

## **Appendix G: Problem gambling literature review**

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This appendix lists research reviewed for Chapter 5, related to the prevalence of problem gambling and potential negative impacts.

<b>Summary of research on the impact of gambling access on personal bankruptcies</b>			
<b>Type of comparison</b>	<b>Direction and Size of Effect</b>	<b>Key Result</b>	<b>Source</b>
<b>Distance to slot machines, across neighborhoods in Alberta, Canada</b>	Positive, moderate size	“[A] removal of 1% in total dollars gambled on slots causes a 1% reduction [in bankruptcies]. These effects are largest (between 2 and 3%) when neighbors are very close to the bar with slots removed (within a quarter kilometer), but decrease in size to below 1% when neighbors are slightly further away (within a half kilometer or within three quarters of a kilometer).”	Mikhed 2017
<b>Years since establishing lotteries and casinos, across states</b>	Positive, large effect prior to 1995, not after	“States that adopted lotteries and casinos prior to 1995 experienced significantly higher personal bankruptcy rates while the effect of lottery and casino adoption on personal bankruptcies has disappeared since that time.”	Grote 2014
<b>Dollars wagered in casinos and on lotteries, across 90 federal judicial districts</b>	Positive, small effect	“[C]asino-type gambling increases bankruptcies by about 2%. Lottery gambling, while less potent per dollar of revenue generated, has about the same total effect.”	Daraban 2011
<b>Existence of a casino in a county, across U.S. counties</b>	Positive, large effect	“The existence of a casino in a county increases the bankruptcy rate by more than 9% in the first year of operation. The percentage of additional bankruptcies then decreases through the third year after the casino opens. Bankruptcy rates in casino counties then slightly fall below that of non-casino counties during the fourth through seventh years after opening, increasing once again in the eighth year and thereafter. This cycle corresponds closely to the 6-year statute of limitations period applicable to Chapter 7 bankruptcies.”	Goss 2009
<b>Number of visits to resort casinos in NV, NJ, and MS</b>	Positive, moderate effect	“[S]tates having more residents who visit out-of-state casino resorts have roughly 10% higher bankruptcy filing rates, on average.”	Garrett 2008
<b>Casino and horse-racing proximity across Kentucky counties</b>	Positive for horse racing, moderate size	“The results indicate that gambling at horse tracks has influenced bankruptcies, whereas casino gambling has not. It is estimated that counties within 25 miles of a horse track experience an 9.25% higher rate of bankruptcies.”	Boardman 2007
<b>Distance to pari-mutuel facilities and casinos across counties in IL, IA, and MO</b>	No evidence of an effect	“Access to pari-mutuel or casino gaming facilities was found not to have a significant impact on personal bankruptcies.”	Thalheimer 2004
<b>Casino proximity across U.S. counties</b>	Positive, moderate size	“The analysis predicts over a 5% decline in [bankruptcy] filing rates for counties surrounding a casino ... if one were to eliminate casino gambling.”	Barron 2002

<b>Summary of research on the impact of gambling access on personal bankruptcies</b>			
<b>Type of comparison</b>	<b>Direction and Size of Effect</b>	<b>Key Result</b>	<b>Source</b>
<b>Casino proximity across U.S. counties</b>	No evidence of an effect	“The evidence reported here does not support the hypothesis that the introduction of gambling has impacted county bankruptcy rates.”	De la Vina 2002
<b>Eight communities with recently adopted casino gambling compared to matched communities without gambling</b>	Positive, moderate size	“[C]asino gambling is associated with an increase in personal bankruptcy in seven of the eight communities.”	Nichols 2000

**References, the impacts of gambling access on personal bankruptcies**

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<b>Summary of research on the impact of gambling on mental health and family outcomes</b>			
<b>Type of comparison</b>	<b>Size of Effect</b>	<b>Key Result</b>	<b>Source</b>
<b>Age of onset of gambling and problem gambling compared to other disorders in a longitudinal sample (Sweden)</b>	Not applicable because no comparison group for age-of-onset analysis	The authors find that male problem gamblers began gambling before the onset of other disorders, and problem gambling preceded depression and suicidal events. On the other hand, for females problem gambling was the last disorder to occur.	Sundkvist and Rosendahl 2019
<b>Proportion of individuals with specific harms by gambling category: non-problem, low-risk, moderate risk, and problem gamblers (Australia)</b>	Moderate adverse effects	The authors find consistent increases in adverse effects as problem gambling severity increases, for a large number of specific harms related to financial, work, health, and emotional/psychological harms.	Li et al. 2017
<b>Incidence of mood, anxiety, and substance-use disorders among individuals with mild, moderate, and severe gambling disorders compared to non-gamblers, three years after assessment for problem gambling. (U.S.)</b>	Moderate adverse effects	“Three years after the initial intake interview, compared to the non-gamblers, those reporting any gambling behavior at baseline were at increased risk to have any mood, anxiety, or substance use disorders...Similar graded relationships were found for a number of specific disorders.”	Parhami et al. 2014
<b>Incidence of mood, anxiety, and substance-use disorders among problem gamblers compared to non-gamblers, before and after onset of problem gambling. (U.S.)</b>	Moderate adverse effects	“[Problem gambling] predicted the subsequent onset of generalized anxiety disorder, post-traumatic stress disorder (PTSD) and substance dependence.” The authors also found that a variety of mood, anxiety, and substance use disorders predicted problem gambling.	Kessler et al. 2008
<b>Suicide ideation and attempts</b>			
<b>Incidence of suicidal ideation and suicidal attempts in problem gamblers compared to non-problem gamblers (England)</b>	Moderate adverse effects	The incidence of suicidal ideation and suicide attempts was higher for problem gamblers than for non-problem gamblers, even after controlling for differences in impairment, poor mental health, substance abuse, indebtedness, and homelessness.	Wardle et al. 2019

<b>Summary of research on the impact of gambling on mental health and family outcomes</b>			
<b>Type of comparison</b>	<b>Size of Effect</b>	<b>Key Result</b>	<b>Source</b>
<b>Standardized mortality rates and suicide for individuals with gambling disorder compared to the general adult population, controlling for comorbidities (Sweden)</b>	Large adverse effects	“SMR calculations showed a 1.8-fold increase in mortality for individuals 20–74 years old with GD compared to the general population, and a 15-fold increase in suicide mortality.”	Karlsson and Hakansson 2018
<b>Incidence of suicidal events among pathological gamblers compared by severity of gambling disorder, amount of money lost due to gambling, and types of gambling (Germany)</b>	Moderate adverse effects	“Our findings suggest that gambling on electronic gambling machines ... is associated with suicidal events in pathological gamblers independent of comorbidity.”	Bischof 2016
<b>Incidence of suicide ideation and attempts in pathological gamblers compared to non-gamblers (Iowa)</b>	Moderate adverse effects	Suicide ideation and attempts were higher for pathological gamblers, and risk increased with severity of the gambling disorder.	Black et al. 2015
<b>Rates of suicide ideation and suicide attempts among adults in five groups: pathological gamblers, problem gamblers, at-risk gamblers, low-risk gamblers, and non-gamblers (U.S.)</b>	Moderate adverse effects	Rates of suicide ideation and suicide attempts increased with the severity of gambling problems	Moghaddam et al. 2015

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<b>Summary of research on the impact of gambling on family outcomes</b>			
<b>Type of comparison</b>	<b>Size of Effect</b>	<b>Key Result</b>	<b>Source</b>
<b>Incidence of intimate partner violence (perpetration and victimization) for problem gamblers compared to non-problem gamblers, representative sample of adults (U.S.)</b>	No evidence of an effect	The authors find higher rates of intimate partner violence among problem gamblers for both males and females but, after controlling for other disorder (mood, anxiety, drug, and alcohol), the differences were not statistically significant.	Roberts et al. 2019
<b>129 treatment-seeking problem gamblers who perpetrated or were victims of family violence or intimate partner violence were asked which came first, gambling or violence (Australia)</b>	Not applicable because no comparison group	“For the clear majority who reported that [gambling and violence] were related, it was more likely that gambling preceded violence and that the conflict that led to violence was about gambling: financial losses, or anger, stress and anxiety related to the losses.”	Suomi 2019 et al.
<b>Incidence of family violence for moderate risk and problem gamblers, and low-risk gamblers, compared to non-gamblers (Australia)</b>	Large adverse effects	“In this population-representative sample, moderate risk/problem gamblers had over a twofold increase in the odds of experiencing both family violence victimization (21.3%) and perpetration (19.7%) relative to non-problem gamblers...”	Dowling et al. 2018
<b>Family outcomes (current and change over time) for households with a moderate risk or problem gambler compared to households with no moderate risk or problem gamblers (Ontario, Canada)</b>	Small adverse effects	“[A]nnual measures of moderate risk/problem gambling predicted time-specific decreases in family and interpersonal adjustment when measured concurrently, and lower family functioning and social support at subsequent waves.”	Cowlishaw et al. 2016
<b>Incidence of domestic violence in neighborhoods with higher density of electronic gaming machines (EGMs) compared to neighborhoods with lower density of (or no) EGMs (Australia)</b>	Moderate adverse effects	“Postcodes with no electronic gaming machines were associated with 20% ... fewer family incidents per 10,000 and 30% ... fewer domestic-violence assaults per 10,000, when compared with postcodes with 75 electronic gaming machine per 10,000.”	Markham et al. 2016
<b>Incidence of perpetrating intimate partner violence for male problem and pathological gamblers compared to male non-gamblers (UK)</b>	Moderate adverse effects	“Among men in the United Kingdom, self-reports of problem/pathological gambling remain predictive of a range of measures of violent behaviour after adjusting for alcohol and drug dependence, comorbid mental disorder and impulsivity...”	Roberts et al. 2016



<b>Summary of research on the impact of gambling on family outcomes</b>			
<b>Type of comparison</b>	<b>Size of Effect</b>	<b>Key Result</b>	<b>Source</b>
<b>Incidence of domestic violence and child maltreatment among problem gamblers and pathological gamblers compared to non-problem gamblers (U.S.)</b>	Moderate adverse effects	“[P]roblem gambling was associated with increased odds of the perpetration of dating violence ... while pathological gambling was associated with increased odds of the perpetration of dating violence ..., severe marital violence..., and severe child abuse ...”	Afifi et al. 2010

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## Appendixes

Suomi, Aino, Nicki Dowling, Shane Thomas, Max Abbott, Maria Bellringer, Malcolm Battersby, Jane Koziol-McLain, Tiffany Lavis, & Alun Jackson. 2019. "Patterns of family and intimate partner violence in problem gamblers." *Journal of Gambling Studies* 35(2).

<b>Summary of research on the impact of gambling access on crime</b>			
<b>Type of comparison</b>	<b>Direction and Size of Effect</b>	<b>Key Result</b>	<b>Source</b>
<b>Number of crimes in surrounding localities before and after opening of the Plainridge Park, Massachusetts casino</b>	No evidence of an effect	“Plainridge Park opened at the end of June 2015. Since that time, it has reported a number of crimes and calls for service commensurate with facilities of similar size and number of visitors. As for the surrounding community (including six towns), the totality of the evidence shows little impact on most crimes and calls for service.”	Bruce 2018
<b>Crime in Illinois census blocks w video gambling compared to census blocks without video gambling, before and after video gambling was established</b>	Positive, moderate	“We find that (i) access to gambling increases property and violent crimes; (ii) these are new crimes rather than displaced incidents; and (iii) the effects seem to be persistent over time...”	Bottan et al. 2017
<b>Crime in a Philadelphia neighborhood before and after a casino opened</b>	No evidence of an effect	“[T]he current study is unable to identify a neighborhood level effect of the casino on crime.”	Johnson and Ratcliffe 2017
<b>Crime in U.S. counties with casinos, before and after casinos opened compared to U.S. counties with no casinos</b>	Positive, moderate	“The results from this study suggest that casinos are associated with increases in crime but these effects appear transitory.”	Nichols and Tosun 2017
<b>Crime in Michigan counties near a casino compared to Michigan counties farther from a casino</b>	No evidence of an effect	“Our results suggest that in most cases the property crime rates studied are not affected by the presence or size of a casino in a county or in a nearby county.”	Falls and Thompson 2014
<b>Crime rates before and after introduction of casinos and video lottery terminals in 78 communities in Alberta, Canada</b>	Positive and negative effects, small	“Estimates ... indicate little association between gambling and crime. However, some positive and negative crime-specific effects are found for both casinos and VLTs.”	Humphreys and Soebbing 2014
<b>Crime rates in 200 localities in Victoria, Australia compared to electronic gaming machine expenditures per capita</b>	Positive, moderate	“[O]ur results indicate a consistent positive and significant relationship between gaming and crime rates, especially income-generating crime rates, at the local level.”	Wheeler et al. 2011

<b>Summary of research on the impact of gambling access on crime</b>			
<b>Type of comparison</b>	<b>Direction and Size of Effect</b>	<b>Key Result</b>	<b>Source</b>
<b>Crime rates on 70 college campuses in the Midwest within 10 miles of a casino compared to 103 campuses not within 10 miles of a casino</b>	Positive, moderate	“Analysis of reported crime data for 173 residential colleges and universities in four Midwestern states suggests that robberies and motor vehicle thefts, but not burglaries, are significantly higher in number for campuses located within 10 miles of a casino.”	Hyclak 2011
<b>Crime in Indiana counties with casinos, before and after casinos opened compared to Indiana counties with no casinos</b>	Mixed effects, small	“I find very limited support for the proposition that new casinos increase local crime rates.”	Reece 2010
<b>Crime in casino counties compared to non-casino counties, before and after casino opening, all U.S. counties</b>	Positive, moderate	“Most factors that reduce crime occur before or shortly after a casino opens, whereas those that increase crime, including problem and pathological gambling, occur over time. The results suggest that the effect on crime is low shortly after a casino opens, and grows over time. Roughly 8% of crime in casino counties in 1996 was attributable to casinos, costing the average adult \$75 per year.”	Grinols and Mustard 2006

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<b>Summary of research on the prevalence of problem gambling</b>				
<b>Geographic area, time period, and instrument</b>	<b>Measure</b>	<b>Estimate of problem gambling prevalence</b>	<b>Key Result</b>	<b>Source</b>
<b>Summary of 202 studies conducted worldwide, 1975-2012</b>	Past-year prevalence	2.3%	“Depending on the specific country and the survey year, the standardized past year rate of problem gambling ranges from 0.5% to 7.6%, with the average rate across all countries being 2.3%.”	Williams et al. 2012
<b>Maryland 2017, NODS</b>	Past-year prevalence	1.9%	“The survey found 0.7% of adults over the age of 18 were problem gamblers, and 1.2% were pathological gamblers. When combined, the prevalence of disordered gambling (problem and pathological) was 1.9%. This prevalence estimate was lower than the prevalence of 3.4% noted in 2010. However, we believe the 2017 prevalence is likely an underestimate of true prevalence of DG [disordered gambling].	Tracy, et al. 2018
<b>Ohio, 2016-2017, CPGI</b>	Past-year prevalence	0.9%	6.4% low risk gambler, 3.0% moderate risk, 0.9% problem gambler. Combining these groups gives an at-risk population of 10.3%, close to double the 5.7% at-risk rate in the 2012 baseline survey, prior to the opening of the state’s casinos and racinos.	Ohio for Responsible Gambling 2017
<b>Louisiana 2016, SOGS</b>	Past-year prevalence	8.3%	“The 2016 statewide prevalence rate of potential problem gamblers is estimated to be 5.4% [SOGs=3-4], while the statewide prevalence rate of pathological gamblers is estimated at 2.9% [SOGs=5+]. Both exceed the 2008 rates of 1.7% and 1.4% reported respectively.”	Biggar et al. 2017
<b>Oregon 2015, PGSI, 26% response rate</b>	Past-year prevalence	1.1% to 2.6%, depending on cutoff	The authors used a higher cut-off score to identify problem gambling than used in prior studies.	Moore and Volberg 2016
<b>Iowa 2015, PGSI, 27% response rate</b>	Past-year prevalence	1.2%	“[T]he estimation of at-risk gamblers in 2015 is about 13%... About one in four adult Iowans (23%) know a person whose gambling may be causing problems for him/her. In addition, about one in seven adult Iowans (15%) said that they have been negatively affected by others’ gambling behaviors.”	Park and Losch 2016

<b>Summary of research on the prevalence of problem gambling</b>				
<b>Geographic area, time period, and instrument</b>	<b>Measure</b>	<b>Estimate of problem gambling prevalence</b>	<b>Key Result</b>	<b>Source</b>
<b>Massachusetts, 2013-2014, PPGM, 37% response rate</b>	Past-year prevalence	2.0%	“The current prevalence of problem gambling in Massachusetts is 2.0% of the adult population. An additional 8.4% of the population are at-risk gamblers.” The estimate is prior to the opening of casinos in the state.	Volberg et al. 2017
<b>U.S. nationwide, 2011-2013, SOGS and DSM-IV, 58% response rate</b>	Past-year prevalence	4.6% (DSM-IV), 5.0% (SOGS)	Compared to a similar survey conducted in 2000, “rates of pathological and problem gambling remained stable during the decade of the 2000s. This occurred even though there was a general expansion of legal gambling and liberalization of gambling laws in the US during this time.” The authors used a lower cutoff than most studies to define problem gambling.	Welte et al. 2015
<b>North America, systematic literature review; 3 studies, 2002, 2005, 20015</b>	Past-year prevalence	2% to 5%	“[I]n North America the past-year problem gambling prevalence rates ranged from 2% to 5%.” [based on 3 studies]	Calado & Griffiths 2016
<b>Great Britain, 2016, PGSI</b>	Past-year prevalence	1.6%	“Overall, 2.4% of adults were classified as low risk gamblers (a PGSI score of 1 or 2) and a further 1.1% as moderate risk gamblers (a PGSI score of 3 to 7)...[P]roblem gambling prevalence was 0.5%..”	Conolly et al. 2018
<b>Canada (4 provinces), 2013-14, PGSI, 87% response rate</b>	Past-year prevalence	0.82%	“Increased exposure to casinos is found to be related to increases in both participation and problem gambling risk, despite the observation that all four provinces recently experienced casino expansion and population-wide declines in problem gambling prevalence rates.”	Philander 2019
<b>New Zealand, 2012, longitudinal, 64% response rate, SOGS</b>	Lifetime prevalence	4.5%	“In 2012, it was estimated that there were 2.1% lifetime probable pathological and 2.4% problem gamblers.”	Abbott 2017



<b>Summary of research on the prevalence of problem gambling</b>				
<b>Geographic area, time period, and instrument</b>	<b>Measure</b>	<b>Estimate of problem gambling prevalence</b>	<b>Key Result</b>	<b>Source</b>
<b>Finland, 2011-2012, PGSI, 40% response rate</b>	Past-year prevalence	1.2%	During the previous year, 13% of respondents experienced at least one gambling-related harm. The four commonest harms were ‘chasing losses’ (8.6%), ‘escalating gambling to maintain excitement’ (3.1%), ‘betting more than could afford to lose’ (2.8%), and ‘feeling guilty’ (2.6%).	Raisamo et al. 2015
<b>Sweden, longitudinal, 2009-2010, 55% response rate, PGSI &amp; SOGS</b>	Past-year prevalence	2.2%	“The SOGS current prevalence rate for pathological (0.9%) and problem gamblers (1.3%) was 2.1% of adults. The current rates for the PGSI instrument were similar to SOGS for problem gamblers and moderate risk combined (2.2%). The SOGS lifetime prevalence rates were about double the current rates.” “[S]ubstantially more people experience gambling-related problems than is evident during a particular 12-month period, and that ‘lifetime’ measures assess this only partially. Problem gamblers are also prone to relapse.”	Abbott et al. 2018
<b>Europe, summary of 28 prevalence studies in 14 countries 1997-2010, 55% average response rate</b>	Past-year prevalence	1.6% average	The authors found little evidence of an association between gambling policies and prevalence rates, with one exception: restrictions on advertising for online gambling were associated with lower prevalence rates.	Planzer et al. 2014

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