California where casinos are sparse, an additional complication to our estimation. However, our assertion that proximity was a prime determinant of the last visited casino was warranted, given the significant association between casino visitation and residence in a casino-populated region. ... Our study was also hampered by a use of a cross-sectional design; use of different methods in ascertaining a casino’s non-smoking section (i.e. visit vs. telephone call); lack of data on actual smoking in a casino; and location where exposure to smoke occurred (e.g., slot machines vs. card tables).”

Spectrum Update: According to a 2019 article in the *San Francisco Chronicle*, only three of California’s 69 tribal casinos were smokefree.²²

2014: Casinos, Smoking Bans, and Revenues: A Survey of Casino Gamblers in Illinois²³

Prepared by: Clyde W. Barrow and David R. Borges of the Center for Policy Analysis at the University of Massachusetts Dartmouth (published in *Gaming Law Review and Economics*)

Scope of Study: The American Lung Association of the Upper Midwest approached the Center for Policy Analysis and commissioned a poll of Illinois casino gamblers – similar to the New England Gaming Behavior Survey, which is also conducted by the Center for Policy Analysis – to determine whether the smoking ban that became effective January 1, 2008, was a significant factor in the subsequent downturn in gross gaming revenues at Illinois’ riverboat casinos.

In the 2011 New England survey, “We found that contrary to conventional industry wisdom, among gamblers who had actually visited a casino or racino in the last twelve months, 53% said they are more likely to visit a casino where smoking is prohibited on the gaming floor, while 32% said it does not matter, and only 15% said they would be less likely to visit a casino where smoking is prohibited on the gaming floor. ... Moreover, 47% of the respondents who had not visited a casino or racino in the last twelve

²² Michael Cabanatuan, *San Francisco Chronicle*, December 27, 2019. “Tribal casinos remain last refuge for California smokers, at least for now. <https://www.sfchronicle.com/bayarea/article/Smoking-allowed-Tribal-casinos-remain-last-14922820.php#:~:text=Because%20the%20California%20tribes%20are,casinos%20are%20entirely%20smoke%2Dfree.&text=Tribal%20casinos%20make%20bold%20play%20to%20control%20sports%20betting>

²³ Clyde W. Barrow and David R. Borges, “Casinos, Smoking Bans, and Revenues: A Survey of Casino Gamblers in Illinois,” *Gaming Law Review and Economics*, August 19, 2014. <https://www.liebertpub.com/doi/abs/10.1089/glre.2014.1865?journalCode=glre>

months said they would be more likely to visit a smoke-free casino, which signals the potential availability of a large untapped market cache of casino patrons.”

Key Findings: The survey found that 45% of Illinois’s casino gamblers report that they are more likely to visit a casino where smoking is prohibited on the gaming floor, 31% say it does not matter, and only 24% state they are less likely to visit a casino where smoking is prohibited on the gaming floor.

“In other words, more than three-quarters (76%) of Illinois’s casino gamblers report that they either prefer, or are indifferent, to smoking prohibitions on the gaming floor.”

Industry officials who are against smoking bans in casinos “typically argue that if 21% of the casinos’ customer base are unhappy with smoking prohibitions, that is sufficient to account for the documented decline in the state’s gross gaming revenues. They typically point to New Jersey and Colorado as supporting examples, in conjunction with Illinois. The Center for Policy Analysis’ Illinois survey actually found that more than one-third (36%) of casino gamblers who smoke report that they, too, either prefer a smoking prohibition on the gaming floor (13%) or that it does not matter to them (23%).

The survey also found that smokers do not constitute a disproportionate percentage of casino gamblers in comparison to smoking prevalence in the state’s general adult population—20% of adults aged 21+ who gamble at casinos were self-identified smokers, as compared to 21% of the general adult population aged 18+.

According to the authors, Illinois has one of the highest prevalence rates for smoking in the United States, with 21.3% of the adult population reporting that they were current cigarette smokers (2007-2008).

Limitations: The study was limited to people of one state. The survey had a margin of error of +/- 4.9% at the 95% confidence interval, according to the authors.

2015: Six Months after Implementation of a Smoke-Free Ordinance: Harrah’s New Orleans²⁴

Prepared by: Mississippi State University

Scope of Study: Authors examined statistics from Harrah’s New Orleans casino before and after a smoke-free ordinance to see what such a law might mean to Mississippi casinos.

Key Findings: Authors state that although year-over-year revenue was more volatile during the six months after the no-smoking ordinance, the average decrease did not differ substantially for the six months before (-7.0%) and six months after the ordinance (-6.5%). Furthermore, year-over-year revenue for the Louisiana riverboat casinos – which were not affected by the smoking ordinance – did not increase after the implementation of the smoke-free ordinance in April, providing no support for concerns that gamblers would turn to these casinos in order to smoke and play. Admissions data showed that Harrah’s experienced decreased admissions each month (compared with the same month a year earlier) for the six months prior to the smoking ordinance. However, after the smoking ordinance took effect, the downward

²⁴ “Six Months after Implementation of a Smoke-Free Ordinance: Harrah’s New Orleans” Mississippi State University, 2015. https://mstobaccodata.org/wp-content/uploads/2015/08/Harrahs_factsheet.pdf

trend ended and increased year-over-year admissions continued for the first six months after the ordinance.

Limitations: The study is not scientific. Six months is not enough time to evaluate the impact of the smoke-free ordinance on business. There is no discussion of what other factors might have affected the GGR and admissions figures either before or after the ordinance took effect.

2019: Attitudes Toward Smoke-Free Casino Policies Among US Adults, 2017²⁵

Prepared by: Michael A. Tynan, Teresa W. Wang, Kristy L. Marynak, Pamela Lemos, and Stephen D. Babb (published in *Public Health Reports*)

Scope of Study: The authors examined attitudes toward smokefree casino policies among US adults. During June and July 2017, they used a web-based survey to ask a nationally representative sample of 4,107 adults aged 18+ about their attitudes toward smoke-free casinos.

To assess attitudes toward smoke-free casino policies, respondents were asked, “Do you favor or oppose smoke-free policies that prohibit smoking tobacco in all areas of a casino?” Response options included “strongly favor,” “somewhat favor,” “somewhat oppose,” and “strongly oppose.” Adults who responded “strongly favor” or “somewhat favor” were considered to favor smoke-free casino policies

Key Findings: Among 4,048 respondents aged 18+, a weighted 75.0% favored smokefree casino policies, including respondents who visited casinos about once per year (74.1%), several times per year (75.3%), and at least once per month (74.2%).

Although the sociodemographic characteristics of respondents who favored smokefree casino policies varied, the majority in each group, except current smokers (45.4%), supported smokefree policies. Allowing smoking inside casinos involuntarily exposes casino employees and visitors to SHS, a known and preventable health risk. Further assessment of public knowledge and attitudes toward smokefree casinos at state and local levels may help inform tobacco control policy, planning, and practice

Overall, 75.0% of US adults favored (55.1% strongly favored and 20.0% somewhat favored), 13.6% somewhat opposed, and 11.4% strongly opposed smoke-free casinos. Favorability was 71.5% among men and 78.3% among women.

By age, favorability ranged from 71.7% among adults aged 25-44 to 81.6% among adults aged 65+; by race/ethnicity, from 66.4% among non-Hispanic black adults to 80.4% among non-Hispanic other adults; by education level, from 63.4% among adults who did not graduate from high school to 81.7% among adults with a college degree; by income, from 66.7% among adults with <\$30 000 in annual household income to 80.8% among adults with >\$150 000 in annual household income; and by US Census region, from 72.4% in the South to 77.4% in the West. Smoke-free casinos were favored by 75.1% of adults

²⁵ Michael A. Tynan, Teresa W. Wang, Kristy L. Marynak, Pamela Lemos, Stephen D. Babb, “Attitudes Toward Smoke-Free Casino Policies Among US Adults, 2017,” *Public Health Reports*, vol. 134, 3: pp. 234-240, March 21, 2019. <https://journals.sagepub.com/doi/full/10.1177/0033354919834581>

who reported going to casinos, with similar favorability among respondents who visited casinos about once a year (74.1%), several times a year (75.3%), and at least once a month (74.2%).

Favorability ranged from 65.5% among adults who visited casinos about once every two years to 80.6% among adults who visited casinos every three years or more.

By smoking status, favorability ranged from 45.4% among current cigarette smokers to 81.9% among never smokers and from 56.7% among current users of other noncigarette tobacco products to 77.2% among never users.

Limitations: According to the authors, the study had three limitations. First, the web-based survey does not recruit participants by using population-based probability samples, and, thus, the study may have limited generalizability. However, these data were weighted to be nationally representative, and previous tobacco-use estimates have been consistent with findings from other large national household surveys. Second, data were self-reported, which could result in misreporting of tobacco product use behaviors and frequency of casino visits. Finally, the cross-sectional design of the survey precluded establishing any causal relationships between the assessed covariates and attitudes toward smoke-free casino policies.

2019: *Assessing the Economic Impact of Eliminating Secondhand Smoke in Northern Nevada Workplaces*²⁶

Prepared by: Mehmet S. Tosun, Mark Nichols, and Ethan Grumstrup of University of Nevada Reno

Scope of Study: To study the possible effects of a smoking ban in Washoe County, NV, the authors studied three jurisdictions that had implemented a smoking ban: Illinois, Colorado, and New Orleans.

Key Findings: Illinois has 10 casinos statewide, most of which are located near the borders of other states. Those states also have casinos located near their borders that allow smoking. The authors theorized that the smoking ban's impact on Illinois casinos could be negative if Illinois gamblers who smoke travel to other states, or positive if non-smokers in Illinois or the surrounding states visit Illinois casinos.

Colorado has numerous, small commercial casinos located in three mountain resort communities. There are no other casinos within a five-hour drive of the commercial casinos, so the authors expected that any impact of a smoking ban would be minimized as smokers have few alternatives.

New Orleans has one casino and is a major tourist destination. It is also one of the few cities to implement a ban where there is no corresponding statewide ban.

Based on comparing several jurisdictions that implemented a smoking ban with others that did not, this analysis suggests that the impact of smoking bans ranges from having no impact to a substantial

²⁶ Mehmet S. Tosun, Mark Nichols, Ethan Grumstrup, "Assessing the Economic Impact of Eliminating Secondhand Smoke in Northern Nevada Workplaces," University of Nevada Reno, June 9, 2019.

https://www.smokefreetruckeemeadows.org/sites/default/files/2020-03/Economic%20Impact%20Assessment%20Presentation%2006_13_19.pdf

negative impact. There is no widespread evidence of a positive impact following a smoking ban. In the authors' analysis, the largest negative impact, at nearly 20%, is found in Illinois. Illinois faces substantial competition from casinos in nearby states where smoking is still permitted. Colorado, in contrast, shows no significant long-term impact from the smoking ban. Colorado is a jurisdiction where few competing casinos in surrounding areas exist and likely a more health-conscious state. The impact in New Orleans is less than Illinois and more than Colorado. These results suggest that providing a specific, precise estimate of the impact of a smoking ban on casino performance is fraught with danger.

Revenue in Illinois decreased dramatically following the implementation of the smoking ban. The authors note that revenue had been declining prior to the smoking ban and that the ban was implemented during the Great Recession. While taking those factors into account, the authors conclude that the smoking ban had a significant negative impact on casino revenue.

The change in Colorado is much less dramatic. While casino revenue in Colorado declined slightly following the smoking ban, it later stabilized. The authors concluded that the smoking ban in Colorado had no long-term impact on revenue.

The authors note "two important caveats" to this analysis. First, the economic impact estimates presented here are short-term rather than long-term estimates. The results suggest that there is likely to be a negative short-term impact on casino revenue and employment as a result of a smoking ban. The longer-term impact on casino revenue and employment is much more difficult to predict as economic conditions, smoking rates, and gambling opportunities (e.g. online and mobile gambling) will all change. Secondly, the economic impact estimates do not incorporate any health benefits resulting from a smoking ban. Improved worker productivity, and fewer sick days as well as improved health of non-smoking casino patrons are important considerations not factored into the estimates.

Limitations: Authors acknowledge that none of the other jurisdictions studied are a perfect match for Washoe County, Nevada. Study looked at overall economic impact, of which GGR was but one part.

2020: Expanding smoke-free communities: attitudes and beliefs surrounding smoke-free casinos and bars in Washoe County, Nevada²⁷

Prepared by: Eric Crosbie et al, University of Nevada Reno (published in *Journal of Hospital Management and Health Policy*)

Scope of Study: A team of University of Nevada Reno researchers surveyed residents of Washoe County to determine their feelings toward a law that would prohibit smoking in all Washoe County casinos (and also bars). Washoe County is the second-most-populous county in Nevada. Reno is the county seat.

Key Findings: The web-based survey found that 60% of Washoe County residents (and 74% of non-smokers) indicated they would favor a law prohibiting tobacco smoking in all casinos in Washoe County. Only 24% of residents (and 15% of non-smokers) oppose the prohibition of tobacco smoking in

²⁷ Eric Crosbie et al, "Expanding smoke-free communities: attitudes and beliefs surrounding smoke-free casinos and bars in Washoe County, Nevada," *Journal of Hospital Management and Health Policy*, September 2020. <https://jhmhp.amegroups.com/article/view/6326/html>

casinos. 77% of residents dislike smelling like smoke after visiting a casino or bar and 65% agree that smoke bothers them in these establishments. A majority of residents would both be more likely to visit a casino and bar and also find them more enjoyable if they were completely smoke-free. 79% of residents believe customers should be able to breathe smoke-free air while only 21% believe businesses should be able to decide.

According to the authors, in 2006, a statewide survey showed that 52.9% of Nevadans were in favor of casinos being exempted from the Nevada Clean Indoor Air Act, which was approved by Nevada voters in 2006. That act prohibited smoking in most public places.

Limitations: The study was limited to residents of one Nevada County. According to the authors, “(a)lthough the focus groups were primarily used to construct and develop the survey, the demographics of focus group participants were not representative of the population of Washoe County as a whole. The usage of large panel surveys are supported in similar study designs but there is some skepticism of their usage in the field. The survey sample in this study was recruited through Qualtrics™, and cannot be considered a probability sample. The survey sample was demographically different from population level estimates with regard to race/ethnicity and gender. In addition to differences between our sample and the general population, it is possible that our sample also differs from populations of casino-patrons (e.g., visitors from California) and casino-employees.” Also, the study indicated that 97% of survey respondents had been to a casino in Washoe County. “The most common reasons cited by participants for visiting Washoe County casinos were dining (76% of participants), gaming (52%), and shows (26%).” There is no indication that the survey separated gamblers from residents who went to the casino just to visit a restaurant or go to a show.

III. Casinos and Smoking in Atlantic City: Policy, Perceptions and Performance

A. Consequences of New Jersey Tobacco Policies

Organizations focused on advancing anti-smoking policies give New Jersey mixed grades, ranging from A to F on various policy specifics. For example, New Jersey receives a failing grade from the American Lung Association for its funding of tobacco-control programs, in that the state has allocated \$7.8 million in FY 2021 for such programs, which is less than 10% of what the Centers for Disease Control recommend as best practices for such programs.²⁸ To put that funding in context, New Jersey generates approximately \$854.2 million annually from what the American Lung Association refers to as “tobacco-related revenue.”²⁹

By contrast, New Jersey has earned an A from the association for its clean-air practices, which include prohibiting smoking in all workplaces, as well as in restaurants, schools, child-care facilities, retail stores and bars (with the exception of cigar bars and lounges), and notably the state has penalty and enforcement provisions in place.³⁰

One glaring exception to the state’s widespread anti-smoking policy is the Atlantic City casino industry, whose members are allowed under a local ordinance to allow smoking in up to 25% of the casino floor space, and the American Lung Association duly notes that exception and has urged that it be eliminated. That exception allows for a scenario in which Atlantic City casinos become a more attractive recreational outlet for smokers.

As noted in Figure 2 of this report, Pennsylvania has a higher smoking prevalence than New Jersey: 17.0% to 13.1%. In 2008, the last year in which a reliable survey of Atlantic City visitors was conducted, smokers comprised 23.5% of the visitor base.³¹ That same year, the percentage of adults who smoked was 14.8% in New Jersey and 21.4% in Pennsylvania.³²

Although more current data on the percentage of casino visitors who smoke is not available, the data trends allow for a reasonable extrapolation that smoking is more prevalent among casino patrons than it is in the general population.

²⁸ “State of Tobacco Control 2021: New Jersey,” American Lung Association, <https://www.lung.org/research/sotc/state-grades/new-jersey> (accessed August 13, 2021)

²⁹ Ibid.

³⁰ Ibid.

³¹ “Atlantic City Visitor Profile 2008,” Spectrum Gaming Group, p. 140. <https://www.spectrumgaming.com/wp-content/uploads/2018/04/atlanticcityvisitorprofile2008.pdf>

³² Centers for Disease Control, “State-Specific Secondhand Smoke Exposure and Current Cigarette Smoking Among Adults --- United States, 2008.” <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5844a3.htm#tab2>

If anything, macro trends in anti-smoking policies since 2008 would support the conclusion that the gulf is even wider today, with smokers still likely comprising more than 20% of Atlantic City casino patronage. That assumption rests on the reality that the restrictions on smoking have materially expanded since 2008, now encompassing nearly every public entertainment option, a reality that in turn makes Atlantic City casinos a more prominent oasis for smokers.

The calculus through which adults select their entertainment options is broad and complex, ranging from convenience to cost to various other preferences. The ability to smoke in public may be a factor for adults who cannot indulge in smoking at movies, bars, restaurants or shopping outlets.

While the level of that preference cannot be definitively determined, its existence can reasonably be presumed as a factor that accounts for the demographic differences among casino visitors. To put that another way, if smoking were banned at casinos in New Jersey, Pennsylvania and Connecticut, the demographics among casino visitors would likely adhere more closely to the demographic mean. The appeal of casinos to smokers would likely diminish under such a scenario.

That consequence of New Jersey's smoking policy is clearly unintended, but is nonetheless real.

B. Estimating the Percentage of Gamblers Who are Smokers

Policies in New Jersey that were designed to limit smoking areas and expand smoke-free zones clearly have made smokers a more prominent segment of the gaming customer base than would otherwise be reflected in their share of the overall adult population.

Relying on the 2008 ratio of smokers who patronize casinos vs. smokers in the general population (23.5 to 14.8), we can reasonably assume a delta of at least 8 points, which would indicate that at least 21% of the adults who patronize Atlantic City casinos are smokers. The 21% estimate is in the range observed by casino employees interviewed by Spectrum for this report; management tended to estimate a higher percentage are smokers – around 25% – while casino-floor workers tended to estimate a lower percentage – around 15% to 20%.

Enacting a smoking ban would not translate into a loss of all or most of those adults. Rather, because it would put casino entertainment on a level playing field with all other forms of entertainment, gaming would lose its distinct appeal for smokers, meaning that the percentage of Atlantic City casino visitors who smoke would likely decline to about 13%, roughly equal to the ratio of smokers to the general adult population in New Jersey. The percentage of casino visitors who smoke could drop below that mean, however, if smoking options in other states were sufficiently convenient and attractive.

The competitive problem, indeed, becomes more acute for Atlantic City casinos when they are competing for patrons from those regions in which a smoking casino would be roughly equidistant, or even closer geographically for smokers. This includes significant population centers in Camden, Burlington, Mercer and other areas of southern New Jersey (making Pennsylvania casinos more attractive) as well as areas such as Bergen County or other sections of northern New Jersey that would be closer to casinos in Connecticut, as well as to casinos in eastern Pennsylvania. An independent junket operator told Spectrum that smokers still will play at a casino that is most convenient despite smoking restrictions, but

that if a smoking casino and a nonsmoking casino are equidistant – or even if the smoking casino is slightly farther away – they will choose the smoking casino.

C. The Value of Smokers vs. Non-Smokers

Although casinos know their customers well through player tracking and database analytics, they are not known to segment their players by smoker vs. non-smoker from a database perspective. Atlantic City casino operators do, however, track the performance of games in their smoking sections vs. their non-smoking sections. Spectrum interviewed property heads and/or finance heads at seven of the nine casinos, and each executive said that based on the comparative performance of those sections, smokers have a higher value than non-smokers. Six of them provided specific data points since the temporary smoking ban was lifted on July 4, 2021:

- One casino president told Spectrum that 43% its slot machines were in the designated smoking section.³³ Among those slots, those with video reels had an average daily win per unit (“WPU”) that was 33% above those in the non-smoking section, and those with spinning reels had a WPU that was 53% above those in non-smoking section.
- One casino president said the slot machines in its smoking section from July 4 through August performed at 91% above those in the non-smoking section on a WPU basis. This casino president further said that the table games in smoking pits performed 72% higher than those in the non-smoking pits on a WPU basis – with the high-limit games removed to ensure an apples-to-apples comparison.
- One casino president said that for August 2021, the WPU for all gaming devices in the smoking sections was 40% higher than those in the non-smoking sections. The general manager of a second casino gave an identical figure.
- One casino general manager said the slots in the smoking section were performing at more than three times the level of those in the non-smoking sections on a WPU basis.
- One casino general manager said that when the casino reopened smokefree in July 2020, the occupancy rate – i.e., the percentage of slot or table game seats that are filled at a given time – in the high-limit slot area was about 20% to 25% for the remainder of the summer, compared to “normal” rates of 40% to 50% when smoking was allowed. The general manager said since the ban was lifted, occupancy has risen to about 35%.
- One casino president said approximately 50% of its slot revenue was generated from the smoking section.

Spectrum recognizes that there may be issues regarding the number, quality and location of games in the smoking sections vs. the non-smoking sections in a given casino that could influence performance, such as placing high-limit tables and slots in smoking areas. However – and this is a critical point – Spectrum recognizes that casino managers are under continuous, intense pressure to achieve the highest profits possible and therefore have configured their casino floors to optimize GGR. In many cases, they have placed more than 25% of their gaming positions in the allotted 25% of the smoking space so as

³³ Atlantic City’s 25% smoking restriction is based on gaming space, not number of gaming units.

to maximize revenue. In other words, casino management has found – based on their trove of internal analytics – that smokers have a higher value than non-smokers.

The data provided by the casino executives is supported by the *Atlantic City Visitor Profile Study 2008* (the latest such Atlantic City visitor profile that assessed smoking habits). That survey found that,

[T]he median gambling budgets are higher for smokers (\$250 vs. \$200) and average spending figures for both gambling (\$655 vs. \$497) and total spending (\$981 vs. \$796) are higher among smokers than non-smokers, indicating that smokers of higher worth spend at a higher magnitude than non-smokers. Smokers gamble longer than non-smokers (mean 14.6 hours vs. 11.5 hours) ...³⁴

Anecdotally, casino floor employees interviewed by Spectrum for this report said that smokers tend to be more prevalent among premium table-games players than they do among regular players. The interviewed casino floor employees, all of whom are non-smokers, said that although they wish their respective casino floors were smokefree they believe gaming revenues would decline if smoking were prohibited.

1. Time on Device

Casino operators fear that a smoking ban would not only put them at a disadvantage to their competitors in Pennsylvania and Connecticut but also would result in lower GGR because of smoking breaks. A player’s desire or need to smoke would impel them to leave their seat at a slot machine or gaming table and walk outside to smoke. Such a break would result in a player having less time playing a slot machine or table game, or what is known as time on device (“TOD”). For example, if a player planned a two-hour casino session and took two 10-minute cigarette breaks (including walking time) during that period, the player’s TOD could potentially decline by 17%. Figure 15 below is an illustrative example of how two such smoking breaks could impact the casino’s win, or GGR, from that player.

Figure 15: Illustrative example of change in GGR due to smoking break

	Non-Smoker	Smoker
Minutes at Casino	120	120
Minutes Playing Slot Machine	120	100
Minutes Smoking Break	0	20
Bankroll	\$100	\$100
Average Bet	\$1.15	\$1.15
Slot Machine Hold	7.25%	7.25%
Bets/Spins per Minute	10	10
Total Coin-In	\$1,379	\$1,150
Total Number of Bets/Spins	1,199	1,000
Casino Win (GGR)	\$100.00	\$83.38

Source: Spectrum Gaming Group

³⁴ “Atlantic City Visitor Profile 2008,” Spectrum Gaming Group, p. 141. <https://www.spectrumgaming.com/wp-content/uploads/2018/04/atlanticcityvisitorprofile2008.pdf>

Some gamblers may have a fixed amount of time to play, which for a smoker could result in lower GGR for the casino due to the smoking breaks. In the above example, it also is possible the smoker would continue playing beyond the planned two-hour session and would also wind up losing \$100, but would need 140 minutes to lose the same amount. It is also possible that the smoker during the first or second break would cut his or her losses and leave the casino, thus losing less than the \$83.38 illustrated above.

IV. Projected GGR Impacts of a Smoking Ban in Atlantic City Casinos

In this chapter Spectrum projects a range of likely GGR impacts if smoking were to be banned on Atlantic City casino floors, based on the following:

- Analysis of GGR impacts when casino smoking bans were instituted in Delaware, Illinois and New Orleans.
- Other relevant empirical data.
- Assessment of previous studies regarding casinos and smoking, all of which are of limited value for this report for various reasons, not the least of which is because of the passage of time.
- Interviews with casino employees, casino management, advocacy groups, and others who participate in, or who closely follow, the Atlantic City casino industry.

A critical assumption in our analysis is that Pennsylvania's policy (pre-Covid-19) of allowing smoking on casino floors remains unchanged.

Spectrum's projected range of GGR impact is necessarily broad due to factors that are unknowable at this time but would be significant were a casino-floor smoking ban to be enacted in Atlantic City casinos. They include:

- The intensity of the marketing and promotional response by Pennsylvania casino operators, who could target dissatisfied Atlantic City casino smokers with direct marketing programs and broader advertising programs.
- The facility response by Atlantic City casino operators. Outdoor gaming areas are common at casinos in other jurisdictions where smoking is prohibited. Some such areas are rather lavish and comfortable while others are less accommodating. The quality and convenience of such outdoor gaming areas at Atlantic City casinos would no doubt vary by property, and would involve capital investment and additional operating costs related to the inefficiencies of having separate gaming areas.
- The quality of the marketing response by Atlantic City casino operators:
 - Reaching patrons who smoke to inform them about the new policy and any new facilities that would be developed to accommodate smoking.
 - Reaching adults who currently do not visit Atlantic City casinos – or those who visit less frequently or for less time – because they find the smoky casino floors to be unappealing to inform them about their entirely smoke-free casino floors.
- The amount of time between the enactment and implementation of the casino smoking ban. The longer the gap, the more time casino operators would have to develop quality outdoor gaming areas, to communicate their plans to patrons who currently smoke, and to develop marketing programs to attract more non-smokers.

A. Considering the Experience of Smokefree Casinos after Reopening

Every casino in the United States closed at the height of the Covid-19 pandemic in spring 2020. They began reopening in late spring 2020 and into fall 2020, with patrons required to wear facemasks to help stop the spread of Covid-19. Almost all state-regulated casinos that previously allowed smoking were required to reopen smokefree, as smoking inside would require a player to remove his or her facemask.

Spectrum considered whether the Covid-19-caused smokefree period resulted in a “new normal” for casinos and their patrons, and thus the results of this reopening period could be fairly compared to the results during pre-pandemic period. We determined that such comparisons are not fair because casinos may have benefited during the post-Covid-19 period from a confluence of exceptional circumstances, including:

- Being open at a time when most other indoor entertainment venues remained closed, such as movie theaters, amusement centers and performing-arts centers.^{35 36 37}
- Travel restrictions³⁸ that made drive-to casinos an attractive option for those seeking a leisure getaway.
- A combination of free time due to high unemployment³⁹ and supplemental unemployment benefits,^{40 41} meaning there were more people than usual with time and money to spend and fewer leisure options in which to expend such. (People also had more free time due to working from home/spending less time in the community. For example, “Time spent traveling, such as commuting to work or driving to a store, declined by 26 minutes from an average of 1.2 hours per day in 2019 to 47 minutes per day in 2020. The share of individuals who spent time traveling on a given day declined 17 percentage points in 2020, from 84% in 2019 to 67% in

³⁵ Irina Ivanova and Thom Craver, “Closed due to coronavirus: List of activities and state shutdowns over Covid-19 outbreak concerns,” CBS News, <https://www.cbsnews.com/news/closed-due-to-coronavirus-list-of-activities-and-state-shutdowns-over-covid-19-outbreak-concerns/>

³⁶ Alison Durkee, “State-By-State Guide To Coronavirus Restrictions: Los Angeles Bans Outdoor Dining, Nevada Restricts Capacity,” *Forbes*, November 23, 2020. <https://www.forbes.com/sites/alisondurkee/2020/09/17/state-by-state-reopening-guidelines-coronavirus/?sh=20bdec55533b>

³⁷ Anastasia Tsioulcas, “America’s Independent Music Venues Could Close Soon Due To Coronavirus,” NPR, June 9, 2020. <https://www.npr.org/sections/coronavirus-live-updates/2020/06/09/873196748/americas-independent-music-venues-could-close-soon-due-to-coronavirus>

³⁸ Patrick Clarke, “A Timeline of Covid-19 Travel Restrictions Throughout 2020,” *Travel Pulse*, December 24, 2020. <https://www.travelpulse.com/gallery/impacting-travel/a-timeline-of-covid-19-travel-restrictions-throughout-2020.html>

³⁹ Unemployment Rates During the Covid-19, Congressional Research Service, August 20, 2021. <https://sgp.fas.org/crs/misc/R46554.pdf>

⁴⁰ Unemployment Insurance Relief During Covid-19 Outbreak,” US Department of Labor. <https://www.dol.gov/coronavirus/unemployment-insurance> (accessed September 13, 2021)

⁴¹ “How will the expansion of unemployment benefits in response to the Covid-19 pandemic be recorded in the NIPAs?,” Bureau of Economic Analysis, April 29, 2021. <https://www.bea.gov/help/fag/1415>

2020. Those who spent time traveling on a given day did so for a shorter duration [1.5 hours in 2019, compared with 1.2 hours in 2020]).⁴²

The US casino industry in general rebounded well after reopening, with some jurisdictions reporting that gaming revenues surpassed pre-pandemic levels after a matter of months. However, the results in Atlantic City and Pennsylvania do not support that being at least temporarily smokefree benefited the casinos. Figure 16 shows the results for the first full three months and seven months⁴³ of slot and table games GGR after the casinos reopened smokefree vs. the same prior-year periods when the regular smoking policies were in place.

Figure 16: Comparison of Atlantic City and Pennsylvania GGR for 3-month and 7-month periods

	GGR for 3 months ending ...		Change
	October 2019	October 2020	
NJ Slots	\$515.0	\$421.0	-18.3%
NJ Tables	\$191.7	\$154.3	-19.5%
PA Slots	\$738.5	\$591.0	-20.0%
PA Tables	\$206.7	\$187.3	-9.4%
	GGR for 7 months ending ...		Change
	February 2020	February 2021	
NJ Slots	\$1,119.1	\$842.3	-24.7%
NJ Tables	\$420.9	\$329.4	-21.7%
PA Slots	\$1,505.2	\$1,049.3	-30.3%
PA Tables	\$492.0	\$359.3	-27.0%

Source: Spectrumetrix US Gross Gaming Revenue Analysis, based on data from state regulatory agencies. GGR includes promotional credit play where reported.

It is not possible to quantify how being smokefree may have impacted the GGR declines shown above, but it is evident that being smokefree did not cause their revenues to increase.

B. Estimated Range of Impacts to Atlantic City Casino GGR

A smoking ban in Atlantic City casinos has the potential to negatively impact gross gaming revenue due to a reduction in play by smokers from three primary causes:

- Defection: Some smokers will instead choose to play in out-of-state casinos where smoking is permitted, principally those casinos in eastern Pennsylvania but also the two tribal casinos in Connecticut.
- Reduced visitation: Atlantic City casinos are smoker-friendly – they are the only significant public places in New Jersey where smokers can legally smoke indoors,⁴⁴ and thus a higher

⁴² “American Time Use Survey Summary,” Bureau of Labor Statistics, July 22, 2021. <https://www.bls.gov/news.release/atus.nr0.htm>

⁴³ Valid 12-month comparisons cannot be made, as casinos closed in March 2020 and reopened in July 2021.

⁴⁴ In New Jersey, indoor smoking is permitted only in casinos, registered cigar bars, tobacco outlets whose primary activity is the sale of tobacco products, and up to 20% of guest rooms in lodging establishments. See: State of New Jersey, Department of Health, “Tobacco Control.” <https://www.nj.gov/health/fhs/tobacco/regulations/> (accessed September 27, 2021)

percentage of their patrons are smokers than in the general public.⁴⁵ If casinos can no longer accommodate smokers indoors, they will no longer be special havens for smokers; they will be like any other indoor entertainment option, and thus some smokers are likely to shift some of their discretionary spending to other forms of entertainment.

- Less time on device: As discussed above (section III.C.1 of this report), smokers will take breaks from their gambling. Some will lose the same amount of money by extending their stay to account for the breaks, but some with time constraints will lose less money.

Conversely, a smoking ban in Atlantic City casinos has the potential to positively impact gross gaming revenue from non-smokers who are attracted to the cleaner air in the casinos:

- Attracting new, non-smoking players: Some patrons who dislike the smoky air in casinos may be attracted to the cleaner air, including some who currently patronize the smokefree casinos in Delaware or New York.
- Extending the playing time of current non-smokers: Some current casino patrons who may leave early after having “had their fill” of smoky air may extend their playing time.

Based on our research and analysis for this report, Spectrum developed a range of potential impacts that accounted for all of these factors. First, we made certain assumptions about the prevalence and value of casino smokers.

1. Estimated Percentage of Casino Gamblers who are Smokers

As with all estimates, the foundational assumptions are essential to understand. Using data from the Centers for Disease Control and Prevention (“CDC”) on smoking by state, building on the smoking data from the *2008 Atlantic City Visitor Profile*, and receiving data from Atlantic City casino executives regarding the residency of their customers, we developed an estimate of smoking prevalence by Atlantic City casino patrons. In Figure 17 below, we estimate that 40% of visitors to Atlantic City are from New Jersey. Of those casino visitors, 19.7% are smokers, meaning that just under 8% of all visitors are smokers from New Jersey. In total we estimate that approximately 21% of casino patrons in Atlantic City are smokers.

Figure 17: Estimated smoker participation at Atlantic City casinos, by state

State	% Visits	% Smokers in State	% Players Smokers	Smokers as % Total Visitors
New Jersey	40.0%	13.1%	19.7%	7.86%
New York	24.0%	12.8%	19.2%	4.61%
Pennsylvania	20.0%	17.0%	25.5%	5.10%
Maryland	3.0%	12.5%	18.8%	0.56%
Other States	13.0%	14.0%	21.0%	2.73%
Atlantic City Market	100.0%			20.86%

Source: Centers for Disease Control and Prevention, Spectrum Gaming Group

⁴⁵ “Atlantic City Visitor Profile 2008,” Spectrum Gaming Group, p. 140. <https://www.spectrumgaming.com/wp-content/uploads/2018/04/atlanticcityvisitorprofile2008.pdf>

2. Estimated Value of Smokers

The next step is developing an estimate of the value of smokers to the casinos. Casino executives and casino floor employees have stated that smokers are of higher value than non-smokers. Evidence for this can be found in the relative value of the average daily win per unit (“WPU”) at slot machines in smoking and non-smoking sections of the Atlantic City casinos, as noted earlier in this report. The WPU of slots in smoking sections ranges from 33% higher to 91% higher when compared with the non-smoking sections. One executive noted that GGR from table games in the smoking section are 72% higher than from the same games with the same limits and rules in the non-smoking section.

The *Atlantic City Visitor Profile 2008* (the latest such study that surveyed smoking habits in the city) found that smokers spent 32% more than non-smokers on gambling (\$655 per visit vs. \$497 per visit).⁴⁶

We designated this phenomenon the “smoker premium,” and developed two estimates of the value of smokers to the Atlantic City casinos. We used a 50% smoker premium and a 25% smoker premium to establish our range of value. Due to the disruptions of Covid-19, we used 2019 GGR data as the basis for our revenue numbers.

Figure 18: High case estimate of smoker GGR at Atlantic City casinos

State	% Visits	CY 2019 Casino GGR	% Smokers in State	% Players Smokers	Smoker Premium	Estimated Value of Smokers	Smokers % of GGR
New Jersey	40.0%	\$1,074,616,181	13.1%	19.7%	50%	\$316,743,119	29.5%
New York	24.0%	\$644,769,708	12.8%	19.2%	50%	\$185,693,676	28.8%
Pennsylvania	20.0%	\$537,308,090	17.0%	25.5%	50%	\$205,520,345	38.3%
Maryland	3.0%	\$80,596,214	12.5%	18.8%	50%	\$22,667,685	28.1%
Other States	13.0%	\$349,250,259	14.0%	21.0%	50%	\$110,013,832	31.5%
GGR 2019	100.0%	\$2,686,540,452				\$840,638,656	31.3%

Source: New Jersey Division of Gaming Enforcement, Spectrum Gaming Group

Using this set of assumptions, Spectrum estimates the yearly estimated value of smokers to the casinos to be \$840 million in the high case. The estimated value of the non-smokers in this case is \$1,846 million.

Using the same modeling but with a 25% smoker premium results in the estimated value of smokers to the casinos to be \$700 million in the low case, as shown in Figure 19. The estimated value of the non-smokers in this case is \$1,986 million. Spectrum estimates that smokers account for approximately 21% of casino visits, but between 26.1% and 31.3% of casino win.

⁴⁶ “Atlantic City Visitor Profile 2008,” Spectrum Gaming Group, p. 141. <https://www.spectrumgaming.com/wp-content/uploads/2018/04/atlanticcityvisitorprofile2008.pdf>

Figure 19: Low case estimate of smoker GGR at Atlantic City casinos

State	% Visits	CY 2019 Casino GGR	% Smokers in State	% Players Smokers	Smoker Premium	Estimated Value of Smokers	Smokers % of GGR
New Jersey	40.0%	\$1,074,616,181	13.1%	19.7%	25%	\$263,952,599	24.6%
New York	24.0%	\$644,769,708	12.8%	19.2%	25%	\$154,744,730	24.0%
Pennsylvania	20.0%	\$537,308,090	17.0%	25.5%	25%	\$171,266,954	31.9%
Maryland	3.0%	\$80,596,214	12.5%	18.8%	25%	\$18,889,738	23.4%
Other States	13.0%	\$349,250,259	14.0%	21.0%	25%	\$91,678,193	26.3%
GGR 2019	100.0%	\$2,686,540,452				\$700,532,214	26.1%

Source: New Jersey Division of Gaming Enforcement, Spectrum Gaming Group

3. Estimated Range of GGR Change from Reduction of Play by Smokers

Having established two estimates for the value of smokers to the Atlantic City casinos, the question turns on how smokers would behave if a smoking ban were implemented. If all smokers chose not to visit the casinos, the analysis in Figure 18 and Figure 19 estimates a GGR decline of \$804 to \$965 million. Evidence from other states indicate that there will not be total abandonment of casinos by smokers. Again, we estimated a range of how much reduction in play would result from a smoking ban based on the state and the level of competition in the home state of the casino players. Players in New Jersey and Pennsylvania are close to casinos that permit smoking. New York casino players have to travel farther to visit a casino with smoking, and in Maryland all of the nearby casinos are smokefree. We have further assumed that the visitors from the other 47 states have chosen to visit Atlantic City without regard to smoking. As such we believe few will alter plans based on a change in smoking policy.

Spectrum has provided all of its estimates of GGR change for Year 1 of a smoking ban. Estimating GGR changes beyond Year 1 is dependent on a host of factors – including the casino operators’ reactions to the smoking ban – that cannot be reasonably quantified at this time. As noted in Chapter I of this report, the experience in other jurisdictions is that after the initial shock caused by a smoking ban, GGR begins to grow again.

Figure 20: High case estimate of casino GGR change from reduction in play by smokers, Year 1

State	% Visits	CY 2019 Casino GGR	% Smokers in State	% Players Smokers	Smoker Premium	Estimated Value of Smokers	Smoker Play Reduction	Estimated Annual Lost GGR
New Jersey	40.0%	\$1,074,616,181	13.1%	19.7%	50%	\$316,743,119	-50%	\$(158,371,560)
New York	24.0%	\$644,769,708	12.8%	19.2%	50%	\$185,693,676	-25%	\$(46,423,419)
Pennsylvania	20.0%	\$537,308,090	17.0%	25.5%	50%	\$205,520,345	-50%	\$(102,760,172)
Maryland	3.0%	\$80,596,214	12.5%	18.8%	50%	\$22,667,685	-10%	\$(2,266,769)
Other States	13.0%	\$349,250,259	14.0%	21.0%	50%	\$110,013,832	-10%	\$(11,001,383)
GGR 2019	100.0%	\$2,686,540,452				\$840,638,656	Total	\$(320,823,303)
							% of Total	-11.9%

Source: New Jersey Division of Gaming Enforcement, Spectrum Gaming Group

In the high case, Spectrum estimates that the Atlantic City casinos would see a Year 1 loss of 11.9% of GGR if a smoking ban were implemented. Some of this gaming activity would shift to other states where smoking is permitted. Some activity may be lost to other forms of leisure activity where smoking is also

banned such as in entertainment venues, restaurants, and movie theaters. And some casino gambling expenditures by the remaining smokers in Atlantic City casinos would be reduced due to smoking breaks, or shifted to online gaming. (It must be noted that casinos typically receive less than 10% of online GGR; their licensed online gaming operators receive the rest.)

Spectrum also developed a low estimate, using the same model but applying a 25% smoker premium and lower reductions in play by smokers.

Figure 21: Low case estimate of casino GGR change from reduction in play by smokers, Year 1

State	% Visits	CY 2019 Casino GGR	% Smokers in State	% Players Smokers	Smoker Premium	Estimated Value of Smokers	Smoker Play Reduction	Estimated Annual Lost GGR
New Jersey	40.0%	\$1,074,616,181	13.1%	19.7%	25%	\$263,952,599	-25%	\$(65,988,150)
New York	24.0%	\$644,769,708	12.8%	19.2%	25%	\$154,744,730	-13%	\$(19,343,091)
Pennsylvania	20.0%	\$537,308,090	17.0%	25.5%	25%	\$171,266,954	-25%	\$(42,816,738)
Maryland	3.0%	\$80,596,214	12.5%	18.8%	25%	\$18,889,738	-5%	\$(944,487)
Other States	13.0%	\$349,250,259	14.0%	21.0%	25%	\$91,678,193	-5%	\$(4,583,910)
GGR 2019	100.0%	\$2,686,540,452				\$700,532,214	Total	\$(133,676,376)
							% of Total	-5.0%

Source: New Jersey Division of Gaming Enforcement, Spectrum Gaming Group

In the low case estimate, smokers are worth \$700 million to the casinos, and non-smokers worth \$1,986 million.

Based on the assumptions stated, rates of smoking prevalence, and conversations with casino staff and executives in Atlantic City, Spectrum estimates the range of potential lost GGR from the implementation of a smoking ban to be between 5.0% and 11.9% of total GGR (based on 2019 results).

4. Estimated Range of GGR Change from Increase in Play by Non-Smokers

While a smoking ban could cause a reduction in play by smokers, it may cause an increase in play by non-smokers who are either extending their play or making additional visits because they would not be annoyed by cigarette smoke, or by new players who have shunned the casinos due to the smoky air. Spectrum believes the upside of attracting additional play from non-smokers in Atlantic City casinos is limited because the casinos operate in a mature market in which virtually every potential new customer has long been exposed to the opportunity to play casino games and because the casinos are already 75% smokefree, meaning the current casino environment, in Spectrum’s opinion, is not as off-putting to non-smokers as it is in some jurisdictions where the cigarette smoke is (or was) much more objectionable.

In Figure 20, we estimated the value of smokers to Atlantic City casinos at \$840 million and non-smokers at \$1,846 million. In Figure 22, we provide a high case estimate of the potential worth of non-smokers to Atlantic City if revenue from non-smokers were to increase their play by 1.5%, or by \$27.7 million.

Figure 22: High case estimate of casino GGR change from increased in play by non-smokers, Year 1

State	% Visits	CY 2019 Casino GGR	Estimated Value of Non-Smokers	Increase in Non-Smoker Play	Value of Non-Smoker Increase	Value of Non-Smokers Post Ban
New Jersey	40.0%	\$1,074,616,181	\$757,873,062	1.5%	\$11,368,096	\$769,241,157
New York	24.0%	\$644,769,708	\$459,076,032	1.5%	\$6,886,140	\$465,962,173
Pennsylvania	20.0%	\$537,308,090	\$331,787,746	1.5%	\$4,976,816	\$336,764,562
Maryland	3.0%	\$80,596,214	\$57,928,528	1.5%	\$868,928	\$58,797,456
Other States	13.0%	\$349,250,259	\$239,236,427	1.5%	\$3,588,546	\$242,824,974
GGR 2019	100.0%	\$2,686,540,452	\$1,845,901,796	1.5%	\$27,688,527	\$1,873,590,322

Source: New Jersey Division of Gaming Enforcement, Spectrum Gaming Group

In Figure 23, we present a low case estimate if non-smokers were to increase their play by 1.0%, or by \$19.8 million.

Figure 23: Low case estimate of casino GGR change from increased in play by non-smokers, Year 1

State	% Visits	CY 2019 Casino GGR	Estimated Value of Non-Smokers	Increase in Non-Smoker Play	Value of Non-Smoker Increase	Value of Non-Smokers Post Ban
New Jersey	40.0%	\$1,074,616,181	\$810,663,581	1.0%	\$8,106,636	\$818,770,217
New York	24.0%	\$644,769,708	\$490,024,978	1.0%	\$4,900,250	\$494,925,228
Pennsylvania	20.0%	\$537,308,090	\$366,041,137	1.0%	\$3,660,411	\$369,701,548
Maryland	3.0%	\$80,596,214	\$61,706,476	1.0%	\$617,065	\$62,323,541
Other States	13.0%	\$349,250,259	\$257,572,066	1.0%	\$2,575,721	\$260,147,786
GGR 2019	100.0%	\$2,686,540,452	\$1,986,008,238	1.0%	\$19,860,082	\$2,005,868,321

Source: New Jersey Division of Gaming Enforcement, Spectrum Gaming Group

The potential increase in casino visitation and revenue may be a small factor in offsetting the estimated large revenue shifts from casino players who smoke, but we believe that it is a real phenomenon and needs to be considered in the overall revenue impacts.

5. Estimated Range of Net GGR Change from a Casino Smoking Ban

Based on the anticipated reduction in play from smokers and the potential increase in play from non-smokers, Spectrum estimates that the Atlantic City casinos would experience a Year 1 net GGR decline of between \$113.8 million and \$293.1 million, or a decline of between 4.2% and 10.9%, based on 2019 results and the assumptions detailed in this report.

Figure 24: High case estimate of net change in casino GGR from a casino smoking ban, Year 1

State	% Visits	CY 2019 Casino GGR	Estimated Value of Smokers	Estimated Annual Lost Smoker GGR	Increase in Play by Non-Smokers	Net Change in GGR from Smoking Ban
New Jersey	40.0%	\$1,074,616,181	\$316,743,119	\$(158,371,560)	\$11,368,096	\$(147,003,464)
New York	24.0%	\$644,769,708	\$185,693,676	\$(46,423,419)	\$6,886,140	\$(39,537,279)
Pennsylvania	20.0%	\$537,308,090	\$205,520,345	\$(102,760,172)	\$4,976,816	\$(97,783,356)
Maryland	3.0%	\$80,596,214	\$22,667,685	\$(2,266,769)	\$868,928	\$(1,397,841)
Other States	13.0%	\$349,250,259	\$110,013,832	\$(11,001,383)	\$3,588,546	\$(7,412,837)
GGR 2019	100.0%	\$2,686,540,452	\$840,638,656	\$(320,823,303)	\$27,688,527	\$(293,134,776)
				-11.9%	1.0%	-10.9%

Source: New Jersey Division of Gaming Enforcement, Spectrum Gaming Group

Figure 25: Low case estimate of net change in casino GGR from a casino smoking ban, Year 1

State	% Visits	CY 2019 Casino GGR	Estimated Value of Smokers	Estimated Annual Lost Smoker GGR	Increase in Play by Non-Smokers	Net Change in GGR from Smoking Ban
New Jersey	40.0%	\$1,074,616,181	\$263,952,599	\$(65,988,150)	\$8,106,636	\$(57,881,514)
New York	24.0%	\$644,769,708	\$154,744,730	\$(19,343,091)	\$4,900,250	\$(14,442,841)
Pennsylvania	20.0%	\$537,308,090	\$171,266,954	\$(42,816,738)	\$3,660,411	\$(39,156,327)
Maryland	3.0%	\$80,596,214	\$18,889,738	\$(944,487)	\$617,065	\$(327,422)
Other States	13.0%	\$349,250,259	\$91,678,193	\$(4,583,910)	\$2,575,721	\$(2,008,189)
GGR 2019	100.0%		\$700,532,214	\$(133,676,376)	\$19,860,082	\$(113,816,294)
				-5.0%	0.7%	-4.2%

Source: New Jersey Division of Gaming Enforcement, Spectrum Gaming Group

6. Estimated Change in Non-Gaming Revenue

Each Atlantic City casino files a detailed quarterly report, which includes its performance in non-gaming areas such as food and beverage, entertainment, hotel, etc. By summing the non-gaming revenue from each property, it is possible to derive an estimate of non-gaming revenue for a given year. For the calendar year 2019, the total of the calendar year revenues is summarized in the figure below.

Figure 26: Atlantic City gaming and non-gaming revenue, 2019

Revenue Department	2019
Casino Win	\$2,686,541
Rooms	\$609,998
Food & Bev	\$578,057
Other	\$243,735
ALL Non-Gaming	\$1,431,790
Non-Gaming as % of Gaming	53.3%

Source: New Jersey Division of Gaming Enforcement

Earlier in the report we derived an estimate of the percentage of Atlantic City visitors who are smokers, and we proposed a factor for reduction in smoker visits under a smoking ban. By combining

these two assumptions with the detail of non-gaming revenue we can arrive at an estimate of the potential lost non-gaming revenue from the decrease in gaming participation by smokers.

Figure 27: Low case estimated non-gaming revenue loss from smoking ban

State	% Visits	% Smokers in State	% Players Smokers	Smokers as % Total Visitors	Smoker Play Reduction	% of Lost Smoker Visits	Non-Smoker Visit Change	Non-Gaming Revenue Change
New Jersey	40.0%	13.1%	19.7%	7.86%	25%	-1.97%	0.37%	\$(22,857,668)
New York	24.0%	12.8%	19.2%	4.61%	13%	-0.58%	0.23%	\$(4,969,159)
Pennsylvania	20.0%	17.0%	25.5%	5.10%	25%	-1.28%	0.19%	\$(15,537,785)
Maryland	3.0%	12.5%	18.8%	0.56%	5%	-0.03%	0.03%	\$24,430
Other States	13.0%	14.0%	21.0%	2.73%	5%	-0.14%	0.13%	\$(143,881)
Atlantic City Market	100.0%			20.86%				Change in Non-Gaming
							% Change	\$(43,484,063)
								-3.0%

Source: New Jersey Division of Gaming Enforcement, Spectrum Gaming Group

Figure 28: High case estimated non-gaming revenue loss from smoking ban

State	% Visits	% Smokers in State	% Players Smokers	Smokers as % Total Visitors	Smoker Play Reduction	% of Lost Smoker Visits	Non-smoker Visit Change	Non-Gaming Revenue Change
New Jersey	40.0%	13.1%	19.7%	7.86%	50%	-3.93%	0.55%	\$(48,353,839)
New York	24.0%	12.8%	19.2%	4.61%	25%	-1.15%	0.34%	\$(11,577,294)
Pennsylvania	20.0%	17.0%	25.5%	5.10%	50%	-2.55%	0.28%	\$(32,434,339)
Maryland	3.0%	12.5%	18.8%	0.56%	10%	-0.06%	0.04%	\$(164,701)
Other States	13.0%	14.0%	21.0%	2.73%	10%	-0.27%	0.19%	\$(1,193,018)
Atlantic City Market	100.0%			20.86%				Change in Non-Gaming
							% Change	\$(93,723,190)
								-6.5%

Source: New Jersey Division of Gaming Enforcement, Spectrum Gaming Group

In our high case we estimated that the Atlantic City casinos would lose approximately 6.5% of trips. The estimated 1.5% increase in non-smoker visitation offsets a portion of the loss of visitation from smokers, as it does with the GGR estimates. In the low case we estimated that 3% of all trips would be lost. Here too, the 1% increase in non-smoking visitation offsets a portion of the estimated lost revenue from smokers. As a result, we estimate that these are the amounts of non-gaming revenue that would be lost by the Atlantic City casinos. In the high case approximately \$93.7 million annually, and in the low case approximately \$43.5 million.

7. Estimated Change in Tax Receipts from a Casino Smoking Ban

Gaming and non-gaming revenue at the Atlantic City casino properties are subject to a variety of taxes. Figure 29 below presents the estimated change in tax revenues from each segment. Non-gaming revenue is reported by the New Jersey Division of Gaming Enforcement. The Division reports food and beverage as one number. Alcoholic beverages are subject to the Atlantic City Luxury Tax, which does not apply to food. We used an estimate of 40% of food and beverage sales to be alcohol, and applied the Luxury Tax accordingly. Depending on the severity of the revenue impacts of a smoking ban, Spectrum estimates the annual loss of total tax revenue as being between \$17.2 million and \$44.6 million.

Figure 29: Estimated tax impacts from a smoking ban, compared to 2019

Revenue Department (\$ in 000)		2019	Low Loss Estimate	High Loss Estimate
Casino Gross Gaming Revenue		\$2,686,541	\$2,552,864	\$2,365,717
Hotel Rooms		\$609,998	\$591,472	\$552,755
Food and Beverage (40% Bev)		\$578,057	\$560,501	\$523,811
Other revenue, Entertainment, Spa, Etc.		\$243,735	\$236,333	\$220,863
Tax Rate	Tax (\$ in 000)	Tax Revenue	Tax Revenue	Tax Revenue
8.000%	State of New Jersey Casino Revenue Fund	\$214,923	\$204,229	\$189,257
1.250%	State of New Jersey CRDA Obligation	\$33,582	\$31,911	\$29,571
9.000%	Luxury Tax – Rooms	\$54,900	\$53,232	\$49,748
3.625%	State Sales – Tax Rooms	\$22,112	\$21,441	\$20,037
1.000%	State Occupancy Fee	\$ 6,100	\$5,915	\$5,528
3.000%	Alcohol Beverage Luxury Tax	\$ 6,937	\$6,726	\$6,286
6.625%	State Sales Tax – Alcoholic Beverages	\$15,319	\$14,853	\$13,881
6.625%	State Sales– Tax Food	\$22,978	\$22,280	\$20,822
9.000%	Luxury Tax –Entertainment	\$21,936	\$21,270	\$19,878
3.625%	State Sales Tax – Entertainment	\$ 8,835	\$8,567	\$8,006
Total Tax		\$407,622	\$390,424	\$363,014
Change in Tax			\$(17,198)	\$(44,608)
% Change in Tax		0.0%	-4.2%	-10.9%

Sources: New Jersey State Treasurer, Spectrum Gaming Group

8. Potential Changes in Employment

A reduction in visitation and gaming revenue will likely result in a reduction in employment at the casinos. Spectrum examined employment at the casinos and developed a revenue-per-employee figure. In 2019, each casino job was supported by \$155,008 of total revenue. If we hold this factor constant and apply the estimated reductions in revenue from a smoking ban, we can derive an estimate of the potential job loss from a smoking ban. As can be seen in Figure 30 below, Spectrum estimates potential job losses from a smoking ban range from 1,021 to 2,512 depending on the severity of the impact on revenue. *It is critical to note that such reductions in employment assume that the casinos would be at full employment as they were in 2019; at this time, most casinos are short-staffed, consistent with businesses across the country during the pandemic, and/or have purposely reduced their staffing levels; it to be determined whether those modified staffing levels will be permanent.*

Figure 30: Potential change in employment, based on total revenue per employee

Revenue Department	2019	Low Loss Estimate	High Loss Estimate
Casino GGR (000)	\$ 2,686,541	\$ 2,572,725	\$ 2,393,406
Non-Gaming Revenue (000)	\$ 1,431,790	\$ 1,388,306	\$ 1,338,067
Total Revenue (000)	\$ 4,118,331	\$ 3,961,031	\$ 3,731,473
% Change Total Revenue	N/A	-3.8%	-9.4%
Total Jobs	26,741	25,720	24,229
Revenue per Job	\$154,008	\$154,008	\$154,008
Est. Change in No. Jobs	N/A	(1,021)	(2,512)

Source: New Jersey Division of Gaming Enforcement, Spectrum Gaming Group